



महाराष्ट्र शासन
सार्वजनिक बांधकाम विभाग
मुख्य अभियंता (विद्युत) यांचे कार्यालय
३रा मजला, बांधकाम भवन,
२५, मर्झबान पथ, फोर्ट, मुंबई-४०० ००९.

दूरध्वनी क्रमांक : ०२२-२२०९३४९६/ १७

E-mail: elmumbai.ce@mahapwd.gov.in

क्रमांक:- मु.अ.(वि)/का-३/
२००९/ सन २०२३

दिनांक : 16 OCT 2023

प्रति,

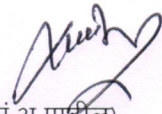
अधीक्षक अभियंता
प्रादेशिक विद्युत मंडळ,
सार्वजनिक बांधकाम विभाग,
मुंबई/पुणे/नागपूर/नांदेड/
दक्षता व गुण नियंत्रण विद्युत मंडळ, औरंगाबाद

विषय: सार्वजनिक बांधकाम विद्युत विभागाची दरसूची २०२३-२४ बाबत.

- संदर्भ: १ या कार्यालयाचे पत्र क्र.मु.अ.(वि)/का-३/३५५ सन २०२३ दि.२०.०२.२०२३
२ दरसूची समितीच्या वेळोवेळी झालेल्या बैठका.
३ सन २०२२-२३ मधील निविदांचा कल.
४ दिनांक २५.०९.२०२३ रोजी कंत्राटदार संघटना प्रतिनिधी समवेत झालेली बैठक.

उपरोक्त संदर्भ तसेच सा.बां.नियमपुस्तिका, १९८४ मधील नियम १८७ (अ) नुसार, विद्युत विभागाची सन २०२३-२४ करीता दरसूची प्रसारित करण्यात येत आहे. सदर दरसूची आज दिनांक १६.१०.२०२३ पासून लागू करण्यात येत आहे व लवकरच शासनाच्या www.mahapwd.gov.in या संकेतस्थळावर उपलब्ध करून देण्यात येईल.

सोबत:- दरसूची Pdf स्वरूपात.


(सं.अ.पाटील)
मुख्य अभियंता (विद्युत)

प्रत:- मा. सचिव (बांधकामे), सार्वजनिक बांधकाम विभाग, मादाम कामा मार्ग, हुतात्मा राजगुरु चौक, मंत्रालय, मुंबई
यांना माहितीसाठी सविनय सादर.

प्रत:- महालेखापाल, मुंबई-१/नागपूर-२ यांना माहितीकरिता.

प्रत माहिती:-

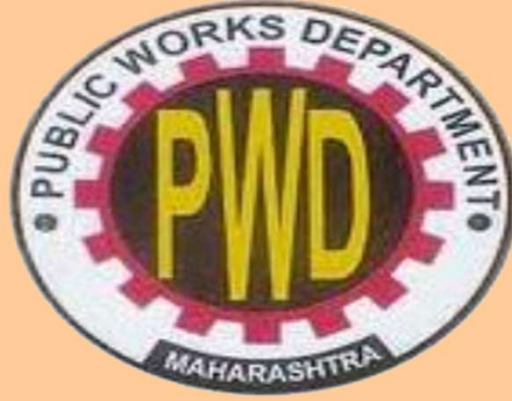
१. कार्यकारी अभियंता, सार्वजनिक बांधकाम विद्युत विभाग दक्षिण मुंबई/मध्य मुंबई/उत्तर मुंबई/प्रकल्प विद्युत विभाग क्र.५, मुंबई/ठाणे/पुणे/कोल्हापूर/नाशिक/औरंगाबाद/उस्मानाबाद/नागपूर/अमरावती/नांदेड/धुळे / रायगड / सोलापूर/यवतमाळ/चंद्रपूर

२. अध्यक्ष, इलेक्ट्रिकल कॉन्ट्रक्टर्स असोसिएशन ऑफ महाराष्ट्र, द स्टॉक एक्स्चेंज टॉवर, पहिला तळमजला, दलाल स्ट्रीट, मुंबई ४०० ००१.
३. अध्यक्ष, फेडरेशन ऑफ इलेक्ट्रिकल कॉन्ट्रक्टर्स असोसिएशन ऑफ महाराष्ट्र, ४४ संतोष हाईटस्, २रा माळा, मार्केट यार्ड, गुलटेकडी, अप्सरा टॉकीज समोर, पुणे ४११०३७.



GOVERNMENT OF MAHARASHTRA

PUBLIC WORKS DEPARTMENT
(ELECTRICAL WING)



CURRENT SCHEDULE OF RATES
FOR YEAR
2023-2024

**SAVING
ENERGY**



GOVERNMENT OF MAHARASHTRA
PUBLIC WORKS DEPARTMENT
(ELECTRICAL WING)

CURRENT SCHEDULE OF RATES FOR THE YEAR
2023 - 2024

This CSR comes into force from 16th October 2023

Current schedule of rates is approved by the Chief Engineer (Electrical),
Public Works Department, Mumbai vide letter No.मु.अ.(वि)/का-३/२०७९/सन
२०२३ दि.१६.१०.२०२३

sd/-
(S.A.Patil)
Chief Engineer (Electrical)
P.W.Dept. Mumbai

GOVERNMENT OF MAHARASHTRA PUBLICATION

[Price As per printed copy]

INDEX

<u>General Notes</u>	1		
Chapter 1 Wiring (WG)		Chapter 5 Switchgear (SW)	
1.1 Concealing of Conduits	3	5.1 Change Over Switch, SDF	71
1.2 PVC Flexible/Rigid Conduits/ Casing-n-Capping/Under Floor Trunking/Raceways and Box System	4	5.2 Mini Feeder Pillar/Street Light Control Panel	75
1.3 Bunch of Wires	5	5.3 LT - MCBs/MCB Change Over Switch	76
1.4 Mains on GI Bare Wire	6	5.4 LT - MCBDBs	77
1.5 Wiring Accessories	7	5.5 LT - MCCBs	78
1.6 Modular switches and Accessories	8	5.6 RCCB / RCBO	79
1.7 Point Wiring	11	5.7 MCCB Panel Boards and Accessories	81
1.8 Dismantling	14	5.8 LT - Air Circuit Breakers	82
		5.9 HT SF6 Load Break Switch /VCB/RMU	84
		5.10 Accessories	85
		5.11 Accessories for MCCB's	87
		5.12 Dismantling	87
Chapter 2 Fittings (FG)		Chapter 6 Control Panel (CP)	
2.1 Indoor LED Fittings	15	6.1 Sheets	89
2.2 Accessories for Indoor Fittings	18	6.2 Bus bars	91
2.3 Outdoor Fittings	19	6.3 Sandwich Bus Bar Trunking System	93
2.4 Decorative Outdoor Fitting	22	6.4 Air Insulated Bus Bar Trunking System	97
2.5 Highbay LED Fittings	23	6.5 Measuring Instruments	98
2.6 Accessories for Outdoor Fittings	23	6.6 H.T. Metering	102
2.7 Lamps and Tubes for Indoor & Outdoor	24	6.7 Accessories	103
2.8 Aviation Light Fitting	25	6.8 Surge Protective Devices	104
2.9 Fans	25	6.9 Energy Devices (APFC Panel)	104
2.10 Accessories for Fans	27	Chapter 7 Cables (CB)	
2.11 Dismantling	28	7.1 LT Cables (Aluminium)	109
		7.2 LT Cables (Copper)	113
		7.3 HT Cables	117
		7.4 Cable Joints & End Termination Kits (LT Cables)	119
Chapter 3 Appliances (AP)		7.5 Cable Joints & End Termination Kits (HT Cables)	120
3.1 Water Heaters	29	7.6 Cable Enclosures	122
3.2 Air Conditioners	30	7.7 Cable Glands	123
3.3 Water Coolers & Refrigerators	35	7.8 Street Light Boxes and Cable Indicators	123
3.4 Air-Coolers	36	7.9 Cable Lugs (Copper)	124
3.5 Water Purifiers	37	7.10 Cable Lugs (Aluminium)	124
3.6 Inverter	38	7.11 Cable Tray	125
3.7 Online Uninterruptible Power Supply (UPS)	38	7.12 Dismantling	126
3.8 Batteries for Inverter & UPS	39		
3.9 Voltage Stabilizers	39	Chapter 8 Over Head Systems (OH)	
3.10 Accessories for AC & Water cooler	40	8.1 Steel Poles	127
3.11 VRV/VRF Air conditioning	42	8.2 Hot Dipped Galvanized Poles & High-Mast	128
3.12 Dismantling	60	8.3 Brackets	131
		8.4 Conductors	135
Chapter 4 Energy Saving Devices (ESD)		8.5 Insulators	137
4.1 Solar hot water system	61	8.6 Accessories	138
4.2 Pipes for solar hot water system	62	8.7 Dismantling	139
4.3 Solar Batteries	63		
4.4 Rooftop OFF grid solar systems	64		
4.5 Rooftop ON grid solar systems	65		
4.6 Heat Pump	67		
4.7 Electric Vehicle Charger	68		
4.8 Miscellaneous	70		
4.9 Dismantling	70		

INDEX

Chapter 9 Earthing (EA)		13.12	Fire Sealant System	201	
9.1	Plate, Pipe type earthing	140	13.13	Fire and Life Safety Audit	202
9.2	Accessories	140	13.14	Fire Extinguisher	203
9.3	Lightning Conductor and Accessories	141	13.15	Clean Agent Fire Suppression System	203
Chapter 10 Sub Stations (SS)		Chapter 14 Temporary EI (TE)			
10.1	Non-sealed transformers	142	14.1	Temporary Illumination	206
10.2	Hermetically Sealed Transformer	143	14.2	Hiring of Generators	213
10.3	Single Phase Sealed Transformer	149	Chapter 15 Siren (SRN)		
10.4	Compact Substation	150	15.1	Siren	215
10.5	Accessories	153	15.2	Accessories for Siren	215
10.6	Dismantling	155	15.3	Dismantling	215
Chapter 11 Generators (GEN)		Chapter 16 Civil Work (CW)			
11.1	Generators	156	16.1	Excavation	216
11.2	Auto Mains Failure Panels (AMF Panels)	163	16.2	Masonry Work	216
11.3	Dismantling	165	16.3	C.C. Foundation	216
Chapter 12 Water Pumps (WP)		16.4	Painting	218	
12.1	Centrifugal pumps	166	16.5	Plumbing	218
12.2	Submersible pumps for Borewell	167	16.6	Plumbing Accessories	219
12.3	Submersible pumps for Openwell	174	Chapter 17 Lift (LFT)		
12.4	Accessories	175	17.1	New Installation	222
12.5	Dewatering Pump	177	17.2	Dismantling	266
12.6	Pressure Pump	178	Chapter 18 Miscellaneous (MSC)		
12.7	Dismantling	178	18.1	Rewinding	268
Chapter 13 Fire Fighting and Fire Alarm (FF)		18.2	Replacement	270	
13.1	Main Fire Pumps (Single Stage)	179	18.3	Accessories	271
13.2	Jockey Pumps (Centrifugal)	182	Chapter 19 LV & Networking systems (LVN)		
13.3	Booster Pump	184	19.1	Telephone, Audio and Video Wiring	273
13.4	Main Fire Pumps Diesel Engine (Centrifugal)	185	19.2	Telephone Accessories	275
13.5	Fire Pump Control Canel	187	19.3	ELV Cabling	276
13.6	Pipes	189	19.4	Networking Components	278
13.7	Valves	191	19.5	Networking Accessories	280
13.8	Fire Fighting Accessories	193	19.6	CCTV Systems	283
13.9	Conventional Fire Alarm System	195	19.7	Public Address Systems	298
13.10	Intelligent Addressable Fire	197	19.8	Dismantling	302
13.11	Sprinklers	200	Chapter 20 Credit for Dismantled Material		
			20.1	Credit for Dismantled Material	303
				Abbreviations	305
				References	306

General Notes

1. Detailed specifications of the items described in “Current Schedule of Rates for the year 2023-24” (hereinafter it will be termed as CSR) shall be strictly followed as per the “specifications for electrical works 2008 approved by PWD (Elect) (amended upto date)” (hereinafter it will be termed as specification book).

The detailed specifications of the newly introduced items in CSR will be added in the specification book. Deletion of the specifications of the items which are deleted in the present CSR from previous CSR will be taken care. If any type of ambiguity is observed regarding any item in respect of its specification or rate, concerned Executive Engineer is empowered to resolve the same with ex-post facto approval of the Chief Engineer (Elect).

2. Material and method of construction of the electrical installation works carried out as per CSR shall be conforming to below mentioned standards and specifications.
 - A. Relevant standards from Bureau of Indian Standards (BIS) / International Electrotechnical Commission (IEC) (amended upto date)
 - B. Central Electricity Authority (Measures relating to Safety and electric Supply) Regulations 2010 (amended upto date)
 - C. National Electrical Code 2023(amended upto date)
 - D. National Building Code 2016 (amended upto date)
 - E. Chapter 16 of PWD Handbook
 - F. Specifications for electrical works (First edition 2008) (Compiled and prepared by PWD (Electrical) (amended upto date)
 - G. Energy Conservation Building Code (ECBC) 2017.
 - H. GRIHA rating system.
 - I. Technical specifications of Ministry of New and Renewable Energy.

Note : In case of, any conflict between the Standards and the specifications, the standards and codes will supersede the specifications.

3. ISI marked material shall be used for execution of the works. If the same is not available, then the material which is in the list of materials approved by Chief Engineer (Electrical), P.W.D. shall be used in its place. Substandard material shall not be used in any case on Government installations.
4. RoHS compliant products shall be preferred.
5. Material used on government installations will be liable for testing from Central / State Government test laboratory / Regional test laboratories/ Government approved NABL accredited laboratory for confirmation of the relevant parameters.
6. Black coloured PVC conduit shall not be used for surface wiring on electrical installation works.
7. The items which are not covered in the CSR i . e. non CSR items shall be processed by the respective Executive Engineer after following the guidelines issued vide शासन परिपत्रक क्र.२०१७/प्र.क्र. ११/नियोजन ३ मंत्रालय मुंबई ४००३२, दि. ११/०४/२०१७ (with further amendments if any).
8. Centage charges shall be levied as per Public Works Department GR no . सीएनसी १००३/प्रक्र ९७ /अर्थ १-मंत्रालय, मुंबई दि. २०.१० .२००३ and other relevant circulars issued time to time.
9. Basic Labour rates in respective Rate Analysis of the items in CSR are considered as per Chief Labour Commissioner, Ministry of Labour & Employment, Government of India, and Circular No. FNO1/4&(3)/2022-LS-II dated 31/03/2022.

10. Work insurance shall be drawn as per GR no . वित्त विभाग /विमास /प्र.क्र.१०९८/शासनहमी /९८/९२८, मंत्रालय, मुंबई दि.१९ ऑगस्ट, १९९८ (amended upto date). If required insurance document is not submitted by the agency then insurance amount shall be recovered from the first bill as per the prevailing guidelines issued by the concerned Government department.
11. The rates of items in CSR are inclusive of cess, insurance, overhead and transportation etc. but are excluding Goods and Service Tax. In the estimate, GST provision shall be considered as per the prevailing guidelines issued by the concerned department.
12. The rates proposed in CSR will vary as per site locations. The detail of increase in percentage over CSR rate is mentioned below.

a.	District headquarters	as per CSR
b.	Municipal Corporation areas	as per CSR
c.	Other than a, b and Notified tribal areas	10% over CSR rates
d.	Other than a, b and Non tribal areas	5% over CSR rates
e.	For hilly inaccessible areas like Matheran, Mahabaleshwar, Panchgani, Pratapgad, Raigad Fort, Chikhaldara, Toranmal, Dharni, Bhamragarh, Sironcha, Etapalli, Dodamarg, Trimbakeshwar, Mahur.	20% over CSR rates
f.	Electrical installation works in occupied jails, mental hospitals and printing press.	15% over CSR rates

The notified **hilly / inaccessible** areas shall be considered as per GR , planning department No . DVK/1089/P-66/Y-19/dtd. 23.11.90 & 13.06.2003 & डॉविका-२०१५/ प्र.क्र.४२/ का.१४८१-अ , १५ जून, २०१८.

13. The rates of items pertaining to civil work are based on SSR of the Civil department.
14. Concerned Executive Engineer shall make provision of sub metering as per the prevailing guidelines in Energy Conservation Building Code (ECBC) 2017 and GRIHA 2015.
15. All the electrical works shall be carried out in relevance with the bar chart of respective civil works by observing the planning instructions issued vide lt. no. BDG2018/prakra109/bldg1/dtd. 06.06.2018 from Public Works Department.
16. Repairs to the electrical machineries shall be proposed in conjunction with Report of the study group for review of norms for maintenance and repairs of buildings 1991-92. (PWD, GoM).
17. All rights are reserved. No part of this publication, be reproduced in any form/any other language or by any means, electronic or mechanical including photocopy, recording or any information storage and retrieval system, without permission in writing, from the Chief Engineer (Elect), PWD, Mumbai.

Disclaimer

The rates taken in CSR are indicative and actual rates shall be governed by the variable trends in market. The other Government Departments, PSUs, Local bodies and other private organisations using this CSR, shall be at their own risk and discretion. PWD shall not be responsible for any ambiguity, discrepancy, dispute or financial loss arising directly or indirectly by using or following items of CSR by other Government Departments, PSUs, Local bodies and other private organisations.

Chapter 1 : WIRING (WG)

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>1.1 Concealing of Conduits (WG-MA/CC)</u>			
1-1-1	Supplying & erecting rigid steel conduit 16 SWG 20 mm dia. with necessary accessories in wall/floor with chiselling appropriately as per specification no. WG-MA/CC.	m	214
1-1-2	Supplying & laying rigid steel conduit 16 SWG 20mm dia. with necessary accessories in RCC work/false ceiling/false flooring as per specification no. WG-MA/CC.	m	193
1-1-3	Supplying & erecting rigid steel conduit 16 SWG 25mm dia. with necessary accessories in wall/floor with chiselling appropriately as per specification no. WG-MA/CC.	m	250
1-1-4	Supplying & laying rigid steel conduit 16 SWG 25mm dia. with necessary accessories in RCC work/false ceiling/false flooring as per specification no. WG-MA/CC.	m	234
1-1-5	Supplying & erecting rigid steel conduit 16 SWG 32mm dia. with necessary accessories in wall/floor with chiselling appropriately as per specification no. WG-MA/CC.	m	326
1-1-6	Supplying & laying rigid steel conduit 16 SWG 32mm dia. with necessary accessories in RCC work/false ceiling/false flooring as per specification no. WG-MA/CC.	m	307
1-1-7	Supplying & erecting HMS PVC conduit 20mm dia. with necessary accessories in wall/floor with chiselling appropriately as per specification no. WG-MA/CC.	m	104
1-1-8	Supplying & laying HMS PVC conduit 20mm dia. with necessary accessories in RCC work/false ceiling/false flooring as per specification no. WG-MA/CC.	m	90
1-1-9	Supplying & erecting HMS PVC conduit 25mm dia. with necessary accessories in wall/floor with chiselling appropriately as per specification no. WG-MA/CC.	m	116
1-1-10	Supplying & laying HMS PVC conduit 25mm dia with necessary accessories in RCC work/false ceiling/false flooring as per specification no. WG-MA/CC.	m	102
1-1-11	Supplying & erecting HMS PVC conduit 32mm dia. with necessary accessories in wall/floor with chiselling appropriately as per specification no. WG-MA/CC.	m	153
1-1-12	Supplying & laying HMS PVC conduit 32mm dia. with necessary accessories in RCC work/false ceiling/false flooring as per specification no. WG-MA/CC.	m	139
1-1-13	Concealing of provided G.I. pipe/H.G. screwed conduit/PVC pipe in wall/floor/false ceiling complete as per specification no. WG-PW/CW	m	72
Note:-	Add Rs 3/- per metre for erecting conduit on stone wall.		

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>1.2 PVC Flexible/Rigid Conduits/Casing-n-Capping/Under Floor Trunking/Raceways and Box System (WG-MA/CON)</u>			
1-2-1	Supplying and erecting 20mm dia. corrugated flexible polypropylene conduit	m	13
1-2-2	Supplying and erecting 25mm dia. corrugated flexible polypropylene conduit	m	19
1-2-3	Supplying and erecting HMS PVC conduit 20mm dia. with PVC accessories on wall/ceiling as per specification no. WG-MA/CON.	m	84
1-2-4	Supplying and erecting HMS PVC conduit 25mm dia. with PVC accessories on wall/ceiling as per specification no. WG-MA/CON.	m	96
1-2-5	Supplying and erecting HMS PVC conduit 32mm dia. with PVC accessories on wall/ceiling as per specification no. WG-MA/CON.	m	144
1-2-6	Supplying and erecting PVC trunking (PVC casing-n-capping) of size 20mm with accessories on wall/ceiling as per specification no. WG-MA/CON.	m	34
1-2-7	Supplying and erecting PVC trunking (PVC casing-n-capping) of size 25mm with accessories on wall/ceiling as per specification no. WG-MA/CON.	m	38
1-2-8	Supplying and erecting PVC trunking (PVC casing-n-capping) of size 32mm with accessories on wall/ceiling as per specification no. WG-MA/CON.	m	45
1-2-9	Supplying and erecting PVC trunking (PVC casing-n-capping) of size 40mm with accessories on wall/ceiling as per specification no. WG-MA/CON.	m	66
1-2-10	Supplying and erecting PVC box trunking of size 50x16/20mm. with accessories on wall/ceiling as per specification no. WG-MA/BOX.	m	107
1-2-11	Supplying and erecting PVC box trunking of size 50x50mm with accessories on wall/ceiling as per specification no. WG-MA/BOX.	m	173
1-2-12	Supplying and erecting PVC box trunking of size 75x50mm with accessories on wall/ceiling as per specification no. WG-MA/BOX.	m	297
1-2-13	Supplying and erecting PVC box trunking of size 75x75mm with accessories on wall/ceiling as per specification no. WG-MA/BOX.	m	394
1-2-14	Supplying and erecting PVC box trunking of size 100x50mm with accessories on wall/ceiling as per specification no. WG-MA/BOX.	m	413
1-2-15	Supplying and erecting PVC slotted box trunking of size 25x25mm with accessories on wall/ceiling as per specification no. WG-MA/SLBOX.	m	77
1-2-16	Supplying and erecting PVC slotted box trunking of size 45x30mm with accessories on wall/ceiling as per specification no. WG-MA/SLBOX.	m	114
1-2-17	Supplying and erecting PVC slotted box trunking of size 60x45mm with accessories on wall/ceiling as per specification no. WG-MA/SLBOX.	m	164
1-2-18	Supplying and erecting PVC slotted box trunking of size 75x75mm with accessories on wall/ceiling as per specification no. WG-MA/SLBOX.	m	240
1-2-19	Supplying and erecting PVC slotted box trunking of size 100x100mm with accessories on wall/ceiling as per specification no. WG-MA/SLBOX.	m	461
1-2-20	Supplying & erecting GI flexible conduit 25mm dia. conforming to I.S. with required number of couplings, bushes, check nuts etc. complete	m	49

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
1-2-21	Supplying & erecting GI flexible conduit 40mm dia. conforming to I.S. with required number of couplings, bushes, check nuts etc. complete	m	60
1-2-22	Supplying & erecting GI flexible conduit 50mm dia. conforming to I.S. with required number of couplings, bushes, check nuts etc. complete	m	75
Note: Add Rs 3/- per metre for erecting conduit on stone wall.			
<u>1.3 Bunch of Wires (WG-MA/BW)</u>			
1-3-1	Supplying & erecting mains with 2x1.5 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/bus bars or any other places as per specification no. WG-MA/BW	m	46
1-3-2	Supplying & erecting mains with 2x2.5 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/bus bars or any other places. as per specification no. WG-MA/BW	m	71
1-3-3	Supplying & erecting mains with 2x4 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/bus bars or any other places. as per specification no. WG-MA/BW	m	99
1-3-4	Supplying & erecting mains with 2x6 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/bus bars or any other places as per specification no. WG-MA/BW	m	152
1-3-5	Supplying & erecting mains with 2x10 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/bus bars or any other places as per specification no. WG-MA/BW	m	267
1-3-6	Supplying & erecting mains with 3x2.5 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/bus bars or any other places as per specification no. WG-MA/BW	m	107
1-3-7	Supplying & erecting mains with 3x4 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/bus bars or any other places as per specification no. WG-MA/BW	m	149
1-3-8	Supplying & erecting mains with 3x6 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/bus bars or any other places as per specification no. WG-MA/BW	m	219
1-3-9	Supplying & erecting mains with 3x10 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/bus bars or any other places as per specification no. WG-MA/BW	m	389
1-3-10	Supplying & erecting mains with 4x16 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/bus bars or any other places as per specification no. WG-MA/BW	m	797
1-3-11	Supplying & erecting mains with 4x25 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/bus bars or any other places as per specification no. WG-MA/BW	m	1416
1-3-12	Supplying & erecting mains with 4x35 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/bus bars or any other places as per specification no. WG-MA/BW	m	1960
1-3-13	Supplying and erecting PVC insulated PVC round sheathed FR 1 sq.mm (32 no. x 0.20mm dia.) 3 core flexible multi stranded copper industrial cable for voltage grade up to 1.1 kV	m	50

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
1-3-14	Supplying and erecting PVC insulated PVC round sheathed FR 1.5 sq.mm (30 no. x 0.25mm dia.) 3 core flexible multi stranded copper industrial cable for voltage grade up to 1.1 kV	m	70
1-3-15	Supplying and erecting PVC insulated PVC round sheathed FR 2.5 sq.mm (50 no. x 0.25mm dia.) 3 core flexible multi stranded copper industrial cable for voltage grade up to 1.1 kV	m	111
1-3-16	Supplying and erecting PVC insulated PVC round sheathed FR 4 sq.mm (56 no. x 0.30mm dia.) 3 core flexible multi stranded copper industrial cable for voltage grade up to 1.1 kV	m	167

Note:- 1) Double the rate of two wire bunch for calculating rate of four wire bunch upto 10 sq.mm.

2) Continuous earth wire size shall be selected as per IS 732:2019 below table, where 'S' is cross section area in sq.mm. of phase conductor

Table 14 Minimum cross-sectional area of protective conductors clause 5.4.3.1.1 of IS 732:2019

Cross section of phase conductor	Cross section area of earth conductor
$S \leq 16$	S
$16 < S \leq 35$	16
$S > 35$	S/2

3) Rates of earth wire shall be calculated as one half rate of mains of bunch of two wire

4) All wires shall be multi-stranded type.

5) Earth wire shall be of green colour.

6) For use of HFFR wires add 5% in the rate of FRLSH wires. For use of HFFR wires in buildings other than hospitals, approval of concerned Superintending Engineer, P.W. Regional Circle (Electrical) shall be taken.

1.4 Mains on GI Bare Wire (WG-MA/GB)

1-4-1	Supplying and erecting mains with WP 2 x 2.5 sq. mm. 1.1kV grade aluminium PVC insulated and PVC sheathed wires on G.I. bearer wire no. 8 SWG complete erected with required size of porcelain reel insulators and 16 SWG G.I. binding wire.	m	73
1-4-2	Supplying and erecting mains with WP 2 x 4 sq. mm. 1.1 kV grade aluminium PVC insulated and PVC sheathed wires on G.I. bearer wire no. 8 SWG complete erected with required size of porcelain reel insulators and 16 SWG G.I. binding wire.	m	74
1-4-3	Supplying and erecting mains with WP 2 x 6 sq. mm. 1.1kV. grade aluminium PVC insulated and PVC sheathed wires on G.I. bearer wire no. 8 SWG complete erected with required size of porcelain reel insulators and 16 SWG G.I. binding wire.	m	85
1-4-4	Supplying and erecting mains with WP 3 x 4 sq. mm. 1.1kV. grade aluminium PVC insulated and PVC sheathed wires on G.I. bearer wire no. 8 SWG complete erected with required size of porcelain reel insulators and 16 SWG G.I. binding wire.	m	115

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
1-4-5	Supplying and erecting mains with WP 3 x 6 sq. mm. 1.1kV. grade aluminium PVC insulated and PVC sheathed wires on G.I. bearer wire no. 8 SWG complete erected with required size of porcelain reel insulators and 16 SWG G.I. binding wire.	m	142
1-4-6	Supplying and erecting mains with WP 4 x 4 sq. mm. 1.1kV. grade aluminium PVC insulated and PVC sheathed wires on G.I. bearer wire no. 8 SWG complete erected with required size of porcelain reel insulators and 16 SWG G.I. binding wire.	m	138
1-4-7	Supplying and erecting mains with WP 2 x 2.5 sq. mm. 1.1 kV grade aluminium PVC insulated and PVC sheathed wires on G.I. bearer wire no. 8 SWG complete erected with required size of porcelain reel insulators and 16 SWG G.I. binding wire.	m	166
<i>1.5 Wiring Accessories</i>			
1-5-1	Supplying and erecting one/two way piano type switch 6A/bell push erected on filled polypropylene board or double polished wooden board/ folded or screwed board with top of either wooden/ 3mm thick hylam sheet/ 4mm thick plywood pasted with 1.5mm thick laminate with S M screws and duly connected.	Each	44
1-5-2	Supplying and erecting shockproof piano type switch 250V, 16A , erected on filled polypropylene board or polished double wooden/ folded or screwed board with top of either wooden/ 3mm thick hylam sheet/ 4mm thick plywood pasted with 1.5mm thick laminate with S M screws and duly connected.	Each	87
1-5-3	Supplying and erecting shockproof 3 pin plug socket 6A with porcelain base/flush type erected on filled polypropylene board or polished thick varnished double wooden block / folded or screwed board with top of either wooden/ 3mm thick hylam sheet/ 4mm thick plywood pasted with 1.5mm thick laminate with S M screws and duly connected.	Each	50
1-5-4	Supplying and erecting shockproof 3 pin plug socket 16A with porcelain base/ flush type erected on filled polypropylene board or polished thick varnished double wooden block / folded or screwed board with top of either wooden/3 mm thick hylam sheet/ 4mm thick plywood pasted with 1.5mm thick laminate with S M screws and duly connected.	Each	67
1-5-5	Supplying and erecting ceiling rose/ batten holder/ slanting holder/ hanging cord switch/ hanging bell push/ pendant holder bakelite base 6A erected on filled polypropylene board or polished double wooden block/ PVC junction box.	Each	43
1-5-6	Supplying and erecting adaptor for lamp holder 230V A.C. supply.	Each	37
1-5-7	Supplying and erecting recess type, 3 pin plug socket 6A with piano switch 6A erected on M.S Box made of 16 SWG sheet duly painted and covered with bakelite hylam sheet of 3mm thickness connected with earth terminals and leads duly concealed	Each	107
1-5-8	Supplying and erecting recess type, 3 pin plug socket 6A with piano switch 6 A combined unit erected on polished double wooden block/ folded or screwed board with top of either wooden or plywood pasted with sunmica and with connecting leads	Each	113

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
1-5-9	Supplying and erecting flush, shock proof plug socket 6 pin 6A and 16A with switch 16A combined unit erected in recess in 16 gauge M.S sheet box duly painted and connected with earth terminal and leads	Each	142
1-5-10	Supplying and erecting flush type, shockproof plug socket 6 pin 6A and 16A with switch 16A combined unit erected on filled polypropylene board or double wooden block / 3mm thick hylam sheet / 4mm thick plywood pasted with 1.5mm thick sunmica with S M screws and duly connected.	Each	159
1-5-11	Supplying and erecting flush type shockproof plug socket 6A & 16A (6 pin) with 16A switch combined with indicator lamp and fuse with gang box on wooden board.	Each	171
1-5-12	Supplying and erecting shockproof bell push on filled polypropylene board or sunmica covered wooden block with 2 core 0.5 sq.mm (TRS type) PVC insulated copper wire of 5m length connected to the point.	Each	48
1-5-13	Supplying and erecting recess type 3 pin plug socket 6A with piano switch 6A combined unit erected on M.S box made up of 16 gauge sheet and covered with sunmica and with connecting leads	Each	133
1-5-14	Supplying 6A 3 pin plug top bakelite type of 230V A.C. supply.	Each	53
1-5-15	Supplying 16A 3 pin plug top bakelite type of 230V A.C. supply.	Each	75
Note:-	Accessories erected on provided board, Rs 8/- per accessory shall be deducted for board.		

1.6 Modular switches and Accessories

1-6-1	Supplying and erecting modular type switch 6A/10A on provided plate and box with wiring connections complete.	Each	72
1-6-2	Supplying and erecting modular type switch 16A on provided plate and box with wiring connections complete.	Each	108
1-6-3	Supplying and erecting modular type bell-push 6A/10A on provided plate and box with wiring connections complete.	Each	114
1-6-4	Supplying and erecting modular type bell-push with indicator 2 modules 6A/10A on provided plate and box with wiring connections complete.	Each	152
1-6-5	Supplying and erecting modular type two way switch 6A/10A (2 module) on provided plate and box with wiring connections complete.	Each	119
1-6-6	Supplying and erecting modular type switch 16/20 A with indicator on provided plate and box with wiring connections complete.	Each	145
1-6-7	Supplying and erecting modular type switch one way 16/20 A on provided plate and box with wiring connections complete with neon indicator.	Each	128
1-6-8	Supplying and erecting modular type D.P. switch 32A with indicator on provided plate and box with wiring connections complete.	Each	250
1-6-9	Supplying and erecting modular type 32A, DP key tag switch with key tag on provided plate and box with wiring connections complete.	Each	521
1-6-10	Supplying and erecting modular type 3 pin 6A multi socket with safety shutter on provided plate and box with wiring connections complete.	Each	116
1-6-11	Supplying and erecting modular type 3 pin 6/16A multi socket with safety shutter on provided plate and box with wiring connections complete.	Each	186
1-6-12	Supplying and erecting modular type indicator lamp on provided plate and box with wiring connections complete.	Each	150
1-6-13	Supplying and erecting modular type 6/16A fuse unit on provided plate and box with wiring connections complete.	Each	129

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
1-6-14	Supplying and erecting modular type T.V. socket single outlet on provided plate and box with wiring connections complete.	Each	109
1-6-15	Supplying and erecting modular type telephone socket one gang with safety shutter on provided plate and box with wiring connections complete.	Each	114
1-6-16	Supplying and erecting modular type telephone socket two gang with safety shutter on provided plate and box with wiring connections complete.	Each	124
1-6-17	Supplying and erecting modular type computer Jack RJ 45 with safety shutter, on provided plate and box with wiring connections complete.	Each	152
1-6-18	Supplying and erecting modular type bell indicator on provided plate and box with wiring connections complete.	Each	208
1-6-19	Supplying and erecting modular type buzzer 220/250V on provided plate and box with wiring connections complete.	Each	147
1-6-20	Supplying and erecting modular type (one module) electronic dimmer 400/450W on provided plate and box with wiring connections complete.	Each	230
1-6-21	Supplying and erecting modular type (two module) electronic dimmer 600/650W on provided plate and box with wiring connections complete.	Each	339
1-6-22	Supplying and erecting modular type (two module) electronic dimmer 1000W on provided plate and box with wiring connections complete.	Each	504
1-6-23	Supplying and erecting modular type (two module) electronic step regulator for fan , on provided plate and box with wiring connections complete.	Each	385
1-6-24	Supplying and erecting modular type blanking plate one module , on provided plate & box.	Each	24
1-6-25	Supplying and erecting modular type blanking plate two module , on provided plate & box.	Each	35
1-6-26	Supplying and erecting PVC Surface modular switch box with double mounting plate for 1 module complete.	Each	141
1-6-27	Supplying and erecting PVC Surface modular switch box with double mounting plate for 2 module complete.	Each	143
1-6-28	Supplying and erecting PVC Surface modular switch box with double mounting plate for 3 module complete.	Each	168
1-6-29	Supplying and erecting PVC Surface modular switch box with double mounting plate for 4 module complete.	Each	196
1-6-30	Supplying and erecting PVC Surface modular switch box with double mounting plate for 6 module complete.	Each	252
1-6-31	Supplying and erecting PVC Surface modular switch box with double mounting & front plate for 8 module complete duly connected.	Each	311
1-6-32	Supplying and erecting PVC Surface modular switch box with double mounting plate for 12 module complete.	Each	391
1-6-33	Supplying and erecting PVC Surface modular switch box with double mounting plate for 16/18 module complete.	Each	450
1-6-34	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 1 module duly flushed to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	Each	231

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
1-6-35	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 2 module duly flushed to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	Each	234
1-6-36	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 3 module duly flushed to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	Each	269
1-6-37	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 4 module duly flushed to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	Each	298
1-6-38	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 6 module duly flushed to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	Each	389
1-6-39	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 8 module duly flushed to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	Each	454
1-6-40	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 12 module duly flushed to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	Each	544
1-6-41	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 16/18 module duly flushed to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	Each	614
1-6-42	Supplying and erecting white footlight with 4 modules concealed modular box and LED lights with cover complete on wall /flush to wall with necessary chiselling in wall and finishing with cement and mortar / POP as per required and duly connected.	Each	444
1-6-43	Supplying and erecting 16/20/25A starter (modular range) 2 module for AC unit on provided box complete & duly concealed with necessary material and connected.	Each	385
1-6-44	Supplying and erecting 6 to 32A, 10kA, SPMCB suitable to fix in 1 module of modular switch in provided box complete & duly concealed with necessary material and connected.	Each	253
1-6-45	Supplying and erecting 16 to 32A, 10kA, DPMCB suitable to fix in 2 module of modular switch in provided box complete & duly concealed with necessary material and connected.	Each	282
1-6-46	Supplying and erecting PVC Surface modular double mounting plate 1 module complete.	Each	74
1-6-47	Supplying and erecting PVC Surface modular double mounting plate 2 module complete.	Each	77

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
1-6-48	Supplying and erecting PVC Surface modular double mounting plate 3 module complete.	Each	91
1-6-49	Supplying and erecting PVC Surface modular double mounting plate 4 module complete.	Each	107
1-6-50	Supplying and erecting PVC Surface modular double mounting plate 6 module complete.	Each	145
1-6-51	Supplying and erecting PVC Surface modular double mounting plate 8 module complete.	Each	180
1-6-52	Supplying and erecting PVC Surface modular double mounting plate 12 module complete.	Each	216
1-6-53	Supplying and erecting PVC Surface modular double mounting plate 16/18 module complete.	Each	251
1-6-54	Supplying and erecting modular safety power strip with one modular switch 16A and three sockets each 6A combination with overload and surge protection unit on double mounting plate complete.	Each	1113
1-6-55	Supplying and erecting modular switch with LED indicator available to connect in a switch board to glow LED when connected load is off, on provided double mounting plate complete.	Each	135
1-6-56	Supplying and erecting modular type USB Charger socket of 1 module with nominal output voltage of 5V DC $\pm 5\%$ and nominal output current of 5V, 2-3A, on provided plate and box with wiring connections complete.	Each	689
1-6-57	Supplying and erecting modular pop up Box 8 module with provided AV/ HDMI , RJ 45,6 A electrical sockets and switch on provided table .	Each	3162
1-6-58	Supplying power strip with one switch 6A and 4 sockets each 6A , 230 V, minimum cord length 1.5 meter, combination with surge and spike protection unit complete.	Each	377
<u>1.7 Point Wiring (WG-PW)</u>			
1-7-1	Point wiring in for light/fan/bell in 20 mm metal conduit with 1.5 sq.mm (2+1E) FRLSH grade copper wire, flush type switch, earthing and required accessories as per specification no. WG-PW/SW	Point	974
1-7-2	Point wiring for independent plug in 20 mm metal conduit with 1.5 sq.mm (2+1E) FRLSH grade copper wire, flush type switch, earthing and required accessories as per specification no. WG-PW/SW	Point	1071
1-7-3	Point wiring for light/fan/bell in 20 mm HMS PVC conduit with 1.5 sq.mm (2+1E) FRLSH grade copper wire with flush type switch and required accessories as per specification no. WG-PW/SW	Point	560
1-7-4	Point wiring for independent plug in 20 mm HMS PVC conduit with 1.5 sq.mm (2+1E) FRLSH grade copper wire, flush type switch, earthing and required accessories as per specification no. WG-PW/SW	Point	634
1-7-5	Point wiring for light/bell concealed type in min 20 mm HMS PVC conduit with 1.5 sq.mm. (2+1E) FRLSH grade copper wires, modular type switch, earthing and required accessories as per specification no. WG-PW/CW	Point	781

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
1-7-6	Point wiring for ceiling fan concealed type in min 20 mm HMS PVC conduit with 1.5 sq.mm. (2+1E) FRLSH grade copper wires, modular type switch, earthing and required accessories as per specification no. WG-PW/CW	Point	867
1-7-7	Point wiring for independent plug, concealed type in min 20 mm HMS PVC conduit with 1.5 sq.mm (2+1E) FRLSH grade copper wires, modular type switch and socket, earthing and required accessories as per specification No WG-PW/SW	Point	888
1-7-8	Supplying and drawing of 2x1.5 sq.mm. FRLSH grade copper wires with 1.5 sq.mm earth wire in provided concealed pipes for concealed type light/bell point wiring and terminating on modular accessories in box for point wiring for light/fan/bell as per specification no. WG-PW/CW	Point	502
1-7-9	Supplying and drawing of 2x1.5 sq.mm. FRLSH grade copper wires with 1.5 sq.mm earth wire in provided concealed pipes for concealed type fan point wiring and terminating on modular accessories in box for point wiring r specification no. WG-PW/CW	Point	588
1-7-10	Supplying and drawing of 2x1.5 sq.mm. FRLSH grade copper wires with 1.5 sq.mm earth wire in provided concealed pipes and terminating on modular accessories in box for point wiring for independent plug as per specification No WG-PW/SW	Point	603
1-7-11	Point wiring for light/bell/exhaust fan in minimum 20 mm HMS PVC conduit with 1.5 sq.mm (2+1E) FRLSH grade copper wire, modular type switch, earthing and required accessories as per specification no. WG-PW/SW	Point	742
1-7-12	Point wiring for ceiling fan in minimum 20 mm HMS PVC conduit with 1.5 sq.mm (2+1E) FRLSH grade copper wire, modular type switch, earthing and required accessories as per specification no. WG-PW/SW	Point	817
1-7-13	Point wiring for independent plug in minimum 20 mm HMS PVC conduit with 1.5 sq.mm (2+1E) FRLSH grade copper wire, modular type switch, earthing and required accessories as per specification no. WG-PW/SW	Point	951
1-7-14	Point wiring for light/bell hybrid type (surface type under false ceiling and concealed type for drops & switch boards on walls) in min 20 mm HMS PVC conduit / casing n capping with 1.5 sq.mm. (2+1E) FRLSH grade copper wires, modular type switch, earthing and required accessories as per specification no. WG-HW	Point	623
1-7-15	Point wiring for ceiling fan hybrid type (surface type under false ceiling and concealed type for drops & switch boards on walls) in min 20 mm HMS PVC conduit / casing n capping with 1.5 sq.mm. (2+1E) FRLSH grade copper wires, modular type switch, earthing and required accessories as per specification no. WG-HW	Point	724
1-7-16	Point wiring in PVC trunking (casing-capping) with 1.5 sq.mm (2+1E) FRLSH grade copper wire, flush type switch,earthing and required accessories as per specification no. WG-PW/SW	Point	411
1-7-17	Point wiring for independent plug in PVC trunking (casing-capping) with 1.5 sq.mm FRLSH grade copper wire, flush type switch,earthing and required accessories as per specification no. WG-PW/SW	Point	494

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
1-7-18	Point wiring for light/bell/exhaust fan in PVC trunking (casing-capping) with 1.5 sq.mm (2+1E) FRLSH grade copper wire, modular type switch, earthing and required accessories as per specification no. WG-PW/SW	Point	519
1-7-19	Point wiring for ceiling fan in PVC trunking (casing-capping) with 1.5 sq.mm (2+1E) FRLSH grade copper wire, modular type switch, earthing and required accessories as per specification no. WG-PW/SW	Point	571
1-7-20	Point wiring for independent plug in PVC trunking (casing-capping) with 1.5 sq.mm (2+1E) FRLSH grade copper wire, modular type switch, earthing and required accessories as per specification no. WG-PW/SW	Point	719
1-7-21	Secondary point wiring for additional light/bell point, concealed type in min 20 mm PVC conduit with 1.5 sq.mm. (2+1E) FRLSH grade copper wires with required accessories as per specification no. WG-PW/CW	Point	232
1-7-22	Secondary point wiring for additional light/bell point in PVC trunking (casing-capping) with 1.5 sq.mm (2+1E) FRLSH grade copper wire with required accessories as per specification no. WG-PW/SW	Point	196
1-7-23 (New)	Secondary point wiring for additional light/bell point in min 20mm PVC conduit with 1.5 sq.mm (2+1E) FRLSH grade copper wire with required accessories as per specification no. WG-PW/SW	Point	268
1-7-24	Wiring for plug on board with flush Switch socket , copper wiring and earthing as per specification no. WG-PW/SW	Point	133
1-7-25	Wiring for plug on board with switch socket surface/concealed type , copper wiring and earthing and with modular accessories as per specification no. WG-PW/CW	Point	397
1-7-26	Concealing of provided M.S./ PVC switch box in wall with finishing as per specification no. WG-PW/CW	Each	71
1-7-27	Refilling the holes for dismantled point wiring with cement mortar & finishing.	Point	37
Note:-	<p>1) In case length of point wiring exceeds 6 meters, add 10% of rate, for every additional length of 1 meter or part thereof.</p> <p>2) Point wiring starts from mainboard/intermediate switch board and suitable circuit mains are to be considered from D.B. to first board and between boards.</p> <p>3) For point wiring with 2 way control point increase overall rate by 50% of point wiring.</p> <p>4) for point wiring on stone wall add Rs 15.00 per point wiring.</p> <p>5) Acrylic sheet of appropriate size shall be provided for covering at wall entries.</p> <p>6) For concealed type wiring multi-stranded wires shall be used.</p> <p>7) Earth wire of 1.5 sq.mm. shall be terminated in each point.</p> <p>8) For point wiring in HFFR wire increase rate by 2%. For use of point wiring in HFFR wires in buildings other than hospitals, approval of concerned Superintending Engineer, P.W. Regional Circle (Electrical) shall be taken.</p>		

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<i>1.8 Dismantling (WG-DM)</i>			
1-8-1	Dismantling the existing light, fan, bell, clock, independent plug point, wiring including circuit mains of all types along with accessories etc. complete as per specification no. WG-DM/PW	Point	10
1-8-2	Dismantling the existing aluminium/copper mains, sub-mains wiring upto 10 sq.mm. along with accessories etc. complete as per specification no. DM/PW	m	6
Note:-	Dismantled material of point wiring / circuit mains/ sub-mains / cables shall be retained by contractor.		

Chapter 2 : Fittings (FG)

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>2.1 Indoor LED Fittings (FG-IDF/LED)</u>			
2-1-1	Supplying and erecting decorative pre-wired box type fitting / batten suitable for 4 feet, T8 LED tube light (excluding tube light).	Each	286
2-1-2	Supplying and erecting LED square / circular Max. 7W down lighter / Panel Light having pressure die-cast aluminium housing, polystyrene diffuser having system lumens output of Min. 770 Lumens, min. efficacy of 110 lumen/W , CRI>80, CCT upto 6500K, Beam Angle of 120 deg., max. ripple of 5%, THD<10%, p.f. >0.95, operating range of 120-270V, surge protection of 2.5 kV, Life class of 50,000 Hrs at L70B50 including driver, having mounting arrangement with board for surface type or spring loaded mounting clips complete with minimum 2 years warranty as per specification No. FG-IDF/LED .	Each	664
2-1-3	Supplying and erecting LED square / circular Max. 11 W down lighter/Panel Light having pressure die-cast aluminium housing, polystyrene diffuser having system lumens output of Min. 1200 Lumens, min. efficacy of 110 lumen/W , CRI>80, CCT upto 6500K, Beam Angle of 120 deg., max. ripple of 5%, THD<10%, p.f. >0.95, operating range of 120-270V, surge protection of 2.5 kV, Life class of 50,000 Hrs at L70B50 including driver, having mounting arrangement with board for surface type or spring loaded mounting clips complete with minimum 2 years warranty as per specification No. FG-IDF/LED .	Each	807
2-1-4	Supplying and erecting LED square / circular Max. 14 W down lighter / Panel Light having pressure die-cast aluminium housing, polystyrene diffuser having system lumens output of Min. 1500 Lumens, min. efficacy of 110 lumen/W , CRI>80, CCT upto 6500K, Beam Angle of 120 deg., max. ripple of 5%, THD<10%, p.f. >0.95, operating range of 120-270V, surge protection of 2.5 kV, Life class of 50,000 Hrs at L70B50 including driver, having mounting arrangement with board for surface type or spring loaded mounting clips complete with minimum 2 years warranty as per specification No. FG-IDF/LED .	Each	1224
2-1-5	Supplying and erecting LED square / circular Max. 18 W down lighter / Panel Light having pressure die-cast aluminium housing, polystyrene diffuser having system lumens output of Min. 2000 Lumens, min. efficacy of 110 lumen/W , CRI>80, CCT upto 6500K, Beam Angle of 120 deg., max. ripple of 5%, THD<10%, p.f. >0.95, operating range of 120-270V, surge protection of 2.5 kV, Life class of 50,000 Hrs at L70B0 including driver, having mounting arrangement with board for surface type or spring loaded mounting clips complete with minimum 2 years warranty as per specification No. FG-IDF/LED .	Each	1544
2-1-6	Supplying and erecting LED square / circular Max. 25 W down lighter / Panel Light having pressure die-cast aluminium housing, polystyrene diffuser having system lumens output of Min. 2750 Lumens, min. efficacy of 110 lumen/W , CRI>80, CCT upto 6500K, Beam Angle of 120 deg., max. ripple of 5%, THD<10%, p.f. >0.95, operating range of 120-270V, surge protection of 2.5 kV, Life class of 50,000 Hrs at L70B50 including driver, having mounting arrangement with board for surface type or spring loaded mounting clips complete with minimum 2 years warranty as per specification No. FG-IDF/LED .	Each	1945

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
2-1-7	Supplying and erecting LED Panel Light (600mm X 600mm) Max. 30 W having CRCA powder coated housing, polystyrene diffuser having system lumens output of Min. 3600 Lumens, min. efficacy of 120 lumen/W , CRI>80, CCT upto 6500K, Beam Angle of 120 deg., max. ripple of 5%, THD<10%, p.f. >0.95, operating range of 120-270V, surge protection of 2.5 kV, Life class of 50,000 Hrs at L70B50 including driver, having mounting arrangement with board for surface type or spring loaded mounting clips complete with minimum 2 years warranty as per specification No. FG-IDF/LED .	Each	2487
2-1-8	Supplying and erecting LED Panel Light (600mm X 600mm) Max. 35 W having CRCA powder coated housing, polystyrene diffuser having system lumens output of Min 4200 Lumens, min. efficacy of 120 lumen/W , CRI>80, CCT upto 6500K, Beam Angle of 120 deg., max. ripple of 5%, THD<10%, p.f. >0.95, operating range of 120-270V, surge protection of 2.5 kV, Life class of 50,000 Hrs at L70B50 including driver, having mounting arrangement with board for surface type or spring loaded mounting clips complete with minimum 2 years warranty as per specification No. FG-IDF/LED .	Each	2887
2-1-9	Supplying and erecting rectangular shaped LED Panel Light (1200mm X 300mm) Max. 35 W having CRCA powder coated housing, polystyrene diffuser having system lumens output of Min. 4200 Lumens, min. efficacy of 120 lumen/W , CRI>80, CCT upto 6500K, Beam Angle of 120 deg., max. ripple of 5%, THD<10%, p.f. >0.95, operating range of 120-270V, surge protection of 2.5 kV, Life class of 50,000 Hrs at L70B50 including driver, having mounting arrangement with board for surface type or spring loaded mounting clips complete with 2 years warranty as per specification No. FG-IDF/LED .	Each	3027
2-1-10	Supplying and erecting LED Strip light Max. 45 W IP20 class having minimum lumens output of 800 Lumens/m , min. efficacy of 90 lumen/W, CRI>80, CCT upto 5000K, Beam Angle of 110 deg., THD<10%, p.f. >0.95, operating range of 230-270V, Life class of 30,000 Hrs at L70B50 including driver with minimum 1 year warranty as per specification No. FG-IDF/LED .	Each	1889
2-1-11	Supplying and erecting LED Strip light Max. 95 W IP20 class having minimum lumens output of 1600 Lumens/m , min. efficacy of 90 lumen/W, CRI>80, CCT upto 5000K, Beam Angle of 110 deg., THD<10%, p.f. >0.95, operating range of 230-270V, Life class of 30,000 Hrs at L70B50 including driver with minimum 1 year warranty as per specification No. FG-IDF/LED .	Each	2727
2-1-12	Supplying LED concealed type foot / step light with aluminium body for indoor / outdoor application suitable for 4W - 6W LED including driver and erecting by making necessary arrangement / recess in wall to make it flush with surface with minimum 1 year warranty as per specification No. FG-IDF/LED .	Each	1915
2-1-13	Making suitable size recess in any type of false ceiling for erection of flush type down lighter and finishing the background to match the original surface upto 20W as per specification No. FG-IDF/LED .	Each	63
2-1-14	Making suitable size of recess in any type of false ceiling for erection of flush type LED panel light 600mm x 600mm / 1200x300mm and finishing the background to match the original ceiling surface as per specification No. FG-IDF/LED .	Each	138

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
2-1-15	Supplying and erecting Bulk Head LED fitting Max. 10W with high transitivity diffuser with system lumens output of Min. 1100 lumens, min. efficacy of 110 lumen/W , CRI>80, CCT upto 6500K, Beam Angle of 120 deg., THD<10%, p.f. >0.95, operating range of 140-260V, in built surge protection of 2.5 kV, Life class of 50,000 Hrs at L70B50, IP66, IK09 rated including driver IP66, IK09 rated on provided PVC Block / wooden board with minimum 2 years warranty as per specification No. FG-IDF/LED .	Each	1423
2-1-16	Supplying and erecting anodized aluminium mirror light LED fitting (2 feet) Max. 12W with high transitivity diffuser with min. system lumens output of 1200 lumens, min. efficacy of 100 lumen/W , CRI>80, CCT upto 6000K, Beam Angle of 110 deg., Ripple<5%, THD<20%, p.f. >0.95, operating range of 200-270V, surge protection of 2 kV, Life class of 50,000 Hrs at L70B50 including driver with end caps on provided PVC Block / wooded board with minimum 2 years warranty as per specification No. FG-IDF/LED .	Each	455
2-1-17	Supplying and erecting CRCA powder coated mirror light LED fitting (4 feet) Max. 17W with high transitivity diffuser with system lumens output of Min. 2000 lumens, min. efficacy of 120 lumen/W, CRI>80, CCT upto 6500K, Beam Angle of 120 deg., Ripple<5%, THD<10%, p.f. >0.95, operating range of 120-270V, surge protection of 4 kV, Life class of 50,000 Hrs at L70B50, IP 20 rated including driver with end caps on provided PVC Block / wooded board with minimum 2 years warranty as per specification No. FG-IDF/LED .	Each	641
2-1-18	Supplying and erecting anodized aluminium light LED fitting (4 feet) Max. 22W with high transitivity diffuser with system lumens output of Min.2200 lumens , min. efficacy of 100 lumen/W , CRI>80, CCT upto 6000K, Beam Angle of 110 deg., Ripple<5%, THD<20%, p.f. >0.95, operating range of 200-270V, surge protection of 2 kV, Life class of 50,000 Hrs at L70B50 including driver with end caps on provided PVC Block/wooded board with minimum 2 years warranty as per specification No. FG-IDF/LED .	Each	802
2-1-19	Supplying and erecting CRCA powder coated light LED fitting (4 feet) Max. 33W with high transitivity diffuser with system lumens output of Min. 4000 lumens, min. efficacy of 120 lumen/W , CRI>80, CCT upto 6500K, Beam Angle of 120 deg., Ripple<5%, THD<10%, p.f. >0.95, operating range of 120-270V, surge protection of 4 kV, Life class of 50,000 Hrs at L70B50 , IP20 rated including driver with end caps on provided PVC Block / wooded board with minimum 2 years warranty as per specification No. FG-IDF/LED .	Each	1409
2-1-20	Supplying and erecting CRCA powder coated light LED fitting (4 feet) Max. 50W with high transitivity diffuser with system lumens output of Min. 6000 lumens , min. efficacy of 120 lumen/W , CRI>80, CCT upto 6500K, Beam Angle of 120 deg., Ripple<5%, THD<10%, p.f. >0.95, operating range of 120-270V, surge protection of 4 kV, Life class of 50,000 Hrs at L70B50, rated including driver with end caps on provided PVC Block / wooded board with minimum 2 years warranty as per specification No. FG-IDF/LED .	Each	2278

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
2-1-21	Supplying & erecting inverter LED batten 10W tube light fitting with polycarbonate housing , heat sink, integrated HF electronic driver, Min. 2600 mA Lithium ion Battery with charging time of 8-10 Hours and backup time of Min. 3 Hrs with minimum 25% of initial Watts having luminous efficacy of 100 lumen/watt , CRI>80, CCT of 6500K and THD<=20 % having useful life of minimum 25000 Hrs with over heating protection with minimum 2 years warranty as per specification No. FG-IDF/LED .	Each	747
2-1-22	Supplying & erecting inverter LED batten 20W tube light fitting with polycarbonate housing , heat sink, integrated HF electronic driver, Min. 2600 mA Lithium ion Battery with charging time of 8-10 Hours and backup time of Min. 3 Hrs with minimum 25% of initial Watts having luminous efficacy of 100 lumen/watt , CRI>80, CCT of 6500K and THD<=20 % having useful life of minimum 25000 Hrs with over heat protection with minimum 2 years as per specification No. FG-IDF/LED .	Each	851
2-1-23	Supplying & erecting UV Fly killer/ bug catcher Light Fitting having 2 X 20W UV Tube Lights to cover min. area of 500 sq.ft with powdered coated M.S. / steel body suitable to work on 230V, AC supply having top mounting arrangement with SS chain complete and 3 core flexible wire upto 1 mtr with minimum 1 year warranty as per specification No. FG-IDF/LED .	Each	4086
2-1-24	Erection of departmentally supplied 4ft/2ft LED fitting on PVC block connected with necessary leads complete as per specification No. FG-IDF/LED .	Each	71
2-1-25	Erection of departmentally supplied surface / recess type decorative fitting with LED on PVC block connected with necessary leads as per specification No. FG-IDF/LED .	Each	101
Note:-	<p>1) Driver and luminaire shall be of same make.</p> <p>2) All required test reports as per IS of all luminaires shall be from accredited NABL laboratory.</p> <p>3) Manufacturer Logo shall be embossed on all pressure die cast Luminaires and logo shall not be screen-print / sticker type.</p> <p>4) All luminaires shall conform to respective IS.</p>		
<i>2.2 Accessories for Indoor Fittings (FG-AS)</i>			
2-2-1	Supplying and erecting bakelite call bell with 6 cm / buzzer with double coil suitable for 230V complete erected on PVC block.	Each	115
2-2-2	Supplying and erecting gong with double coil suitable for 230V A.C. supply complete erected on polished wooden block.	Each	148
2-2-3	Supplying and erecting ding dong / electronic musical type call bell with heavy duty coil suitable to operate on 230V A.C. supply erected on polished double wooden block / sunmica block of suitable size.	Each	160
2-2-4	Supplying and erecting luminous / modular type call bell indicator with plastic body , heavy duty coil and indicator lamp working on 230V A.C. supply with resetting arrangement complete erected on double wooden / sunmica board.	Each	291
2-2-5	Supplying and erecting electronic type cordless call bell erected on T.W. board having portable bell push working on 9V D.C. battery and (effective range upto 45 meter) bell on 250 V A.C. supply.	Each	555

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
2-2-6	Supplying and erecting electronic type driver for indoor LED 5W - 9W fixtures suitable to operate on 230V A.C. 50 Hz having p.f.>0.95 and THD<10% as per specification No. FG-AS .	Each	372
2-2-7	Supplying and erecting electronic type driver for indoor LED 10W - 18W fixtures suitable to operate on 230V A.C. 50 Hz having p.f.>0.95 and THD<10% as per specification No. FG-AS .	Each	442
2-2-8	Supplying and erecting electronic type driver for indoor LED 19W - 24W fixtures suitable to operate on 230V A.C. 50 Hz having p.f.>0.95 and THD<10% as per specification No. FG-AS .	Each	646
2-2-9	Supplying and erecting electronic type driver for indoor LED 25W - 40W fixtures suitable to operate on 230V A.C. 50 Hz having p.f.>0.95 and THD<10% as per specification No. FG-AS .	Each	659
<u>2.3 Outdoor Fittings (FG-ODF)</u>			
2-3-1	Supplying and erecting integrated LED street light fitting 18 - 22W IP65 & IK08 class having single piece pressure die-cast aluminium housing, having system lumens output of Min. 1800 Lumens , min. efficacy of 100 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.95, operating range of 140-270V, inbuilt surge protection of 10 kV, Life class of 50,000 Hrs at L70B50 including driver complete with minimum 2 Years warranty as per specification No. FG-ODF/SL .	Each	1928
2-3-2	Supplying and erecting integrated LED street light fitting 23 to 25W IP65 & IK08 class having single piece pressure die-cast aluminium housing, having system lumens output of Min. 2300 Lumens , min. efficacy of 100 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.95, operating range of 140-270V, inbuilt surge protection of 10 kV, Life class of 50,000 Hrs at L70B50 including driver complete with minimum 2 Years warranty as per specification No. FG-ODF/SL .	Each	2136
2-3-3	Supplying and erecting integrated LED street light fitting 26 to 30W IP65 & IK08 class having single piece pressure die-cast aluminium housing, having system lumens output of Min. 2600 Lumens , min. efficacy of 100 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.95, operating range of 140-270V, inbuilt surge protection of 10 kV, Life class of 50,000 Hrs at L70B50 including driver complete with minimum 2 Years warranty as per specification No. FG-ODF/SL .	Each	2415
2-3-4	Supplying and erecting integrated LED street light fitting 40 to 50W IP65 & IK08 class having single piece pressure die-cast aluminium housing, having system lumens output of Min. 4400 Lumens , min. efficacy of 110 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.95, operating range of 140-270V, inbuilt surge protection of 10 kV, Life class of 50,000 Hrs at L70B50 including driver complete with minimum 2 Years warranty as per specification No. FG-ODF/SL .	Each	4223
2-3-5	Supplying and erecting integrated LED street light fitting 60W IP65 & IK08 class having single piece pressure die-cast aluminium housing, having system lumens output of Min. 6600 Lumens , min. efficacy of 110 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.95, operating range of 140-270V, inbuilt surge protection of 10 kV, Life class of 50,000 Hrs at L70B50 including driver complete with minimum 2 Years warranty as per specification No. FG-ODF/SL .	Each	4362

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
2-3-6	Supplying and erecting integrated LED street light fitting 70-75W IP65 & IK08 class having single piece pressure die-cast aluminium housing, having system lumens output of Min. 7700 Lumens , min. efficacy of 110 lumen/W, CRI>70, CCT upto 6500K,THD<10%, p.f. >0.95, operating range of 140-270V, inbuilt surge protection of 10 kV, Life class of 50,000 Hrs at L70B50 including driver complete with minimum 2 Years warranty as per specification No. FG-ODF/SL .	Each	5753
2-3-7	Supplying and erecting integrated LED street light fitting 85-90W IP65 & IK08 class having single piece pressure die-cast aluminium housing, having system lumens output of Min. 9300 Lumens , min. efficacy of 110 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.95, operating range of 140-270V, inbuilt surge protection of 10 kV, Life class of 50,000 Hrs at L70B50 including driver complete with minimum 2 Years warranty as per specification No. FG-ODF/SL .	Each	6726
2-3-8	Supplying and erecting integrated LED street light fitting 100-110W IP65 & IK08 class having single piece pressure die-cast aluminium housing, having system lumens output of Min. 11000 Lumens , min. efficacy of 110 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.95, operating range of 140-270V, inbuilt surge protection of 10 kV, Life class of 50,000 Hrs at L70B50 including driver complete with minimum 2 Years warranty as per specification No. FG-ODF/SL .	Each	7315
2-3-9	Supplying and erecting integrated LED street light fitting 120W IP65 & IK08 class having single piece pressure die-cast aluminium housing, having system lumens output of Min. 13000 Lumens , min. efficacy of 110 lumen/W, CRI>70, CCT upto 6500K,THD<10%, p.f. >0.95, operating range of 140-270V, inbuilt surge protection of 10 kV, Life class of 50,000 Hrs at L70B50 including driver complete with minium 2 Years warranty as per specification No. FG-ODF/SL .	Each	9957
2-3-10	Supplying and erecting integrated LED street light fitting 130-140W IP65 & IK08 class having single piece pressure die-cast aluminium housing, having system lumens output of Min. 15600 Lumens , min. efficacy of 120 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.95, operating range of 140-270V, inbuilt surge protection of 10 kV, Life class of 50,000 Hrs at L70B50 including driver complete with minimum 2 Years warranty as per specification No. FG-ODF/SL .	Each	11001
2-3-11	Supplying and erecting integrated LED street light fitting 160-170W IP65 & IK08 class having single piece pressure die-cast aluminium housing, having system lumens output of Min. 19000 Lumens , min. efficacy of 120 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.95, operating range of 140-270V, inbuilt surge protection of 10 kV, Life class of 50,000 Hrs at L70B50 including driver complete with minimum 2 Years warranty as per specification No. FG-ODF/SL .	Each	11766
2-3-12	Supplying and erecting integrated LED flood light fitting Max. 30W IP65 & IK07 class having pressure die-cast aluminium housing, having system lumens output of Min. 3000 Lumens , min. efficacy of 100 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-270V, inbuilt surge protection of 4 kV, Life class of 50,000 Hrs at L70B50 including driver with U shaped bracket with minimum 2 Years warranty as per specification No. FG-ODF/FL .	Each	2116

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
2-3-13	Supplying and erecting integrated LED flood light fitting Max. 50W IP65 & IK07 class having pressure die-cast aluminium housing, having system lumens output of Min. 5000 Lumens , min. efficacy of 100 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-270V, inbuilt surge protection of 4 kV, Life class of 50,000 Hrs at L70B50 including driver with U shaped bracket with minimum 2 Years warranty as per specification No. FG-ODF/FL .	Each	3750
2-3-14	Supplying and erecting integrated LED flood light fitting Max. 70W IP65 & IK07 class having pressure die-cast aluminium housing, having system lumens output of Min. 8400 Lumens , min. efficacy of 120 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-270V, inbuilt surge protection of 4 kV, Life class of 50,000 Hrs at L70B50 including driver with U shaped bracket with minimum 2 Years warranty as per specification No. FG-ODF/FL .	Each	6394
2-3-15	Supplying and erecting integrated LED flood light fitting Max. 100W IP65 & IK07 class having pressure die-cast aluminium housing, having system lumens output of Min. 12000 Lumens , min. efficacy of 120 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-270V, inbuilt surge protection of 4 kV, Life class of 50,000 Hrs at L70B50 including driver with U shaped bracket with minimum 2 Years warranty as per specification No. FG-ODF/FL .	Each	7576
2-3-16	Supplying and erecting integrated LED flood light fitting Max. 120W IP65 & IK07 class having pressure die-cast aluminium housing, having system lumens output of Min.14500 Lumens , min. efficacy of 120 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-270V, inbuilt surge protection of 4 kV, Life class of 50,000 Hrs at L70B50 including driver with U shaped bracket with minimum 2 Years warranty as per specification No. FG-ODF/FL .	Each	10009
2-3-17	Supplying and erecting integrated LED flood light fitting Max. 155W IP65 & IK07 class having pressure die-cast aluminium housing, having system lumens output of Min. 18600 Lumens , min. efficacy of 120 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-270V, inbuilt surge protection of 4 kV, Life class of 50,000 Hrs at L70B50 including driver with U shaped bracket with minimum 2 Years warranty as per specification No. FG-ODF/FL .	Each	10357
2-3-18	Supplying and erecting integrated LED flood light fitting Max. 195W IP65 & IK07 class having pressure die-cast aluminium housing, having system lumens output of Min. 23400 Lumens , min. efficacy of 120 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-270V, inbuilt surge protection of 4 kV, Life class of 50,000 Hrs at L70B50 including driver with U shaped bracket with minimum 2 Years warranty as per specification No. FG-ODF/FL .	Each	17660
2-3-19	Supplying and erecting integrated LED Bollard Cylindrical / Cubical shaped 500mm 8W IP65 & IK10 class having extrusion aluminium housing with polycarbonate diffuser, having system lumens output of Min. 800 Lumens , min. efficacy of 100 lumen/W, CRI>80, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-240V, inbuilt surge protection of 2 kV, Life class of 25,000 Hrs. at L50B50, including driver complete with minimum 2 Year warranty as per specification No FG-ODF/BL .	Each	6115

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
2-3-20	Supplying and erecting integrated LED Bollard Cylindrical / Cubical shaped 800mm 8W IP65 & IK10 class having extrusion aluminium housing with polycarbonate diffuser, having system lumens output of Min. 800 Lumens , min. efficacy of 100 lumen/W, CRI>80, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-240V, inbuilt surge protection of 2 kV, Life class of 25,000 Hrs. at L50B50, including driver complete with minimum 2 Year warranty as per specification No FG-ODF/BL .	Each	6834
2-3-21	Supplying and erecting integrated LED Post Top 45W IP65 & IK10 class having die cast aluminium housing with UV protected polycarbonate diffuser, having system lumens output of Min.4500 Lumens , min. efficacy of 105 lumen/W, CRI>80, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-240V, inbuilt surge protection of 2 kV, Life class of 30,000 Hrs at L50B50 , including driver complete with minimum 2 Year warranty as per specification No FG-ODF/PT .	Each	8906
2-3-22	Supplying and erecting integrated LED round burial light 6W IP65 & IK10 class having pressure die-cast housing, having system lumens output of Min. 500 Lumens , min. efficacy of 85 lumen/W, CRI>80, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 100-240V, inbuilt surge protection of 2 kV, Life class of 50,000 Hrs at L50B50 , slat spray tested for 500 Hrs. including making of recess of appropriate size for flushing into surface with minimum 2 Year warranty as per specification No FG-ODF/PT .	Each	3385
2-3-23	Supplying and erecting Concealed type foot/step light Max. 5W having IP67, IK10 rated Pressure die cast housing having system lumens output of Min. 500 Lumens , min. efficacy of 100 lumen/W, CRI>80, CCT upto 5000K, Beam Angle of 110 deg., THD<10%, SDCM<5, p.f. >0.95, operating range of 230-270V, surge protection of 2.5 kV, Life class of 25,000 Hrs at L70B50, including driver by making necessary arrangement / recess in wall to make it flush with surface with minimum 2 Year warranty.	Each	2778
2-3-24	Erecting the departmentally supplied WP LED street light / flood light fitting upto 80W .	Each	222
2-3-25	Erecting the departmentally supplied LED street light / flood light fitting above 80 to 150W .	Each	274
2-3-26	Erecting departmentally supplied LED street light/ flood light Fitting above 150 to 400W .	Each	291
Note:-	<p>1) Driver and luminaire shall be of same make.</p> <p>2) All required test reports as per IS of all luminaires shall be from accredited NABL laboratory.</p> <p>3) Manufacturer Logo shall be embossed on all pressure die cast Luminaries and logo shall not be screen-print/sticker type.</p> <p>4) All Luminaires shall conform to respective IS.</p> <p>5)There shall be provision for earth wire termination.</p>		
<u>2.4 Decorative Outdoor Fittings (FG-ODF)</u>			
2-4-1	Supplying and erecting Gate / garden light fitting with 200mm dia. glass bowl suitable for upto 12W LED Lamp on provided pipe as per specification No. FG-ODF/GLT .	Each	629
2-4-2	Supplying and erecting Gate / garden light fitting with 300mm dia. glass bowl suitable for upto 12W LED Lamp on provided pipe as per specification No. FG-ODF/GLT .	Each	970

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
2-4-3	Supplying & erecting integral post top lantern fixtures (mushroom type) suitable for LED lamp upto 12 W consisting of clear acrylic top cover, cast aluminium pole cap complete with accessories on provided pole /bracket as per specification no. FG-ODF/PTL.	Each	1713
2-4-4	Supplying & erecting integral post top lantern fixtures (globe type) suitable for LED lamp upto 12 W consisting of aesthetic round clear acrylic top cover, cast aluminium pole cap on provided pole /bracket as per specification no. FG-ODF/PTL.	Each	1642
2-4-5	Supplying & erecting integral post top lantern fixtures (light house type) suitable upto LED 18 W Lamp consisting of combination of spun aluminium canopy & clear acrylic top cover, cast aluminium pole cap on provided pole/bracket as per specification no. FG-ODF/PTL.	Each	2060

2.5 Highbay LED Fittings (FG-ODF/LED)

2-5-1	Supplying and erecting integrated LED Highbay Fitting 70W IP65 & IK08 class having die cast aluminium housing with polycarbonate diffuser with integrated optics, having system lumens output of Min.10000 Lumens , min. efficacy of 145 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-240V, inbuilt surge protection of 4 kV, Life class of 50,000 Hrs at L50B50, including driver complete with 2 Year warranty as per specification No FG-ODF/LED.	Each	10348
2-5-2	Supplying and erecting integrated LED Highbay Fitting 100W IP65 & IK08 class having die cast aluminium housing with polycarbonate diffuser with integrated optics, having system lumens output of Min. 15000 Lumens , min. efficacy of 145 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-240V, inbuilt surge protection of 4 kV, Life class of 50,000 Hrs at L50B50 , including driver complete with 2 Year warranty as per specification No. FG-ODF/LED.	Each	11615
2-5-3	Supplying and erecting integrated LED Highbay Fitting 135W IP65 & IK08 class having die cast aluminium housing with polycarbonate diffuser with integrated optics, having system lumens output of Min. 20000 Lumens , min. efficacy of 145 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-240V, inbuilt surge protection of 4kV, Life class of 50,000 Hrs at L50B50 , including driver complete with 2 Year warranty as per specification No. FG-ODF/LED.	Each	11844

2.6 Accessories for Outdoor Fittings (FG-BKT)

2-6-1	Supplying and erecting Street light bracket made from 25 mm. dia 'B' class G.I. Pipe, 0.6 m in length along with pole cap of 300 mm length and 80 mm dia duly welded with provided leads as per specification no. FG-BKT/BPC.	Each	720
2-6-2	Supplying and erecting Street light bracket made from 40 mm. dia 'B' class G.I. Pipe, 0.6m. in length along with pole cap of 300 mm length and 80 mm dia duly welded with provided leads as per specification no. FG-BKT/BPC.	Each	770
2-6-3	Supplying and erecting street light Wall bracket made from 25 mm. dia 'B' class G.I. pipe 1.2 m in total length complete as per specification no. FG-BKT/WB.	Each	715

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
2-6-4	Supplying and erecting street light Wall bracket made from 40 mm. dia 'B' class G.I. pipe 1.2 m in total length complete as per specification no. FG-BKT/WB.	Each	867
2-6-5	Supplying and erecting Street light bracket for erection of Single fitting made from 40 mm. dia 'B' class G.I. pipe 1.0 m in length along with pole cap of 300 mm length 100 mm dia duly welded as per specification no. FG-BKT/SLB	Each	1071
2-6-6	Supplying and erecting Street light bracket for erection of Double fitting made from 40 mm. dia 'B' class G.I. pipe 1.0 m in length along with pole cap of 300 mm length 100 mm dia duly welded as per specification no. FG-BKT/SLB	Each	1528
2-6-7	Supplying and erecting Street light bracket for erection of Single fitting on tubular welded pole with 40 mm. dia 1.0 m long "B" grade G.I. pipe along with pole cap of 125mm dia 600 mm long duly welded as per specification no. FG-BKT/SLB	Each	1579
2-6-8	Supplying and erecting Street light bracket for erection of Double fitting on tubular welded pole with 40 mm. dia 1.0 m long "B" grade G.I. pipe along with pole cap of 125mm dia 600 mm long duly welded as per specification no. FG-BKT/SLB	Each	2222
2-6-9	Supplying and erecting Street light bracket for erection of side entry fitting on pole with 25 mm. dia. 'B' grade G.I. pipe of required length complete as per specification no. FG-BKT/SLB	m	655
2-6-10	Supplying and erecting Street light bracket for erection of side entry fitting on pole with 40 mm. dia. 'B' grade G.I. pipe of required length complete as per specification no. FG-BKT/SLB	m	578
2-6-11	Supplying and erecting electronic type Driver for Outdoor LED fittings upto 25W suitable to operate on 230V A.C. 50 Hz. Having p.f>0.95 and THD<10% as per specification no. FG-ODF/AS.	Each	699
2-6-12	Supplying and erecting electronic type Driver for Outdoor LED fittings upto 26W-45W suitable to operate on 230V A.C. 50 Hz. having p.f>0.95 and THD<10% as per specification no. FG-ODF/AS.	Each	754
2-6-13	Supplying and erecting electronic type Driver for Outdoor LED fittings upto 46W-75W suitable to operate on 230V A.C. 50 Hz. having p.f>0.95 and THD<10% as per specification no. FG-ODF/AS.	Each	1380
2-6-14	Supplying and erecting electronic type Driver for Outdoor LED fittings upto 76W-100W suitable to operate on 230V A.C. 50 Hz. having p.f>0.95 and THD<10% as per specification no. FG-ODF/AS.	Each	1728
2-6-15	Supplying and erecting electronic type Driver for Outdoor LED fittings upto 101W-150W suitable to operate on 230V A.C. 50 Hz. having p.f>0.95 and THD<10% as per specification no. FG-ODF/AS.	Each	2423
2-6-16	Supplying and erecting electronic type Driver for Outdoor LED fittings upto 151W-200W suitable to operate on 230V A.C. 50 Hz. having p.f>0.95 and THD<10% as per specification no. FG-ODF/AS.	Each	2563

2.7 Lamps and Tubes for Indoor & Outdoor (FG-LP)

2-7-1	Supplying & erecting 0.5W, 230V integral type LED Lamp suitable for B-22/E-27 base as per specification no. FG-LP.	Each	29
-------	--	------	----

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
2-7-2	Supplying and erecting LED Pigmy /candle lamp miniature type coloured/ white up to 4 watt suitable for B-22/E-27 base as per specification no. FG-LP .	Each	195
2-7-3	Supplying & erecting 3W , 230V integral type LED Lamp suitable for B-22/E-27 base as per specification no. FG-LP .	Each	132
2-7-4	Supplying & erecting 5W-7W , 230V integral type LED Lamp suitable for B-22/E-27 base as per specification no. FG-LP .	Each	147
2-7-5	Supplying & erecting 10-12W , 230V integral type LED Lamp suitable for B-22/E-27 base as per specification no. FG-LP .	Each	266
2-7-6	Supplying & erecting 14W , 230V integral type LED Lamp suitable for B-22/E-27 base as per specification no. FG-LP .	Each	290
2-7-7	Supplying & erecting 18W , 230V integral type LED Lamp suitable for B-22/E-27 base as per specification no. FG-LP .	Each	369
2-7-8	Supplying & erecting ready to use Retrofit T8 LED, 18 / 20 watt tube light with polycarbonate body, heat sink, integrated HF electronic driver complete & compatible to T8 / T12 LED luminaire by disconnecting starter & ballast if necessary as per specification No. FG-LP/RET .	Each	663
Note:-	1) System efficacy shall not be less than 100 lumens/watt 2) LED Lamp /tube shall carry minimum two year warranty.		
<u>2.8 Aviation Light Fitting (FG-AV)</u>			
2-8-1	Supplying & erecting aviation obstruction light minimum up to 48 watt consisting of yellow painted die-cast aluminium alloy housing with integral LED aviation light comprising of aluminium housing with polycarbonate enclosure complete as per specification No. FG-AV .	Each	5189
<u>2.9 Fans (FG-FN)</u>			
2-9-1	Supplying and erecting regular/ standard model ceiling fan of 600mm. sweep complete erected in position as per specification no. FG-FN/CF .	Each	1785
2-9-2	Supplying and erecting regular/ standard model ceiling fan of 900 /1050 mm. sweep complete erected in position as per specification no. FG-FN/CF .	Each	1877
2-9-3	Supplying and erecting regular/ standard model ceiling fan of 1400mm. sweep complete erected in position as per specification no. FG-FN/CF .	Each	2107
2-9-4	Providing and erecting bracket fan 400 mm. sweep A. C. 230 volts 50 cycles 1350 R.P.M. Oscillating type, plastic or metal blades chrome plated guard with regulator and moisture proof treatment to winding and with 'E' class insulation.	Each	2390
2-9-5	Providing and erecting air circulator 450 mm. sweep oscillating type, wall mounting 1440 RPM without speed regulator, overheat protection unit, totally enclosed, flame proof motor suitable for 230/250 Volts single phase, 50 cycles A.C. supply, with one metre of 3core lead wire and with moisture proof treatment to winding and with 'E' class insulation.	Each	4440
2-9-6	Providing and erecting air circulator 600 mm. sweep oscillating type, wall mounting 1440 RPM without speed regulator, overheat protection unit, totally enclosed, flame proof motor suitable for 230/250 volts single phase, 50 cycles A.C. supply, core lead wire and with moisture proof treatment to winding and with 'E' class insulation.	Each	6182

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
2-9-7	Supplying Pedestal fan 400 mm. 230 Volts 50 cycles oscillating type complete with guard and regulator 3 mtrs. of flexible wire and hand shield type 3 pin plug top.	Each	2774
2-9-8	Supplying pedestal type air circulator 450 mm. sweep oscillating type suitable to work on 230 Volts 50 cycles 1440 RPM without speed regulator, metallic blades, overheat protection unit, totally enclosed, flame proof motor with additional 3 core wire, 5 metre length and hand shield type 3 pin 5A. plug top complete with moisture proof treatment and 'E' class insulation.	Each	4674
2-9-9	Supplying pedestal type air circulator 600 mm. sweep oscillating type suitable to work on 230 Volts 50 cycles 1440 RPM without speed regulator, metallic blades, overheat protection unit, totally enclosed, flame proof motor with additional 3 core wire, 5 metre length and hand shield type 3 pin 6A. plug top complete with moisture proof treatment and 'E' class insulation.	Each	8000
2-9-10	Supplying Table fan of A.C. 230 V. 50 cycles 400 mm. oscillating type complete with 2 mtrs. of 3 core flexible wire and Hand shield type 3 pin plug top.	Each	2071
2-9-11	Supplying and erecting cabin fan of A.C. 230 V. 50 cycles 250 mm. /300 mm. sweep complete with necessary brackets for fixing cabin fans, wire etc.	Each	1848
2-9-12	Supplying and erecting cabin fan of A.C. 230 V. 50 cycles 400 mm. sweep complete with necessary brackets for fixing cabin fans, wire etc.	Each	1976
2-9-13	Supplying and erecting exhaust fan medium duty 230 V A.C. 50 cycles 225 mm. 1400 RPM with condenser complete erected in position with necessary materials. Fan motor with moisture proof treatment and 'E' class insulation.	Each	1701
2-9-14	Supplying and erecting exhaust fan heavy duty 230 V, A.C. 50 cycles 375/380 mm. 900 RPM complete erected in position as per specification no. FG-FN/EXF	Each	3442
2-9-15	Supplying and erecting exhaust fan heavy duty 230 V A.C. 50 cycles 375/380 mm. 1400 RPM complete erected in position as per specification no. FG-FN/EXF	Each	3783
2-9-16	Supplying and erecting exhaust fan heavy duty 230 V A.C. 50 cycles 450 mm. 1400 RPM complete erected in position as per specification no. FG-FN/EXF	Each	4932
2-9-17	Supplying and erecting exhaust fan heavy duty 230 V A.C. 50 cycles 450 mm. 900 RPM complete erected in position as per specification no. FG-FN/EXF	Each	5352
2-9-18	Supplying and erecting exhaust fan heavy duty 440 V A.C. 50 cycles 900 RPM 375/380 mm complete erected in position as per specification no. FG-FN/EXF	Each	3783
2-9-19	Supplying and erecting Energy Saving Ceiling fan of 3 star rating as per BEE 230 V A.C. 50 cycles 1200 mm complete erected in position as per specification no. FG-FN/CF	Each	1884
2-9-20	Supplying and erecting Energy Saving BLDC Ceiling fan 230 V A.C. 50 cycles 600 mm, Max. Energy Consumption of 28W having service ratio (CMM/W) of Min. 8, PF>0.9, THD<10% with IR remote control, Temperature Rise of Max. 40 deg.C, having external mounted control PCB completely erected in position as per specification no. FG-FN/CF.	Each	3991
2-9-21 (New)	Supplying and erecting Energy Saving BLDC Ceiling fan 230 V A.C. 50 cycles 900 mm, Max. Energy Consumption of 28W having service ratio (CMM/W) of Min. 8, PF>0.9, THD<10% with IR remote control, Temperature Rise of Max. 40 deg.C, having external mounted control PCB completely erected in position as per specification no. FG-FN/CF.	Each	4102

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
2-9-22 (New)	Supplying and erecting Energy Saving BLDC Ceiling fan 230 V A.C. 50 cycles 1200 mm, Max. Energy Consumption of 28W having service ratio (CMM/W) of Min. 8 , PF>0.9, THD<10% with IR remote control, Temperature Rise of Max. 40 deg.C, having external mounted control PCB completely erected in position as per specification no. FG-FN/CF	Each	4499
2-9-23 (New)	Supplying and erecting Energy Saving BLDC Ceiling fan 230 V A.C. 50 cycles 1400 mm, Max. Energy Consumption of 28W having service ratio (CMM/W) of Min. 8, PF>0.9, THD<10% with IR remote control, Temperature Rise of Max. 40 deg.C, having external mounted control PCB completely erected in position as per specification no. FG-FN/CF .	Each	4825
Note:-	Item No. 2-9-20 to 2-9-23 Reduce rate by 10% for BLDC fan without IR remote control.		
<u>2.10 Accessories for Fans (FG-FAS)</u>			
2-10-1	Supplying and erecting condenser 2.5 micro farad for ceiling fan	Each	71
2-10-2	Supplying & fixing anchor type fastener fan hook , with 2 nos. of 10 mm dia x 75 mm long with necessary materials for ceiling fan.	Each	107
2-10-3	Supplying and erecting fan clamp of 30 x 5 mm. M.S. flat of required length and 10 mm. M.S. bolt and nuts erected with necessary hook of 10 mm. M.S. round bar and painted.	Each	205
2-10-4	Supplying and erecting fan hook of 10 mm. M.S. round bar grouted in RCC slab with making the site as original.	Each	122
2-10-5	Supplying and erecting fan hook box of 10 mm M.S. round bar bounded to the R.C.C. bars upto 50 mm length each side and pierced through a 16 S.W.G. thick aluminium/M.S. Bowl 100 mm dia. or equivalent square size and having depth upto 75 mm complete erected with duly painted by one coat of red oxide paint and two coats of paint erected in position and without any leakage of slurry of cement concrete on either side of the box and positioned to the bottom level of the slab.	Each	186
2-10-6	Supplying and erecting 'B' grade G.I. pipe / M.S. pipe down rod duly painted for fan complete erected with PVC three core flexible cable 1 sq. mm copper PVC wire.	m	241
2-10-7	Erection of departmentally supplied ceiling fan with necessary materials complete.	Each	115
2-10-8	Erection of departmentally supplied exhaust fan with necessary materials complete.	Each	198
2-10-9	Supplying and erecting electronic type step regulator for ceiling fan 600/ 900/	Each	191
2-10-10	Providing recess in brick wall suitable for erection of exhaust fan up to 450 mm sweep complete with grouting of nut, bolts, plaster in hand colour washing to match the colour of the wall for the wall thickness of 150 mm .	Each	355
2-10-11	Providing recess in brick wall suitable for erection of exhaust fan up to 450mm . sweep complete with grouting of nut, bolts, plastering and colour washing to match the colour of the wall for the wall thickness of 225 mm .	Each	418
2-10-12	Providing recess in brick wall suitable for erection of exhaust fan up to 450mm . sweep complete with grouting of nut, bolts, plastering and colour washing to match the colour of the wall for the wall thickness of 375 mm .	Each	501
2-10-13	Providing recess in stone wall suitable for erection of exhaust fan up to 450mm sweep complete with grouting of nut, bolts, plastering and colour washing to match the colour of the wall.	Each	771

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
2-10-14	Supplying & erecting 22 SWG G.I sheet metal cawl sector shaped with 25 x 25 x 3 (mm) angle iron frame, metal mesh to avoid birds entry with necessary material, suitable for exhaust fan of 300 mm as per specification no FG-FAS/MSC.	Each	1121
2-10-15	Supplying & erecting 22 SWG G.I sheet metal cawl sector shaped with 25 x 25 x 3 (mm) angle iron frame, metal mesh to avoid birds entry with necessary material, suitable for exhaust fan of 400 mm as per specification no FG-FAS/MSC.	Each	1265
2-10-16	Supplying & erecting 22 SWG G.I sheet metal cawl sector shaped with 25 x 25 x 3 (mm) angle iron frame, metal mesh to avoid birds entry with necessary material, suitable for exhaust fan of 450 mm as per specification no FG-FAS/MSC.	Each	1353
2-10-17	Supplying & erecting 20 SWG G.I sheet metal cawl rectangular / round shaped with 25 x 25x 3 (mm) angle iron frame, metal mesh to avoid birds entry with necessary material, suitable for exhaust fan of 300 mm as per specification no FG-FAS/MSC.	Each	1209
2-10-18	Supplying & erecting 20 SWG G.I sheet metal cawl rectangular /round shaped with 25 x 25x 3 (mm) angle iron frame, metal mesh to avoid birds entry with necessary material, suitable for exhaust fan of 400 mm as per specification no FG-FAS/MSC.	Each	1392
2-10-19	Supplying & erecting 20 SWG G.I sheet metal cawl rectangular /round shaped with 25 x 25x 3 (mm) angle iron frame, metal mesh to avoid birds entry with necessary material, suitable for exhaust fan of 450 mm as per specification no FG-FAS/MSC.	Each	1475
<u>2.11 Dismantling</u>			
2-11-1	Dismantling of existing fluorescent fittings of any type & size.	Each	17
2-11-2	Dismantling the existing W.T. fluorescent fitting / S.V. / M.V. / M.H. lamp /LED fitting from wall with brackets and making the site as original complete.	Each	52
2-11-3	Dismantling the existing W.T. fluorescent fitting/ S.V./ M.V. / M.H. lamp /LED fitting from pole with brackets complete.	Each	121
2-11-4	Dismantling the existing ceiling fan /exhaust fan / cabin fan / bracket fan complete with accessories, G.I. down rod, frame etc. and making the site clear.	Each	42
Note:-	1) Above rates are inclusive of transportation to the sub-divisional store or as directed by sectional officer. 2) All fans & fittings shall be marked with sr. no. & date of erection.		

Chapter 3 : APPLIANCES (AP)

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
<i>3.1 Water Heaters (AP-WH)</i>			
3-1-1	Supplying and erecting storage type water heater 15 litres capacity having standing loss ≤ 0.381 kWh/24hour/45°C , high impact resistance engineering plastic body with anti corrosive high grade steel inner tank heating element having hard water & corrosion protection, with minimum 3 safety protections (i.e. thermostat & thermal cutout, multi function valve) complete with 3 core PVC flexible wire leads complete & total pressure 8 bar withstanding capacity duly tested and marking sr. no. and date of erection complete as per specification no. AP-WH/STWH	Each	9447
3-1-2	Supplying and erecting storage type water heater 25 litres capacity having standing loss ≤ 0.465 kWh/24hour/45°C , high impact resistance engineering plastic body with anti corrosive high grade steel inner tank, heating element having hard water & corrosion protection, with minimum 3 safety protections (i.e. thermostat & thermal function valve) complete with 3 core PVC flexible wire leads complete & total pressure 8 bar withstanding capacity duly tested and marking sr. no. and date of erection complete as per specification no. AP-WH/STWH	Each	11206
3-1-3	Supplying and erecting storage type water heater 35 litres capacity having standing loss ≤ 0.531 kWh/24hour/45°C , high impact resistance engineering plastic body with anti corrosive high grade steel inner tank heating element having hard water & corrosion protection, with minimum 3 safety protections (i.e. thermostat & thermal function valve) complete with 3 core PVC flexible wire leads complete & total pressure 8 bar withstanding capacity duly tested and marking sr. no. and date of erection complete as per specification no. AP-WH/STWH	Each	14211
3-1-4	Supplying and erecting storage type water heater 50 litres capacity having standing loss ≤ 0.614 kWh/24hour/45°C , high impact resistance engineering plastic body with anti corrosive high grade steel inner tank heating element having hard water & corrosion protection, with minimum 3 safety protections (i.e. thermostat & thermal function valve) complete with 3 core PVC flexible wire leads complete & total pressure 8 bar withstanding capacity duly tested and marking sr. no. and date of erection complete as per specification no. AP-WH/STWH	Each	18437
3-1-5	Supplying and erecting storage type water heater 100 litres capacity having standing loss ≤ 0.796 kWh/24hour/45°C , high impact resistance engineering plastic body with anti corrosive high grade steel inner tank heating element having hard water & corrosion protection, with minimum 3 safety protections (i.e. thermostat & thermal function valve) complete with 3 core PVC flexible wire leads complete & total pressure 8 bar withstanding capacity duly tested and marking sr. no. and date of erection complete as per specification no. AP-WH/STWH	Each	29421
3-1-6	Supplying and erecting midget type 3.0 litres instant type water heater of rustproof & shockproof ABS plastic body, high grade SS inner tank & 3kW heating element with corrosion & hard water protection, with minimum 3 safety protections (i.e. thermostat & thermal function valve) complete with 6.5 bar pressure withstanding capacity 230/250V, 50Hz, A.C. supply with inlet and outlet, with 3 core PVC flexible copper wire leads duly tested and marking sr. no. and date of erection complete.	Each	4464
3-1-7	Supplying and erecting chromium plated heavy duty brass stop cock for inlet pipe of water heater (15 mm. dia).	Each	473
3-1-8	Supplying & erecting 15 mm brass non return valve for inlet pipe of storage water heater.	Each	379

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-1-9	Supplying & erecting dead weight pressure releasing valve for storage water heater with necessary materials complete.	Each	557
3-1-10	Supplying & erecting vacuum relief valve for storage water heater with necessary materials complete.	Each	230
3-1-11	Providing fibre reinforced pvc flexible pipe upto 1m length with brass locking nuts and washers and clips at both ends suitable for hot water and cold water both (1 set of 2 nos) complete.	Each	362
3-1-12	Supplying and erecting ISI mark heating element 2 / 3 kW suitable for water heater/ midget of any make any capacity.	Each	1181
3-1-13	Supplying and erecting ISI mark thermostat suitable for water heater / midget of any make, any capacity.	Each	435
3-1-14	Erecting departmentally supplied water heater of 15 / 25 ltr capacity with wall fasteners, inlet & outlet pipes, NRV, etc. and marking sr no. and date of erection.	Each	327
3-1-15	Erecting departmentally supplied water heater of 35/ 50 / 100 ltr capacity with wall fasteners, inlet & outlet pipes, NRV, etc. and marking sr. no. and date of erection.	Each	431
3-1-16	Dismantling unserviceable storage type water heater from site to workshop and back after duly repaired and re-erecting the repaired storage water heater in position with necessary material complete with To & Fro transportation.	Each	387
<u>3.2 Air Conditioners (AP-AC)</u>			
3-2-1	Supplying, installing, testing & commissioning window type variable speed inverter technology with minimum 3 to 1convertible mode for compressor, room air conditioning unit 0.7TR to 0.9TR capacity having ISEER minimum 3.1 to maximum 3.29 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32 having copper condenser, minimum 2.5PM filter, self diagnosis feature, stabilizer free operation & temperature display on indoor unit, noise level maximum 50dBA at position in provided recess with wooden frame complete specification no. AP-AC/WAC	Each	25245
3-2-2	Supplying, installing, testing & commissioning window type variable speed inverter technology with minimum 3 to 1convertible mode for compressor, room air conditioning unit 1.0TR to 1.2TR capacity having ISEER minimum 3.1 to maximum 3.29 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32 having copper condenser, minimum 2.5PM filter, self diagnosis feature, stabilizer free operation & temperature display on indoor unit, noise level maximum 50dBA at position in provided recess with wooden frame complete specification no. AP-AC/WAC	Each	25035
3-2-3	Supplying, installing, testing & commissioning window type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor, room air conditioning unit 1.0TR to 1.2TR capacity having ISEER minimum 3.5 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32 having copper condenser, minimum 2.5PM filter, self diagnosis feature, stabilizer free operation & temperature display on indoor unit, noise level maximum 50dBA at position in provided recess with wooden frame complete specification no. AP-AC/WAC	Each	28682

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-2-4	Supplying, installing, testing & commissioning window type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor, room air conditioning unit 1.3TR to 1.6TR capacity having ISEER minimum 3.1 to maximum 3.29 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32 having copper condenser, minimum 2.5PM filter, self diagnosis feature, stabilizer free operation & temperature display on indoor unit, noise level maximum 50dBA at position in provided recess with wooden frame complete specification no. AP-AC/WAC	Each	28682
3-2-5	Supplying, installing, testing & commissioning window type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor, room air conditioning unit 1.3TR to 1.6TR capacity having ISEER minimum 3.5 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32 having copper condenser, minimum 2.5PM filter, self diagnosis feature, stabilizer free operation & temperature display on indoor unit, noise level maximum 50dBA at position as per specification no. AP-AC/ WAC	Each	31897
3-2-6	Supplying, installing, testing & commissioning window type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor, room air conditioning unit 1.7TR to 2.00TR capacity having ISEER minimum 3.1 to maximum 3.29 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32 having copper condenser, minimum 2.5PM filter, self diagnosis feature, stabilizer free operation & temperature display on indoor unit, noise level maximum 50dBA at position in provided recess with wooden frame complete specification no. AP-AC/WAC	Each	42377
3-2-7	Supplying, installing, testing & commissioning split type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor, room air conditioning unit 0.7TR to 0.9TR capacity having ISEER minimum 3.8 to maximum 4.39 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32 having copper condenser, minimum 2.5PM filter, self diagnosis feature, stabilizer free operation & temperature display on indoor unit, noise level maximum 50dBA at position as per specification no. AP-AC/ SAC	Each	27064
3-2-8	Supplying, installing, testing & commissioning split type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor, room air conditioning unit 1.0TR to 1.2TR capacity having ISEER minimum 3.8 to maximum 4.39 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32 having copper condenser, minimum 2.5PM filter, self diagnosis feature, stabilizer free operation & temperature display on indoor unit, noise level maximum 50dBA at position as per specification no. AP-AC/ SAC	Each	31691

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-2-9	Supplying, installing, testing & commissioning split type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor, room air conditioning unit 1.0TR to 1.2TR capacity having ISEER minimum 5.00 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32 having copper condenser, minimum 2.5PM filter, self diagnosis feature, stabilizer free operation & temperature display on indoor unit, noise level maximum 50dBA at position as per specification no. AP-AC/ SAC	Each	37507
3-2-10	Supplying, installing, testing & commissioning split type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor, room air conditioning unit 1.3TR to 1.6TR capacity having ISEER minimum 3.8 to maximum 4.39 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32 having copper condenser, minimum 2.5PM filter, self diagnosis feature, stabilizer free operation & temperature display on indoor unit, noise level maximum 50dBA at position as per specification no. AP-AC/ SAC	Each	36823
3-2-11	Supplying, installing, testing & commissioning split type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor, room air conditioning unit 1.3TR to 1.6TR capacity having ISEER minimum 5.00 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32 having copper condenser, minimum 2.5PM filter, self diagnosis feature, stabilizer free operation & temperature display on indoor unit, noise level maximum 50dBA at position as per specification no. AP-AC/ SAC	Each	45399
3-2-12	Supplying, installing, testing & commissioning split type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor, room air conditioning unit 1.7TR to 2.0TR capacity having ISEER minimum 3.8 to maximum 4.39 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32 having copper condenser, minimum 2.5PM filter, self diagnosis feature, stabilizer free operation & temperature display on indoor unit, noise level maximum 50dBA at position as per specification no. AP-AC/ SAC	Each	56741
3-2-13	Supplying, installing, testing & commissioning split type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor. room air conditioning unit 1.7TR to 2.0TR capacity having ISEER minimum 5.0 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32 having copper condenser, minimum 2.5PM filter, self diagnosis feature, stabilizer free operation & temperature display on indoor unit, noise level maximum 50dBA at position in provided recess with wooden frame complete specification no. AP-AC/SAC	Each	67042
3-2-14	Supplying, installing, testing & commissioning split type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor, room air conditioning unit 2.1TR to 2.3TR capacity having ISEER minimum 3.8 to maximum 4.39 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32 having copper condenser, minimum 2.5PM filter, self diagnosis feature, stabilizer free operation & temperature display on indoor unit, noise level maximum 50dBA at position as per specification no. AP-AC/ SAC	Each	70760

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-2-15	Supplying, installing, testing & commissioning split type room air conditioning unit 2.5TR to 2.7TR capacity with refrigerant R32 415V, 50 Hz, A.C. supply having 1 no of air handling unit (Mega spilt) mounting type complete with temperature display on indoor unit, noise level maximum 50dBA at position as per specification no. AP-AC/SAC	Each	61253
3-2-16	Supplying, installing, testing & commissioning split type room air conditioning unit 2.8TR to 3.2TR capacity with refrigerant R32 415V, 50 Hz, A.C. supply having 1 no of air handling unit (Mega spilt) mounting type complete with temperature display on indoor unit, noise level maximum 50dBA at position as per specification no. AP-AC/ SAC	Each	76824
3-2-17	Supplying, installing, testing & commissioning cassette type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor room air conditioning unit 1.3TR to 1.7TR capacity having ISEER minimum 5.00 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32/R410A having copper condenser, dust filter, self diagnosis feature, stabilizer free operation, noise level maximum 50dBA at position as per specification no. AP-AC/ WAC	Each	79283
3-2-18	Supplying, installing, testing & commissioning cassette type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor room Air conditioning unit 1.8TR to 2.1TR capacity having ISEER minimum 5.00 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32/R410A having copper condensor,dust filter, self diagnosis feature, stabilizer free operation, noise level maximum 50dBA at position as per specification no. AP-AC/ WAC	Each	92014
3-2-19	Supplying, installing, testing & commissioning cassette type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor room Air conditioning unit 2.5TR to 2.7TR capacity having ISEER minimum 5.00 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32/R410A having copper condenser, dust filter, self diagnosis feature, stabilizer free operation, noise level maximum 50dBA at position as per specification no. AP-AC/ WAC	Each	123889
3-2-20	Supplying, installing, testing & commissioning cassette type room Air conditioning unit 2.8TR to 3.3TR capacity with refrigerant R32/R410A 415V, 50 Hz, A.C. supply having 1 no of air handling unit (Mega spilt) mounting type complete with temperature display on indoor unit, dust filter, noise level maximum 50dBA at position as per specification no. AP-AC/ WAC	Each	129979
3-2-21	Supplying, installing, testing & commissioning cassette type room Air conditioning unit 3.4TR to 3.9TR capacity with refrigerant R32/410A 415V, 50 Hz, A.C. supply having 1 no of air handling unit (Mega spilt) mounting type complete with temperature display on indoor unit, minimum dust filter, noise level maximum 50dBA at position as per specification no. AP-AC/ WAC	Each	149464
3-2-22	Supplying, installing, testing & commissioning cassette type room Air conditioning unit 4TR to 4.4TR capacity with refrigerant R32/410A 415V, 50 Hz, A.C. supply having 1 no of air handling unit (Mega spilt) mounting type complete with temperature display on indoor unit, minimum dust filter, noise level maximum 50dBA at position as per specification no. AP-AC/ WAC	Each	145159

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-2-23	Supplying ,installing , testing and commissioning tower type room AC unit of 2.5TR to 2.9TR capacity suitable to operate on 415V, 50 Hz, A.C. supply having 1 no AHU and 1 no cabinet type floor mounting type condensing unit with refrigerant R32/410A & copper condenser coil with anticorrosive fins copper condenser , hydrophilic evaporator fins powder coated outer body ,with scroll/rotary compressor connected with provided refrigerant pipes, electric cables and drain pipe.	Each	78267
3-2-24	Supplying ,installing , testing and commissioning tower type room AC unit of 3.5TR to 3.9TR capacity suitable to operate on 415V, 50 Hz, A.C. supply having 1 no AHU and 1 no cabinet type floor mounting type condensing unit with refrigerant R32/410A & copper condenser coil with anticorrosive fins copper condenser, hydrophilic evaporator fins powder coated outer body, with scroll/rotary compressor connected with provided refrigerant pipes, electric cables and drain pipe.	Each	84152
3-2-25	Supplying, installing, testing and commissioning tower type room AC unit of 4.0TR to 4.9TR capacity suitable to operate on 415V, 50 Hz, A.C. supply having 1 no AHU and 1 no cabinet type floor mounting type condensing unit with refrigerant R32/R410A & copper condenser coil with anticorrosive fins copper condenser, hydrophilic evaporator Fins Powder coated outer body, with scroll/rotary compressor connected with provided refrigerant pipes, electric cables and drain pipe.	Each	117240
3-2-26	Supplying & erecting seamless outside & inside, smooth, dry and clean copper pipe with ROHS compliant suitable for refrigerant having 22SWG thickness and inner dia/size 12mm complete as per specification no. AP/AC-CP	m	304
3-2-27	Supplying & erecting seamless outside & inside, smooth, dry and clean copper pipe with ROHS compliant suitable for refrigerant having 22SWG thickness and inner dia/size 16mm complete as per specification no. AP/AC-CP	m	454
3-2-28	Supplying & erecting seamless outside & inside, smooth, dry and clean copper pipe with ROHS compliant suitable for refrigerant having 22SWG thickness and inner dia/size 22mm complete as per specification no. AP/AC-CP	m	640
3-2-29	Supplying & erecting seamless outside & inside, smooth, dry and clean copper pipe with ROHS compliant suitable for refrigerant having 22SWG thickness and inner dia/size 32mm complete as per specification no. AP/AC-CP	m	1121
3-2-30	Supplying & erecting seamless outside & inside, smooth, dry and clean copper pipe with ROHS compliant suitable for refrigerant having 22SWG thickness and inner dia/size 35mm complete as per specification no. AP/AC-CP	m	1168
3-2-31	Supplying & erecting seamless outside & inside, smooth, dry and clean copper pipe with ROHS compliant suitable for refrigerant having 22SWG thickness and inner dia/size 42mm complete as per specification no. AP/AC-CP	m	1599
3-2-32	supplying floor mounted de-humidifier of ABS engineering plastic body 320 to 360W , 220-240V, 50 Hz, A.C. supply of 16 to 22 liter/day (300°C-80%-90%RH) capacity having rotary compressor consisting with refrigerant R410A/R134A running temperature capacity 50°C-350°C, tank capacity 3-4.5litre, noise level below 40dBA with digital display, programmable timer, humidity display, humidity setting arrangement, air flow 150 to 200cu.m/hr and suitable for cover 70-100cu.m area.	Each	34163

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-2-33	Supplying floor mounted de-humidifier of ABS engineering plastic body 470 to 530W , 220-240V, 50 Hz , A.C. supply of 30 to 35 liter/day (300°C-80%-90%RH) capacity having rotary compressor consisting with refrigerant R410A/R134A running temperature capacity 50 ⁰ C-350 ⁰ C, tank capacity 3.7-6.5litre, noise level 45-49dBA with digital display, programmable timer, humidity display, humidity setting arrangement, air flow 190 to 220 cu.m/hr and suitable for cover 101-115 cu.m area.	Each	54438
3-2-34	Supplying floor mounted de-humidifier of ABS engineering plastic body 740W , 220-240V, 50 Hz A.C. supply of 50 litre/day (300°C-80%RH) capacity having rotary compressor consisting with refrigerant R410A/R134A running temperature capacity 50°C-350°C, tank capacity 8 liter, noise level 47dBA with digital display, programmable timer, humidity display, humidity setting arrangement, air flow 310 cu.m/hr and suitable for cover 150cu.m area.	Each	87149
3-2-35	Supplying, installing, testing & commissioning portable type room air conditioner having ISEER minimum 3.33 suitable to operate on 250V, 50 Hz, A.C. supply minimum 1TR capacity complete with refrigerant R32/R410A at position with drain pipe arrangement with small bucket of size minimum 1litre with necessary wheel base for movement.	Each	46918
3-2-36	Providing modifications to the existing window for erection of window room air conditioner in position with good quality teak wood as per requirement and filling the gaps to maintain air tightness.	Each	2739
3-2-37	Providing and pasting superior quality sun control film on glass to achieve better cooling effect having 1.5/2mm thickness, ultra violet transmittance less than 2% and solar heat rejection 78%.	Sq.m	1295
Note:-	1) For copper pipe nitrile rubber insulation refer to chapter 4.		
	2) For drain piping refer rates of PVC pipes from chapter no. 1.		
(New)	3) Rates of Split type Air Conditioning Units (Item No. 3-2-7 to 3-2-14) are inclusive of suitable size Copper Pipe, Nitrile insulation and 3 Core flexible PVC wire upto 3 meters length.		
<u>3.3 Water Coolers & Refrigerators (AP-WC)</u>			
3-3-1	Supplying single door refrigerator domestic type of 170 to 195 litres storage capacity, minimum 5 Star inverter type , stabilizer free operation suitable for operation on 100V/300 V, 50 cycles complete with automatic temperature control, shall be marked on unit for sealed unit in refrigeration system and marking sr. no. and date of erection.	Each	17663
3-3-2	Supplying single door refrigerator domestic type of 200 to 230 litres storage capacity, minimum 5 Star inverter type , stabilizer free operation suitable for operation on 100V/300 V, 50 cycles complete with automatic temperature control, shall be marked on unit for sealed unit in refrigeration system and marking sr. no. and date of erection.	Each	23436
3-3-3	Supplying double door refrigerator domestic type of 300 to 360 litres storage capacity, minimum 5 Star inverter type , stabilizer free operation suitable for operation on 100V/300 V, 50 cycles complete with automatic temperature control, shall be marked on unit for sealed unit in refrigeration system and marking sr. no. and date of erection.	Each	44961
3-3-4	Supplying double door refrigerator domestic type of minimum litres storage capacity, minimum 415 litter 5 Star inverter type , stabilizer free operation suitable for operation on 100V/300 V, 50 cycles complete with automatic temperature control, shall be marked on unit for sealed unit in refrigeration system and marking sr. no. and date of erection.	Each	63889

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-3-5	Supplying Deep Freezer commercial type of make 200 litres storage capacity , with double door suitable for operation on 230/250 V 50 cycles complete with compressor automatic temperature control with minimum temperature range -18°C to -22°C ,Manual Defrost Type, with refrigerant R290/R404a marking sr. no. and date of erection.	Each	20068
3-3-6	Supplying Deep Freezer commercial type of make 400 litres storage capacity , with double door suitable for operation on 230/250 V 50 cycles complete with compressor automatic temperature control with minimum temperature range -18°C to -22°C ,Manual Defrost Type, with refrigerant R290/R404a marking sr. no. and date of erection.	Each	31080
3-3-7	Supplying, erecting, testing and commissioning self contained water cooler 230/250V 50 cycles nominal cooling capacity of 20 litres per hour and storage capacity 20 litres with partially stainless steel body As per specification No. APWCR/ WC	Each	22044
3-3-8	Supplying, erecting, testing and commissioning self contained water cooler 230/250V 50 cycles nominal cooling capacity of 40 litres per hour and storage capacity 80 litres with partially stainless steel body As per specification No. APWCR/ WC	Each	34602
3-3-9	Supplying, erecting, testing and commissioning self contained water cooler 230/250 V 50 cycles nominal cooling capacity of 80 litres per hour and storage capacity 120 litres with partially stainless steel body as per specification no. AP-WCR/WC	Each	50553
3-3-10	Supplying, erecting, testing and commissioning self contained water cooler 230/250 Volts 50 cycles nominal cooling capacity of 150 litres per hour and storage capacity 150 litres with partially stainless steel body as per specification No. AP-WCR/WC	Each	53353
<u>3.4 Air-Coolers (AP-ACR/DAC)</u>			
3-4-1	Supplying 230/250 Volts, 50Hz, evaporative air cooler (desert cooler) having normal cooling capacity of 50 cu.m per minute, with 12" exhaust, min 40 to 55 litres water capacity tank with galvanised steel sheet with Grade 350 minimum, leak or drip free, front grill shall be made of non-corrosive material, circular opening shall be more than fan sweep but not exceeding more than 25 mm, Filter pads shall be made of wood wool or any other substitute placed in non-corrosive wire mesh and tightened at places with side panels, noise level should not be more than 65 dBA at 1 m distance, 3 core copper cable minimum 2 m length & metal casing of the electrical components, metal frame or chassis of cooler cabinet and all exposed metallic parts, shall be provided with proper earthing complete as per specification No. AP-ACR/DAC	Each	7849
3-4-2	Supplying evaporative air cooler (desert cooler) with galvanised steel sheet with Grade 350 minimum, leak or drip free, front grill shall be made of non-corrosive material, circular opening shall be more than fan sweep but not exceeding more than 25 mm, Filter pads shall be made of wood wool or any other substitute placed in non-corrosive wire mesh and tightened at places with side panels, noise level should not be more than 65 dBA at 1 m distance, A three-core cable minimum 2 m length & metal casing of the electrical components, metal frame or chassis of cooler cabinet and all exposed metallic parts, shall be provided with proper earthing operate on 230/250 Volts,50Hz, normal cooling capacity of 60 to 70 cu.m per minute, with 12" exhaust ,min 68 litres water capacity tank complete as per specification No. AP-ACR/DAC	Each	11326

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-4-3	Supplying evaporative air cooler (desert cooler) with galvanised steel sheet with Grade 350 minimum, leak or drip free, front grill shall be made of non-corrosive material, circular opening shall be more than fan sweep but not exceeding more than 25 mm, Filter pads shall be made of wood wool or any other substitute placed in non-corrosive wire mesh and tightened at places with side panels, noise level should not be more than 65 dBA at 1 m distance, A three-core-cable minimum 2 m length & metal casing of the electrical components, metal frame or chassis of cooler cabinet and all exposed metallic parts, shall be provided with proper earthing operate on 230/250 Volts,50Hz, normal cooling capacity of 80 cu.m per minute, with 12" exhaust ,min 75 to 80 litres water capacity tank complete as per specification No. AP-ACR/DAC	Each	15397
3-4-4	Supplying evaporative air cooler (desert cooler) duct type with galvanised steel sheet with Grade 350 minimum, leak or drip free, front grill shall be made of non-corrosive material, circular opening shall be more than fan sweep but not exceeding more than 25 mm, Filter pads shall be made of wood wool or any other substitute placed in non-corrosive wire mesh and tightened at places with side panels, noise level should not be more than 65 dBA at 1 m distance, A three-core-cable minimum 2 m length & metal casing of the electrical components, metal frame or chassis of cooler cabinet and all exposed metallic parts, shall be provided with proper earthing operate on 230/250 Volts,50Hz, normal cooling capacity of 100 cu.m per minute, with 15" exhaust ,min 75 to 80 litres water capacity tank complete as per specification No. AP-ACR/DAC	Each	12644
3-4-5	Supplying evaporative air cooler (desert cooler) duct type with galvanised steel sheet with Grade 350 minimum, leak or drip free, front grill shall be made of non-corrosive material, circular opening shall be more than fan sweep but not exceeding more than 25 mm, Filter pads shall be made of wood wool or any other substitute placed in non-corrosive wire mesh and tightened at places with side panels, noise level should not be more than 65 dBA at 1 m distance, A three-core-cable minimum 2 m length & metal casing of the electrical components, metal frame or chassis of cooler cabinet and all exposed metallic parts, shall be provided with proper earthing operate on 230/250 Volts, 50Hz, normal cooling capacity of 120 cu.m per minute, with 17" exhaust ,min 75 to 80 litres water capacity tank complete as per specification No. AP-ACR/DAC	Each	17685

3.5 Water Purifiers (AP-WPF)

3-5-1	Supplying and erecting ultra violet storage type water purifier (RO+UV+UF) with softener for safe drinking water consisting of UV germicidal tube of 8W capacity choke made of copper wire and two indicator lamps with output of purified water minimum 0.33 litre/min with activated carbon filter and softener operating on 230 V single phase A.C. supply with UV fail & filter change indication system .(for TDS more than 200)	Each	15761
3-5-2	Supplying and erecting ultra violet water purifier with softener for safe drinking water consisting of UV germicidal tube of 8W capacity, choke made of copper wire, two indicator lamps, dual function cartridge with output of purified water 1 litre/min with activated carbon filter and softener operating on 230 V single phase AC supply with UV fail & filter change indication system.	Each	7663

Note:- Add Rs.2000/- for sample water testing charges including transportation, sample collecting and report within two days.

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
<u>3.6 Inverter (AP-INV)</u>			
3-6-1	Supplying, installing, testing and commissioning of 700 VA digital pure sine wave inverter based on Insulated Gate Bipolar Transistor (IGBT) technology single phase 230V,50 Hz complete as per specification no. AP-INV (Without batteries)	Each	6357
3-6-2	Supplying, installing, testing and commissioning of 800 VA to 900 VA Digital pure sine wave inverter based on Insulated Gate Bipolar Transistor (IGBT) technology single phase 230V,50 Hz complete as per specification no. AP-INV (Without batteries)	Each	7997
3-6-3	Supplying, installing, testing and commissioning of 1400 VA to 1600 VA Digital pure sine wave inverter based on Insulated Gate Bipolar Transistor (IGBT) technology single phase 230V,50 Hz complete as per specification no. AP-INV (Without batteries)	Each	14582
3-6-4	Supplying, installing, testing and commissioning of 2500 VA Digital pure sine wave inverter based on Insulated Gate Bipolar Transistor (IGBT) technology single phase 230V,50 Hz complete as per specification no. AP-INV (Without batteries)	Each	21145
Note : Backup time in hours and battery capacities in ampere hour (Ah) shall be specifically mentioned and suitable item from 3.8 shall be incorporated as per requirement.			
<u>3.7 Online Uninterruptible Power Supply (UPS) (AP-UPS)</u>			
3-7-1	Supplying, erecting, testing & commissioning of 1 kVA capacity on line pure sine wave ,PWM,IGBT based UPS with 0.8 to unity output pf , single phase input & 1 phase output complete with all protections as per specification no. AP-UPS (Without batteries)	Each	22436
3-7-2	Supplying, erecting, testing & commissioning of 2 kVA capacity on line pure sine wave ,PWM,IGBT based UPS with 0.8 to unity output pf , single phase input & 1 phase output complete with all protections as per specification no. AP-UPS(Without batteries)	Each	47151
3-7-3	Supplying, erecting, testing & commissioning of 3 kVA capacity on line pure sine wave ,PWM,IGBT based UPS with 0.8 to unity output pf ,single phase input & 1 phase output complete with all protections as per specification no. AP-UPS (Without batteries)	Each	51298
3-7-4	Supplying, erecting, testing & commissioning of 6 kVA capacity on line pure sine wave ,PWM,IGBT based UPS with 0.9 to unity output pf , single phase input & 1 phase output complete with all protections as per specification no. AP-UPS (Without batteries)	Each	106191
3-7-5	Supplying, erecting, testing & commissioning of 10 kVA capacity on line pure sine wave ,PWM,IGBT based UPS with 0.9 to unity output pf , single phase input & 1 phase output complete with all protections as per specification no. AP-UPS (Without batteries)	Each	148715
3-7-6	Supplying, erecting, testing & commissioning of 10 kVA capacity on line pure sine wave ,PWM,IGBT based UPS with 0.9 to unity output pf , 3 phase input & 1 phase output complete with all protections as per specification no. AP-UPS(Without batteries)	Each	138070
3-7-7	Supplying, erecting, testing & commissioning of 10 kVA capacity on line pure sine wave ,PWM,IGBT based UPS with 0.9 to unity output pf , 3 phase input & 3 phase output complete with all protections as per specification no. AP-UPS(Without batteries)	Each	180484
3-7-8	Supplying,erecting, testing & commissioning of 20 kVA capacity on line pure sine wave ,PWM,IGBT based UPS with 0.9 to unity output pf , 3 phase input & 3 phase output complete with all protections as per specification no. AP-UPS (Without batteries)	Each	290248

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
-----------------	----------------------------------	-------------	--------------------------

Note : Backup time in hours and battery capacities in ampere hour (Ah) shall be specifically mentioned and suitable item from 3.8 shall be incorporated as per requirement.

3.8 Batteries for Inverter & UPS

3-8-1	Supplying and erecting 12 V/80Ah to 88 Ah Tubular battery with battery terminal wire, duly charged complete with 36 months warranty complete	Each	9776
3-8-2	Supplying and erecting 12 V/100Ah Tubular battery with battery terminal wire, duly charged complete with 36 months warranty complete	Each	11648
3-8-3	Supplying and erecting 12 V/130Ah to 135Ah Tubular battery with battery terminal wire, duly charged complete with 36 months warranty complete	Each	14825
3-8-4	Supplying and erecting 12 V/150Ah Tubular battery with battery terminal wire, duly charged complete with 36 months warranty complete	Each	17353
3-8-5	Supplying and erecting 12 V/180Ah Tubular battery with battery terminal wire, duly charged complete with 36 months warranty complete	Each	17802
3-8-6	Supplying and erecting 12 V/200Ah Tubular battery with battery terminal wire, duly charged complete with 36 months warranty complete	Each	22019
3-8-7	Supplying and erecting 12 V/7Ah -7.5Ah SMF battery with battery terminal wire, duly charged complete with 12 months warranty complete	Each	1408
3-8-8	Supplying and erecting 12 V/17Ah -18Ah SMF battery with battery terminal wire, duly charged complete with 12 months warranty complete	Each	2885
3-8-9	Supplying and erecting 12 V/26Ah SMF battery with battery terminal wire, duly charged complete with 24 months warranty complete	Each	3782
3-8-10	Supplying and erecting 12 V/42Ah SMF battery with battery terminal wire, duly charged complete with 24 months warranty complete	Each	4925
3-8-11	Supplying and erecting 12 V/65Ah SMF battery with battery terminal wire, duly charged complete with 24 months warranty complete	Each	6683
3-8-12	Supplying and erecting 12 V/100Ah SMF battery with battery terminal wire, duly charged complete with 24 months warranty complete.	Each	9549

Note : Item no. 3.8.7 to 3.8.12 shall be used for UPS and Lift ARD (Auto Rescue Device) system.

3.9 Voltage Stabilizers

3-9-1	Supplying and erecting fully automatic line Voltage stabilizer buck and boost type for operation on input voltage 160 to 270 V and output voltage 230 V + 1% rated for 0.5 kVA maximum load and with voltmeter, selector switch, 6A/16A flush type 3 pin socket for output and with 3 core flexible cord and 3 pin 6/16 A plug top complete with overload & short circuit protection	Each	2604
3-9-2	Supplying and erecting fully automatic line Voltage stabilizer buck and boost type for operation on input voltage 160 to 270V and output voltage 200 to 250V rated for, 1 kVA maximum load and with voltmeter, selector switch, 6A/16A flush type 3 pin socket for output and with 3 core flexible cord and 3 pin 6/16A plug top	Each	3092
3-9-3	Supplying and erecting fully automatic line Voltage stabilizer buck and boost type for operation on input voltage 160 to 270 V and output voltage 230 V + 1% rated for 3 kVA maximum load and with voltmeter, selector switch, 6A/16A flush type 3 pin socket for output and with 3 core flexible cord and 3 pin 6/16 A plug top complete with overload & short circuit protection	Each	3874

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-9-4	Supplying and erecting fully automatic line Voltage stabilizer buck and boost type for operation on input voltage 160 to 270 V and output voltage 230 V + 1% rated for 4 kVA maximum load and with voltmeter, selector switch, 6A/16A flush type 3 pin socket for output and with 3 core flexible cord and 3 pin 6/16 A plug top complete with overload & short circuit protection	Each	6077
3-9-5	Supplying and erecting fully automatic line Voltage stabilizer buck and boost type for operation on input voltage 160 to 270 V and output voltage 230 V + 1% rated for 5 kVA maximum load and with voltmeter, selector switch, 6A/16A flush type 3 pin socket for output and with 3 core flexible cord and 3 pin 6/16 A plug top complete with overload & short circuit protection	Each	12046
Note : All the appliances shall be marked with sr no and date of erection with enamel paint/permanent marker after Installation.			
<u>3.10 Accessories for AC & Water cooler</u>			
3-10-1	Providing servicing of 1/1.5/2/3 TR capacity split/window air conditioning unit complete with all necessary material. Job includes checking of performance of unit, cleaning of filters of indoor unit, cleaning of outdoor unit with blower, checking of electrical connection of indoor as well as outdoor unit and submitting report to Engineer incharge.	Job	538
3-10-2	Providing annual comprehensive maintenance contract for 1 TR split/window air conditioning unit complete as per terms and conditions. Job includes 1) quarterly servicing 2) on call repair 3) replacement of all spares within 24 hours 4) sending standby manpower for VIP movement. The job excludes sheet metal work and plastic material.	Year	7055
3-10-3	Providing annual comprehensive maintenance contract for 1.5 TR split/window air conditioning unit complete as per terms and conditions. Job includes 1) quarterly servicing 2) on call repair 3) replacement of all spares within 24 hours 4) sending standby manpower for VIP movement. The job exclude sheet metal work and plastic material.	Year	7838
3-10-4	Providing annual comprehensive maintenance contract for 2 TR split/window air conditioning unit complete as per terms and conditions. Job includes 1) quarterly servicing 2) on call repair 3) replacement of all spares within 24 hours 4) sending standby manpower for VIP movement. The job exclude sheet metal work and plastic material.	Year	9317
3-10-5	Providing annual comprehensive maintenance contract for 3TR to 4.5 TR split/tower/window air conditioning unit complete as per terms and conditions. Job includes 1) quarterly servicing 2) on call repair 3) replacement of all spares within 24 hours 4) sending standby manpower for VIP movement. The job exclude sheet metal work and plastic material	Year	10222
3-10-6	Providing replacement of existing unserviceable rotary/scroll compressor of air conditioner 1 TR by new one of same capacity with guarantee for one year with provided refrigerant complete.	Each	10101
3-10-7	Providing replacement of existing unserviceable rotary/scroll compressor of air conditioner 1.5 TR by new one of same capacity with guarantee for one year with provided refrigerant complete.	Each	11007
3-10-8	Providing replacement of existing unserviceable rotary/scroll compressor of air conditioner 2 TR by new one of same capacity with guarantee for one year with provided refrigerant complete.	Each	11762
3-10-9	Providing replacement of existing unserviceable rotary/scroll compressor of air conditioner 2.5 TR to 4.5 TR by new one of same capacity with guarantee for one year with provided refrigerant complete.	Each	19105

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-10-10	Providing flushing out cooling coil and condensor coil of airconditioner unit refrigerant pipes internally with dry Nitrogen pressure in an approved manner.	Job	788
3-10-11	Providing brazing pipes and checking leakages in the split/ window unit duly with dry nitrogen pressure in an approved manner.	Job	788
3-10-12	Providing replacement of unserviceable starting relay for AC unit.	Each	343
3-10-13	Providing replacement of unserviceable starting capacitor for A/C unit.	Each	715
3-10-14	Providing replacement of unserviceable running capacitor for A/C unit.	Each	715
3-10-15	Providing replacement of unserviceable fan motor capacitor for A/C unit.	Each	235
3-10-16	Providing replacement of unserviceable PCB for A/C unit upto 3 TR capacity.	Each	5712
3-10-17	Providing repair of of faulty PCB for air conditioning unit upto 3 TR capacity.	Each	1097
3-10-18	Supplying and installing of new fan motor for condensor for air conditioning unit	Each	5533
3-10-19	Supplying and installing of new fan motor for indoor unit of air conditioner up to 3 TR suitable to operate on 230V to 250V AC or 280V to 340V DC supply having 4 to 8 poles as per requirement.	Each	3101
3-10-20	Supplying and installing new fan blade outdoor unit for air conditioning unit.	Each	1887
3-10-21	Providing replacement of blower of indoor unit for air conditioning unit.	Each	1743
3-10-22	Providing replacement of remote of indoor unit for air conditioning unit.	Each	3486
3-10-23	Providing vaccumising the airconditioner system and charging with R-22 refrigerant for air conditioning unit.	kg	864
3-10-24	Providing vaccumising the airconditioner system to 200 micron and charging with R-410A/R32 refrigerant for air conditioning unit.	kg	1182
3-10-25	Providing vaccumising the airconditioner system to 200 micron and charging with R-22 refrigerant for 1TR window/split air conditioning unit.	Job	1430
3-10-26	Providing vaccumising the airconditioner system to 200 micron and charging with R-22 refrigerant for 1.5TR window/split air conditioning unit.	Job	1798
3-10-27	Providing vaccumising the airconditioner system to 200 micron and charging with R-22 refrigerant for 2TR window/split air conditioning unit.	Job	2335
3-10-28	Providing vaccumising the airconditioner system to 200 micron and charging with R-22 refrigerant for 3TR window/split air conditioning unit.	Job	3609
3-10-29	Providing replacement of existing unserviceable compressor of 40 litre cooling capacity water cooler by new one of same capacity alongwith suitable refrigerant with guarantee for one year.	Job	8715
3-10-30	Providing replacement of existing unserviceable compressor of 60 litre cooling capacity water cooler by new one of same capacity alongwith suitable refrigerant with guarantee for one year.	Job	9653
3-10-31	Providing replacement of existing unserviceable compressor of 150 litre cooling capacity water cooler by new one of same capacity alongwith suitable refrigerant with guarantee for one year.	Job	11002
3-10-32	Providing replacement of existing unserviceable condensor coil of 40/80/150 litre cooling capacity water cooler by new one of same capacity, testing to the satisfaction of site engineer for cooling and alongwith guarantee for one year with suitable refrigerant.	Job	7189

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-10-33	Providing replacement of existing unserviceable SS water tap of 40/80/150 litre cooling capacity water cooler by new one of same capacity, testing to the satisfaction of site engineer for cooling and alongwith guarantee for one year with suitable refrigerant.	Job	821
3-10-34	Providing replacement of existing unserviceable relay 40/80/150 litre cooling capacity water cooler by new one of same capacity, testing to the satisfaction of site engineer for cooling and alongwith guarantee for one year with suitable refrigerant.	Job	219
3-10-35	Providing replacement of existing unserviceable thermostat of 40/80/150 litre cooling capacity water cooler by new one of same capacity, testing to the satisfaction of site engineer for cooling and alongwith guarantee for one year with suitable refrigerant.	Job	596
3-10-36	Supplying and erecting candle filter with filter pot for water cooler.	Job	1440
3-10-37	Supplying and erecting connector pipe for candle filter of water cooler.	Job	716
3-10-38	Providing replacement of base tray of water cooler of any capacity.	Job	2742
<u>3.11 VRV/VRF Air conditioning</u>			
3-11-1	Supplying, erecting, testing and commissioning of 6HP, VRV/VRV air conditioning system outdoor unit (ODU) complies type-IV OEM standards working on HFC refrigerant R410A or other required/suitable green equivalent refrigerant, for minimum cooling capacity as delivering 100% capacity at 47° C, non stop cooling even at 56° C and coefficient of performance (COP) 3.00 to 4.00, modular type horizontal hot air discharge suitable for longer piping range upto 1000m operation in cooling mode with inverter/digital VRV/VRV technology microprocessor based control compressor starter/control panel with scroll compressor, air cooled copper condenser coil of suitable shape for increasing maximum heat transfer area, rain protection cover, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V±10%, 50 Hz, 3 phase power supply (all suitable for high ambient conditions), internal copper refrigerant piping, internal wiring and refrigerant, etc. all housed in powder coated weather proof cabinet complete.	Each	233318
3-11-2	Supplying, erecting, testing and commissioning of 7HP to 8HP, VRV/VRV air conditioning system outdoor unit (ODU) complies type-IV OEM standards working on HFC refrigerant R410A or other required/suitable green equivalent refrigerant, for minimum cooling capacity as delivering 100% capacity at 47° C, non stop cooling even at 56° C and coefficient of performance (COP) 3.00 to 4.00, modular type vertical hot air discharge suitable for longer piping range upto 1000m operation in cooling mode with inverter/digital VRV/VRV technology microprocessor based control compressor starter/control panel with scroll compressor, air cooled copper condenser coil of suitable shape for increasing maximum heat transfer area, rain protection cover, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V±10%, 50 Hz, 3 phase power supply (all suitable for high ambient conditions), internal copper refrigerant piping, internal wiring and refrigerant, etc. all housed in powder coated weather proof cabinet complete.	Each	289164

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-11-3	Supplying, erecting, testing and commissioning of 10HP, VRF/VRV air conditioning system outdoor unit (ODU) complies type-IV OEM standards working on HFC refrigerant R410A or other required/suitable green equivalent refrigerant, for minimum cooling capacity as delivering 100% capacity at 47° C, non stop cooling even at 56° C and coefficient of performance (COP) 3.00 to 4.00, modular type vertical hot air discharge suitable for longer piping range upto 1000m operation in cooling mode with inverter/digital VRF/VRV technology microprocessor based control compressor starter/control panel with scroll compressor, air cooled copper condenser coil of suitable shape for increasing maximum heat transfer area, rain protection cover, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V±10%, 50 Hz, 3 phase power supply (all suitable for high ambient conditions), internal copper refrigerant piping, internal wiring and refrigerant, etc. all housed in powder coated weather proof cabinet complete.	Each	303287
3-11-4	Supplying, erecting, testing and commissioning of 12HP, VRF/VRV air conditioning system outdoor unit (ODU) complies type-IV OEM standards working on HFC refrigerant R410A or other required/suitable green equivalent refrigerant, for minimum cooling capacity as delivering 100% capacity at 47° C, non stop cooling even at 56° C and coefficient of performance (COP) 3.00 to 4.00, modular type vertical hot air discharge suitable for longer piping range upto 1000m operation in cooling mode with inverter/digital VRF/VRV technology microprocessor based control compressor starter/control panel with scroll compressor, air cooled copper condenser coil of suitable shape for increasing maximum heat transfer area, rain protection cover, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V±10%, 50 Hz, 3 phase power supply (all suitable for high ambient conditions), internal copper refrigerant piping, internal wiring and refrigerant, etc. all housed in powder coated weather proof cabinet complete.	Each	321588
3-11-5	Supplying, erecting, testing and commissioning of 14HP, VRF/VRV air conditioning system outdoor unit (ODU) complies type-IV OEM standards working on HFC refrigerant R410A or other required/suitable green equivalent refrigerant, for minimum cooling capacity as delivering 100% capacity at 47° C, non stop cooling even at 56° C and coefficient of performance (COP) 3.00 to 4.00, modular type vertical hot air discharge suitable for longer piping range upto 1000 metre operation in cooling mode with inverter/digital VRF/VRV technology microprocessor based control compressor starter/control panel with scroll compressor, air cooled copper condenser coil of suitable shape for increasing maximum heat transfer area, rain protection cover, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V±10%, 50 Hz, 3 phase power supply (all suitable for high ambient conditions), internal copper refrigerant piping, internal wiring and refrigerant, etc. all housed in powder coated weather proof cabinet complete.	Each	417935

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-11-6	Supplying, erecting, testing and commissioning of 16HP, VRF/VRV air conditioning system outdoor unit (ODU) complies type-IV OEM standards working on HFC refrigerant R410A or other required/suitable green equivalent refrigerant, for minimum cooling capacity as delivering 100% capacity at 47° C, non stop cooling even at 56° C and coefficient of performance (COP) 3.00 to 4.00, modular type vertical hot air discharge suitable for longer piping range upto 1000 metre operation in cooling mode with inverter/digital VRF/VRV technology microprocessor based control compressor starter/control panel with scroll compressor, air cooled copper condenser coil of suitable shape for increasing maximum heat transfer area, rain protection cover, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V±10%, 50 Hz, 3 phase power supply (all suitable for high ambient conditions), internal copper refrigerant piping, internal wiring and refrigerant, etc. all housed in powder coated weather proof cabinet complete.	Each	455315
3-11-7	Supplying, erecting, testing and commissioning of 18HP, VRF/VRV air conditioning system outdoor unit (ODU) complies type-IV OEM standards working on HFC refrigerant R410A or other required/suitable green equivalent refrigerant, for minimum cooling capacity as delivering 100% capacity at 47° C, non stop cooling even at 56° C and coefficient of performance (COP) 3.00 to 4.00, modular type vertical hot air discharge suitable for longer piping range upto 1000 metre operation in cooling mode with inverter/ digital VRF/VRV technology microprocessor based control compressor starter/control panel with scroll compressor, air cooled copper condenser coil of suitable shape for increasing maximum heat transfer area, rain protection cover, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V±10%, 50 Hz, 3 phase power supply (all suitable for high ambient conditions), internal copper refrigerant piping, internal wiring and refrigerant, etc. all housed in powder coated weather proof cabinet complete.	Each	473202
3-11-8	Supplying, erecting, testing and commissioning of 20HP, VRF/VRV air conditioning system out door unit (ODU) complies type-IV OEM standards working on HFC refrigerant R410A or other required/suitable green equivalent refrigerant, for minimum cooling capacity as delivering 100% capacity at 47° C, non stop cooling even at 56°C and coefficient of performance (COP) 3.00 to 4.00, modular type vertical hot air discharge suitable for longer piping range upto 1000 metre operation in cooling mode with inverter/digital VRF/VRV technology microprocessor based control compressor starter/control panel with scroll compressor, air cooled copper condenser coil of suitable shape for increasing maximum heat transfer area, rain protection cover, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V±10%, 50 Hz, 3 phase power supply (all suitable for high ambient conditions), internal copper refrigerant piping, internal wiring and refrigerant, etc. all housed in powder coated weather proof cabinet complete.	Each	502210

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-11-9	Supplying, erecting, testing and commissioning of 22HP, VRF/VRV air conditioning system out door unit (ODU) complies type-IV OEM standards working on HFC refrigerant R410A or other required/suitable green equivalent refrigerant, for minimum cooling capacity as delivering 100% capacity at 47° C, non stop cooling even at 56° C and coefficient of performance (COP) 3.00 to 4.00, modular type vertical hot air discharge suitable for longer piping range upto 1000 metre operation in cooling mode with inverter/ digital VRF/VRV technology microprocessor based control compressor starter/control panel with scroll compressor, air cooled copper condenser coil of suitable shape for increasing maximum heat transfer area, rain protection cover, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V±10%, 50 Hz, 3 phase power supply (all suitable for high ambient conditions), internal copper refrigerant piping, internal wiring and refrigerant, etc. all housed in powder coated weather proof cabinet complete.	Each	523497
3-11-10	Supplying, erecting, testing and commissioning of 24HP, VRF/VRV air conditioning system out door unit (ODU) complies type-IV OEM standards working on HFC refrigerant R410A or other required/suitable green equivalent refrigerant, for minimum cooling capacity as delivering 100% capacity at 47° C, non stop cooling even at 56° C and coefficient of performance (COP) 3.00 to 4.00, modular type vertical hot air discharge suitable for longer piping range upto 1000 metre operation in cooling mode with inverter/digital VRF/VRV technology microprocessor based control compressor starter/control panel with scroll compressor, air cooled copper condenser coil of suitable shape for increasing maximum heat transfer area, rain protection cover, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V±10%, 50 Hz, 3 phase power supply (all suitable for high ambient conditions), internal copper refrigerant piping, internal wiring and refrigerant, etc. all housed in powder coated weather proof cabinet complete.	Each	543095
3-11-11	Supplying, erecting, testing and commissioning of 26HP, VRF/VRV air conditioning system out door unit (ODU) complies type-IV OEM standards working on HFC refrigerant R410A or other required/suitable green equivalent refrigerant, for minimum cooling capacity as delivering 100% capacity at 47° C, non stop cooling even at 56° C and coefficient of performance (COP) 3.00 to 4.00, modular type vertical hot air discharge suitable for longer piping range upto 1000 metre operation in cooling mode with inverter/digital VRF/VRV technology microprocessor based control compressor starter/control panel with scroll compressor, air cooled copper condenser coil of suitable shape for increasing maximum heat transfer area, rain protection cover, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V±10%, 50 Hz, 3 phase power supply (all suitable for high ambient conditions), internal copper refrigerant piping, internal wiring and refrigerant, etc. all housed in powder coated weather proof cabinet complete.	Each	576438

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-11-12	Supplying, erecting, testing and commissioning of 28HP, VRF/VRV air conditioning system out door unit (ODU) complies type-IV OEM standards working on HFC refrigerant R410A or other required/suitable green equivalent refrigerant, for minimum cooling capacity as delivering 100% capacity at 47° C, non stop cooling even at 56° C and coefficient of performance (COP) 3.00 to 4.00, modular type vertical hot air discharge suitable for longer piping range upto 1000 metre operation in cooling mode with inverter/digital VRF/VRV technology microprocessor based control compressor starter/control panel with scroll compressor, air cooled copper condenser coil of suitable shape for increasing maximum heat transfer area, rain protection cover, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V±10%, 50 Hz, 3 phase power supply (all suitable for high ambient conditions), internal copper refrigerant piping, internal wiring and refrigerant, etc. all housed in powder coated weather proof cabinet complete.	Each	626918
3-11-13	Supply, installation, testing and commissioning of VRF/VRV based Hi-wall type indoor unit (IDU) of nominal cooling capacity 0.6TR - 0.8TR (229 to 358 cfm) having EER as per BEE standards and specifications with multiple speed evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, expansion device, cordless remote control with necessary controls, with 3-core copper flexible cord of required length and electrical terminal to receive power supply, etc. IDU shall have anti-corrosive coating suitable for coastal area. Unit shall be suitable for indoor wall mounting, having an electronic control console, provided with suitable mounting brackets with any additional refrigerant and oil charge as per the requirement during installation, connected to the system complete.	Each	20115
3-11-14	Supply, installation, testing and commissioning of VRF/VRV based Hi-wall type room/indoor unit (IDU) of nominal cooling capacity 1.0TR (358 cfm) to 1.25TR (417 cfm) having EER as per BEE standards and specifications with multiple speed evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU shall have anti-corrosive coating suitable for costal area. Unit shall be of decorative slim dimension suitable indoor wall mounting. The indoor unit shall also have an electronic control console. The unit shall be suitable for wall mounting and provided with suitable mounting brackets with any additional refrigerant and oil charge as per requirement during installation complete.	Each	21443
3-11-15	Supply, installation, testing and commissioning of VRF/VRV based Hi-wall type indoor unit (IDU) of nominal cooling capacity 1.3TR (421 cfm) to 1.7TR (586 cfm) having EER as per BEE standards and specifications with multiple speed evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, expansion device, cordless remote control with necessary controls, with 3-core copper flexible cord of required length and electrical terminal to receive power supply, etc. IDU shall have anticorrosive coating suitable for coastal area. Unit shall be suitable for indoor wall mounting, having an electronic control console, provided with suitable mounting brackets with any additional refrigerant and oil charge as per the requirement during installation, connected to the system complete.	Each	23254

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-11-16	Supply, installation, testing and commissioning of VRF/VRV based Hi-wall type indoor unit (IDU) of nominal cooling capacity 1.8TR (594 cfm) to 2.2TR (655 cfm) having EER as per BEE standards and specifications with multiple speed evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, expansion device, cordless remote control with necessary controls, with 3-core copper flexible cord of required length and electrical terminal to receive power supply, etc. IDU shall have anticorrosive coating suitable for coastal area. Unit shall be suitable for indoor wall mounting, having an electronic control console, provided with suitable mounting brackets with any additional refrigerant and oil charge as per the requirement during installation, connected to the system complete.	Each	31224
3-11-17	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 4 Way cassette indoor unit (IDU) compact/standard size of nominal cooling capacity 0.6TR (420 cfm)/0.8TR (441 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	30514
3-11-18	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 4 Way cassette room/indoor unit (IDU-compact/standard size) of nominal cooling capacity 1.0TR (441 cfm) to 1.3TR (512 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	35225
3-11-19	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 4 Way cassette room/indoor unit (IDU-compact/standard size) of nominal cooling capacity 1.5TR (512 cfm) to 1.8TR (618 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	37640

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-11-20	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 4 Way cassette room/indoor unit (IDU-compact/standard size) of nominal cooling capacity 2.0TR (618 cfm) to 2.3TR (671 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	38002
3-11-21	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 4 Way cassette room/indoor unit (IDU-compact / standard size) of nominal cooling capacity 2.6TR (918 cfm) to 2.8TR (1100 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	38847
3-11-22	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 4 Way cassette room/indoor unit (IDU-compact / standard size) of nominal cooling capacity 3.0TR (1100 cfm) to 3.2TR (1165 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	39451
3-11-23	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 4 Way cassette room/indoor unit (IDU-compact / standard size) of nominal cooling capacity 3.3TR (1165 cfm) to 4.0TR (1218 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	40055
3-11-24	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 4 Way cassette room/indoor unit (IDU-compact / standard size) of nominal cooling capacity 4.1TR (1218 cfm) to 5.0TR (1624 cfm)of suitable cfm having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	58130

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-11-25	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 2 way cassette room/indoor unit (IDU-compact / standard size) of nominal cooling capacity 0.6TR (420 cfm) to 0.8TR (441 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	51164
3-11-26	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 2 way cassette room/indoor unit (IDU-compact / standard size) of nominal cooling capacity 1.0TR (441 cfm) to 1.3TR (512 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	62031
3-11-27	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 2 way cassette room/indoor unit (IDU-compact / standard size) of nominal cooling capacity 1.4TR (512 cfm) to 1.7TR (618 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	63480
3-11-28	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 2 way cassette room/indoor unit (IDU-compact / standard size) of nominal cooling capacity 1.8TR (565 cfm) to 2.0TR (618 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	64688
3-11-29	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 2 way cassette room/indoor unit (IDU-compact / standard size) of nominal cooling capacity 2.1TR (671 cfm) to 2.7TR (918 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	72398

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-11-30	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 2 way cassette room/indoor unit (IDU-compact / standard size) of nominal cooling capacity 2.8TR (1130 cfm) to 3.7TR (1377 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	84009
3-11-31	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 2 way cassette room/indoor unit (IDU-compact / standard size) of nominal cooling capacity 3.8TR (1377 cfm) to 4.7TR (1624 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	98224
3-11-32	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 1 way cassette room/indoor unit (IDU-compact / standard size) of nominal cooling capacity 0.6TR (420 cfm) / 0.8TR (441 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	68281
3-11-33	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 1 way cassette room/indoor unit (IDU-compact / standard size) of nominal cooling capacity 1.0TR (441 cfm) to 1.3TR (512 cfm to 530 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	51043
3-11-34	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 1 way cassette room/indoor unit (IDU-compact / standard size) of nominal cooling capacity 1.4TR (512 cfm) to 2.0TR (618 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation..	Each	73985

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-11-35	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 1 way cassette room/indoor unit (IDU-compact / standard size) of nominal cooling capacity 1.8TR (575 cfm) to 2.7TR (953 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. IDU with drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for costal area in all respects suitable to operate on 1-phase, 230V, 50Hz, AC supply complete. The unit consisting with any additional refrigerant and oil charge as per requirement during installation.	Each	81188
3-11-36	Supply, installation, testing and commissioning of VRF/VRF based concealed split ductable type, high static room/indoor unit (IDU) having nominal cooling capacity of 0.8TR (280 cfm) to 1.1TR (400 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU shall have anti-corrosive coating suitable for costal area. Unit shall be of decorative slim dimension suitable for ceiling suspended having an electronic control console with providing any additional refrigerant and oil charge as per requirement during installation complete.	Each	31009
3-11-37	Supply, installation, testing and commissioning of VRF/VRF based concealed split ductable type, high static room/indoor unit (IDU) having nominal cooling capacity of 1.2TR(400 cfm) to 1.7TR (600 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU shall have anti-corrosive coating suitable for costal area. Unit shall be of decorative slim dimension suitable for ceiling suspended having an electronic control console with providing any additional refrigerant and oil charge as per requirement during installation complete .	Each	31613
3-11-38	Supply, installation, testing and commissioning of VRF/VRF based concealed split ductable type, high static room/indoor unit (IDU) having nominal cooling capacity of 1.8TR (600 cfm) to 2.0TR (800 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU shall have anti-corrosive coating suitable for costal area. Unit shall be of decorative slim dimension suitable for ceiling suspended having an electronic control console with providing any additional refrigerant and oil charge as per requirement during installation complete.	Each	24541

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-11-39	Supply, installation, testing and commissioning of VRF/VRF based floor/ceiling suspended dual mount type, room/indoor unit (IDU) having nominal cooling capacity of 0.8TR(280 cfm) to 1.1TR (400 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU should have anti-corrosive coating suitable for costal area. unit shall be of decorative slim dimension suitable for ceiling suspended having an electronic control console with providing any additional refrigerant and oil charge as per requirement during installation complete.	Each	41866
3-11-40	Supply, installation, testing and commissioning of VRF/VRF based floor/ceiling suspended dual mount type, room/indoor unit (IDU) having nominal cooling capacity of 1.2TR (400 cfm) to 1.5TR(600 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU should have anti-corrosive coating suitable for costal area. unit shall be of decorative slim dimension suitable for ceiling suspended having an electronic control console with providing any additional refrigerant and oil charge as per requirement during installation complete.	Each	42496
3-11-41	Supply, installation, testing and commissioning of VRF/VRF based floor/ceiling suspended dual mount type, room/indoor unit (IDU) having nominal cooling capacity of 1.2TR (600 cfm) to 1.5TR (800 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU should have anti-corrosive coating suitable for costal area. unit shall be of decorative slim dimension suitable for ceiling suspended having an electronic control console with providing any additional refrigerant and oil charge as per requirement during installation complete.	Each	42953
3-11-42	Supply, installation, testing and commissioning of VRF/VRF based floor/ceiling suspended dual mount type, room/indoor unit (IDU) having nominal cooling capacity of 2.1TR (800 cfm) to 2.6TR (1000 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU should have anti-corrosive coating suitable for costal area. unit shall be of decorative slim dimension suitable for ceiling suspended having an electronic control console with providing any additional refrigerant and oil charge as per requirement during installation complete.	Each	47420

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-11-43	Supply, installation, testing and commissioning of VRF/VRF based floor/ceiling suspended dual mount type, room/indoor unit (IDU) having nominal cooling capacity of 3.2TR (1200cfm) to 3.6TR(1400 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU should have anti-corrosive coating suitable for costal area. unit shall be of decorative slim dimension suitable for ceiling suspended having an elect	Each	50198
3-11-44	Supply, installation, testing and commissioning of VRV/VRF based floor mount type vertical, room/indoor unit (IDU) having nominal cooling capacity of 2.2TR (420 cfm) to 2.3TR (560 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU shall have anti-corrosive coating suitable for costal area with decorative slim dimension with an electronic control console, additional refrigerant and oil charge as per requirement during installation complete.	Each	40008
3-11-45	Supply, installation, testing and commissioning of VRV/VRF based floor mount type vertical, room/indoor unit (IDU) having nominal cooling capacity of 2.8TR (1000 cfm) to 3.2TR (1200 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU shall have anti-corrosive coating suitable for costal area with decorative slim dimension with an electronic control console, additional refrigerant and oil charge as per requirement during installation complete.	Each	44880
3-11-46	Supply, installation, testing and commissioning of VRV/VRF based floor mount type vertical, room/indoor unit (IDU) having nominal cooling capacity of 4.0TR (1400 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU shall have anti-corrosive coating suitable for costal area with decorative slim dimension with an electronic control console, additional refrigerant and oil charge as per requirement during installation complete.	Each	51411
3-11-47	Supply, installation, testing and commissioning of VRV/VRF based floor mount type vertical, room/indoor unit (IDU) having nominal cooling capacity of 5.0TR (1624 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU shall have anti-corrosive coating suitable for costal area with decorative slim dimension with an electronic control console, additional refrigerant and oil charge as per requirement during installation complete.	Each	77540

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-11-48	Supply, installation, testing and commissioning of VRV / VRF based floor mount type package, room/indoor unit (IDU) having nominal cooling capacity of 8.0TR (3200 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, corded remote control with necessary controls and electrical terminal to receive power supply, etc. having anti-corrosive coating suitable for costal area with decorative slim dimension suitable floor mounting arrangement, an electronic control console and any additional refrigerant and oil charge as per requirement during installation complete.	Each	96522
3-11-49	Supply, installation, testing and commissioning of VRV / VRF based floor mount type package, room/indoor unit (IDU) having nominal cooling capacity of 10.0TR (4000 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, corded remote control with necessary controls and electrical terminal to receive power supply, etc. having anti-corrosive coating suitable for costal area with decorative slim dimension suitable floor mounting arrangement, an electronic control console and any additional refrigerant and oil charge as per requirement during installation complete.	Each	106481
3-11-50	Supply, installation, testing and commissioning of VRV / VRF based ductable type, high static room/indoor unit (IDU) having nominal cooling capacity of 0.8TR (280 cfm) to 1.5TR (600 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. having anti-corrosive coating suitable for costal area and decorative slim dimension suitable for ceiling suspended arrangement with an electronic control console and any additional refrigerant and oil charge as per requirement during installation complete.	Each	31251
3-11-51	Supply, installation, testing and commissioning of VRV / VRF based ductable type, high static room/indoor unit (IDU) having nominal cooling capacity of 2.1TR (800 cfm) to 2.4TR (960 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. having anti-corrosive coating suitable for costal area and decorative slim dimension suitable for ceiling suspended arrangement with an electronic control console and any additional refrigerant and oil charge as per requirement during installation complete.	Each	31855
3-11-52	Supply, installation, testing and commissioning of VRV / VRF based ductable type, high static room/indoor unit (IDU) having nominal cooling capacity of 2.5TR (980 cfm) to 3.0TR (1200 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. having anti-corrosive coating suitable for costal area and decorative slim dimension suitable for ceiling suspended arrangement with an electronic control console and any additional refrigerant and oil charge as per requirement during installation complete.	Each	37711

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-11-53	Supply, installation, testing and commissioning of VRV / VRF based ductable type, high static indoor unit (IDU) having nominal cooling capacity of 3.1TR (1240 cfm) to 4.0TR (1600 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. having anti-corrosive coating suitable for coastal area, with suitable ceiling suspension arrangement, with an electronic control console and any additional refrigerant and oil charge as per requirement during installation connected with the system complete.	Each	46392
3-11-54	Supply, installation, testing and commissioning of VRV / VRF based ductable type, high static room/indoor unit (IDU) having nominal cooling capacity of 4.1TR (1640 cfm) to 5.0TR (2000 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. having anti-corrosive coating suitable for costal area and decorative slim dimension suitable for ceiling suspended arrangement with an electronic control console and any additional refrigerant and oil charge as per requirement during installation complete.	Each	52490
3-11-55	Supply, installation, testing and commissioning of VRV / VRF based ductable type, high static room/indoor unit (IDU) having nominal cooling capacity of 5.1TR (2040 cfm) to 6.0TR 2400 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. having anti-corrosive coating suitable for costal area and decorative slim dimension suitable for ceiling suspended arrangement with an electronic control console and any additional refrigerant and oil charge as per requirement during installation complete.	Each	58798
3-11-56	Supply, installation, testing and commissioning of VRV / VRF based ductable type, high static room/indoor unit (IDU) having nominal cooling capacity of 8.0TR (3200 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. having anti-corrosive coating suitable for costal area and decorative slim dimension suitable for ceiling suspended arrangement with an electronic control console and any additional refrigerant and oil charge as per requirement during installation complete.	Each	64592
3-11-57	Supply, installation, testing and commissioning of VRV/VRF based ceiling suspended 4.0TR treated fresh air (TFA) (3310 cfm) room/IDU with evaporator fan with motor, copper tube, aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. having anti-corrosive coating suitable for costal area with decorative slim dimension suitable ceiling suspended arrangement and an electronic control console with any additional refrigerant and oil charge as per requirement during installation complete.	Each	54310

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-11-58	Supply, installation, testing and commissioning of VRV/VRF based ceiling suspended 6.5TR treated fresh air (TFA) (5380 cfm) room/IDU with evaporator fan with motor, copper tube, aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power . having anti-corrosive coating suitable for costal area with decorative slim dimension suitable ceiling suspended arrangement and an electronic control console with any additional refrigerant and oil charge as per requirement during installation complete.	Each	74475
3-11-59	Supply, installation, testing and commissioning of VRV / VRF based ceiling suspended 8.0TR (6600 cfm) to 10.0TR (8200 cfm) Treated Fresh Air (TFA) (5380 cfm) room/IDU with evaporator fan with motor, copper tube, aluminium fin evaporator coil, washable air filter, insulated drain tray, in built drain pump, expansion device, cordless remote control with necessary controls and electrical terminal to receive power . having anti-corrosive coating suitable for costal area with decorative slim dimension suitable ceiling suspended arrangement and an electronic control console with any additional refrigerant and oil charge as per requirement during installation complete.	Each	93866
3-11-60	Supplying, erecting, testing & commissioning fresh air intake system, ductable circular inline fresh air fan inlet unit having 300cfm capacity with maintaining the static pressure minimum 20mm suitable to operate on 1 phase, 230V, 50Hz, A.C. supply complete.	Each	5268
3-11-61	Supplying, erecting, testing & commissioning fresh air intake system, ductable circular inline fresh air fan inlet unit having 1000cfm capacity with maintaining the static pressure minimum 20mm suitable to operate on 1ph, 230 V, 50Hz, A.C. supply complete.	Each	15884
3-11-62	Supplying and erecting circular flexible/rigid PVC pipe duct of size 40mm dia , 4mm thickness with required couplers, reducers, T-joints, Y-joints elbows and necessary supports etc. with sealing with provided control/air flow regulating valves/dampers, filters at position complete.	m	2375
3-11-63	Supplying and erecting circular flexible/rigid PVC pipe duct of size 50mm dia , 4mm thickness with required couplers, reducers, T-joints, Y-joints elbows and necessary supports etc. with sealing with provided control/air flow regulating valves/dampers, filters at position complete.	m	2567
3-11-64	Supplying and erecting circular flexible/rigid PVC pipe duct of size 80mm dia , 4mm thickness with required couplers, reducers, T-joints, Y-joints elbows and necessary supports etc. with sealing with provided control/air flow regulating valves/dampers, filters at position complete .	m	2744
3-11-65	Supplying and erecting circular flexible/rigid PVC pipe duct of size 100mm dia , 4mm thickness with required couplers, reducers, T-joints, Y-joints elbows and necessary supports etc. with sealing with provided control/air flow regulating valves / dampers, filters at position complete.	m	3416
3-11-66	Supplying and erecting circular flexible/rigid PVC pipe duct of size 150mm dia , 4mm thickness with required couplers, reducers, T-joints, Y-joints elbows and necessary supports etc. with sealing with provided control/air flow regulating valves/dampers, filters at position complete.	m	3548
3-11-67	Supplying and erecting circular flexible/rigid PVC pipe duct of size 200mm dia , 4mm thickness with required couplers, reducers, T-joints, Y-joints elbows and necessary supports etc. with sealing with provided control/air flow regulating valves/dampers, filters at position complete.	m	3935
3-11-68	Supplying and erecting an air flow regulating valves/dampers in provided flexible or rigid duct/pipe of 40mm size with an alteration for existing flexible PVC pipe duct and necessary joints, sealing, couplings at position complete .	Each	5577

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-11-69	Supplying and erecting an air flow regulating valves/dampers in provided flexible or rigid duct/pipe of 50mm size with an alteration for existing flexible PVC pipe duct and necessary joints, sealing, couplings at position complete.	Each	6106
3-11-70	Supplying and erecting an air flow regulating valves/dampers in provided flexible or rigid duct/pipe of 80mm size with an alteration for existing flexible PVC pipe duct and necessary joints, sealing, couplings at position complete.	Each	6621
3-11-71	Supplying and erecting an air flow regulating valves/dampers in provided flexible or rigid duct/pipe of 100mm size with an alteration for existing flexible PVC pipe duct and necessary joints, sealing, couplings at position complete.	Each	7082
3-11-72	Supplying and erecting an air flow regulating valves/dampers in provided flexible or rigid duct/pipe of 150mm size with an alteration for existing flexible PVC pipe duct and necessary joints, sealing, couplings at position complete.	Each	7631
3-11-73	Supplying and erecting an air flow regulating valves/dampers in provided flexible or rigid duct/pipe of 200mm size with an alteration for existing flexible PVC pipe duct and necessary joints, sealing, couplings at position complete.	Each	9067
3-11-74	Supply, installation, testing and commissioning air curtain of 3feet width having air throw velocity of 12 to 14m/sec, low noise level up to 38 to 46dBA suitable for door height upto 9feet , working on 1 phase, 230V, 50Hz, A.C. supply.	Each	18726
3-11-75	Supply, installation, testing and commissioning air curtain of 4feet width having air throw velocity of 21m/sec, low noise level up to 38 to 46dBA suitable for door height upto 9feet , working on 1 phase, 230V, 50Hz, A.C. supply.	Each	19616
3-11-76	Supply, installation, testing and commissioning air curtain of 6feet width having air throw velocity of 21 m/sec, low noise level up to 38 to 46dBA suitable for door height upto 9feet , working on 1 phase, 230V, 50Hz, A.C. supply.	Each	22785
3-11-77	Carrying out core cutting of size 3" to 5" dia x 15" length in the C.C./rock/stone wall with the help of specialized core cutting machine in proper manner and finishing the site as original.	Job	3454
3-11-78	Supply, installation, testing and commissioning wireless remote control having colour LCD panel, real time clock, temperature limitation (16 to 30° C, functions like filter clean reminder timer suitable to communicate with wired controller complete.	Each	1886
3-11-79	Supplying, erecting, testing and commissioning centralised programmable remote control panel (HMI) touch manager controls minimum 16 system of 64 ODU's can be controlled and up to 992 IDU's can be individually mounted and controlled indoor units having colour min 200mm size LCD touch panel, yearly schedule, power proportional distribution function, temperature limitation, history function complete erected on wall integrated with provided fire alarm system.	Each	48544
3-11-80	Supply, installation, testing and commissioning of manually operated, opposed blade, duct mounted, flanged volume control dampers of required sizes in GI construction with operating mechanism, mounting arrangement, rubber refrigerant kits etc. complete.	Sq.m	6550
3-11-81	Supply, installation, testing and commissioning of volume control box with collar for control damper of required sizes in GI construction with operating mechanism, mounting arrangement, rubber refrigerant kits etc. complete.	Each	6265

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-11-82	Supply, fabrication, installation an testing of flexible canvass connections constructed between ductable unit/dampers/ducting of suitable size with fire resist flexible double canvas sleeve complete.	Each	2952
3-11-83	Providing adhesive thermal insulation for supply return air duct with 19mm nitrile rubber insulation having R-value as per the prevailing provisions in ECBC-2007.	Sq.m	1048
3-11-84	Providing and applying of acoustic insulation for air ducts with 25mm thick, 48kg/cu.m fiber glass faced with RP tissue and covered with 26SWG perforated aluminium sheets complete.	Sq.m	1191
3-11-85	Supplying & erecting tile type modular diffuser made from aluminium sheet with powder coated matching to the ceiling shade for provided supply and return air complete.	Each	12848
3-11-86	Supplying and installation of high pressure grade required size copper connection Y or T- Joints/refnut complete erected on wall/ceiling with supports/raceways, Nitrile rubber insulation, painting etc. with brazing and testing for leakages confirming the normal operation of the VRV/VRF air conditioning system.	Each	6144
3-11-87	Supplying and installing of collar damper of galvanised iron material of upto 120microns for anti corrosive resistance for supply air grill of suitable size	Sq.m	6948
3-11-88	Supplying and erecting aluminium powder coated linear grill of suitable size for width length without collar dampers having matching colour with the existing false ceiling and suitable for deflection of 15/30/45°.	Job	1364
3-11-89	Supplying, laying/fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 41.3mm dia (OD) for liquid line/suction line supply and return piping of suitable gauge (hard copper pipe for liquid main line and soft copper pipe for refrigerant) along with necessary supports, hangers, clamps, vibration isolators and fittings such as bends, tees, valves, gauges, strainers with insulation of 19mm thick elastomeric nitrile rubber along with application of multicoating of VRV/VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations with OEM standards of VRV/VRF air conditioning system complete.	m	2662
3-11-90	Supplying, laying/fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 34.9mm dia (OD) for liquid line/suction line supply and return piping of suitable gauge (hard copper pipe for liquid main line and soft copper pipe for refrigerant) along with necessary supports, hangers, clamps, vibration isolators and fittings such as bends, tees, valves, gauges, strainers with insulation of 19mm thick elastomeric nitrile rubber along with application of multicoating of VRV/VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations with OEM standards of VRV/VRF air conditioning system complete.	m	2487
3-11-91	supplying, laying/fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 28.6mm dia (OD) for liquid line/suction line supply and return piping of suitable gauge (hard copper pipe for liquid main line and soft copper pipe for refrigerant) along with necessary supports, hangers, clamps, vibration isolators and fittings such as bends, tees, valves, gauges, strainers with insulation of 19mm thick elastomeric nitrile rubber along with application of multicoating of VRV/VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations with OEM standards of VRV/VRF air conditioning system complete.	m	2435

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
3-11-92	supplying, laying/fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 22.2mm dia (OD) for liquid line/suction line supply and return piping of suitable gauge (hard copper pipe for liquid main line and soft copper pipe for refrigerant) along with necessary supports, hangers, clamps, vibration isolators and fittings such as bends, tees, valves, gauges, strainers with insulation of 19mm thick elastomeric nitrile rubber along with application of multicoating of VRV/VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiation with OEM standards of VRV/VRF air conditioning system complete.	m	1634
3-11-93	supplying, laying/fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 19.1mm dia (OD) for liquid line/suction line supply and return piping of suitable gauge (hard copper pipe for liquid main line and soft copper pipe for refrigerant) along with necessary supports, hangers, clamps, vibration isolators and fittings such as bends, tees, valves, gauges, strainers with insulation of 19 mm thick elastomeric nitrile rubber along with application of multicoating of VRV/VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations with OEM standards of VRV/VRF air conditioning system complete.	m	1272
3-11-94	supplying, laying/fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 15.9 mm dia (OD) for liquid line/suction line supply and return piping of suitable gauge (hard copper pipe for liquid main line and soft copper pipe for refrigerant) along with necessary supports, hangers, clamps, vibration isolators and fittings such as bends, tees, valves, gauges, strainers with insulation of 19mm thick elastomeric nitrile rubber along with application of multicoating of VRV/VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations with OEM standards of VRV/VRF air conditioning system complete.	m	1119
3-11-95	supplying, laying/fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 12.7mm dia (OD) for liquid line/suction line supply and return piping of suitable gauge (hard copper pipe for liquid main line and soft copper pipe for refrigerant) along with necessary supports, hangers, clamps, vibration isolators and fittings such as bends, tees, valves, gauges, strainers with insulation of 19mm thick elastomeric nitrile rubber along with application of multicoating of VRV/VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations with OEM standards of VRV/VRF air conditioning system complete.	m	831
3-11-96	supplying, laying/fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 9.5 mm dia (OD) for liquid line/suction line supply and return piping of suitable gauge (hard copper pipe for liquid main line and soft copper pipe for refrigerant) along with necessary supports, hangers, clamps, vibration isolators and fittings such as bends, tees, valves, gauges, strainers with insulation of 19mm thick elastomeric nitrile rubber along with application of multicoating of VRV/VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations with OEM standards of VRV/VRF air conditioning system complete.	m	700

Item No. (1)	Short Description of Item (2)	Unit (3)	Completed Rate (4)
-----------------	----------------------------------	-------------	--------------------------

3-11-97	supplying, laying/fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 6.4mm dia (OD) for liquid line/suction line supply and return piping of suitable gauge (hard copper pipe for liquid main line and soft copper pipe for refrigerant) along with necessary supports, hangers, clamps, vibration isolators and fittings such as bends, tees, valves, gauges, strainers with insulation of 19mm thick elastomeric nitrile rubber along with application of multicoating of VRV/VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations with OEM standards of VRV/VRF air conditioning system complete.	m	544
---------	--	---	-----

Note : 1) If cost of repairs of any appliances is more than 50% of the cost of new unit, replacement of same shall be proposed.

2) Rate for Item no 3-11-77 is for one quantity only. For more than 1 qty upto 10 quantities reduce overall rate by 10%. For quantities more than 10 and less than 30, reduce overall rate by 20%. For quantities more than 30, reduce overall rate by 30%.

3) Duct work insulation R value in m² - K/W shall be as per table 5.8 of Energy Conservation Building Code (ECBC)-2007 user guide. Sample R values for duct insulation materials shall be referred from table 5.9 of ECBC-2007.

3.12 Dismantling

3-12-1	Dismantling the existing electric geyser or storage type water heater of any size along with plumbing connections and making the site clear.	Each	208
3-12-2	Dismantling the existing window type air conditioner of any type and capacity safely without any damages and making the site clear.	Each	520
3-12-3	Dismantling the existing split type air conditioner of any type and capacity safely without any damages and making the site clear.	Each	984

Note : The rates for item no 3.12.1 to 3.12.3 are inclusive of dismantling and handing over to section office inclusive of transportation upto 25 km between site and section office.

Chapter 4 : ENERGY SAVING DEVICES (ESD)

Item No. (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>4.1 Solar hot water system (ESD-SHWS)</u>			
4-1-1	Supplying, installing, testing and commissioning of FPC Solar water heating system without heating coil type of 100 LPD capacity with SS water tank of 0.5 mm thickness conforming to IS1239 Part-I :2004 complete with 5 years warranty as per specification no. ESD-SHWS-FPC.	Each	27334
4-1-2	Supplying, installing, testing and commissioning of FPC solar water heating system without heating coil type of 200 LPD capacity with SS water tank of 0.5 mm thickness conforming to IS1239 Part-I :2004 complete with 5 years warranty as per specification no. ESD-SHWS-FPC.	Each	46873
4-1-3	Supplying, installing, testing and commissioning of FPC solar water heating system without heating coil type of 300 LPD capacity with SS water tank of 0.5 mm thickness conforming to IS1239 Part-I :2004 complete with 5 years warranty as per specification no. ESD-SHWS-FPC.	Each	63805
4-1-4	Supplying, installing, testing and commissioning of FPC solar water heating system without heating coil type of 500 LPD capacity with SS water tank of 0.5 mm thickness conforming to IS1239 Part-I :2004 complete with 5 years warranty as per specification no. ESD-SHWS-FPC.	Each	90636
4-1-5	Supplying, installing, testing and commissioning of ETC solar water heating system without heating coil type of 100 LPD capacity with SS water tank of 0.5 mm thickness conforming to IS1239 Part-I :2004 complete with 5 years warranty as per specification no. ESD-SHWS-FPC.	Each	24005
4-1-6	Supplying, installing, testing and commissioning of ETC solar water heating system without heating coil type of 200 LPD capacity with SS water tank of 0.5 mm thickness conforming to IS1239 Part-I :2004 complete with 5 years warranty as per specification no. ESD-SHWS-FPC.	Each	36427
4-1-7	Supplying, installing, testing and commissioning of ETC solar water heating system without heating coil type of 250 LPD capacity with SS water tank of 0.5 mm thickness conforming to IS1239 Part-I :2004 complete with 5 years warranty as per specification no. ESD-SHWS-FPC.	Each	40944
4-1-8	Supplying, installing, testing and commissioning of ETC solar water heating system without heating coil type of 300 LPD capacity with SS water tank of 0.5 mm thickness conforming to IS1239 Part-I :2004 complete with 5 years warranty as per specification no. ESD-SHWS-FPC.	Each	48131
4-1-9	Supplying, installing, testing and commissioning of ETC solar water heating system without heating coil type of 500 LPD capacity with SS water tank of 0.5 mm thickness conforming to IS1239 Part-I :2004 complete with 5 years warranty as per specification no. ESD-SHWS-FPC.	Each	72197
Note	1) For all hostel buildings, rest houses, circuit houses, dormitories, residential quarters and for replacement / renovation, solar water heating system shall be proposed instead of electrical geysers.		
(New)	2) If the solar water heating system is to be provided with heating coil, increase overall rates by 15 %.		

Item No. (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>4.2 Pipes for solar hot water system (ESD-HWP)</u>			
4-2-1	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 6 mm for solar water heater /AC system.	m	61
4-2-2	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 9 mm for solar water heater /AC system.	m	70
4-2-3	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 12 mm for solar water heater /AC system.	m	77
4-2-4	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 16 mm for solar water heater /AC system.	m	86
4-2-5	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 19 mm for solar water heater /AC system.	m	100
4-2-6	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 22 mm for solar water heater /AC system.	m	109
4-2-6	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 28 mm for solar water heater /AC system.	m	124
4-2-7	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 32 mm for solar water heater /AC system.	m	134
4-2-8	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 42 mm for solar water heater /AC system.	m	151
4-2-9 (New)	Supplying and erecting 16 mm dia., 1.75 mm min. thickness polyethylene composite pipe , conforming to IS 15450 :2004 duly joined by compression/ crimp fitted accessories, with internal as well as external end sealing arrangement for Solar Water Heater System as per specification No. ESD-HWP/PCP .	m	127

Item No. (1)	Short Description (2)	Unit (3)	Completed Rate (4)
4-2-10 (New)	Supplying and erecting 20 mm dia., 2.0 mm min. thickness polyethylene composite pipe , conforming to IS 15450 (2004) duly joined by compression/crimp fitted accessories, with internal as well as external end sealing arrangement for Solar Water Heater System as per specification No. ESD-HWP/PCP .	m	141
4-2-11 (New)	Supplying and erecting 25 mm dia., 2.45 mm min. thickness polyethylene composite pipe , conforming to IS 15450 :2004 duly joined by compression/crimp fitted accessories, with internal as well as external end sealing arrangement for Solar Water Heater System as per specification No. ESD-HWP/PCP .	m	210
4-2-12 (New)	Supplying and erecting 32 mm dia., 2.8 mm min. thickness polyethylene composite pipe , conforming to IS 15450 :2004 duly joined by compression/crimp fitted accessories, with internal as well as external end sealing arrangement for Solar Water Heater System as per specification No. ESD-HWP/PCP .	m	311
4-2-13 (New)	Supplying and erecting 40 mm dia., 3.4 mm min. thickness polyethylene composite pipe , conforming to IS 15450 :2004 duly joined by compression/crimp fitted accessories, with internal as well as external end sealing arrangement for Solar Water Heater System as per specification No. ESD-HWP/PCP .	m	509
4-2-14 (New)	Supplying and erecting 50 mm dia., 4 mm min. thickness polyethylene composite pipe , conforming to IS 15450 :2004 duly joined by compression/crimp fitted accessories, with internal as well as external end sealing arrangement as for Solar Water Heater System per specification No. ESD-HWP/PCP .	m	743
<u>4.3 Solar Batteries (ESD-SOL/BAT)</u>			
4-3-1	Supplying, installing, testing and commissioning C-10 battery with capacity of 12V, 40 Ah with duty cycle 10-12 hrs. suitable to charge on PV cell with necessary wiring connections, nut bolts on provided stand with five years warranty as per specification no. ESD-SOL/BAT	Each	5973
4-3-2	Supplying, installing, testing and commissioning C-10 battery with capacity of 12 V, 75 Ah with duty cycle 10-12 hrs. suitable to charge on PV cell with necessary wiring connections, nut bolts on provided stand with five years warranty as per specification no. ESD-SOL/BAT	Each	7945
4-3-3	Supplying, installing, testing and commissioning C-10 battery with capacity of 12 V 100 Ah with duty cycle 10-12 hrs. suitable to charge on PV cell with necessary wiring connections, nut bolts on provided stand with five years warranty as per specification no. ESD-SOL/BAT	Each	10247
4-3-4	Supplying, installing, testing and commissioning C-10 battery with capacity of 12 V, 150 Ah with duty cycle 10-12 hrs. suitable to charge on PV cell with necessary wiring connections, nut bolts on provided stand with five years warranty as per specification no. ESD-SOL/BAT	Each	16234

Item No. (1)	Short Description (2)	Unit (3)	Completed Rate (4)
-----------------	--------------------------	-------------	--------------------------

4-3-5	Supplying, installing, testing and commissioning C-10 battery with capacity of 12 V, 200 Ah with duty cycle 10-12 hrs. suitable to charge on PV cell with necessary wiring connections, nut bolts on provided stand with five years warranty as per specification no. ESD-SOL/BAT	Each	19812
-------	--	------	-------

4-3-6	Supplying, installing, testing and commissioning C-10 battery with capacity of 12 V, 300 Ah with duty cycle 10-12 hrs. suitable to charge on PV cell with necessary wiring connections, nut bolts on provided stand with five years warranty as per specification no. ESD-SOL/BAT	Each	20352
-------	--	------	-------

4.4 Rooftop off grid solar systems (ESD-RT-OFG)

4-4-1	Supplying, installing, testing and commissioning of 1 kWp OFF-GRID solar power pack with interconnecting wires / cables up to 12 V pure sine wave solar power inverter (THD<3%), SPV Modules (335 WP X 03 Nos.), C-10 rated lead acid battery bank 12 V, 400 Ah / (12V, 100 Ah x 4 nos.) suitable for 4 Hours backup with suitable MS powder coated stand to hold battery bank and keeping sufficient space for filling distilled water, canopy box to house inverter and other electronics, wiring up to solar inverter in casing and capping, display board, sign board , two distinct earthing, spike type lightning arrester, necessary accessories complete with 5 year ON-SITE warranty and fully comprehensive maintenance contract as per specification no. ESD-RT-OFG	Each	75762
-------	--	------	-------

4-4-2	Supplying, installing, testing and commissioning of 3 kWp OFF-GRID solar power pack with interconnecting wires / cables up to 24 V pure sine wave solar power inverter (THD<3%), SPV Modules (335 WP X 09 Nos.), C-10 rated lead acid battery bank 24 V, 600 Ah / (12V, 300 Ah x 4 nos.) suitable for 4 Hours backup with suitable MS powder coated stand to hold battery bank and keeping sufficient space for filling distilled water, canopy box to house inverter and other electronics, wiring up to solar inverter in casing and capping, display board, sign board, two distinct earthing, spike type lightning arrester, necessary accessories complete with 5 year ON-SITE warranty and fully comprehensive maintenance contract as per specification no. ESD-RT-OFG	Each	227023
-------	---	------	--------

4-4-3	Supplying, installing, testing and commissioning of 5 kWp OFF-GRID solar power pack with interconnecting wires / cables up to 24V pure sine wave solar power inverter (THD<3%), SPV Modules (335 WP X 15 Nos.), C-10 rated lead acid battery bank 24V, 300Ah x 4 nos. / (12V, 300 Ah x 8 nos.) suitable for 4 Hours backup with suitable MS powder coated stand to hold battery bank and keeping sufficient space for filling distilled water, canopy box to house inverter and other electronics, wiring up to solar inverter in casing and capping, display board, sign board, two distinct earthing, spike type lightning arrester, necessary accessories complete with 5 year ON-SITE warranty and fully comprehensive maintenance contract as per specification no. ESD-RT-OFG	Each	374096
-------	---	------	--------

Note :

- 1. Only 25 meter length of aluminium conductor armoured cable of appropriate size is considered for item no. 4-4-1 to 4-4-3.**
- 2. Cost of mounting structure, PV cleaning unit, additional wiring is not included in item 4-4-1 to 4-4-3.**

- 3. For installation of off-grid solar pV plant upto 10kWp, add Rs. 75762/- per kWp for item no. 4-4-1 to 4-4-3 if required.**

Item No. (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>4.5 Rooftop ON grid solar systems (ESD-RT-ONG)</u>			
4-5-1	Supplying, installing, testing and commissioning of 3 kWp ON-GRID Solar pV System / Plant consisting solar PV poly crystalline panel (335 Wp X 09 Nos.) and Solar ON-GRID Inverter of similar capacity (THD<3%) with interconnecting wires / cables up to solar ON GRID inverter, proper base plate, canopy box to house Inverter and necessary accessories i.e. ACDB/ DCDB , MCB etc. wiring up to solar Inverter in casing and capping, display board, sign board, two distinct earthing, lightning arrester, liasoning charges, remote monitoring system with maintaining card / chip for 5 years including net charges for RMS system, complete upto net meter installation and export to the grid with 5 year ON-SITE warranty and fully comprehensive maintenance contract as per specification no. ESD-RT-ONG	Each	164159
4-5-2	Supplying, installing, testing and commissioning of 5 kWp ON-GRID Solar pV System / Plant consisting Solar PV Poly Crystalline Panel (335 Wp X 15 Nos.) and Solar ON-GRID Inverter of similar capacity (THD<3%) with interconnecting wires / cables up to solar ON GRID inverter, proper base plate, canopy box to house Inverter and necessary accessories i.e. ACDB/ DCDB , MCB etc. wiring up to solar Inverter in casing and capping, display board, sign board, two distinct earthing, lightning arrester, liasoning charges, remote monitoring system with maintaining card/chip for 5 years including net charges for RMS system, complete upto net meter installation and export to the grid with 5 year ON-SITE warranty and fully comprehensive maintenance contract as per Specification no. ESD-RT-ONG	Each	290614
4-5-3	Supplying, installing, testing and commissioning of 10 kWp ON-GRID Solar pV System / Plant consisting Solar PV Poly Crystalline Panel (335 Wp X 30 Nos.) and Solar ON-GRID Inverter of similar capacity (THD<3%) with interconnecting wires / cables up to solar ON GRID inverter, proper base plate, canopy box to house Inverter and necessary accessories i.e. ACDB/ DCDB, MCB etc. wiring up to solar Inverter in casing and capping, display board, sign board, two distinct earthing, lightning arrester, liasoning charges, remote monitoring system with maintaining card/chip for 5 years including net charges for RMS System, complete upto net meter installation and export to the grid with 5 year ON-SITE warranty and fully comprehensive maintenance contract as per Specification no. ESD-RT-ONG	Each	553760
4-5-4	Supplying, installing, testing and commissioning of 15 kWp ON-GRID Solar pV System / Plant consisting Solar PV Poly Crystalline Panel (335 Wp X 45 Nos.) and Solar ON-GRID Inverter of similar capacity (THD<3%) with interconnecting wires / cables up to solar ON GRID inverter, proper base plate, canopy box to house Inverter and necessary accessories i.e. ACDB/ DCDB , MCB etc. wiring up to solar Inverter in casing and capping, display board, sign board, two distinct earthing, lightning arrester, liasoning charges, remote monitoring system with maintaining card/chip for 5 years including net charges for RMS System, complete upto net meter installation and export to the grid with 5 year ON-SITE warranty and fully comprehensive maintenance contract as per Specification no. ESD-RT-ONG	Each	812736

Item No. (1)	Short Description (2)	Unit (3)	Completed Rate (4)
4-5-5	Supplying, installing, testing and commissioning of 20 kWp ON-GRID Solar pV System / Plant consisting Solar PV Poly Crystalline Panel (335 Wp X 60 Nos.) and Solar ON-GRID Inverter of similar capacity (THD<3%) with interconnecting wires / cables up to solar ON GRID inverter, proper base plate, canopy box to house Inverter and necessary accessories i.e. ACDB/ DCDB , MCB etc. wiring up to solar Inverter in casing and capping, display board, sign board, two distinct earthing, lightning arrester, liasoning charges, remote monitoring system with maintaining card/chip for 5 years including net charges for RMS System, complete upto net meter installation and export to the grid with 5 year ON-SITE warranty and fully comprehensive maintenance contract as per Specification no. ESD-RT-ONG.	Each	1060299
4-5-6	Supplying, installing, testing and commissioning of 25 kWp ON-GRID Solar pV System / Plant consisting Solar PV Poly Crystalline Panel (335 Wp X 75 Nos.) and Solar ON-GRID Inverter of similar capacity (THD<3%) with interconnecting wires / cables up to solar ON GRID inverter, proper base plate, canopy box to house Inverter and necessary accessories i.e. ACDB/ DCDB , MCB etc. wiring up to solar Inverter in casing and capping, display board, sign board, two distinct earthing, lightning arrester, liasoning charges, remote monitoring system with maintaining card / chip for 5 years including net charges for RMS System, complete upto net meter installation and export to the grid with 5 year ON-SITE warranty and 5 Years fully comprehensive maintenance contract as per Specification no. ESD-RT-ONG.	Each	1279531
4-5-7	Supplying, installing, testing and commissioning of 100 kWp ON-GRID Solar pV System / Plant consisting Solar PV Poly Crystalline Panel (335 Wp X 300 Nos.) and Solar ON-GRID Inverter of similar capacity (THD<3%) with interconnecting wires / cables up to solar ON GRID inverter, proper base plate, canopy box to house Inverter and necessary accessories i.e. ACDB/ DCDB , MCB etc. wiring up to solar Inverter in casing and capping, display board, sign board, two distinct earthing, lightning arrester, liasoning charges, remote monitoring system with maintaining card / chip for 5 years including net charges for RMS System, complete upto net meter Installation and export to the grid with 5 year ON-SITE warranty and fully comprehensive maintenance contract as per Specification no. ESD-RT-ONG.	Each	5049513
Note	<p>1) Only 25 meter length of aluminium conductor armoured cable of appropriate size is considered for item no. 4-5-1 to 4-5-7.</p> <p>2) Cost of mounting structure, PV cleaning unit, additional wiring, MSEDCL related fees, additional load charges, meter and testing charges is not included in item.</p> <p>3) Rates of item no. 4-5-1 to 4-5-7 are applicable up to 200 kWp. For above 200 kWp non csr item shall be approved by concern Superintending Engineer P.W. Regional Circle (Electrical).</p>		

Item No. (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>4.6 Heat Pump (ESD-HP)</u>			
4-6-1	Supplying, installing, testing and commissioning of Monoblock Heat pump, having dimension: 1850 x 520 (mm), Input power: 460 W, 230 V, 50 Hz, Output power: 1750 W having hot water temperature range 35°C to 75°C and ambient temperature range for max. efficiency 7°C to 43°C, Mild Steel hot water tank of 180 ltr. with glass lining and min. weight of tank 92 kg and rated pressure 10 bar with two emergency heating elements operated on three operational mode: Efficiency mode, Hybrid turbo mode and Standard mode with Adaptive Energy System (AES), LED display with necessary accessories complete with 5 years ON-SITE warranty as per specification ESD-HP .	Each	176633
4-6-2	Supplying, installing, testing and commissioning of Monoblock Heat pump, having dimension: 1012 x 713 x 1700 (mm), Input power: 875 W, 400 V, 3 Ph, 50 Hz, Output power: 3680 W having hot water temperature range 35°C to 75°C and ambient temperature range for max. efficiency 7°C to 43°C, Mild Steel hot water tank of 455 ltr. with glass lining and min. weight of tank 194 Kg and rated pressure 10 bar with two emergency heating elements operated on three operational mode: Efficiency mode, Hybrid turbo mode and Standard mode with Adaptive Energy System (AES), LED display with necessary accessories complete with 5 years ON-SITE warranty as per specification ESD-HP .	Each	286097
4-6-3	Supplying, installing, testing and commissioning of Monoblock Heat pump, having dimension: 995 x 785 x 1700 (mm), Input power: 2.22 kW, 400 V, 3 Ph, 50 Hz, Output power: 8 kW having hot water temperature range 35°C to 75°C and ambient temperature range for max. efficiency 7°C to 43°C, Mild Steel hot water tank of 455 ltr. with glass lining and min. weight of tank 229 Kg and rated pressure 10 bar with two emergency heating elements operated on three operational mode: Efficiency mode, Hybrid turbo mode and Standard mode with Adaptive Energy System (AES), LED display with necessary accessories complete with 5 years ON-SITE warranty as per specification ESD-HP .	Each	421937
4-6-4	Supplying, installing, testing and commissioning of Commercial Heat pump, having dimension: 1020 x 846 x 1840 (mm), Input power: 6.02 kW, 380V, 3 Ph, 50 Hz, Output power: 19.8 kW having hot water temperature range 35°C to 52°C and ambient temperature range for max. efficiency 7°C to 43°C, with top throw fan, tube in tube type heat exchanger and 5 nos. inbuilt temperature sensors and two pressure sensors shall be display on controller, centrally controlled operation, operational noise level: 65 dBA with necessary accessories complete with 5 years ON-SITE warranty as per specification ESD-HP .	Each	567187
4-6-5	Supplying, installing, testing and commissioning of Commercial Heat pump, having dimension: 1020 x 846 x 1840 (mm), Input power: 10.3 kW, 380 V, 3 Ph, 50 Hz, Output power: 38 kW having hot water temperature range 35°C to 52°C and ambient temperature range for max. efficiency 7°C to 43°C, with top throw fan, tube type heat exchanger 5 nos. inbuilt temperature sensor and two pressure sensors shall be display on controller, , centrally controlled operation, operational noise level: 65 dBA with provision for controlling auxiliary heater with necessary accessories complete with 5 years ON-SITE warranty as per specification ESD-HP .	Each	718620

Item No. (1)	Short Description (2)	Unit (3)	Completed Rate (4)
4-6-6	Supplying, installation and testing and commissioning of storage type Mild Steel mixing water tank of capacity 3000 ltrs. tested to a pressure of 8 kg/cm ² , outer insulation with 50 mm thick rock wool with wire mesh around and clad with 26 SWG aluminium of dish end type with working pressure of 6 kg/cm ² , fabricated with 6 mm thick MS plate and dished ends with 8 mm thick plates complete with manhole cover, inner side of the tank coated with FRP coating of 3 mm thickness withstand temperature of 90°C provided with collars of 2" BSP for provision to install 6 numbers of electrical heating coils if required with thermal sensors for automatic operation and integrated into the electrical circuits of the circulation pumps and the heat pump with safety valve drain, inlet and outlet nozzle, pressure gauge with all necessary accessories complete.	Each	280168
4-6-7	Supplying, installation and testing and commissioning of storage type Mild Steel mixing water tank of capacity 5000 litres. tested to a pressure of 8 kg/cm ² outer insulation with 50 mm thick rock wool with wire mesh around and clad with 26 SWG aluminium of dish end type with working pressure of 6 kg/cm ² fabricated with 6 mm thick plate and dished ends with 8 mm thick plates complete with manhole cover, inner side of the tank coated with FRP coating of 3 mm thickness withstand temperature of 90°C provided with collars of 2" BSP for provision to install 6 numbers of electrical heating coils if required with thermal sensors for automatic operation and integrated into the electrical circuits of the circulation pumps and the heat pump with safety valve drain, inlet and outlet nozzle, pressure gauge with all necessary accessories complete.	Each	406523

Note Separate water tank not required for item no. 4-6-1 to 4-6-3

4.7 Electric Vehicle charger (ESD-EVC)

4-7-1	Supplying, erecting, testing and commissioning of 10kW, 3 x 3.3 KW AC Electric Vehicle charger (suitable for 2/3/4 wheeler) having minimum IK08/IP 54 Protection suitable for three phase, 415V AC, 50Hz incoming and 3 nos. of outgoing as per IEC 60309 industrial sockets having capacity of output current of 16A 240VAC at each socket with 3.5" TFT touch screen for human interface & LED Light for status indication and metering for measurement of consumed energy having metering accuracy +/-1%, one hour battery backup for communication, emergency push stop button, with user interface by mobile application/QR Code/RFID Card and having short circuit, over & under voltage, overload, over temperature, earth leakage protection and enclosure made of minimum 1.5mm duly RAL7035 Coated M.S, Erected on iron/GI frame on provided cement concrete foundation complete with one year on site warranty, Confirming to IS 17017 Series as per specification no. ESD-EVC.	Each	45297
-------	--	------	-------

Item No. (1)	Short Description (2)	Unit (3)	Completed Rate (4)
4-7-2	Supply, Installation, Testing and Commissioning 7.2 kW AC Electric Vehicle charger (suitable for 4 wheeler) having minimum IK08 & IP54 protection suitable for single phase, 230V AC, 50Hz, incoming and 1 nos. of outgoing having capacity of output current of 32A at 230V with Type two connector as per IEC 62196-2 , Interlocking arrangement & minimum 5 meter charging cable length, 3.5" TFT screen for human interface & LED light for status indication and metering for measurement of consumed energy having metering accuracy +/-1%, one hour battery backup for server communication,emergency push stop button,with user interface by mobile application/QR Code/RFID Card/Password Login and having short circuit, over & under voltage, overload, earth leakage ,Over temperature, surge protection and enclosure made of minimum 1.5mm dully RAL7035 coated M.S, erected on iron/GI frame on provided cement concrete foundation complete with one year on site warranty, conforming to IS 17017 Series as per specification No. ESD-EVC.	Each	51556
4-7-3	Supplying, erecting, testing and commissioning of 15 KW DC Electric Vehicle Charger (suitable for 4 wheeler)having minimum IK08 & IP54 protection suitable for three phase 415V AC 50Hz incoming supply and 1 no. of outgoing charger interface GB/T with 40-100VDC supply and 15 kW capacity , interlocking arrangement with minimum 5 meter charging cable Length , 7" LCD touch screen for human interface & LED light for status indication, metering for measurement of consumed energy having metering accuracy +/-1%, One hour battery backup for communication, emergency push stop button. User interface by mobile application/QR Code/RFID Card/Password Login with payment options and having short circuit, over & under voltage, surge protection, earth leakage protection and enclosure made of minimum 1.5mm dully RAL7035 coated M.S, erected on iron/GI frame on provided cement concrete foundation complete with one year on site warranty, conforming to IS 17017 Series as per specification No. ESD-EVC.	Each	291543
4-7-4	Supplying, erecting, testing and commissioning of 30 kW DC Electric Vehicle Charger (suitable for 4 wheeler) having minimum IK08 & IP 54 Protection suitable for three phase, 415V AC, 50Hz incoming supply and 1 no. of 30kW outgoing charger interface CCS2 with 200-500 VDC supply , interlocking arrangement with minimum 5 meter charging cable Length, 5" LCD Touch Screen for human interface & LED Light for status indication and metering for measurement of consumed energy having metering accuracy +/-1%, One hour battery backup for communication, emergency push stop button. User interface by mobile application/QR Code/RFID Card/Password Login with payment options and having short circuit, over & under voltage, input phase reversal, surge protection, earth leakage protection and enclosure made of minimum 1.5mm dully RAL7035 coated M.S, erected on iron/GI frame on provided cement concrete foundation complete with one year on site warranty, conforming to IS 17017 Series as per specification No. ESD-EVC.	Each	641740

Item No. (1)	Short Description (2)	Unit (3)	Completed Rate (4)
4-7-5 (New)	Supplying, erecting, testing and commissioning of 60 kW DC Electric Vehicle Charger (suitable for 4 wheeler) having minimum IK08 & IP 54 Protection suitable for three phase, 415V AC, 50Hz incoming supply and 2 nos of 30kW outgoing charger interface CCS2 with 200-1000VDC supply , interlocking arrangement with minimum 5 meter charging cable Length, 7" LCD Touch Screen for human interface & LED Light for status indication and metering for measurement of consumed energy having metering accuracy +/-1%, One hour battery backup for communication, emergency push stop button. User interface by mobile application/QR Code/RFID Card/Password Login with payment options and having short circuit, over & under voltage, input phase reversal, surge protection, earth leakage protection and enclosure made of minimum 1.5mm duly RAL7035 coated M.S, erected on iron/GI frame on provided cement concrete foundation complete with one year on site warranty, conforming to IS 17017 Series as per specification No. ESD-EVC.	Each	977657
<u>4.8 Miscellaneous</u>			
4-8-1	Supplying and erecting quartz electronic time switch having 24 hour dial to work on 250 V 50 cycle AC having built in rechargeable nickel cadmium batteries to run the time switch on failure of supply having switch contact rating upto 16A to use independently or in conjunction with contactor.	Each	2090
4-8-2	Supplying and erecting two pole power contactor 230V, 12A for time switch complete erected on provided wooden block/ box, with necessary materials.	Each	762
4-8-3	Supplying and erecting two pole power contactor 230V, 32A for time switch complete erected on provided wooden block/ box, with necessary materials.	Each	2154
4-8-4	Supplying and erecting four pole power contactor 430V, 16A for time switch complete erected on provided wooden block/ box, with necessary materials.	Each	1110
4-8-5	Supplying and erecting four pole power contactor 430V, 40A for time switch complete erected on provided wooden block/ box, with necessary materials.	Each	1879
4-8-6	Supplying and erecting programmable digital almanac timer microcontroller based with real time clock to operate on derived switching "ON" and switching "OFF" street light as per daily sunset and sunrise respectively automatically having 4 digit LED continuous time display, relay output 230V / 10A with 10 hrs. battery backup and manual over drive facility capable to drive different capacity contactors timer erected in provided M.S. box.	Each	2948
4-8-7	Providing and fixing high-density polyethylene (HDP) container one piece moulded water tank made out of high density polyethylene and built corrugated inclusive of delivery up to destination hoisting and fixing of accessories such as inlet, outlet overflow pipe inclusive of all tanks capacity up to 20000 litres.	per litre	11
4-8-8	Supplying and installation of solar PV module cleaning unit consisting of nozzles spray, necessary pipes, valves, post, electronic panel board concealed with weather proof cabinet, spreading water periodically for removal of dust, related motor pump, controller, timer and nozzles set suitable for covering 5 kWp Solar PV Module. (Approx. 35 Sq. Mtr. PV Module area)	Each	23985
Note :	For item no. 4-8-8 for additional kW capacity, add Rs. 4500/- for every 5kWp.		
<u>4.9 Dismantling</u>			
4-9-1	Dismantling the existing solar water heating system upto 500 LPD capacity along with piping etc. from roof top and bringing down to ground.	Each	2383

Chapter: 5 SWITCHGEARS (SW)

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>5.1 Change Over Switch, SDF (SW-SWR)</u>			
5-1-1	Supplying & erecting ON LOAD change over switch 4 Pole, 415V, 32A , open execution having staggered termination, phase barrier, shroud termination and terminal cover along with auxiliary contacts and ready to upgrade with fuse protection kit, operational current category AC23A complying to IS/IEC 60947-3 Part-1/3 as per specification no. SW-SWR/COS .	Each	2966
5-1-2	Supplying & erecting ON LOAD change over switch 4 Pole, 415V, 40A , open execution having staggered termination, phase barrier, shroud termination and terminal cover along with auxiliary contacts and ready to upgrade with fuse protection kit, operational current category AC23A complying to IS/IEC 60947-3 Part-1/3 as per specification no. SW-SWR/COS .	Each	3235
5-1-3	Supplying & erecting ON LOAD change over switch 4 Pole, 415V, 63A , open execution having staggered termination, phase barrier, shroud termination and terminal cover along with auxiliary contacts and ready to upgrade with fuse protection kit, operational current category AC23A complying to IS/IEC 60947-3 Part-1/3 as per specification no. SW-SWR/COS .	Each	4560
5-1-4	Supplying & erecting ON LOAD change over switch 4 Pole, 415V, 100A , open execution having staggered termination, phase barrier, shroud termination and terminal cover along with auxiliary contacts and ready to upgrade with fuse protection kit, operational current category AC23A complying to IS/IEC 60947-3 Part-1/3 as per specification no. SW-SWR/COS .	Each	5027
5-1-5	Supplying & erecting ON LOAD change over switch 4 Pole, 415V, 160A , open execution having staggered termination, phase barrier, shroud termination and terminal cover along with auxiliary contacts and ready to upgrade with fuse protection kit, operational current category AC23A complying to IS/IEC 60947-3 Part-1/3 as per specification no. SW-SWR/COS .	Each	8729
5-1-6	Supplying & erecting ON LOAD change over switch 4 Pole, 415V, 200A , open execution having staggered termination, phase barrier, shroud termination and terminal cover along with auxiliary contacts and ready to upgrade with fuse protection kit, operational current category AC23A complying to IS/IEC 60947-3 Part-1/3 as per specification no. SW-SWR/COS .	Each	10948
5-1-7	Supplying & erecting ON LOAD change over switch 4 Pole, 415V, 315-320A , open execution having staggered termination, phase barrier, shroud termination and terminal cover along with auxiliary contacts and ready to upgrade with fuse protection kit, operational current category AC23A complying to IS/IEC 60947-3 Part-1/3 as per specification no. SW-SWR/COS .	Each	17093
5-1-8	Supplying & erecting ON LOAD change over switch 4 Pole, 415V, 400A , open execution having staggered termination, phase barrier, shroud termination and terminal cover along with auxiliary contacts and ready to upgrade with fuse protection kit, operational current category AC23A complying to IS/IEC 60947-3 Part-1/3 as per specification no. SW-SWR/COS .	Each	24914
5-1-9 (New)	Supplying & erecting ON LOAD change over switch 4 Pole, 415V, 630A , open execution having staggered termination, phase barrier, shroud termination and terminal cover along with auxiliary contacts and ready to upgrade with fuse protection kit, operational current category AC23A complying to IS/IEC 60947-3 Part-1/3 as per specification no. SW-SWR/COS .	Each	29101
5-1-10 (New)	Supplying & erecting ON LOAD change over switch 4 Pole, 415V, 800A , open execution having staggered termination, phase barrier, shroud termination and terminal cover along with auxiliary contacts and ready to upgrade with fuse protection kit, operational current category AC23A complying to IS/IEC 60947-3 Part-1/3 as per specification no. SW-SWR/COS .	Each	38530
5-1-11	Supplying and erecting metal clad changeover switch 2 pole, 240 V, 32A erected on provided angle iron/GI frame and duly connected with suitable wire leads complete as per specification no. SW-SWR/COS .	Each	1421

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
5-1-12	Supplying and erecting ON LOAD automatic transfer switch 4 pole, 415V, 100-125A, 50 Hz with enclosure, flexibility of neutral connection, line and load reversibility, changeover with phase barriers, source separator, terminal covers along with staggered termination for cable connection and ATS controller with provision of time delay protection of OV, UV, phase sequence changing, single phasing and event logging, connected with provided leads complete complying to IS/IEC 60947-3 Part-1/6 as per specification no. SW-SWR/ATS.	Each	37990
5-1-13	Supplying and erecting ON LOAD automatic transfer switch 4 pole, 415V, 160A, 50 Hz with enclosure, flexibility of neutral connection, line and load reversibility, changeover with phase barriers, source separator, terminal covers along with staggered termination for cable connection and ATS controller with provision of time delay protection of OV, UV, phase sequence changing, single phasing and event logging, connected with provided leads complete complying to IS/IEC 60947-3 Part-1/6 as per specification no. SW-SWR/ATS.	Each	50877
5-1-14	Supplying and erecting ON LOAD automatic transfer switch 4 pole, 415V, 200A, 50 Hz with enclosure, flexibility of neutral connection, line and load reversibility, changeover with phase barriers, source separator, terminal covers along with staggered termination for cable connection and ATS controller with provision of time delay protection of OV, UV, phase sequence changing, single phasing and event logging, connected with provided leads complete complying to IS/IEC 60947-3 Part-1/6 as per specification no. SW-SWR/ATS.	Each	64241
5-1-15	Supplying and erecting ON LOAD automatic transfer switch 4 pole, 415V, 315A, 50 Hz with enclosure, flexibility of neutral connection, line and load reversibility, changeover with phase barriers, source separator, terminal covers along with staggered termination for cable connection and ATS controller with provision of time delay protection of OV, UV, phase sequence changing, single phasing and event logging, connected with provided leads complete complying to IS/IEC 60947-3 Part-1/6 as per specification no. SW-SWR/ATS.	Each	72756
5-1-16	Supplying and erecting ON LOAD automatic transfer switch 4 pole, 415V, 400A, 50 Hz with enclosure, flexibility of neutral connection, line and load reversibility, changeover with phase barriers, source separator, terminal covers along with staggered termination for cable connection and ATS controller with provision of time delay protection of OV, UV, phase sequence changing, single phasing and event logging, connected with provided leads complete complying to IS/IEC 60947-3 Part-1/6 as per specification no. SW-SWR/ATS.	Each	88311
5-1-17	Supplying and erecting switch disconnecter fuse (SDF) switch triple pole and neutral link, 415V, 25/32A, open execution, AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC-DIN type fuse, insulation voltage 1000V for enclosing in panel with rotary handle for ON / OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF.	Each	1943
5-1-18	Supplying and erecting switch disconnecter fuse (SDF) switch 4 pole, 415V, 63A, open execution, AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC-DIN type fuse, insulation voltage 1000V for enclosing in panel with rotary handle for ON/OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF.	Each	2903
5-1-19	Supplying and erecting switch disconnecter fuse (SDF) switch 4 pole, 415V, 100A, open execution, AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC-DIN type fuse, insulation voltage 1000 V for enclosing in panel with rotary handle for ON / OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF.	Each	4856
5-1-20	Supplying and erecting switch disconnecter fuse (SDF) switch 4 pole, 415V, 125A, open execution, AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC-DIN type fuse, insulation voltage 1000 V for enclosing in panel with rotary handle for ON / OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF.	Each	7573

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
5-1-21	Supplying and erecting switch disconnecter fuse (SDF) switch 4 pole, 415V, 160A, open execution , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse, insulation voltage 1000 V for enclosing in panel with rotary handle for ON / OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF .	Each	9161
5-1-22	Supplying and erecting switch disconnecter fuse (SDF) switch 4 pole, 415V, 200A, open execution , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse, insulation voltage 1000 V for enclosing in panel with rotary handle for ON / OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF .	Each	11150
5-1-23	Supplying and erecting switch disconnecter fuse (SDF) switch 4 pole, 415V, 250A, open execution , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse, insulation voltage 1000 V for enclosing in panel with rotary handle for ON / OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF .	Each	13097
5-1-24	Supplying and erecting switch disconnecter fuse (SDF) switch 4 pole, 415V, 300-320A, open execution , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse, insulation voltage 1000 V for enclosing in panel with rotary handle for ON / OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF .	Each	15303
5-1-25	Supplying and erecting switch disconnecter fuse (SDF) switch 4 pole, 415V, 400A, open execution , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse, insulation voltage 1000 V for enclosing in panel with rotary handle for ON / OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF .	Each	16511
5-1-26	Supplying and erecting switch disconnecter fuse (SDF) switch 4 pole, 415V, 630A, open execution , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse, insulation voltage 1000 V for enclosing in panel with rotary handle for ON / OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF .	Each	26707
5-1-27	Supplying and erecting switch disconnecter fuse (SDF) switch 4 pole, 415V, 800A, open execution , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse, insulation voltage 1000 V for enclosing in panel with rotary handle for ON / OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF .	Each	30190
5-1-28	Supplying and erecting switch disconnecter fuse (SDF) triple pole and neutral link, 415V, 25/32A, with enclosure , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse switch, insulation voltage 1000 V for enclosing in panel with rotary handle for ON / OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF .	Each	3760
5-1-29	Supplying and erecting switch disconnecter fuse (SDF) 4 pole, 415V, 63A, with enclosure , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse switch, insulation voltage 1000V for enclosing in panel with rotary handle for ON/OFF operation(without HRC fuse) as per specification no. SW-SWR/SDF .	Each	5295

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
5-1-30	Supplying and erecting switch disconnecter fuse (SDF) 4 pole, 415V, 100A, with enclosure , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse switch, insulation voltage 1000V for enclosing in panel with rotary handle for ON/OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF .	Each	7757
5-1-31	Supplying and erecting switch disconnecter fuse (SDF) 4 pole, 415V, 125A, with enclosure , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse switch, insulation voltage 1000V for enclosing in panel with rotary handle for ON/OFF operation (without HRC fuse) as per specification no. (SW-SWR/SDF) .	Each	8601
5-1-32	Supplying and erecting switch disconnecter fuse (SDF) 4 pole, 415V, 160A, with enclosure , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse switch, insulation voltage 1000V for enclosing in panel with rotary handle for ON/OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF .	Each	11140
5-1-33	Supplying and erecting switch disconnecter fuse (SDF) 4 pole, 415V, 200A, with enclosure , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse switch, insulation voltage 1000V for enclosing in panel with rotary handle for ON/OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF .	Each	14172
5-1-34	Supplying and erecting switch disconnecter fuse (SDF) 4 pole, 415V, 250A, with enclosure , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse switch, insulation voltage 1000V for enclosing in panel with rotary handle for ON/OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF .	Each	15598
5-1-35	Supplying and erecting switch disconnecter fuse (SDF) 4 pole, 415V, 300-320A, with enclosure , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse switch, insulation voltage 1000V for enclosing in panel with rotary handle for ON/OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF .	Each	18419
5-1-36	Supplying and erecting switch disconnecter fuse (SDF) 4 pole, 415V, 400A, with enclosure , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse switch, insulation voltage 1000V for enclosing in panel with rotary handle for ON/OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF .	Each	19366
5-1-37	Supplying and erecting switch disconnecter fuse (SDF) 4 pole, 415V, 630A, with enclosure , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse switch, insulation voltage 1000 V for enclosing in panel with rotary handle for ON/OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF .	Each	27249
5-1-38	Supplying and erecting switch disconnecter fuse (SDF) 4 pole, 415V, 800A, with enclosure , AC23 A rated with terminal shrouds on both sides and phase barriers along with telescopic shaft for depth adjustments and door interlock and padlock complying to IS/IEC 60947-3 Part-1/3 HRC - DIN type fuse switch insulation voltage 1000 V for enclosing in panel with rotary handle for ON/OFF operation (without HRC fuse) as per specification no. SW-SWR/SDF .	Each	36054

Note: 1. Item no 5-1-1 to 5-1-8 are of open execution type to be used in cubical panels. For using this item with enclosure, rates shall be increased by 35 %.
2. For erection of enclosures required angle iron/ GI frame shall be taken on basis of calculation according to the actual weight of the required frame size.

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>5.2 Mini Feeder Pillar (SW-MFP)/ Street Light Control Panel (SW-STCP)</u>			
5-2-1	Supplying and erecting mini feeder pillar with 415V, 200A FP MCCB as incomer and 2 outgoing circuits with HRC fuse base and cartridge of 100A with aluminium bus bar erected in 14 SWG CRCA sheet box with supporting angles, self locks, gasket and enclosure must be dust proof, rust proof, vermin and water resistant, having slanting top and erected on angle iron/ GI frame in provided C.C. foundation complete as per specification no. SW-MFP.	Each	38076
5-2-2	Supplying and erecting mini feeder pillar with 415V, 315-320A FPMCCB as incomer and 3 outgoing circuits with HRC fuse base and cartridge of 100A aluminium bus bar erected in 14 SWG CRCA sheet box with supporting angles, self locks, gasket and enclosure must be dust proof, rust proof, vermin and water resistant, having slanting top and erected on angle iron/ GI frame in provided C.C. foundation complete as per specification no. SW-MFP.	Each	55236
5-2-3	Supplying & erecting single phase, 240V, street light control panel upto the max load of 6kW, SPN MCB 40A, powder coated CRCA 14 SWG sheet, outdoor type having IP54, IK10 protection, suitable rating contactor, 24 hrs. astronomical time switch with minimum 5 years battery back up, auto/manual selector switch, ON/OFF push buttons, indicator lamps, control wiring, metering device, etc. for automatic operation with overcurrent, short circuit, earth fault protection on provided iron frame/ CC foundation as per specification no. SW-STCP.	Each	19352
5-2-4	Supplying & erecting single phase, 240V, street light control panel upto the max load of 12kW, SPN MCB 63A, powder coated CRCA 14 SWG sheet, outdoor type having IP54, IK10 protection, suitable rating contactor, 24 hrs. astronomical time switch with minimum 5 years battery back up, auto/manual selector switch, ON/OFF push buttons, indicator lamps, control wiring, metering device, etc. for automatic operation with overcurrent, short circuit, earth fault protection on provided iron frame / CC foundation as per specification no. SW-DB/STCP.	Each	24399
5-2-5	Supplying & erecting three phase, 415V, street light control panel upto the max load of 6kW, TPN MCB 40A, powder coated CRCA 14 SWG sheet, outdoor type, having IP54, IK10 protection, suitable rating contactor, 24 hrs. astronomical time switch with minimum 5 years battery back up, auto/manual selector switch, ON/OFF push buttons, indicator lamps, control wiring, metering device, etc. for automatic operation with overcurrent, short circuit, earth fault protection on provided iron frame / CC foundation as per specification SW-STCP.	Each	22739
5-2-6	Supplying & erecting three phase, 415V, street light control panel upto the max load of 12kW, TPN MCB 63A, powder coated CRCA 14 SWG sheet, outdoor type, having IP54, IK10 protection suitable rating contactor, 24 hrs. astronomical time switch with minimum 5 years battery back up, auto/manual selector switch, ON/OFF push buttons, indicator lamps, control wiring, metering device, etc. for automatic operation with overcurrent, short circuit, earth fault protection on provided iron frame / CC foundation as per specification SW-STCP.	Each	31461
5-2-7	Supplying & erecting street light control panel outdoor type, for single phase 2 wire system having in built astronomical adjustable programmable timer with minimum 5 years battery back up, having IP54, IK10 protection, 2 pole contactor upto 60A, with maintenance mode to switch ON street lights during time of repairs with energy consumption data recording for analysis and LCD display for energy monitoring with numeric keypad in provided box as per specification SW-STCP.	Each	20567
5-2-8	Supplying & erecting street light control panel outdoor type, for three phase 4 wire system having in built astronomical adjustable programmable timer with minimum 5 years battery back up, having IP54, IK10 protection, 4 pole contactor upto 60A, with maintenance mode to switch ON street lights during time of repairs with energy consumption data recording for analysis and LCD display for energy monitoring with numeric keypad in provided box as per specification SW-STCP.	Each	36410
Note:	Item no 5-2-7, 5-2-8 shall be installed in existing panel with appropriate capacity protecting switchgears		

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>5.3 LT - MCBs/ MCB Change Over Switch (SW-MCB)</u>			
5-3-1	Supplying, erecting & marking SPMCB 0.5A to 5A, C-series with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-MCB	Each	250
5-3-2	Supplying, erecting & marking SP MCB 6A to 32A, C-series with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-MCB	Each	174
5-3-3	Supplying, erecting & marking SP MCB 6A to 32A, B-series with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-MCB	Each	173
5-3-4	Supplying, erecting & marking SP MCB 40A to 63A, C-series with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-MCB	Each	369
5-3-5	Supplying, erecting & marking SP MCB 40A to 63A, B-series with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-MCB	Each	351
5-3-6	Supplying, erecting & marking DP MCB 6A to 32A, C-series with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-MCB	Each	535
5-3-7	Supplying, erecting & marking DP MCB 6 A to 32 A, B-series with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-MCB	Each	510
5-3-8	Supplying, erecting & marking DP MCB 40A to 63A, C-series with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-MCB	Each	713
5-3-9	Supplying, erecting & marking DP MCB 40A to 63A, B-series with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-MCB	Each	692
5-3-10	Supplying, erecting & marking TP MCB 6A to 32A , with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-MCB	Each	751
5-3-11	Supplying, erecting & marking TP MCB 40A to 63A , with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-MCB	Each	992
5-3-12	Supplying, erecting & marking FP MCB 6A to 32A , with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-MCB	Each	1059
5-3-13	Supplying, erecting & marking FP MCB 40A to 63A , with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-MCB	Each	1329
5-3-14	Supplying, erecting and marking double pole isolator only switch version of miniature circuit breaker of 40A with required wiring connections and lugs etc. in provided distribution board.	Each	310
5-3-15	Supplying, erecting and marking triple pole isolator only switch version of miniature circuit breaker of 40A with required wiring connections and lugs etc. in provided distribution board.	Each	604
5-3-16	Supplying, erecting and marking triple pole isolator only switch version of miniature circuit breaker of 63A with required wiring connections and lugs etc. in provided distribution board.	Each	679
5-3-17	Supplying, erecting and marking triple pole isolator only switch version of miniature circuit breaker of 100A with required wiring connections and lugs etc. in provided distribution board.	Each	772
5-3-18	Supplying, erecting and marking 4 pole isolator only switch version of miniature circuit breakers of 40A in provided distribution board.	Each	698
5-3-19	Supplying, erecting and marking 4 pole isolator only switch version of miniature circuit breakers of 63A in provided distribution board.	Each	734
5-3-20	Supplying, erecting and marking 4 pole isolator only switch version of miniature circuit breakers of 80/100A in provided distribution board.	Each	916

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
5-3-21	Supplying, fixing and commissioning MCB type change over switch 2 pole, 25 A with 3 positions (I-O-II) with centre off position as per specification no. SW-MCBCOS	Each	1123
5-3-22	Supplying, fixing and commissioning MCB type change over switch 2 pole, 40 A with 3 positions (I-O-II) with centre off position as per specification no. SW-MCBCOS	Each	1629
5-3-23	Supplying, fixing and commissioning MCB type change over switch 2 pole, 63 A with 3 positions (I-O-II) with centre off position as per specification no. SW- MCBCOS	Each	1867
5-3-24	Supplying, fixing and commissioning MCB type change over switch 4 pole, 25A with 3 positions (I-O-II) with centre off position as per specification no. SW-MCBCOS	Each	1927
5-3-25	Supplying, fixing and commissioning MCB type change over switch 4 pole, 40A with 3 positions (I-O-II) with centre off position as per specification no. SW-MCBCOS	Each	2891
5-3-26	Supplying, fixing and commissioning MCB type change over switch 4 pole, 63A with 3 positions (I-O-II) with centre off position as per specification no. SW-MCBCOS	Each	3255
Note:	<p>1) For lighting load 'B' series MCBs are to be provided and for motive / inductive power load 'C' series MCBs are to be provided.</p> <p>2) For heavy duty motors, welding transformers and machines having heavy surge current, MCB of 'D' series shall be provided by increasing 4% on the rates of 'C' series.</p> <p>3) For use of MCBs with inbuilt short circuit indication on each pole, add 4% on the rate.</p>		
<u>5.4 LT - MCBDBs (SW-MCBDB)</u>			
5-4-1	Supplying & erecting triple pole and neutral distribution board (TPNDB), SPMCB of 4 ways/phase (12 poles) , with door, 1.2mm thickness, surface/flush mounted, IP 43 protection on provided iron/GI frame (horizontal busbar type) as per specification no. SW-MCBDB.	Each	2391
5-4-2	Supplying & erecting triple pole and neutral distribution board (TPNDB), SPMCB of 8 ways/phase (24 poles) , with door, 1.2mm thickness surface/flush mounted, IP 43 Protection on provided iron/GI frame (horizontal busbar type) as per specification no. SW-MCBDB.	Each	3317
5-4-3	Supplying & erecting triple pole and neutral distribution board (TPNDB), SPMCB of 12 ways/phase (36 poles) , with door, 1.2mm thickness surface/flush mounted, IP 43 Protection provided on iron/GI frame (horizontal busbar type) as per specification no. SW-MCBDB.	Each	4118
5-4-4	Supplying & erecting triple pole and neutral distribution board (TPNDB), SP/TP MCBs total 4 ways/12 Poles , with door, 1.2mm thickness surface/flush mounted, IP 43 Protection on provided iron/GI frame (vertical busbar type) as per specification no. SW-MCBDB.	Each	4582
5-4-5	Supplying & erecting triple pole and neutral distribution board (TPNDB), SP/TP MCBs total 8 ways/24 poles , with door, 1.2mm thickness surface/flush mounted, IP 43 Protection on provided iron/GI frame (vertical busbar type) as per specification no. SW-MCBDB.	Each	5880
5-4-6	Supplying & erecting triple pole and neutral distribution board (TPNDB), SP/TP MCBs total 12 ways/36 poles , with door, 1.2mm thickness surface/flush mounted, IP 43 Protection on provided iron/GI frame (vertical busbar type) as per specification no. SW-MCBDB	Each	7739
5-4-7	Supplying and erecting single pole and neutral distribution board (SPNDB), with 2 ways for incoming and 2 ways (2 poles) for outgoing SP MCBs , with door, 1.2mm thickness surface/flush mounted, IP 43 Protection on provided iron/GI frame as per specification no. SW-MCBDB	Each	818
5-4-8 (New)	Supplying and erecting single pole and neutral distribution board (SPNDB), with 2 ways for incoming and 4 ways (4 poles) for outgoing SP MCBs , with door, 1.2mm thickness surface/flush mounted, IP 43 Protection on provided iron/GI frame as per specification no. SW-MCBDB	Each	984

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
5-4-9	Supplying and erecting single pole and neutral distribution board (SPNDB), with 2 ways for incoming and 6 ways (6 poles) for outgoing SP MCBs , with door, 1.2mm thickness surface/flush mounted, IP 43 Protection on provided iron/GI frame as per specification no. SW-MCBDB	Each	1333
5-4-10 (New)	Supplying and erecting single pole and neutral distribution board (SPNDB), with 2 ways for incoming and 8 ways (8 poles) for outgoing SP MCBs , with door, 1.2mm thickness surface/flush mounted, IP 43 Protection on provided iron/GI frame as per specification no. SW-MCBDB	Each	1503
5-4-11	Supplying and erecting single pole and neutral distribution board (SPNDB), with 2 ways for incoming and 10 ways (10 poles) for outgoing SP MCBs , with door, 1.2mm thickness surface/flush mounted, IP 43 Protection provided on iron/GI frame as per specification no. SW-MCBDB	Each	1605
5-4-12	Supplying & erecting CRCA sheet metal enclosures of 1.2mm thickness with 10A, 2 pin plug & earth socket and 10A, 3 pin plug top with 10A single pole MCB having rated short - circuit breaking capacity (Icn) 10kA complete erected on provided angle iron/GI frame.	Each	891
5-4-13	Supplying & erecting CRCA sheet metal enclosures of 1.2mm thickness with 20A, 2 pin plug & earth socket and 20A, 3 pin plug top with 20A/32A single pole MCB having rated short - circuit breaking capacity (Icn) 10kA complete erected on provided angle iron/GI frame.	Each	940
5-4-14	Supplying & erecting CRCA sheet metal enclosures of 1.2mm thickness with 32 A, 3 pin plug & earth socket and 32A, 3 pin plug top with 32A triple pole MCB having rated short - circuit breaking capacity (Icn) 10kA complete erected on provided angle iron/GI frame.	Each	1923
5-4-15	Supplying & erecting CRCA sheet metal one way enclosures of 1.2mm thickness suitable for DP MCB/TP MCB/FP MCB/RCCB/RCBO complete erected on provided angle iron/GI frame.	Each	408
5-4-16	Supplying and erecting blanking plate of suitable size on MCBDB.	Each	17
5-4-17	Supplying & erecting triple pole and neutral distribution board (TPNDB), 3 pole MCCB as incomer & outgoing SP MCB (12 poles) or TP MCB of 4 ways (12 poles) , with door, 1.2mm thickness, surface/flush mounted, on provided iron/GI frame (vertical busbar type) as per specification no. SW-SWR/MCBDB1	Each	7743
5-4-18	Supplying & erecting triple pole and neutral distribution board (TPNDB), 3 pole MCCB as incomer & outgoing SP MCB (24 poles) or TP MCB of 8 ways (24 poles) , with door, 1.2mm thickness, surface/flush mounted, on provided iron/GI frame (vertical busbar type) as per specification no. SW-SWR/MCBDB1	Each	8890
5-4-19	Supplying & erecting triple pole and neutral distribution board (TPNDB), 3 pole MCCB as incomer & outgoing SP MCB (36 poles) or TP MCB of 12 ways (36 poles) , with door, 1.2mm thickness, surface/flush mounted, on provided iron/GI frame (vertical busbar type) as per specification no. SW-SWR/MCBDB1	Each	9991
Note:	<p>1) All MCBs shall have rated short-circuit breaking capacity not less than 10kA.</p> <p>2) For erection of switchgears required angle iron/ GI frame shall be taken on basis of calculation according to the actual weight of the required frame size.</p> <p>3) For more than 2 kW load RCCB shall invariably be provided & erected preferably in the same distribution board. (RCCB+MCB) or (RCCB+MCCB etc.). Separate box for RCCB/ELCB is not permissible.</p> <p>4) DBs and allied switchgears must be of same make.</p> <p>5) DBs with IEC 61439 part 1 & 3 and minimum IK 08 rating shall be preferred.</p>		
<u>5.5 LT - MCCBs (SW-MCCB)</u>			
5-5-1	Providing & erecting 3 Pole MCCB, 415V, up to 100A , rated short-circuit breaking capacity 25 kA (Ics=100% of Icu) , adjustable thermal (overload) setting and fixed magnetic setting with provided leads, provision for installation of shunt/UV/trip alarm contact. MCCB with phase barriers on both sides, insulation withstand capacity 800V, no line-load bias in provided enclosure/panel as per specification no. SW-MCCB	Each	5808

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
5-5-2 (New)	Providing & erecting 3 Pole MCCB, 415V, 160A , rated short-circuit breaking capacity 25 kA (Ics=100% of Icu) , adjustable thermal (overload) setting and adjustable magnetic setting with provided leads, provision for installation of shunt/UV/trip alarm contact. MCCB with phase barriers on both sides, insulation withstand capacity 800V, no line-load bias in provided enclosure/panel as per specification no. SW-MCCB	Each	9027
5-5-3	Providing & erecting 3 Pole MCCB, 415V, 200A , rated short-circuit breaking capacity 25 kA (Ics=100% of Icu) , adjustable thermal (overload) setting and adjustable magnetic setting with provided leads, provision for installation of shunt/UV/trip alarm contact. MCCB should have phase barriers both sides, with insulation withstand capacity 800V, no line-load bias in provided enclosure/panel as per specification no. SW-MCCB	Each	11092
5-5-4	Providing & erecting 3 Pole MCCB 415V, 250A , rated short-circuit breaking capacity 36 kA (Ics=100% of Icu) adjustable thermal (overload) setting and adjustable magnetic setting with provided leads, provision for installation of shunt/UV/trip alarm contact. MCCB should have phase barriers both sides, with insulation withstand capacity 800V, no line-load bias in provided enclosure/panel as per specification no. SW-MCCB	Each	15858
5-5-5 (New)	Providing & erecting 3 Pole MCCB 415V, 320A , rated short-circuit breaking capacity 36 kA (Ics=100% of Icu) adjustable thermal (overload) setting and adjustable magnetic setting with provided leads, provision for installation of shunt/UV/trip alarm contact. MCCB should have phase barriers both sides, with insulation withstand capacity 800V, no line-load bias in provided enclosure/panel as per specification no. SW-MCCB	Each	19995
5-5-6	Providing & erecting 3 Pole MCCB 415V, 400A , rated short-circuit breaking capacity 36 kA (Ics=100% of Icu) , adjustable thermal (overload) setting and adjustable magnetic setting with provided leads, provision for installation of shunt/ UV/ trip alarm contact. MCCB should have phase barriers both sides, with insulation withstand capacity 800V, no line-load bias in provided enclosure /panel as per specification no. SW-MCCB	Each	20209
5-5-7	Providing & erecting 3 Pole MCCB 415V, 630A , rated short-circuit breaking capacity 36 kA (Ics=100% of Icu) , adjustable thermal (overload) setting and adjustable magnetic setting with provided leads, provision for installation of shunt/UV/trip alarm contact. MCCB should have phase barriers both sides, with insulation withstand capacity 800V, no line-load bias in provided enclosure/panel as per specification no. SW-MCCB	Each	27514
5-5-8	Providing & erecting 3 Pole MCCB, 415V, 800A , rated short-circuit breaking capacity 50 kA (Ics=100% of Icu) , adjustable thermal (overload) setting and adjustable magnetic setting with provided leads, provision for installation of shunt/UV/trip alarm contact. MCCB should have phase barriers both sides, with insulation withstand capacity 800V, no line-load bias in provided enclosure/panel as per specification no. SW-MCCB	Each	46308
Note:-	<p>1) For use of 4 pole MCCBs in place of 3 pole MCCBs add 20% in rate of 3 pole MCCB.</p> <p>2) In case of specialised application, MCCB used at incomer level shall be microprocessor based with LSIG (overload, short circuit, instantaneous, earth fault) inbuilt protection and shall have door mounted display to ensure close door operation; increase the rate by 20%.</p> <p>3) MCCBs which are used as incomer shall be of four pole only to ensure neutral isolation.</p>		
<u>5.6 RCCB / RCBO (SW-RCCB/RCBO)</u>			
5-6-1	Supplying, erecting & commissioning 2 pole RCCB 16/25A , electromagnetic type with 30/100/300 mA sensitivity with earth leakage trip indication complete as per specification no. SW-RCCB .	Each	2136
5-6-2	Supplying, erecting & commissioning 2 pole RCCB 40A , electromagnetic type with 30/100/300 mA sensitivity with earth leakage trip indication complete as per specification no. SW-RCCB .	Each	2327

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
5-6-3	Supplying, erecting & commissioning 2 pole RCCB 63A , electromagnetic type with 30/100/300 mA sensitivity with earth leakage trip indication complete as per specification no. SW-RCCB .	Each	2815
5-6-4	Supplying, erecting & commissioning 4 pole RCCB 16/25A , electromagnetic type with 30/100/300 mA sensitivity with earth leakage trip indication complete as per specification no. SW-RCCB .	Each	2722
5-6-5	Supplying, erecting & commissioning 4 pole RCCB 40A , electromagnetic type with 30/100/300 mA sensitivity with earth leakage trip indication complete as per specification no. SW-RCCB .	Each	2756
5-6-6	Supplying, erecting & commissioning 4 pole RCCB 63A , electromagnetic type with 30/100/300 mA sensitivity with earth leakage trip indication complete as per specification no. SW-RCCB .	Each	3092
5-6-7	Supplying, erecting & commissioning 4 pole RCCB 80A , electromagnetic type with 30/100/300 mA sensitivity with earth leakage trip indication complete as per specification no. SW-RCCB .	Each	5506
5-6-8	Supplying, erecting & commissioning 4 pole RCCB 100A , electromagnetic type with 30/100/300 mA sensitivity with earth leakage trip indication complete as per specification no. SW-RCCB .	Each	5785
5-6-9	Supplying, fixing and commissioning 2 pole RCBO up to 25A, with overcurrent, rated short-circuit breaking capacity (10 kA) and earth leakage protection , with 30/100/300 mA sensitivity and short circuit and earth leakage trip indication as per specification no SW-RCBO .	Each	3179
5-6-10	Supplying, fixing and commissioning 2 pole RCBO 32/40A, with overcurrent, rated short-circuit breaking capacity (10 kA) and earth leakage protection , with 30/100/300 mA sensitivity and short circuit and earth leakage trip indication as per specification no SW-RCBO .	Each	3371
5-6-11	Supplying, fixing and commissioning 2 pole RCBO 63A, with overcurrent, rated short-circuit breaking capacity (10 kA) and earth leakage protection , with 30/100/300 mA sensitivity and short circuit and earth leakage trip indication as per specification no SW-RCBO .	Each	4294
5-6-12	Supplying, fixing and commissioning 4 pole RCBO up to 25A, with overcurrent, rated short-circuit breaking capacity (10 kA) and earth leakage protection , with 30/100/300 mA sensitivity and short circuit and earth leakage trip indications per specification no SW-RCBO .	Each	4062
5-6-13	Supplying, fixing and commissioning 4 pole RCBO 32/40A, with overcurrent, rated short-circuit breaking capacity (10 kA) and earth leakage protection , with 30/100/300 mA sensitivity and short circuit and earth leakage trip indication as per specification no SW-RCBO .	Each	4212
5-6-14	Supplying, fixing and commissioning 4 pole RCBO 63A, with overcurrent, rated short-circuit breaking capacity (10 kA) and earth leakage protection , with 30/100/300 mA sensitivity and short circuit and earth leakage trip indication as per specification no SW-RCBO .	Each	4760
5-6-15	Providing, erecting & commissioning 4 pole RCCB 40A, with added immunity to avoid DC pulse tripping with 30/100/300 mA sensitivity complete as per specification no. SW-RCCB .	Each	5736
5-6-16	Providing, erecting & commissioning 4 pole RCCB 63A, with added immunity to avoid DC pulse tripping with 30/100/300 mA sensitivity complete as per specification no. SW-RCCB .	Each	6217
5-6-17	Providing, erecting & commissioning 4 pole RCCB 100A, with added immunity to avoid DC pulse tripping with 30/100/300 mA sensitivity complete as per specification no. SW-RCCB .	Each	16201

- Note:**
- 1) For human safety RCCB with 30mA sensitivity shall be selected.
 - 2) Item no 5-6-15 to 5-6-17 shall be preferably used for Lift and installations with susceptible to harmonic applications to avoid nuisance tripping.
 - 3) For use of RCBOs with inbuilt short circuit, earth leakage tripping indication on each pole shall be preferably used.

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>5.7 MCCB Panel Boards and Accessories (SW- MCCBPB)</u>			
5-7-1	Providing & erecting floor/wall mounted MCCB panel board , with door, suitable for 4 pole incoming 250A, 2 ways 4 pole outgoing, up to 100A MCCBs on iron frame, as per specification no SW-MCCBPB . (Excluding MCCBs)	Each	38107
5-7-2	Providing & erecting floor/wall mounting, MCCB panel board , with door, suitable for 4 pole incoming 250A, 4 ways 4 pole outgoing, up to 100A MCCBs on iron frame, as per specification no SW-MCCBPB . (Excluding MCCBs)	Each	44425
5-7-3	Providing & erecting floor/wall mounting, MCCB panel board , with door, suitable for 4 pole incoming 250A, 6 ways 4 pole outgoing, up to 100A MCCBs on iron frame, as per specification no SW-MCCBPB . (Excluding MCCBs)	Each	49808
5-7-4	Providing & erecting floor/wall mounting, MCCB panel board , with door, suitable for 4 pole incoming 250A, 8 ways 4 pole outgoing, up to 100A MCCBs on iron frame, as per specification no SW-MCCBPB . (Excluding MCCBs)	Each	54900
5-7-5	Providing & erecting floor/wall mounting, MCCB panel board , with door, suitable for 4 pole incoming 250A, 12 ways 4 pole outgoing, up to 100A MCCBs on iron frame, as per specification no. SW-MCCBPB . (Excluding MCCBs)	Each	71221
5-7-6	Providing & erecting floor/wall mounting, MCCB panel board , with door, suitable for 4 pole incoming 400A, 2 ways 4 pole outgoing, up to 100A MCCBs on iron frame, as per specification no. SW-MCCBPB . (Excluding MCCBs)	Each	44283
5-7-7	Providing & erecting floor/wall mounting, MCCB panel board , with door, suitable for 4 pole incoming 400A, 4 ways 4 pole outgoing, up to 100A MCCBs on iron frame, as per specification no. SW-MCCBPB . (Excluding MCCBs)	Each	49490
5-7-8	Providing & erecting floor/wall mounting, MCCB panel board , with door, suitable for 4 pole incoming 400 A, 6 ways 4 pole outgoing, up to 100A MCCBs on iron frame, as per specification no. SW-MCCBPB . (Excluding MCCBs)	Each	59101
5-7-9	Providing & erecting floor/wall mounting, MCCB panel board , with door, suitable for 4 pole incoming 400A, 8 ways 4 pole outgoing, up to 100A MCCBs on iron frame, as per specification no. SW-MCCBPB . (Excluding MCCBs)	Each	60804
5-7-10	Providing & erecting floor/wall mounting, MCCB panel board , with door, suitable for 4 pole incoming 400A, 12 ways 4 pole outgoing, up to 100A MCCBs on iron frame, as per specification no. SW-MCCBPB . (Excluding MCCBs)	Each	63836
5-7-11	Providing & erecting incoming and outgoing cable alleys suitable for MCCB panel board with door, 250A incoming and 2 way outgoing made from CRCA sheet 1.6 mm thick duly powder coated and having vertical insulated partition for shielding between the shared face of cableway and DB complete.	Set	15400
5-7-12	Providing & erecting incoming and outgoing cable alleys suitable for MCCB panel board with door, 250A incoming and 4 way outgoing or 400A incoming and 2 way outgoing made from CRCA sheet 1.6 mm thick duly powder coated and having vertical insulated partition for shielding between the shared face of cableway and DB complete.	Set	17052
5-7-13	Providing & erecting incoming and outgoing cable alleys suitable for MCCB panel board with door, 250A incoming and 6 way outgoing or 400A incoming and 4 way outgoing made from CRCA sheet 1.6 mm thick duly powder coated and having vertical insulated partition for shielding between the shared face of cableway and DB complete.	Set	18063
5-7-14	Providing & erecting incoming and outgoing cable alleys suitable for MCCB panel board with door, 250A incoming and 8 way outgoing or 400A incoming and 6 way outgoing made from CRCA sheet 1.6 mm thick duly powder coated and having vertical insulated partition for shielding between the shared face of cableway and DB complete.	Set	18448
5-7-15	Providing & erecting incoming and outgoing cable alleys suitable for MCCB panel board with door, 250A incoming and 12 way outgoing or 400A incoming and 6/8 way outgoing made from CRCA sheet 1.6 mm thick duly powder coated and having vertical insulated partition for shielding between the shared face of cableway and DB complete.	Set	21977
5-7-16	Providing & erecting incoming and outgoing cable alleys suitable for MCCB panel board with door, 400A incoming and 12 way outgoing made from CRCA sheet 1.6 mm thick duly powder coated and having vertical insulated partition for shielding between the shared face of cableway and DB complete.	Set	24999

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
5-7-17	Providing & erecting prewired meter module suitable for MCCB panel board with CTs and emfs VIF meter.	Set	13868
5-7-18	Providing & erecting floor/wall mounting, MCCB panel board with door, 1.2 mm thickness suitable for 3 pole incoming 250A, 4 ways 3 pole outgoing up to 100A MCCB on iron frame compliant to IEC 61439, as per specification no. SW-MCCBPB . (Excluding MCCBs)	Each	39581
5-7-19	Providing & erecting floor/wall mounting, MCCB panel board with door, 1.2 mm thickness suitable for 3 pole incoming 250A, 8 ways 3 pole outgoing up to 100A MCCB on iron frame compliant to IEC 61439, as per specification no. SW-MCCBPB . (Excluding MCCBs)	Each	48070
5-7-20	Providing & erecting floor/wall mounting, MCCB panel board with door, 1.2 mm thickness suitable for 3 pole incoming 250A, 12 ways 3 pole outgoing up to 100A MCCB on iron frame compliant to IEC 61439, as per specification no. SW-MCCBPB . (Excluding MCCBs)	Each	60186
5-7-21	Providing & erecting floor/wall mounting, MCCB panel board with door, 1.2 mm thickness suitable for 3 pole incoming 400A, 4 ways 3 pole outgoing up to 100A MCCB on iron frame compliant to IEC 61439, as per specification no. SW-MCCBPB . (Excluding MCCBs)	Each	49939
5-7-22	Providing & erecting floor/wall mounting, MCCB panel board with door, 1.2 mm thickness suitable for 3 pole incoming 400A, 8 ways 3 pole outgoing up to 100A MCCB on iron frame compliant to IEC 61439, as per specification no. SW-MCCBPB . (Excluding MCCBs)	Each	53628
5-7-23	Providing & erecting floor/wall mounting, MCCB panel board with door, 1.2 mm thickness suitable for 3 pole incoming 400A, 12 ways 3 pole outgoing up to 100A MCCB on iron frame compliant to IEC 61439, as per specification no. SW-MCCBPB . (Excluding MCCBs)	Each	64449

Note: The MCCB panel board and cable alleys shall be only of same make.

5.8 LT - Air Circuit Breakers (SW-ACB)

5-8-1	Supplying, installing, testing and commissioning air circuit breaker manual fixed type, non-drawout type, 650V, 630A, rated at 50° C without deration, 12kV Impulse, 4 pole (100% Neutral Protection), 50 kA (Ics=Icu=Icw for 1s), with standard accessories with ready to close, individual fault trip, alarm and trip indications, mechanical and electrical anti pumping, soft/hard rating plug (including hard rating plug CT) with Micro-processor based LCD display release with LSIG and temperature rise protection & with 4 C/O contacts for On-Off-Trip indication, min. 5 event and trip history on breaker display on provided iron frame as per specification no. SW-ACB	Each	119693
5-8-2	Supplying, installing, testing and commissioning air circuit breaker manual fixed type, non-drawout type, 650V, 800A, rated at 50° C without deration, 12kV Impulse, 4 pole (100% Neutral Protection), 50 kA (Ics=Icu=Icw for 1s), with standard accessories with ready to close, individual fault trip, alarm and trip indications, mechanical and electrical anti pumping, soft/hard rating plug (including hard rating plug CT) with Micro-processor based LCD display release with LSIG and temperature rise protection & with 4 C/O contacts for On-Off-Trip indication, min. 5 event and trip history on breaker display on provided iron frame as per specification no. SW-ACB	Each	120583
5-8-3	Supplying, installing, testing and commissioning air circuit breaker manual fixed type, non-drawout type, 650V, 1000A rated at 50° C without deration, 12kV Impulse, 4 Pole (100% Neutral Protection), 50 kA (Ics=Icu=Icw for 1s), with standard accessories with ready to close, individual fault trip, alarm and trip indication, mechanical and electrical anti pumping, soft/hard rating plug (including hard rating plug CT) with Micro-processor based LCD display release with LSIG and temperature rise protection & with 4 C/O contacts for On-Off-Trip indication, min. 5 event and trip history on breaker display on provided iron frame as per specification no. SW-SWR/ACB	Each	129388

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
5-8-4	Supplying, installing, testing and commissioning air circuit breaker manual fixed Non drawout type, 650V, 1250A rated at 50° C without deration, 12kV Impulse, 4 pole (100% Neutral Protection) 50 kA (Ics=Icu=Icw for 1s),with standard accessories with ready to close, individual fault trip, alarm and trip indication, mechanical and electrical anti pumping, soft/hard rating plug (including hard rating plug CT) with Micro-processor based LCD display release with LSIG and temperature rise protection & with 4 C/O contacts for On-Off-Trip indication, min. 5 event and trip history on breaker display on provided iron frame as per specification no. SW-SWR/ACB	Each	154576
5-8-5	Supplying, installing, testing and commissioning air circuit breaker manual fixed type, non-drawout type, 650V, 1600A rated at 50° C without deration, 12kV Impulse, 4 pole (100% Neutral Protection) , 50 kA, (Ics=Icu=Icw for 1s),with standard accessories with ready to close, individual fault trip, alarm and trip indication, mechanical and electrical anti pumping, soft/hard rating plug (including hard rating plug CT) with Micro-processor based LCD display release with LSIG and temperature rise protection & with 4 C/O contacts for On-Off-Trip indication, min. 5 event and trip history on breaker display on provided iron frame as per specification no. SW-ACB	Each	171154
5-8-6	Supplying, installing, testing and commissioning air circuit breaker manual drawout type, 650V, upto 800A rated at 50° C without deration, 12kV Impulse, 4 pole (100% Neutral Protection) , 50 kA (Ics=Icu=Icw for 1s),with standard accessories and with ready to close, individual fault trip, alarm and trip indication, mechanical and electrical anti pumping, soft/hard rating plug (including hard rating plug CT) with Micro-processor based LCD display release with LSIG and temperature rise protection & with 4 C/O contacts for On-Off-Trip indication, min. 5 event and trip history on breaker display on provided iron frame as per specification no. SW-ACB	Each	145624
5-8-7	Supplying, installing, testing and commissioning air circuit breaker manual drawout type, 650V, 1000A rated at 50° C without deration, 12kV Impulse, 4 pole (100% Neutral Protection) 50 kA (Ics=Icu=Icw for 1s),with standard accessories with ready to close indication, individual fault trip indication, indications for alarm and trip, mechanical and electrical anti pumping, soft/hard rating plug (including hard rating plug CT) with Micro-processor based LCD display release with LSIG and temperature rise protection & with 4 C/O contacts for On-Off-Trip indication, min. 5 event and trip history on breaker display on provided iron frame as per specification no. SW-ACB	Each	154990
5-8-8	Supplying, installing, testing and commissioning air circuit breaker manual drawout type, 650V, 1250A rated at 50° C without deration, 12kV Impulse, 4 pole (100% Neutral Protection) 50 kA (Ics=Icu=Icw for 1s),with standard accessories with ready to close, individual fault trip, alarm and trip indications, mechanical and electrical anti pumping, soft/hard rating plug (including hard rating plug CT) with Micro-processor based LCD display release with LSIG and temperature rise protection & with 4 C/O contacts for On-Off-Trip indication, min. 5 event and trip history on breaker display on provided iron frame as per specification no. SW-ACB	Each	177015
5-8-9	Supplying, installing, testing and commissioning air circuit breaker manual drawout type, 650V, 1600A rated at 50° C without deration, 12kV Impulse, 4 pole (100% Neutral Protection) 50 kA, (Ics=Icu=Icw for 1s),with standard accessories with ready to close, individual fault trip, alarm and trip indication, mechanical and electrical anti pumping, soft/hard rating plug (including hard rating plug CT) with Micro-processor based LCD display release with LSIG and temperature rise protection & with 4 C/O contacts for On-Off-Trip indication, min. 5 event and trip history on breaker display on provided iron frame as per specification no. SW-ACB	Each	198481
Note:	For electrical drawout type ACB for item no from 5-8-6 to 5-8-9 increase rates by 15%		

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>5.9 HT SF6 Load Break Switch /VCB/RMU (SW-HTS)</u>			
5-9-1	Supplying, installation, testing and commissioning extendable/non-extendable indoor type 11 kV, 630A, load break switch , compliant to IEC 62271 -100, 200 and 102, on provided MS channels/trench/foundations per specification no. SW-HTS/ LBS .	Each	144529
5-9-2	Supplying, installation, testing and commissioning extendable/non-extendable indoor type 22 kV, 630A, load break switch , compliant to IEC 62271-100, 200 and 102, on provided MS channels/trench/foundation as per specification no. SW-HTS / LBS .	Each	244064
5-9-3	Supplying, installation, testing and commissioning extendable/non-extendable outdoor type 11 kV 630A, load break isolator switch , compliant to IEC 62271-100, 200 and 102,on provided MS channels/trench/foundation as per specification no. SW-HTS/LBS .	Each	152150
5-9-4	Supplying, installation, testing and commissioning extendable/non-extendable outdoor type 22 kV 630A, load break isolator switch , compliant to IEC 62271-100, 200 and 102, on provided MS channels/trench/foundation as per specification no. SW-HTS/LBS .	Each	269622
5-9-5	Supplying, installing, testing and commissioning 11 kV 630A, indoor type ring main unit with 1 VCB & 2 LBS with internal arc compliance complete erected on provided CC foundation/MS channels/trench, etc., as per specification no SW-HTS / RMU	Each	458962
5-9-6	Supplying, installing, testing and commissioning 11 kV 630A, indoor type ring main unit with 2 VCB & 2 LBS with internal arc compliance complete erected on provided CC foundation/MS channels/trench, etc. as per specification no SW-HTS/RMU .	Each	607269
5-9-7	Supplying, installing, testing and commissioning 11 kV 630A, vacuum circuit breaker with internal arc compliance complete erected on provided CC foundation/MS channels/trench, etc. as per specification no SW-HTS/VCB .	Each	409722
5-9-8	Supplying, installing, testing and commissioning 22 kV 630A, vacuum circuit breaker with internal arc compliance complete erected on provided cc foundation/MS channels/trench, etc. as per specification no SW-HTS/VCB .	Each	1121945
5-9-9	Supplying, installing, testing and commissioning 11kV HRC fuse 10A to 40A for load break switch with necessary nut bolts complete.	Each	4916
5-9-10	Supplying, installing, testing and commissioning 11 kV HRC fuse 63A for load break switch with necessary nut bolts complete.	Each	6077
5-9-11	Supplying, installing, testing and commissioning 22 kV HRC fuse 10A to 40A for load break switch with necessary nut bolts complete.	Each	8381
5-9-12	Supplying, installing, testing and commissioning 22 kV HRC fuse 63A for load break switch with necessary nut bolts complete.	Each	11558
5-9-13	Supplying, erecting, testing & commissioning 11kV, 630A, 21kA/3sec, 1 way indoor/outdoor, extensible motorised SCADA compatible RMU, internal arc tested consisting of 1 no. feeder with 1 VCB compliant to IEC 62271-100, 200 and 102 as per specification no. SW-HTS/RMU SCADA .	Each	337621
5-9-14	Supplying, erecting, testing & commissioning 11kV, 630A, 21kA/3sec, 1 way Indoor/outdoor, extensible motorised SCADA compatible RMU, internal arc tested consisting of 1 no. feeder with 1 LBS compliant to IEC 62271-100, 200 and 102 as per specification no. SW-HTS/RMU SCADA .	Each	208365
5-9-15	Supplying, erecting, testing & commissioning 11kV, 630A, 21kA/3sec, 2 way Indoor/outdoor, extensible motorised SCADA compatible RMU, internal arc tested consisting of 1 no. feeder with 1 LBS and 1 no. feeder with 1 VCB compliant to IEC 62271-100, 200 and 102 as per specification no. SW-HTS/RMU SCADA .	Each	438906
5-9-16	Supplying, erecting, testing & commissioning 11 kV, 630A, 21kA/3sec, 3 way outdoor, extensible motorised SCADA compatible RMU, internal arc tested consisting of 2 nos. feeder with 2 LBS and 1 no. feeder with 1 VCB . compliant to IEC 62271-100, 200 and 102 as per specification no. SW-HTS/RMU SCADA .	Each	552609
5-9-17	Supplying, erecting, testing & commissioning 11kV, 630A, 21kA/3sec, 4 way outdoor, extensible motorised SCADA compatible RMU, internal arc tested consisting of 2 nos. feeder with 2 LBS and 2 nos. feeder with 2 VCB compliant to IEC 62271-100, 200 and 102, as per specification no. SW-HTS/RMU SCADA .	Each	803619

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
5-9-18	Supplying, erecting, testing & commissioning 11kV, 630A, 21kA/3sec, 5 way outdoor, extensible motorised SCADA compatible RMU, internal arc tested consisting of 2 nos. feeder with 2 LBS and 3 nos. feeder with 3 VCB compliant to IEC 62271-100, 200 and 102 as per specification no. SW-HTS/RMU SCADA.	Each	944005
5-9-19	Supplying, erecting, testing & commissioning 11kV, 630A, 21kA/3sec, 6 way outdoor, extensible motorised SCADA compatible RMU, internal arc tested consisting of 2 nos. feeder with 2 LBS and 4 nos. feeder with 4 VCB compliant to IEC 62271-100, 200 and 102 as per specification no. SW-HTS/RMU SCADA.	Each	1221748
5-9-20	Supplying, erecting, testing & commissioning 11kV, 630A, 21kA/3sec, 3 way outdoor, extensible motorised SCADA compatible RMU, internal arc tested consisting of 1 no. feeder with 1 LBS and 2 nos. feeder with 2 VCB . compliant to IEC 62271-100,200 and 102 as per specification no. SW-HTS/RMU SCADA.	Each	646837
5-9-21	Supplying, installing, testing and commissioning SF 6 insulated 22kV, 630A, 16kA/3sec, 1 way outdoor, extensible motorised SCADA compatible RMU, internal arc tested as per electric supply company specification consisting of 1 no. feeder with 1 VCB compliant to IEC 62271 -100, 200 and 102, as per specification no. SW-HTS/RMU SCADA	Each	407964
5-9-22	Supplying, installing, testing and commissioning SF 6 insulated 22kV, 630A, 16kA/3sec, 1 way outdoor, extensible motorised SCADA compatible RMU, internal arc tested as per electric supply company specification consisting of 1no. feeder with 1 LBS compliant to IEC 62271 -100, 200 and 102 as per specification no. SW-HTS/RMU SCADA.	Each	286622
5-9-23	Supplying, installing, testing and commissioning SF 6 iInsulated 22kV, 630A, 16kA/3sec, 2 way outdoor, extensible motorised SCADA compatible RMU, internal arc tested as per electric supply company specification consisting of 1 no. feeder with 1 LBS and 1 no. feeder with 1 VCB compliant to IEC 62271-100, 200 and 102 as per specification no. SW-HTS/RMU SCADA.	Each	639216
5-9-24	Supplying, installing, testing and commissioning SF 6 insulated 22kV, 630A, 16kA/3sec, 3 way outdoor, extensible motorised SCADA compatible RMU, internal arc tested as per electric supply company specification consisting of 2 nos. feeder with 2 LBS and 1 no. feeder with 1 VCB . compliant to IEC 62271-100, 200 and 102 as per specification no. SW-HTS/RMU SCADA.	Each	789574
5-9-25	Supplying, installing, testing and commissioning SF 6 insulated 22kV, 630A, 16kA/3sec, 4 way outdoor, extensible motorised SCADA compatible RMU, internal arc tested as per electric supply company specification consisting of 2 nos. feeder with 2 LBS and 2 nos. feeder with 2 VCB compliant to IEC 62271-100, 200 and 102 as per specification no. SW-HTS/RMU SCADA.	Each	1066843
5-9-26	Supplying, installing, testing and commissioning SF 6 insulated 22kV, 630A, 16 kA/3sec, 5 way outdoor, extensible motorised SCADA compatible RMU, internal arc tested as per electric supply company specification consisting of 2 nos. feeder with 2 LBS and 3 nos. feeder with 3 VCB compliant to IEC 62271-100, 200 and 102 as per specification no. SW-HTS/RMU SCADA.	Each	1431600
5-9-27	Supplying, installing, testing and commissioning SF 6 insulated 22kV, 630A, 16kA/3sec, 6 way outdoor, extensible motorised SCADA compatible RMU, internal arc tested as per electric supply company specification consisting of 2 nos. feeder with 2 LBS and 4 nos. feeder with 4 VCB compliant to IEC 62271-100, 200 and 102 as per specification no. SW-HTS/RMU SCADA.	Each	1817754
5-9-28	Supplying, installing, testing and commissioning SF 6 insulated 22kV, 630A, 16kA/3sec, 3 way outdoor, extensible motorised SCADA compatible RMU, internal arc tested as per electric supply company specification consisting of 1 no. feeder with 1 LBS and 2 nos. feeder with 2 VCB compliant to IEC 62271-100, 200 and 102 as per specification no. SW-HTS/RMU SCADA.	Each	960742
<u>5.10 Accessories</u>			
5-10-1	Supplying and erecting HC pattern porcelain fuse bridges with base & HC type fuse links 240V, 16A erected on polished wooden block.	Each	91
5-10-2	Supplying and erecting HC pattern porcelain fuse bridges with base & HC type fuse links 240V, 32A erected on polished wooden block.	Each	170

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
5-10-3	Supplying & erecting fuse bridge with base 16A erected on provided switch board complete.	Each	104
5-10-4	Supplying & erecting fuse bridges with base HC type fuse links 240V, 63A erected on polished wooden block.	Each	171
5-10-5	Supplying & erecting fuse bridges with base HC type fuse links 415V, 100A erected on polished wooden block.	Each	670
5-10-6	Supplying & erecting fuse bridges with base HC type fuse links 415V, 200A erected on polished wooden block.	Each	950
5-10-7	Supplying & erecting fuse bridges with base HC type fuse links 415V, 300A erected on polished wooden block.	Each	1189
5-10-8	Supplying and erecting bakelite fuse fitting suitable for HRC bolted type fuse up to 32A without fuse.	Each	97
5-10-9	Supplying and erecting bakelite fuse fitting suitable for HRC bolted type fuse up to 63A without fuse.	Each	144
5-10-10	Supplying and erecting bakelite fuse fitting suitable for HRC bolted type fuse up to 100A without fuse.	Each	297
5-10-11	Supplying & erecting HRC fuse cartridge 415V, 32A	Each	104
5-10-12	Supplying & erecting HRC fuse cartridge 415V, 63A	Each	132
5-10-13	Supplying & erecting HRC fuse cartridge 415V, 100A	Each	245
5-10-14	Supplying & erecting HRC fuse cartridge 415V, 200A	Each	298
5-10-15	Supplying & erecting HRC fuse cartridge 415V, 300A	Each	427
5-10-16	Supplying & erecting HRC fuse cartridge 415V, 400A	Each	761
5-10-17	Supplying & erecting 415V, 16A porcelain base neutral link complete erected in provided M.S. box.	Each	82
5-10-18	Supplying & erecting 415V, 32A porcelain base neutral link complete erected in provided M.S. box.	Each	88
5-10-19	Supplying & erecting 415V, 63A porcelain base neutral link complete erected in provided M.S. box.	Each	132
5-10-20	Supplying & erecting 415V, 100A porcelain base neutral link complete erected in provided M.S. box.	Each	210
5-10-21	Supplying & erecting 415V, 200A porcelain base neutral link complete erected in provided M.S. box.	Each	356
5-10-22	Supplying & erecting porcelain/epoxy bus bar support complete erected in provided M.S. box for 100A	Each	72
5-10-23	Supplying & erecting porcelain/epoxy bus bar support complete erected in provided M.S. box for 200/300A	Each	100
5-10-24	Supplying & erecting porcelain/epoxy bus bar support complete erected in provided M.S. box for 400A	Each	123
5-10-25	Supplying and erecting DIN Type HRC Fuse cartridge 500V, 32A	Each	300
5-10-26	Supplying and erecting DIN Type HRC Fuse cartridge 500V, 63A	Each	309
5-10-27	Supplying and erecting DIN Type HRC Fuse cartridge 500V, 100A	Each	322
5-10-28	Supplying and erecting DIN Type HRC Fuse cartridge 500V, 160A	Each	430
5-10-29	Supplying and erecting DIN Type HRC Fuse cartridge 500V, 200A	Each	550
5-10-30	Supplying and erecting DIN Type HRC Fuse cartridge 500V, 250A	Each	718
5-10-31	Supplying and erecting DIN Type HRC Fuse cartridge 500V, 315A	Each	818
5-10-32	Supplying and erecting DIN Type HRC Fuse cartridge 500V, 400A	Each	868
5-10-33	Supplying and erecting DIN Type HRC Fuse cartridge 500V, 630A	Each	1273
5-10-34	Supplying and erecting Fuse Base for DIN type HRC Fuse cartridge 500V, upto 160A	Each	562
5-10-35	Supplying and erecting Fuse Base for DIN type HRC Fuse cartridge 500V, above 160A- 250A	Each	756
5-10-36	Supplying and erecting Fuse Base for DIN type HRC Fuse cartridge 500V, above 250A- 400A	Each	1072
5-10-37	Supplying and erecting Fuse Base for DIN type HRC Fuse cartridge 500V, above 400A- 630A	Each	1406

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>5.11 Accessories for MCCB's</u>			
5-11-1	Supplying and erecting terminal spreaders suitable for 3 pole, upto 100A MCCB (set of 6)	Set	203
5-11-2	Supplying and erecting terminal spreaders suitable for 3 pole, upto 250A MCCB (set of 6)	Set	944
5-11-3	Supplying and erecting terminal spreaders suitable for 3 pole, upto 400A MCCB (set of 6)	Set	1662
5-11-4	Supplying and erecting terminal spreaders suitable for 3 pole, upto 630A MCCB (set of 6)	Set	1870
5-11-5	Supplying and erecting terminal spreaders suitable for 3 pole, upto 800A MCCB (set of 6)	Set	3863
5-11-6	Supplying and erecting terminal spreaders suitable for 4 pole, upto 100A MCCB (Set of 8)	Set	325
5-11-7	Supplying and erecting terminal spreaders suitable for 4 pole, upto 250A MCCB (Set of 8)	Set	1169
5-11-8	Supplying and erecting terminal spreaders suitable for 4 pole, upto 400A MCCB (Set of 8)	Set	2381
5-11-9	Supplying and erecting terminal spreaders suitable for 4 pole, upto 630A MCCB (Set of 8)	Set	2725
5-11-10	Supplying and erecting terminal spreaders suitable for 4 pole, upto 800A MCCB (Set of 8)	Set	4751
5-11-11	Supplying and erecting earth fault module for MCCB with adjustable earth fault sensitivity selection 10% to 50% of nominal current (In) and adjustable time delay 100/200 millisecond suitable for upto 200A MCCB with inbuilt CTs.	Each	5527
5-11-12	Supplying and erecting earth fault module for MCCB with adjustable earth fault sensitivity selection 10% to 50% of nominal current (In) and adjustable time delay 100/200 millisecond suitable for above 200A upto 400A MCCB with inbuilt CTs.	Each	7449
5-11-13	Supplying and erecting earth fault module for MCCB with adjustable earth fault sensitivity selection 10% to 50% of nominal current (In) and adjustable time delay 100/200 millisecond suitable for above 400A upto 800A MCCB excluding CTs.	Each	5543
5-11-14	Supplying and erecting extended rotary handle for MCCB with adjustable telescopic rod suitable for upto 250A MCCB .	Each	1259
5-11-15	Supplying and erecting extended rotary handle for MCCB with adjustable telescopic rod suitable for above 250A upto 630A MCCB .	Each	1870
5-11-16	Supplying and erecting extended rotary handle for MCCB with adjustable telescopic rod suitable for above 630A upto 800A MCCB .	Each	2670
5-11-17	Supplying and erecting SS enclosure of 1.6mm thick with detachable gland plate suitable for upto 100A MCCB .	Each	988
5-11-18	Supplying and erecting SS enclosure of 1.6mm thick with detachable gland plate suitable for 125A to 200A MCCB .	Each	1630
5-11-19	Supplying and erecting SS enclosure of 1.6mm thick with detachable gland plate (New) suitable for 250A to 315A/320A MCCB .	Each	2268
5-11-20	Supplying and erecting SS enclosure of 1.6mm thick with detachable gland plate (New) suitable for 400A to 630A MCCB .	Each	4887
5-11-21	Supplying and erecting SS enclosure of 1.6mm thick with detachable gland plate (New) suitable for 800A MCCB .	Each	6538
<u>5.12 Dismantling</u>			
5-12-1	Dismantling the existing switchgears, DB, and bus bar of any size complete with/without board or angle iron frame	Each	104
5-12-2	Making the site clear of dismantled DB and switchgears by refilling the holes with cement mortar & finishing in an approved manner.	Each	114
5-12-3	Dismantling existing OCB, ACB, LBS, VCB complete from existing panel board in an approved manner.	Each	1527
5-12-4	Dismantling any type of unserviceable feeder pillar, switchgear panel, capacitor panel, metering panel, bus-bar panel, electronic equipment panel, etc. and making the site as required, approx. size (upto 150 cm x 70 cm x 45 cm) - Small Cupboard	Each	1623

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
----------------	--------------------------	-------------	--------------------------

5-12-5	Dismantling any type of unserviceable feeder pillar, switchgear panel, capacitor panel, metering panel, bus-bar panel, electronic equipment panel, etc. and making the site as required, approx. size (upto 200cm. x 90 cm x 45 cm and above) - Big Cupboard	Each	2089
--------	---	------	------

Note:

- 1) The rates for item no 5-12-1 to 5-12-3 are for dismantling and handing over to section office inclusive of transportation upto 25 km, between site and section office.
- 2) If item no. 5-12-4 & 5-12-5 are to be used then items 5-12-1 to 5-12-3 of dismantling switchgears shall not be used.

Chapter 6 : CONTROL PANEL (CP)

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>6.1 Sheets (CP-SS)</u>			
6-1-1	Supplying, erecting, testing & commissioning metal work in CRCA sheet including Iron work for supports with fabrication of boxes, panel boards, etc. including cutting, bending, drilling, welding, riveting, treated with anti-rust treatment and painted with one coat of red lead paint and 2 coats of enamel paint or powder coating complete as per specification no. CP/SH/CR	kg	261
6-1-2	Supplying, erecting, testing & commissioning GI sheet 0.6 mm (24 SWG) having zinc coating of 275 microns with galvanization process compliance to IS 2629:1985 to be used for fabrication of boxes panel boards etc. including cutting, bending, drilling, welding, riveting etc. and painting with one coat of red lead paint and 2 coats of enamel paint as per specification no. CP/SH/CR	Sq.m	1482
6-1-3	Supplying, erecting, testing & commissioning GI sheet 0.8 mm (22 SWG) having zinc coating of 275 microns with galvanization process compliance to IS 2629:1985 to be used for fabrication of boxes panel boards etc. including cutting, bending, drilling, welding, riveting etc. and painting with one coat of red lead paint and 2 coats of enamel paint as per specification no. CP/SH/CR	Sq.m	1503
6-1-4	Supplying, erecting, testing & commissioning GI sheet 1 mm (20 SWG) having zinc coating of 275 microns with galvanization process compliance to IS 2629:1985 to be used for fabrication of boxes panel boards etc. including cutting, bending, drilling, welding, riveting etc. and painting with one coat of red lead paint and 2 coats of enamel paint as per specification no. CP/SH/CR	Sq.m	2079
6-1-5	Supplying, erecting, testing & commissioning GI sheet 1.25 mm (18 SWG) having zinc coating of 350 microns with galvanization process compliance to IS 2629:1985 to be used for fabrication of boxes panel boards etc. including cutting, bending, drilling, welding, riveting etc. and painting with one coat of red lead paint and 2 coats of enamel paint as per specification no. CP/SH/CR	Sq.m	2266
6-1-6	Supplying, erecting, testing & commissioning GI sheet 1.6 mm (16 SWG) having zinc coating of 350 microns with galvanization process compliance to IS 2629:1985 to be used for fabrication of boxes panel boards etc. including cutting, bending, drilling, welding, riveting etc. and painting with one coat of red lead paint and 2 coats of enamel paint as per specification no. CP/SH/CR	Sq.m	2683
6-1-7	Supplying, erecting, testing & commissioning acrylic sheet 2 mm thick to be used for covering the CRCA sheet boxes etc. including cutting, drilling, and pasting or fixing with nut bolts/ screws etc. complete.	Sq.m	1226
6-1-8	Supplying and erecting acrylic sheet 3 mm thick for covering wall entries including cutting, drilling and fixing with nut bolts / screws etc. complete.	Sq.m	1404
6-1-9	Supplying and erecting hylam sheet/ ebonite sheet 3 mm thick for covering wall entries including cutting, drilling and fixing with nut bolts / screws etc. complete.	Sq.m	1089
6-1-10	Supplying and erecting hylam sheet/ ebonite 6 mm thick for covering wall entries including cutting, drilling and fixing with nut bolts / screws etc. complete.	Sq.m	1868
6-1-11	Supplying, erecting, testing & commissioning plywood 6 mm thick fixed to wall or on provided panel board with necessary materials such as screws, wall fasteners supports, nuts bolts etc. complete as per specification no. CP/SH/CR	Sq.m	512

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-1-12	Supplying, erecting, testing & commissioning plywood 12 mm thick fixed to wall or on provided panel board with necessary materials such as screws, wall fasteners supports, nuts bolts etc. complete as per specification no. CP/SH/CR	Sq.m	832
6-1-13	Supplying and pasting sunmica sheet 1 mm thick on provided plywood of required shade.	Sq.m	860
6-1-14	Supplying, erecting, testing & commissioning marine (Waterproof) plywood 18/19 mm thick fixed to wall or on provided panel board with necessary materials such as screws, wall fasteners, supports, nut bolts etc. complete with compliance to IS 720:2010 as per specification no. CP/SH/CR	Sq.m	1529
6-1-15	Supplying, erecting, testing & commissioning GI sheet 1.6 mm (16 SWG) caution board of size 200 x 150 mm duly painted with red oxide and enamel paint in marathi and hindi erected at position for medium voltage (415 Volt) erecting with compliance to IS 2551-1982 as per specification no. CP/SH/CR	Each	137
6-1-16	Supplying, erecting, testing & commissioning GI sheet 1.6mm (16 SWG) caution board of size 250 x 200 mm duly painted with red oxide and enamel paint in marathi and hindi erected at position for HV/EHV (11000 Volts) erecting with compliance to IS 2551-1982. as per specification no. CP/SH/CR	Each	193
6-1-17	Supplying, erecting, testing & commissioning GI sheet of 1.25mm (18 SWG) size 200 x 150 mm duly painted with red oxide & enamel paint for displaying the department, date of erection of the electrical erecting with approved shade complete as per specification no. CP/SH/CR	Each	130
6-1-18	Supplying, erecting, testing & commissioning cupboard for enclosing switchgears or for any other purpose made from selected waterproof plywood planks 19 mm thick duly varnished/ painted from inside and from outside with brass hinges and locking arrangement with suitable lock with keys in duplicate. cupboard shall be duly grouted with suitable size of iron work in wall at the bottom. (Size of cupboard shall be specified in the estimate)	Sq.m	2622
6-1-19	Supplying and erecting iron work, sheet metal work consisting of MS sheets, various sections of iron, plates, chequered plates, rods, bars, MS pipes, etc. for panel board or any other purpose with bending, cutting, drilling and welding complete erected at the position with necessary materials duly painted with one coat of red oxide and two coats of enamel paint to match the switchgears or as per directions by the site engineer.	kg	196
Note:-	1. Quantity of iron/sheet metal work shall be considered and worked out as per steel data table.		
(New)	2. For manufacturing of panel, CRCA sheet of min 1.6 mm to 1.8 mm thickness shall be used for external enclosure and min 1.2 to 1.4 mm thickness for internal separation and min 2 mm to 2.4 mm thickness shall be used for cable entry / gland plate .		
(New)	3. For fire retardant plywood increase overall rate by 25% in item no 6-1-14		
6-1-20	Supplying, erecting, testing & commissioning self-locking arrangement with keys in duplicate, made of brass of grade 1 compliance to IS 729-1979 duly erected, flush with surface of panel / cupboard	Each	300
6-1-21	Supplying, erecting, testing & commissioning expanded metal jali enclosure made from GI square mesh 15 SWG having 20/25 mm squares, properly fixed/welded and duly painted with one coat of red oxide and two coats of silver/enamel paint complete. (size of jali or enclosure to be specified in the estimate.)	Sq.m	215

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-1-22	Supplying and erecting slotted angles, frames etc. for panel board or any other purposes complete with bending, cutting, drilling and welding complete erected at the position with necessary materials duly painted with one coat of red oxide and two coats of enamel paint to match the switchgears or as per directions by the site engineer.	kg	154
<i>6.2 Bus bars (CP-BB)</i>			
6-2-1	Supplying, erecting, testing & commissioning bus bar chamber triple pole with neutral with four aluminium bars, 500V, 100A having 15mm (width) X 3 mm (thickness), with 99.9 % aluminium purity as per E91E grade & current density 0.8 A per sq mm compliance to IS 5082 and enclosure fabricated with 16 SWG CRCA sheet and epoxy paint, with suitable number of ways and with SMC/DMC insulators and accessories of suitable rating and two nos of separate earthing terminals complete as per specification no. CP-BB	m	6558
6-2-2	Supplying, erecting, testing & commissioning bus bar chamber triple pole with neutral with four aluminium bars, 500V 200A having 25mm (width) X 5 mm (thickness), with 99.9 % aluminium purity as per E91E grade & current density 0.8 A per sq mm compliance to IS 5082 and enclosure fabricated with 16 SWG CRCA sheet and epoxy paint, with suitable number of ways and with SMC/DMC Insulators and accessories of suitable rating and two nos of separate earthing terminals complete as per specification no. CP-BB	m	6869
6-2-3	Supplying, erecting, testing & commissioning bus bar chamber triple pole with neutral with four aluminium bars, 500V 300A having 40mm (width) x 5 mm (thickness), with 99.9 % aluminium purity as per E91E grade & current density 0.8 A per sq mm compliance to IS 5082 and enclosure fabricated with 16 SWG CRCA sheet and epoxy paint, with suitable number of ways and with SMC/DMC insulators and accessories of suitable rating and two nos of separate earthing terminals complete as per specification no. CP-BB	m	7211
6-2-4	Supplying, erecting, testing & commissioning bus bar chamber triple pole with neutral with four aluminium bars, 500V 400A having 50mm (width) x 5 mm (thickness), with 99.9 % aluminium purity as per E91E grade & current density 0.8 A per sq mm compliance to IS 5082 and enclosure fabricated with 16 SWG CRCA sheet and epoxy paint, with suitable number of ways and with SMC/DMC insulators and accessories of suitable rating and two nos of separate earthing terminals complete as per specification no. CP-BB	m	10132
6-2-5	Supplying, erecting, testing & commissioning bus bar chamber triple pole with neutral with four aluminium bars, 500V 630A having 50mm (width) x 10 mm (thickness), with 99.9 % aluminium purity as per E91E grade & current density 0.8 A per sq mm compliance to IS 5082 and enclosure fabricated with 16 SWG CRCA sheet and epoxy paint, with suitable number of ways and with SMC/DMC Insulators and accessories of suitable rating and two nos of separate earthing terminals complete as per specification no. CP-BB	m	11622
6-2-6	Supplying, erecting, testing & commissioning bus bar chamber triple pole with neutral with four aluminium bars, 500V 800A having 100mm (width) x 5 mm (thickness), with 99.9 % aluminium purity as per E91E grade & current density 0.8 A per sq mm compliance to IS 5082 and enclosure fabricated with 16 SWG CRCA sheet and epoxy paint, with suitable number of ways and with SMC/DMC insulators and accessories of suitable rating and two nos of separate earthing terminals complete as per specification no. CP-BB	m	12536

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-2-7	Supplying, erecting, testing & commissioning bus bar chamber triple pole with neutral with four copper bars, 500V, 100A having 10mm (width) x 1.6 mm (thickness), with 99.9 % copper purity as per E91E grade & current density 1.6 A per sq mm compliance to IS 5082 and enclosure fabricated with 16 SWG CRCA sheet and epoxy paint, with suitable number of ways and with SMC/DMC insulators and accessories of suitable rating and two nos of separate earthing terminals complete as per specification no. CP-BB	m	9265
6-2-8	Supplying, erecting, testing & commissioning bus bar chamber triple pole with neutral with four copper bars, 500V 200A having 20mm (width) x 2 mm (thickness), with 99.9 % copper purity as per E91E grade & current density 1.6 A per sq mm compliance to IS 5082 and enclosure fabricated with 16 SWG CRCA sheet and epoxy paint, with suitable number of ways and with SMC/DMC insulators and accessories of suitable rating complete as per specification no. CP-BB	m	11748
6-2-9	Supplying & erecting of required size electrolyte copper flexible braided bus patti or bar in bus bar chamber/in panel or any other purpose, suitable for 500V with required capacity having thermal conductivity of 400 w per meter with composition pure copper 99.9% & trillium 0.001 % & current density 1.8 with fixing arrangement (like lug or bottle type lug) to both the ends with high grade polyolefin insulation sleeve complete as per specification no. CP-BB	kg	1489
Note:-	<p>1) The cross sectional area of copper flexible braided bus or bar shall be designed or considered with 30% more or existing cross sectional area of copper bus patti</p> <p>2) Measurement shall be done on actual weight basis after fabrication but before erection.</p>		
6-2-10	Supplying, erecting, testing & commissioning of required size electrolyte copper bus patti or bar tin plated in bus bar chamber/in panel or any other purpose, suitable for 500 volt with require capacity having thermal conductivity of 400w per meter with composition pure copper 99.9% current density 1.8 with fixing arrangement (like lug or bottle type lug) to both the end with high grade polyolefin insulation sleeve complete as per specification no. CP-BB	kg	1291
6-2-11	Supplying, erecting, testing & commissioning of any size electrolyte aluminium patti or bar in bus bar chamber / in panel or any other purpose, 500 V with require capacity 99.9% aluminium purity with E91E Grade as per IS 5082 & current density 0.8 A per sq mm with fixing arrangement (like lug or bottle type lug) to both the end with high grade polyolefin insulation sleeve complete as per specification no. CP-BB	kg	723
Note:-	Nut, bolts holding the lugs to bus bar shall be of bimetallic/ brass/ cadmium plated steel.		

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>6.3 Sandwich Busbar Trunking System (CP-BBT)</u>			
6-3-1	<p>Supplying, erecting, testing & commissioning of ceiling or wall mounting type 630A capacity at 40 degree celsius ambient temperature sandwich type Aluminum conductor tin plated at joints / Aluminum conductor Silver flashed copper bimetal contact having purity not less than 99.6% suitable for (3L+ N) 415V, 50 Hz A.C. supply with 100% neutral+ enclosure as integral earth (PE) with IP 54/55 protection, 36/40 kA short circuit rating for 1 sec, insulation class F (155 degree celsius), casing made of minimum 1.5mm hot dipped / electrogalvanized /epoxy powder coated steel sheet enclosure having mechanical strength certification of minimum IK10 with required shade of paint having overall cross sectional area not more than 0.0170 sq mtr, complete assembly must comply to seismic zone 4, with necessary accessories like suspension bracket, wall bracket holder/ fixing accessories with horizontal / vertical G.I. supports at required interval with external double run 50x5mm Aluminum earthing strip or internal integral earth complete conforming to IEC 61439-6 as per specification no. CP-BBT</p>	m	14099
6-3-2	<p>Supplying, erecting, testing & commissioning of ceiling or wall mounting type 800A Capacity at 40 degree celsius ambient temperature sandwich type Aluminum conductor tin plated at joints /Aluminum conductor Silver flashed copper bimetal contact having purity not less than 99.6% with suitable for (3L+ N) 415V, 50 Hz A.C supply with 100% neutral+ enclosure as integral earth (PE) with IP 54/55 protection,42/50kA short circuit rating for 1 sec, insulation class F (155 degree celsius) , casing made of minimum 1.5mm hot / electrogalvanized /epoxy powder coated steel sheet enclosure with required shade of paint having mechanical strength certification of minimum IK10 overall cross sectional area not more than 0.0170 sq mtr, complete assembly must comply to seismic zone 4, with necessary accessories like suspension bracket, wall bracket holder/ fixing accessories as per site requirement with horizontal / vertical G.I. supports at required interval with external double run 50x5mm Aluminum earthing strip or internal integral earth complete conforming to IEC 61439-6 as per specification no. CP-BBT</p>	m	15547
6-3-3	<p>Supplying, erecting, testing & commissioning of ceiling or wall mounting type 1000A Capacity at 40 degree celsius ambient temperature sandwich type aluminium conductor tin plated at joints /Aluminum conductor Silver flashed copper bimetal contact having purity not less than 99.6% with suitable for (3L+ N) 415V, 50 Hz A.C Supply with 100% neutral+ enclosure as integral earth (PE) with IP 54/55 protection, 50kA short circuit rating for 1 sec, insulation class F (155 degree celsius), casing made of minimum 1.5mm hot / electrogalvanized /epoxy powder coated steel sheet enclosure with required shade of paint having mechanical strength certification of minimum IK10, overall cross sectional area not more than 0.0189 sq Mtr, complete assembly must comply to seismic zone 4, with necessary accessories like suspension bracket, wall bracket holder/ fixing accessories as per site requirement with horizontal / vertical G.I. supports at required interval with external double run 50x5mm Aluminum earthing strip or internal integral earth complete conforming to IEC 61439-6 as per specification no. CP-BBT</p>	m	15955

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-3-4	Supplying, erecting, testing & commissioning of ceiling or wall mounting type 1250A Capacity at 40 degree celsius ambient temperature sandwich type aluminium conductor tin plated at joints /aluminium conductor Silver flashed copper bimetal contact having purity not less than 99.6% with suitable for (3L+ N) 415V, 50 Hz A.C supply with 100% neutral+ enclosure as integral earth (PE) with IP 54/55 protection, 65kA short circuit rating for 1 sec , insulation class F (155 degree Celsius), casing made of minimum 1.5mm hot / electrogalvanized /epoxy powder coated steel sheet enclosure with required shade of paint having mechanical strength certification of minimum IK10 overall cross sectional area not more than 0.0225 sq Mtr , complete assembly must comply to seismic zone 4, with necessary accessories like suspension bracket, wall bracket holder/ fixing accessories as per site requirement with horizontal / vertical G.I. supports at required interval with external double run 50x5mm aluminium earthing strip or internal integral earth complete conforming to IEC 61439-6 as per specification no. CP-BBT	m	18744
6-3-5	Supplying, erecting, testing & commissioning of ceiling or wall mounting type 1600A Capacity at 40 degree celsius ambient temperature sandwich type aluminium conductor tin plated at joints /aluminium conductor Silver flashed copper bimetal contact having purity not less than 99.6% suitable for (3L+ N) 415V, 50 Hz A.C supply with 100% neutral+ enclosure as integral earth (PE) with IP 54/55 protection, 65/80 kA short circuit rating for 1 sec , insulation class F (155 degree celsius), casing made of minimum 1.5 mm hot / electrogalvanized /epoxy powder coated steel sheet enclosure with required shade of paint having mechanical strength certification of minimum IK10, overall cross sectional area not more than 0.0280 sq Mtr , complete assembly must comply to seismic zone 4, with necessary accessories like suspension bracket, wall bracket holder/ fixing accessories as per site requirement with horizontal / vertical G.I. supports at required interval with external double run 50x5mm Aluminum earthing strip or internal integral earth complete conforming to IEC 61439-6 as per specification no. CP-BBT	m	21093
6-3-6	Supplying, erecting, testing and commissioning of Flange end with Adaptor box , as per site requirement suitable for Aluminum 630A 3 phase 4 wire 415V, 50 Hz A.C, 36/40kA short circuit rating for 1 sec sandwich type Aluminum BBT with necessary accessories complete conforming to IEC 61439-6.	Each	26791
6-3-7	Supplying, erecting, testing and commissioning of Flange end with Adaptor box , as per site requirement suitable for Aluminum 800A 3 phase 4 wire 415V, 50 Hz A.C, 42/50kA short circuit rating for 1 sec sandwich type Aluminum BBT with necessary accessories complete conforming to IEC 61439-6.	Each	27521
6-3-8	Supplying, erecting, testing and commissioning of Flange end with Adaptor box , as per site requirement suitable for Aluminum 1000A 3 phase 4 wire 415V, 50 Hz A.C, 50kA short circuit rating for 1 sec sandwich type Aluminum BBT with necessary accessories complete conforming to IEC 61439-6.	Each	31968
6-3-9	Supplying, erecting, testing and commissioning of Flange end with Adaptor box , as per site requirement suitable for Aluminum 1250A 3 phase 4 wire 415V, 50 Hz A.C, 65kA short circuit rating for 1 sec sandwich type Aluminum BBT with necessary accessories complete conforming to IEC 61439-6.	Each	33628

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-3-10	Supplying, erecting, testing and commissioning of Flange end with Adaptor box , as per site requirement suitable for Aluminum 1600A 3 phase 4 wire 415V, 50 Hz A.C, 65/80kA short circuit rating for 1 sec sandwich type Aluminum BBT with necessary accessories complete conforming to IEC 61439-6.	Each	37553
6-3-11	Supplying, erecting, testing & commissioning of Tap off box with interlock arrangement on existing air insulated / sandwich type bus trunking/ rising mains for 32A to 125A 3 phase 4 wire 415V, 50Hz AC supply made with high grade plastic enclosure with provision of MCB/ MCCB without (MCB/MCCB) complete as required conforming to IEC 61439-6.	Each	10479
6-3-12	Supplying, erecting, testing & commissioning of Tap off box with interlock arrangement on existing air insulated / sandwich type bus trunking/ rising mains for 125A to 200A 3 phase 4 wire 415V, 50Hz AC supply made with 1.5 mm thick sheet metal enclosure (IP54/55) duly powder coated with provision of MCCB(without MCCB) complete as required conforming to IEC 61439-6.	Each	13306
6-3-13	Supplying, erecting, testing & commissioning of Tap off box with interlock arrangement on existing air insulated / sandwich type bus trunking/ rising mains for 250A to 400A 3 phase 4 wire 415V, 50Hz AC supply made with 1.5mm thick sheet metal enclosure (IP54/55) duly powder coated with provision of MCCB(without MCCB) complete as required conforming to IEC 61439-6.	Each	19806
6-3-14	Supplying, erecting, testing & commissioning of Tap off box with interlock arrangement on existing compact type bus trunking/ rising mains use on 630A , 3 phase 4 wire 415V, 50Hz AC supply made with 1.5mm thick sheet metal enclosure (IP54/55) duly powder coated with provision of MCCB(without MCCB) complete as required. conforming to IEC 61439-6.	Each	25008
6-3-15	Supplying, erecting, testing & commissioning of Vertical or Horizontal 90 degree elbow for sandwich type aluminium compact bus trunking/ rising mains suitable for 630A , 3 Phase 4 wire 415 V, 50 Hz AC supply, 36/40kA short circuit rating for 1 sec made of minimum 1.5mm thick galvanized sheet metal enclosure (IP54/55) duly powder coated with all necessary accessories complete conforming to IEC 61439-6.	Each	11537
6-3-16	Supplying, erecting, testing & commissioning of Vertical or Horizontal 90 degree elbow for sandwich type aluminium compact bus trunking/ rising mains suitable for 800A , 3 Phase 4 wire 415 V, 50 Hz AC supply, 42/50kA short circuit rating for 1 sec made of minimum 1.5mm thick galvanized sheet metal enclosure (IP54/55) duly powder coated with all necessary accessories complete conforming to IEC 61439-6.	Each	12278
6-3-17	Supplying, erecting, testing & commissioning of Vertical or Horizontal 90 degree elbow for sandwich type aluminium compact bus trunking/ rising mains suitable for 1000A , 3 Phase 4 wire 415 V, 50 Hz AC supply, 50kA short circuit rating for 1 sec made of minimum 1.5mm thick galvanized sheet metal enclosure (IP54/55) duly powder coated with all necessary accessories complete.	Each	13536
6-3-18	Supplying, erecting, testing & commissioning of Vertical or Horizontal 90 degree elbow for sandwich type aluminium compact bus trunking/ rising mains suitable for 1250A , 3 Phase 4 wire 415 V, 50 Hz AC supply, 65kA short circuit rating for 1 sec made of minimum 1.5mm thick galvanized sheet metal enclosure (IP54/55) duly powder coated with all necessary accessories complete.	Each	16682

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-3-19	Supplying, erecting, testing & commissioning of Vertical or Horizontal 90 degree elbow for sandwich type aluminium compact bus trunking/ rising mains suitable for 1600A , 3 Phase 4 wire 415 V, 50 Hz AC supply, 65/80 kA short circuit rating for 1 sec , made of minimum 1.5mm thick galvanized sheet metal enclosure (IP54/55) duly powder coated with all necessary accessories complete.	Each	20692
6-3-20	Supplying, erecting, testing & commissioning of Vertical or Horizontal Tee elbow for sandwich type aluminium compact bus trunking/ rising mains suitable for 630A , 3 Phase 4 wire 415 V, 50 Hz AC supply made of minimum 1.5mm thick galvanized sheet metal enclosure (IP54/55) duly powder coated with all necessary accessories complete.	Each	22348
6-3-21	Supplying, erecting, testing & commissioning of Vertical or Horizontal Tee elbow for sandwich type aluminium compact bus trunking/ rising mains suitable for 800A , 3 phase 4 wire 415 V, 50 Hz AC supply made of minimum 1.5mm thick galvanized sheet metal enclosure (IP54/55) duly powder coated with all necessary accessories complete.	Each	24022
6-3-22	Supplying, erecting, testing & commissioning of Vertical or Horizontal Tee elbow for sandwich type aluminium compact bus trunking/ rising mains suitable for 1000A/1250 A , 3 Phase 4 wire 415 V, 50 Hz AC supply made of minimum 1.5mm thick galvanized sheet metal enclosure (IP54/55) duly powder coated with all necessary accessories complete.	Each	29896
6-3-23	Supplying, erecting, testing & commissioning of Vertical or Horizontal Tee elbow for sandwich type aluminium compact bus trunking/ rising mains suitable for 1600A , 3 Phase 4 Wire 415 V, 50 Hz AC Supply, 65/80kA short circuit rating for 1 sec made of minimum 1.5mm thick galvanized sheet metal enclosure (IP54/55) duly powder coated with all necessary accessories complete.	Each	32761
6-3-24	Supplying, erecting, testing & commissioning of Plug in Points on provided sandwich type aluminium compact bus trunking/ rising mains suitable for 630A , 3 Phase 4 wire 415 V, 50 Hz AC supply, 36/40 kA short circuit rating for 1 sec made of minimum 1.5mm thick galvanized sheet metal enclosure (IP54/55) duly powder coated with all necessary accessories complete.	Each	2957
6-3-25	Supplying, erecting, testing & commissioning of Plug in Points on provided sandwich type aluminium compact bus trunking/ rising mains suitable for 800A , 3 Phase 4 wire 415 V, 50 Hz AC supply, 42/50kA short circuit rating for 1 sec made of minimum 1.5mm thick galvanized sheet metal enclosure (IP54/55) duly powder coated with all necessary accessories complete.	Each	3073
6-3-26	Supplying, erecting, testing & commissioning of Plug in Points on provided sandwich type aluminium compact bus trunking/ rising mains suitable for 1000A , 3 Phase 4 Wire 415 V, 50 Hz AC Supply, 50kA short circuit rating for 1 sec made of minimum 1.5mm thick galvanized sheet metal enclosure (IP54/55) duly powder coated with all necessary accessories complete.	Each	3446
6-3-27	Supplying, erecting, testing & commissioning of Plug in Points on provided sandwich type aluminium compact bus trunking/ rising mains suitable for 1250A , 3 Phase 4 Wire 415 V, 50 Hz AC Supply, 65 kA short circuit rating for 1 sec made of minimum 1.5mm thick Galvanized sheet metal enclosure (IP54/55) duly powder coated with all necessary accessories complete.	Each	4030

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-3-28	Supplying, erecting, testing & commissioning of Plug in Points on provided sandwich type aluminium compact bus trunking/ rising mains suitable for 1600A , 3 Phase 4 Wire 415 V, 50 Hz AC Supply, 65/80kA short circuit rating for 1 sec made of minimum 1.5mm thick galvanized sheet metal enclosure (IP54/55) duly powder coated with all necessary accessories complete.	Each	4524
<i>6.4 Air Insulated Busbar Trunking System (CP-BBT)</i>			
6-4-1	Supplying, erecting, testing & commissioning of ceiling or wall mounting type 160 A capacity at 40°C ambient temperature Air Insulated type Bus Trunking aluminium conductor having purity not less than 99.6% with tin plated at joints suitable for (3L+N) 415V, 50 Hz A.C supply with 100% neutral+ enclosure as integral earth (PE) with IP54 protection, 15kA short circuit rating for 0.1sec , insulation class F (155 C), casing made of galvanized/ powder coated steel sheet enclosure having mechanical strength certification of minimum IK10, with required shade of paint & having cross sectional area not more than 0.0150 Sq m , complete assembly must comply to seismic zone 4, with necessary accessories like suspension bracket, wall bracket holder/ fixing accessories with, outlet cover, plug in hole as per site requirement with horizontal / vertical G.I. support at at required interval with external single run 25 x 10 mm, aluminium earthing strip or internal integral earth complete conforming to IEC 61439-6 as per specification no. CP-BBT	m	10463
6-4-2	Supplying, erecting, testing & commissioning ceiling or wall mounting type 250A capacity at 40°C ambient temperature Air Insulated type Bus Trunking aluminium conductor having purity not less than 99.6% with tin plated at joints suitable for (3L+N) 415V, 50 Hz A.C supply with 100% neutral+ enclosure as integral earth (PE) with IP54 protection, 25kA short circuit rating for 0.1sec , insulation class F (155 C), casing made of galvanized / powder coated steel sheet enclosure having mechanical strength certification of minimum IK10 with required shade of paint & having cross sectional area not more than 0.0150 Sq m , complete assembly must comply to seismic zone 4, with necessary accessories like suspension bracket, wall bracket holder/ fixing accessories with, outlet cover, plug in hole as per site requirement with horizontal / vertical G.I. support at at required interval, external single run 25 x 10 mm aluminium earthing strip or internal integral earth conforming to IEC 61439-6 as per specification no. CP-BBT	m	10597
6-4-3	Supplying, erecting ,testing and commissioning ceiling or wall mounting type 400A capacity at 40 °C ambient temperature Air Insulated type Bus Trunking Aluminum conductor having purity not less than 99.6% with Tin plated at joints suitable for (3L+N) 415V, 50 Hz A.C supply with 100% neutral+ enclosure as integral earth (PE), BBT Shall type tested as per IEC 61439-6 with IP54 protection, 25kA short circuit rating for 1 sec , insulation class F (155 degree celsius), casing made of galvanized/powder coated steel sheet enclosure having mechanical strength certification of minimum IK10, with required shade of paint & having cross sectional area not more than 0.0270 Sq m , complete assembly must comply to seismic zone 4, with necessary accessories like suspension bracket, wall bracket holder/ fixing accessories with, outlet cover, plug in hole as per site requirement with horizontal / vertical G.I. supports at required interval,with external single Run 25x10mm Aluminum earthing strip or internal integral earth complete conforming to IEC 61439-6 as per specification no. CP-BBT	m	13722

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-4-4	Supplying, erecting, testing and commissioning of Flange end as per design requirement & site condition suitable for Aluminum 160A, 3 phase 4 wire 415V, 50 Hz A.C, 15kA short circuit rating for 0.1 sec, for Air Insulated type BBT with necessary accessories complete conforming to IEC 61439-6.	Each	19801
6-4-5	Supplying, erecting, testing and commissioning of Flange end as per design requirement & site condition suitable for Aluminum 250A, 3 phase 4 wire 415V, 50Hz A.C, 25kA short circuit rating for 0.1 sec for Air Insulated type BBT with necessary accessories complete conforming to IEC 61439-6.	Each	21132
6-4-6	Supplying, erecting, testing and commissioning of Flange end as per design requirement & site condition suitable for Aluminum 400A, 3 phase 4 wire 415V, 50Hz A.C, 25kA short circuit rating for 1 sec for Air Insulated type BBT with necessary accessories complete conforming to IEC 61439-6.	Each	21037
6-4-7	Supplying, erecting and commissioning Vertical or Horizontal 90 Degree/Tee Elbow for Air Insulated type bus trunking/ rising mains of capacity 160A, 3 Phase 4 wire 415V, 50Hz AC supply, 15kA short circuit rating for 1 sec made galvanized sheet metal enclosure (IP54) duly powder coated with all necessary accessories complete conforming to IEC 61439-6.	Each	32227
6-4-8	Supplying, erecting and commissioning Vertical or Horizontal 90 Degree/Tee Elbow for Air Insulated type bus trunking/ rising mains of capacity 250A, 3 Phase 4 wire 415V, 50Hz AC supply, 25kA short circuit rating for 1 sec made galvanized sheet metal enclosure (IP54) duly powder coated with all necessary accessories complete conforming to IEC 61439-6.	Each	35223
6-4-9	Supplying, erecting and commissioning Vertical or Horizontal 90 Degree / Tee elbow for Air Insulated type bus trunking/ rising mains of capacity 400A, 3 Phase 4 wire 415V, 50Hz AC supply, 25kA short circuit rating for 1 sec made galvanized sheet metal enclosure (IP54) duly powder coated with all necessary accessories complete conforming to IEC 61439-6.	Each	48060
<u>6.5 Measuring Instruments (CP-MI)</u>			
6-5-1	Supplying, erecting, testing & commissioning static energy meter with 240V 50 Hz. AC supply 5 to 30 A , accuracy class 1.0 with backlit LCD display, (measuring and display kWh, kVAh, V, I, PF, frequency, kW, kVA, six months history of energy & MD in kW & kVA) with transparent hinge type box complete erected on polished teak wood board duly wired with required size of weatherproof PVC wires duly tested by electric supply company.	Each	2815
6-5-2	Supplying and erecting static energy meter with 240V 50 Hz. AC supply 10 to 60 A , accuracy class 1.0 with backlit LCD display, (measuring and display kWh, kVAh, V, I, PF, frequency, kW, kVA, six months history of energy & MD in kW & kVA) with transparent hinge type box complete erected on polished teak wood board duly wired with required size of weatherproof PVC wires duly tested by electric supply company.	Each	3000
6-5-3	Supplying and erecting static energy meter with 3x240V 50 Hz. AC supply 10 to 60 A , accuracy class 1.0 with backlit LCD display, (Measures & displays Trivector, V, I, kW, PF, Hz, last month history of kWh & MD in kW) with special features like TOD, Tamper logging, Optical Communication Port & Display in absence of Power & with transparent hinge type box complete erected on polished teak wood board duly wired with required size of weatherproof PVC wires duly tested by electric supply company.	Each	8113

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-5-4	Supplying and erecting static energy Trivector meter 3x240V 50 Hz. 20-100A meter AC 3 phase 4 wires LCD/LED display (Measures & displays Trivector, V, I, kW, PF, Hz, last month history of kWh & MD in kW) with special features like TOD, Tamper logging, Optical Communication Port & Display in absence of Power complete erected on polished teak wood board duly wired with required size of weatherproof PVC wires duly tested for class 1.0 accuracy by electric supply company.	Each	8622
6-5-5	Supplying and erecting LT CT multifunction DLMS compliance energy meter of accuracy of class 0.5, 3x240V, 50 Hz with optical & RS 232 port, backlit LCD, measures & displays trivector energy, load survey, TOD, tamper detection & logging, power ON /OFF events, instantaneous parameters of rating 1/5 A with display in absence of power complete with zero adjustment & test certificate from manufacturer erected on provided M.S. box and connected to CTs.	Each	8982
6-5-6	Supplying and erecting HT CT multifunction DLMS compliance of accuracy of class 0.5, 63.5V, 50 Hz with optical & RS 232 port, backlit LCD, measures kWh, kVAh, V, I, kW , 6 months history of energy, load survey, & displays trivector energy, load survey, TOD, tamper detection & logging, power ON /OFF events, instantaneous parameters of rating 1/5 A with display in absence of power complete with zero adjustment & test certificate from manufacturer erected on provided M.S. box.	Each	13106
6-5-7	Supplying and erecting panel mounting type digital ammeter having three and half digit LED display , external CT operated, calibrated for suitable to operate on 500V, 0 to 1000A having accuracy class of 0.5, AC supply with necessary PVC wire leads and lugs and mounting hardware on provided panel complete with calibration certificate from manufacturer.	Each	2135
6-5-8	Supplying and erecting panel mounting type digital voltmeter having three and half digit LED display , calibrated for 0 to 750V AC suitable to operate on 500V having accuracy class of 0.5, AC supply with necessary PVC wire leads and lugs and mounting hardware on provided panel complete with calibration certificate from manufacturer.	Each	1719
6-5-9	Supplying and erecting intelligent flush mounted panel meter three phase four wire (IPM) input voltage measurement range 50-550 V AC (P-P) 415V, aux. supply 90-300 V AC/DC, flush mounted (96 x 96 mm) meter constant Wh viewing in LCD multifunction meters in auto scroll mode with voltage, current, frequency, power factor kW, kVA, kVAR, kWh, kVAh, kVARh, phase angle, interrupts, THD, complete with RS 485 communication protocol, class 1 accuracy and wiring connections and mounting hardware on provided panels complete with calibration certificate from manufacturer.	Each	9436
6-5-10	Supplying and erecting dual source intelligent flush mounted panel meter three phase four wire (IPM) 415V CT/ PT site programmable class I flush mounted (96 x 96 mm) meter with voltage, current, frequency, power factor, ON hrs, kWh, EB and DG set metering with LED display (excluding CT'S) complete with RS 485 communication protocol, class 1 accuracy and wiring connections and mounting hardware on provided panels complete with calibration certificate from manufacturer.	Each	5376

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-5-11	Supplying and erecting intelligent flush mounted maximum demand controller panel meter three phase four wire 50-550 V Phase to phase aux supply 90-300V AC/DC CT secondary site selectable 1A/5A, class I flush mounted 96 x 96 mm meter, data log 8 MB, 4 real output time of day (TOD) 6 slots available, block / sliding window site selectable with V, A, F, kW, kVA, kVAr, kWh, kVAh, kVAh, PF, run hr, ON hrs, Intr, phase angle, THD, events, neutral current, max demand (with RTC) viewing in LCD multi-function meter with LCD display complete class -I accuracy with RS 485 communication protocol with wiring connections and mounting hardware on provided panels complete with calibration certificate from manufacturer.	Each	24786
6-5-12	Supplying and erecting single phase 10 to 60 A net meter of accuracy class 1.0, 240V, 50 Hz, with backlit LCD display, optical port (measures import kWh, export kWh, net kWh, V, I, kW, 12 months history of energy) with wiring connections and mounting hardware on provided panels complete with calibration certificate from manufacturer.	Each	6248
6-5-13	Supplying and erecting three phase 10 to 60 A net meter DLMS compliance of accuracy class 1.0, 3 x 240V, 50 Hz, with backlit LCD display, optical port and RS232 port (measures import kWh, kVAh, export kWh, kVAh, Net kWh, kVAh,V, I, kW, 6 months history of energy) with wiring connections and mounting hardware on provided panels complete with calibration certificate from manufacturer.	Each	12298
6-5-14	Supplying and erecting AC three phase LT CT multifunction net meter DLMS compliance of accuracy class 0.5, 3 x 240V, 50Hz, with backlit LCD display, optical port & RS 232 port (measures import kWh, kVAh, export kWh, kVAh, Net kWh, kVAh, V, I, kW, 6 months history of energy, load survey, TOD, tamper detection & logging, power ON/OFF events, instantaneous parameters of rating 1/5A with display in absence of power) with wiring connections and mounting hardware on provided panels complete with calibration certificate from manufacturer.	Each	16271
6-5-15	Supplying and erecting AC three phase HT CT multifunction net meter DLMS compliance of accuracy class 0.5, 3x 63.5V, 50Hz, with backlit LCD display, optical port & RS 232 port (measures import kWh, kVAh, export kWh, kVAh, net kWh, kVAh, V, I, kW, 6 months history of energy, load survey, TOD, tamper detection & logging, power ON/OFF events, instantaneous parameters of rating 1/5A with display in absence of power) with wiring connections and mounting hardware on provided panels complete with calibration certificate from manufacturer.	Each	24637
6-5-16	Supplying and erecting single phase smart energy meter DLMS compliance with 240V 50 cycles AC supply 5-30 A , accuracy class 1.0 with backlit LCD display, measuring & display kWh, V, I, kW, day, week, month & with communication module configurable for GSM/Wi-Fi, IrDA/Bluetooth, complete provided panel with calibration certificate from manufacturer & duly wired with required size of PVC wires.	Each	12371
6-5-17	Supplying and erecting three phase smart energy meter DLMS compliance with 3x240V 50 cycles AC supply 10-60 A , accuracy class 1.0 with backlit LCD display, measuring & display V, I, kW, kWh, PF, kVA, kVAr, MD, day, week, month & with communication module configurable for GSM/Wi-Fi, IrDA/Bluetooth, complete provided panel with calibration certificate from manufacturer & duly wired with required size of PVC wires.	Each	21922

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-5-18	Supplying and erecting AC single phase two wire Energy Meter of rating 5-32A, Class 1.0 Type Single Module Meter with din rail mounting whole current operated meter to measures and display kWh, V, I, kW, KVA, P.F. with Inbuilt / add On Inbuilt/ add on RS 485 Communication port . Electrical parameters shall be available on com port with their mapping address open for third party software	Each	3732
6-5-19	Supplying and erecting AC three phase four wire Multifunction Energy Meter of rating 10 - 60A, Class 1.0 with din rail / panel mounting to measures and display parameters with RS485 Modbus communication port. mounting whole current operated meter to measures and display V, I, kWh, KVAh, KW, KVA, P.F, THDi, with RS 485 Communication port . Electrical parameters shall be available on com port with their mapping address open for third party software	Each	9993
6-5-20	Supplying, erecting and commissioning of IoT System Controller / Gateway for electrical and allied services with Inbuilt GPRS, WiFi, LAN Capabilities for Multifunction Meters, Level Sensors , temperature sensors etc. and able to collect data from communicable device of available protocol on real time basis with following specifications 1) ARM based Controller (1.6 Ghz processor with 1.2 GB RAM) with inbuilt 16GB memory 2) Inbuilt 4G/3G/GPRS modem with fallback and suitable antenna to communicate with cloud 3) Data services must be from at least two reliable service providers and system should support automatic switching to 2nd service provider in case of low network without any intervention. System should support changing of service providers without changing SIM cards 4) Gateway must have Modbus, MBUS, Ethernet and DLMS any other future open-source protocol (that uses RS485 or TCP port) must be provided free of cost for the period of at least 1 year 5) Must have one RS485 and one ethernet port 6) The controller must send data with TLS encryption and the data on controller must be encrypted 7) Operable with 230V AC supply. Gateway shall collect maximum 15-20 devices for data collection 8) Software shall support for AI application with critical alarm on mobile app as per specification no. CP-IoT	Each	175924
6-5-21	Supplying, erecting and commissioning of Cloud based IoT system monitoring software with Cloud and Internet subscription for 2 year for data analytics, AI Algorithm, Alerts, Automatic data storage at local computer, trends, dashboard, alerts. Access on mobile through web link, Alerts to mobile with AI Technology, Real-time monitoring of all the field devices measurements (electricity, water, gas,temperature, pressure, levels, etc.) in a single location. Sending of events & historical data through SMS (using GSM modem) for multiple persons at custom intervals. And configuration of mobile numbers for the same. The analytical module shall be inbuilt to analyze various events/issues that may be occurring in the electrical network. Must have user customizable dashboards and SLD (without any coding/ scripting) Reporting must be user-configurable and changeable, Multi-site data viewing within same interface without any physical cable connection of sites to monitoring as per specification no. CP-IoT	Each	189034
6-5-22	Supplying, erecting and commissioning of Input Output card 20 Channel for accessibility of input from potential free contact and same to be used to monitor the status of circuit breaker/meters/sensors etc., i.e On/ Off/Trip Status and shall be able to communicate through RS 485 Port as per specification no. CP-IoT	Each	16353
6-5-23	Supplying, erecting of enclosure for box IoT Controller / IO / SMPS	Each	4295

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-5-24	Supplying, erecting and commissioning of wireless thermal sensor that enables the continuous thermal condition monitoring of cables connections, withdrawable circuit breakers connections and busbar connections. operated from the electromagnetic field generated by the current flowing through the monitored conductor. with electric access point and able to communicate with using wired/wireless communication protocol as per specification no. CP-IoT	Each	24736
6-5-25	Annual web based charges for data storage on cloud for various devices, meters, sensors etc. for 2 years	Each	4962
Note:-	<p>1. Provision of CT's shall be made as per individual meters. All meters shall be with calibration certificate.</p> <p>2. Provision of smart energy meters i.e. item no. 6-5-16 and 6-5-17 shall be made according to provisions of Energy Conservation Building Code (ECBC) : 2017</p> <p>3. Item no 6-5-18 to 6-5-25 of IoT system shall be used in the important electrical installations like Hospitals.</p>		
<u>6.6 H. T. Metering (CP-HT)</u>			
6-6-1	Supplying, erecting, testing and commissioning 11KV HT metering cubicle (compact/vertical type) approved by licensee fabricated with 2 mm (14 SWG) M.S. sheets with supporting angle, painted with powder coating / epoxy paint of required shade, copper bus bar size 25 x 6 mm, heavy duty mechanical lock, with counter meter for measuring no of times the opening of meter door, top side cover (CT, PT cover) interlock with meter door, epoxy casted 3 nos CT having required ratio between 10/5A to 50/5A , VA10 or 15, Class 0.5S, epoxy casted 3 nos PT having ratio 11000/V3/110/V3 VA 50, Class 0.5 suitable for provided trivector meter, and provision for incoming and outgoing cables complete duly tested by licensee with necessary test certificates and erected on provided plinth/cc foundation as per specification no. CP-HT.	Each	158633
6-6-2	Supplying, erecting, testing and commissioning 11KV HT metering cubicle (compact/vertical type) approved by licensee fabricated with 2 mm (14 SWG) M.S. sheets with supporting angle, painted with powder coating / epoxy paint of required shade, copper bus bar size 25 x 6 mm, heavy duty mechanical lock, with counter meter for measuring no of times the opening of meter door, top side cover (CT, PT cover) interlock with meter door, epoxy casted 3 nos CT having required ratio between 50/5A to 200/5A , VA10 or 15, Class 0.2S, epoxy casted 3 nos PT having ratio 11000/V3/110/V3 VA 50, Class 0.2 suitable for provided trivector meter, and provision for incoming and outgoing cables complete duly tested by licensee with necessary test certificates and erected on provided plinth/cc foundation as per specification no. CP-HT.	Each	165366
6-6-3	Supplying, erecting, testing and commissioning 22 KV HT metering cubicle (compact type) approved by licensee fabricated with 2 mm (14 SWG) M.S. sheets with supporting angle, painted with powder coating / epoxy paint of required shade, copper bus bar size 25 x 6 mm, heavy duty mechanical lock, with counter meter for measuring no of times the opening of meter door, top side cover (CT, PT cover) interlock with meter door, epoxy casted 3 nos CT having required ratio between 5/5A to 25/5A , VA10 or 15, Class 0.5S, epoxy casted 3 nos PT having ratio 22000/V3/110/V3 VA 50, Class 0.5 suitable for provided trivector meter, and provision for incoming and outgoing cables complete duly tested by licensee with necessary test certificates and erected on provided plinth/cc foundation as per specification no. CP-HT.	Each	201511

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-6-4	Supplying, erecting, testing and commissioning 22 KV HT metering cubicle (compact type) approved by licensee fabricated with 2 mm (14 SWG) M.S. sheets with supporting angle, painted with powder coating / epoxy paint of required shade, copper bus bar size 25 x 6 mm, heavy duty mechanical lock, with counter meter for measuring no of times the opening of meter door, top side cover (CT, PT cover) interlock with meter door, epoxy casted 3 nos CT having required ratio between 25/5A to 200/5A , VA10 or 15, Class 0.2S, epoxy casted 3 nos PT having ratio 22000/V3/110/V3 VA 50, Class 0.2 suitable for provided trivector meter, and provision for incoming and outgoing cables complete duly tested by licensee with necessary test certificates and erected on provided plinth/cc foundation as per specification no. CP-HT .	Each	208772
6-6-5	Supplying, erecting, testing and commissioning 33 KV HT metering cubicle (compact type) approved by licensee fabricated with 2 mm (14 SWG) M.S. sheets with supporting angle, painted with powder coating / epoxy paint of required shade, copper bus bar size 25 x 6 mm, heavy duty mechanical lock, with counter meter for measuring no of times the opening of meter door, top side cover (CT, PT cover) interlock with meter door, epoxy casted 3 nos CT having required ratio between 50/5A to 200/5A , VA10 or 15, Class 0.2S, epoxy casted 3 nos PT having ratio 33000/V3/110/V3 VA 50, Class 0.2 suitable for provided trivector meter, and provision for incoming and outgoing cables complete duly tested by licensee with necessary test certificates and erected on provided plinth/cc foundation as per specification no. CP-HT .	Each	280615
<u>6.7 Accessories</u>			
6-7-1	Supplying and erecting selector switch suitable for voltmeter/ammeter for 3 phase AC supply 500V, 50Hz, on provided box/panel and duly connecting with necessary PVC wire leads and lugs.	Each	355
6-7-2	Supplying, erecting, testing & commissioning LT current transformer with bar primary 50/5 to 1000/5 ratio with 15 VA burden erected in provided CRCA box duly secured with insulating materials connected to the meter with test certificates.	Each	1175
6-7-3	Supplying, erecting, testing & commissioning 525 V 3 phase, 50 Hz., MPP type capacitor having minimum overcurrent capacity of 1.8 In, peak inrush current capacity 300 In and minimum life 150000 hours kVAr bank of metalised polypropylene condensers (MPP) with the standard capacities of 2, 3, 5, 7, 10, 12.5 and 15 kVAr units of P.F. correction for operation on 3 phase 50 Hz. with externally discharging resistances, earthing terminals and built on angle iron or channel iron frame work and provided with terminal cover box complete erected on provided iron bracket or on floor duly tested by licensee.	kVAr	514
6-7-4	Supplying, erecting, testing & commissioning 525 V 3 phase, 50 Hz., APP type capacitor having minimum overcurrent capacity of 1.8 In, peak inrush current capacity 300 In and minimum life 150000 hours kVAr bank of all polypropylene condensers (APP) with the standard capacities of 2, 3, 5, 7, 10, 12.5 and 15 kVAr units of P.F. correction for operation on 3 phase 50 Hz. with externally discharging resistances, earthing terminals and built on angle iron or channel iron frame work and provided with terminal cover box complete erected on provided iron bracket or on floor duly tested by licensee.	kVAr	669
6-7-5	Supplying & erecting LED type indicating pilot lamp with LED colours red / yellow / green, 230 / 250V on provided box / panel with necessary material, wiring & connections etc.	Each	362

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-7-6	Supplying & erecting LED type indicating pilot lamp with LED colour blue, 230 / 250 V on provided box / panel with necessary material, wiring & connections etc.	Each	421
<i>6.8 Surge Protective Devices (CP-SPD)</i>			
6-8-1	Supplying, erecting & marking of surge arrestor / surge protection device at the main distribution board after the incoming breaker of type 1+2 tested for Imax 100 kA for single phase and neutral with compliance to IEC 61643-11 as per specification no. CP-SPD	Each	8942
6-8-2	Supplying, erecting & marking of surge arrestor / surge protection device at the main distribution board after the incoming breaker of type 1+2 tested for Imax 100 kA for three phase and neutral with compliance to IEC 61643-11 as per specification no. CP-SPD	Each	16590
6-8-3	Supplying, erecting & marking of surge arrestor / surge protection device at the main distribution board after the incoming breaker of type 1+2 tested for Imax 50 kA for single phase and neutral with compliance to IEC 61643-11 as per specification no. CP-SPD	Each	9552
6-8-4	Supplying, erecting & marking of surge arrestor/ surge protection device at the main distribution board after the incoming breaker of type 1+2 tested for Imax 50 kA for three phase and neutral with compliance to IEC 61643-11 as per specification no. CP-SPD	Each	17646
6-8-5	Supplying, erecting & marking of surge arrestor/ surge protection device at the sub main distribution board after the incoming breaker of type 2 tested for Imax 40 kA for single phase and neutral with compliance to IEC 61643-11 as per specification no. CP-SPD	Each	4528
6-8-6	Supplying, erecting & marking of surge arrestor/ surge protection device at the sub main distribution board after the incoming breaker of type 2 tested for Imax 40 kA for three phase and neutral with compliance to IEC 61643-11 as per specification no. CP-SPD	Each	8395
6-8-7	Supplying, erecting & marking of surge arrestor/ surge protection device at the sub main distribution board after the incoming breaker of type 2 tested for Imax 15 kA for single phase and neutral with compliance to IEC 61643-11 as per specification no. CP-SPD	Each	6500
6-8-8	Supplying, erecting & marking of surge arrestor/ surge protection device at the sub main distribution board after the incoming breaker of type 2 tested for Imax 15 kA for three phase and neutral with compliance to IEC 61643-11 as per specification no. CP-SPD	Each	12403
Note:-	The above items shall be used only in erectings where sensitive instruments are used and installations that are prone to surges.		
<i>6.9 Energy Devices (APFC Panel) (CP-ED/APFC)</i>			
6-9-1 (New)	Supplying, erecting, testing & commissioning 10 kVAr, 440 V, 3 phase, 50 Hz., APFC Panel with contactor logic with intelligent microprocessor relay, consisting of 1,1,2,2,4 or suitable steps of APP/MPP type capacitor units with detuned (harmonic filter) reactors of suitable rating, APFC panel shall be compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC	Each	53713
6-9-2 (New)	Supplying, erecting, testing & commissioning 15 kVAr, 440V, 3 phase, 50 Hz., APFC panel with contactor logic with intelligent microprocessor relay, consisting of 1,2,2,2,4,4 or suitable steps of APP/MPP type capacitor units with detuned (harmonic filter) reactors of suitable rating, APFC panel shall be compliance to IEC 61439 and power quality IEC 61921 standard per specification no. CP-ED/APFC.	Each	73677

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-9-3 (New)	Supplying, erecting, testing & commissioning 25 kVAr , 440 V, 3 phase, 50 Hz., APFC panel with contactor logic with intelligent microprocessor relay , consisting of 1,2,2,5,5,5,5 or suitable steps of APP/MPP type capacitor units with detuned (harmonic filter) reactors of suitable rating, APFC panel shall be compliance to IEC 61439 and power quality IEC 61921 standard per specification no. CP-ED/APFC .	Each	121626
6-9-4	Supplying, erecting, testing & commissioning 30 kVAr , 440 V, 3 phase, 50 Hz., APFC panel with contactor logic with intelligent microprocessor relay , consisting of 2,3,5,5,5,10 or suitable steps of APP/MPP type capacitor units with detuned (harmonic filter) reactors of suitable rating, APFC panel shall be compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	126175
6-9-5	Supplying, erecting, testing & commissioning 40 kVAr , 440 V, 3 phase, 50 Hz., APFC Panel with contactor logic with intelligent microprocessor relay , consisting of 2,3,5,5,5,10,10 or suitable steps of APP/MPP type capacitor units with detuned (harmonic filter) reactors of suitable rating, APFC panel shall be compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	155462
6-9-6	Supplying, erecting, testing & commissioning 50 kVAr , 440 V, 3 phase, 50 Hz., APFC Panel with contactor logic with intelligent microprocessor relay , consisting of 2,3,3,5,5,7,10,15 or suitable steps of APP/MPP type capacitor units with detuned (harmonic filter) reactors of suitable rating, APFC panel shall be compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	156325
6-9-7	Supplying, erecting, testing & commissioning 75 kVAr , 440 V, 3 phase, 50 Hz., APFC Panel with contactor logic with intelligent microprocessor relay , consisting of 2,3,5,5,10,10,20,20 or suitable steps of APP/MPP type capacitor units with detuned (harmonic filter) reactors of suitable rating, APFC panel shall be compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	199745
6-9-8	Supplying, erecting, testing & commissioning 100 kVAr , 440 V, 3 phase, 50 Hz., APFC Panel with contactor logic with intelligent microprocessor relay , consisting of 2,3,5,10,20,20,20,20 or suitable steps of APP/MPP type capacitor units with detuned (harmonic filter) reactors of suitable rating, APFC panel shall be compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	298571
6-9-9	Supplying, erecting, testing & commissioning 125 kVAr , 440 V, 3 phase, 50 Hz., APFC Panel with contactor logic with intelligent microprocessor relay , consisting of 2,3,5,5,10,20,20,20,20,20 or suitable steps of APP/MPP type capacitor units with detuned (harmonic filter) reactors of suitable rating, APFC panel shall be compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	358289
6-9-10	Supplying, erecting, testing & commissioning 150 kVAr , 440 V, 3 phase, 50 Hz., APFC Panel with contactor logic with intelligent microprocessor relay , consisting of 2,3,5,5,10,10,15,20,30,50 or suitable steps of APP/MPP type capacitor units with detuned (harmonic filter) reactors of suitable rating, APFC panel shall be compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	405156
6-9-11	Supplying, erecting, testing & commissioning 175 kVAr , 440 V, 3 phase, 50 Hz., APFC Panel with contactor logic with intelligent microprocessor relay , consisting of 2,3,5,5,10,10,15,25,50,50 or suitable steps of APP/MPP type capacitor units with detuned (harmonic filter) reactors of suitable rating, APFC panel shall be compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	435244

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-9-12	Supplying, erecting, testing & commissioning 200 kVAr , 440V 3 phase, 50 Hz., APFC Panel with contactor logic with intelligent microprocessor relay , consisting of 2,3,5,10,10,20,25,25,50,50 or suitable steps of APP/MPP type capacitor units with detuned (harmonic filter) reactors of suitable rating , APFC panel shall be compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	516895
6-9-13	Supplying, erecting, testing & commissioning 250 kVAr , 440 V, 3 phase, 50 Hz., APFC Panel with contactor logic with intelligent microprocessor relay , consisting of 3,5,5,7,10,20,20,25,25,30,50,50 or suitable steps of APP/MPP type capacitor units with detuned (harmonic filter) reactors of suitable rating, APFC panel shall be compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	632560
6-9-14 (New)	Supplying, erecting, testing & commissioning 10 kVAr , 440 V, 3 phase, 50 Hz., APFC Panel with derated power contactor of suitable rating for capacitor switching Application for each step controlled by microprocessor based APFC relay consisting of 1,1,2,2,4 or suitable steps of MPP /APP type capacitor with 525 V and having minimum overcurrent capacity of 1.8 In, peak inrush current capacity 300 In and minimum life 150000 hours with detuned aluminium wound reactor of 7/ 14% for each step , APFC Panel shall suitable rating MCCB as incomer and each branch/step shall have separate isolation with MCCB/MCB of Suitable rating for protection, compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	64280
6-9-15 (New)	Supplying, erecting, testing & commissioning 15 kVAr , 440V, 3 phase, 50 Hz., APFC Panel with derated power contactor of suitable rating for capacitor switching Application for each step controlled by microprocessor based APFC relay consisting of 1,2,2,2,4,4 or suitable steps of MPP /APP type capacitor with 525 V and having minimum overcurrent capacity of 1.8 In, peak inrush current capacity 300 In and minimum life 150000 hours with detuned aluminium wound reactor of 7/ 14% for each step , APFC Panel shall suitable rating MCCB as incomer and each branch/step shall have separate isolation with MCCB/MCB of Suitable rating for protection, compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	95453
6-9-16 (New)	Supplying, erecting, testing & commissioning 25 kVAr , 3 phase, 50 Hz., APFC Panel with derated power contactor of suitable rating for capacitor switching Application for each step controlled by microprocessor based APFC relay consisting of 1,2,2,5,5,5,5 or suitable steps of MPP /APP type capacitor with 525 V and having minimum overcurrent capacity of 1.8 In, peak inrush current capacity 300 In and minimum life 150000 hours with detuned aluminium wound reactor of 7/ 14% for each step , APFC Panel shall suitable rating MCCB as incomer and each branch/step shall have separate isolation with MCCB/MCB of Suitable rating for protection, compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	153276

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-9-17	Supplying, erecting, testing & commissioning 35 kVAr, 3 phase, 50 Hz., APFC Panel with derated power contactor of suitable rating for capacitor switching Application for each step controlled by microprocessor based APFC relay consisting of 2,3,5,5,10,10 or suitable steps of MPP /APP type capacitor with 525 V and having minimum overcurrent capacity of 1.8 In, peak inrush current capacity 300 In and minimum life 150000 hours with detuned aluminium wound reactor of 7/ 14% for each step , APFC Panel shall suitable rating MCCB as incomer and each branch/step shall have separate isolation with MCCB/MCB of Suitable rating for protection, compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	202352
6-9-18	Supplying, erecting, testing & commissioning 50 kVAr, 3 phase, 50 Hz., APFC Panel with derated power contactor of suitable rating for capacitor switching Application for each step controlled by microprocessor based APFC relay consisting of 2,3,3,5,5,7,10,15 or suitable steps of MPP /APP type capacitor with 525 V and having minimum overcurrent capacity of 1.8 In, peak inrush current capacity 300 In and minimum life 150000 hours with detuned aluminium wound reactor of 7/ 14% for each step , APFC Panel shall suitable rating MCCB as incomer and each branch/step shall have separate isolation with MCCB/MCB of Suitable rating for protection, compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	273707
6-9-19	Supplying, erecting, testing & commissioning 100 kVAr, 3 phase, 50 Hz., APFC Panel with derated power contactor of suitable rating for capacitor switching Application for each step controlled by microprocessor based APFC relay consisting of 2,3,5,10,20,20,20,20 or suitable steps of MPP /APP type capacitor with 525 V and having minimum overcurrent capacity of 1.8 In, peak inrush current capacity 300 In and minimum life 150000 hours with detuned aluminium wound reactor of 7/ 14% for each step , APFC Panel shall suitable rating MCCB as incomer and each branch/step shall have separate isolation with MCCB/MCB of Suitable rating for protection, compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	392165
6-9-20	Supplying, erecting, testing & commissioning 125 kVAr, 3 phase, 50 Hz., APFC Panel with derated power contactor of suitable rating for capacitor switching Application for each step controlled by microprocessor based APFC relay consisting of 2,3,5,10,20,20,20,20,25 or suitable steps of MPP /APP type capacitor with 525 V and having minimum overcurrent capacity of 1.8 In, peak inrush current capacity 300 In and minimum life 150000 hours with detuned aluminium wound reactor of 7/ 14% for each step , APFC Panel shall suitable rating MCCB as incomer and each branch/step shall have separate isolation with MCCB/MCB of Suitable rating for protection, compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	506838

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
6-9-21	Supplying, erecting, testing & commissioning 150 kVAr, 3 phase, 50 Hz., APFC Panel with derated power contactor of suitable rating for capacitor switching Application for each step controlled by microprocessor based APFC relay consisting of 2,3,5,5,10,10,15,20,30,50 with MPP /APP type capacitor with 525 V and having minimum overcurrent capacity of 1.8 In, peak inrush current capacity 300 In and minimum life 150000 hours with detuned aluminium wound reactor of 7/ 14% for each step , APFC Panel shall suitable rating MCCB as incomer and each branch/step shall have separate isolation with MCCB/MCB of Suitable rating for protection, compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	546192
6-9-22	Supplying, erecting, testing & commissioning 200 kVAr, 3 phase, 50 Hz., APFC Panel with derated power contactor of suitable rating for capacitor switching Application for each step controlled by microprocessor based APFC relay consisting of 2,3,5,10,10,20,25,25,50,50 or suitable steps of MPP /APP type capacitor with 525 V and having minimum overcurrent capacity of 1.8 In, peak inrush current capacity 300 In and minimum life 150000 hours with detuned aluminium wound reactor of 7/ 14% for each step , APFC Panel shall suitable rating MCCB as incomer and each branch/step shall have separate isolation with MCCB/MCB of Suitable rating for protection, compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	621368
6-9-23	Supplying, erecting, testing & commissioning 250 kVAr, 3 phase, 50 Hz., APFC Panel with derated power contactor of suitable rating for capacitor switching Application for each step controlled by microprocessor based APFC relay consisting of 2,3,5,10,10,20,25,25,50,50,50 or suitable steps of MPP /APP type capacitor with 525 V and having minimum overcurrent capacity of 1.8 In, peak inrush current capacity 300 In and minimum life 150000 hours with detuned aluminium wound reactor of 7/ 14% for each step , APFC Panel shall suitable rating MCCB as incomer and each branch/step shall have separate isolation with MCCB/MCB of Suitable rating for protection, compliance to IEC 61439 and power quality IEC 61921 standard as per specification no. CP-ED/APFC .	Each	706480

Chapter 7 : CABLES (CB)

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)
<u>7.1 LT Cables (Aluminum) (CB-LT/AL)</u>			
7-1-1	Supplying, erecting & terminating FR XLPE insulated unarmoured cable, 1100 V 1 core 70 sq. mm. aluminium conductor complete erected with lugs on wall/ trusses/ pole or laid in provided trench / pipe as per specification no. CB-LT/AL	m	223
7-1-2	Supplying, erecting & terminating FR XLPE insulated unarmoured cable, 1100 V 1 core 95 sq. mm. aluminium conductor complete erected with lugs on wall/ trusses/ pole or laid in provided trench / pipe as per specification no. CB-LT/AL	m	245
7-1-3	Supplying, erecting & terminating FR XLPE insulated unarmoured cable, 1100 V 1 core 120 sq. mm. aluminium conductor complete erected with lugs on wall/ trusses/ pole or laid in provided trench / pipe as per specification no. CB-LT/AL	m	278
7-1-4	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable, 1100 V 2 core 4 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	115
7-1-5	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable, 1100 V 2 core 6 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	129
7-1-6	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable, 1100 V 2 core 10 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	145
7-1-7	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable, 1100 V 3 core 2.5 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	118
7-1-8	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable, 1100 V 3 core 4 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	124
7-1-9	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable, 1100 V 3 core 6 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	139
7-1-10	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable, 1100 V 3 core 10 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	164
7-1-11	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 3 core 16 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	186
7-1-12	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 3 core 25 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	217

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)
7-1-13	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable , 1100 V 3 core 35 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	271
7-1-14	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable , 1100 V 3 core 50 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	328
7-1-15	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable , 1100 V 3½ core 25 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	246
7-1-16	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable , 1100 V 3½ core 35 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	297
7-1-17	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable , 1100 V 3½ core 50 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	386
7-1-18	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable , 1100 V 3½ core 70 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	499
7-1-19	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable , 1100 V 3½ core 95 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	611
7-1-20	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable , 1100 V 3½ core 120 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	761
7-1-21	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable , 1100 V 3½ core 150 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	902
7-1-22	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable , 1100 V 3½ core 185 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	1102
7-1-23	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable , 1100 V 3½ core 240 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	1380

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)
7-1-24	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 3½ core 300 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	1649
7-1-25	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 3½ core 400 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	2054
7-1-26	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable, 1100 V 4 core 4 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	137
7-1-27	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable, 1100 V 4 core 6 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	154
7-1-28	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 4 core 10 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	183
7-1-29	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 4 core 16 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	215
7-1-30	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 4 core 25 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	265
7-1-31	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 4 core 35 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	328
7-1-32	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 4 core 50 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	414
7-1-33	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 4 core 70 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	542
7-1-34	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 4 core 95 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	669

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)
7-1-35	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 4 core 120 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	819
7-1-36	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 4 core 150 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	1004
7-1-37	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 4 core 185 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	1221
7-1-38	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 4 core 240 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	1548
7-1-39	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 4 core 300 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	1834
7-1-40	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 4 core 400 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	2288
7-1-41	Re-erecting PVC / XLPE armoured cable 2 to 4 Core up to 50 sq. mm. on wall with necessary material & G.I. earth wire.	m	58
7-1-42	11kv/22kv/33kv Cable fault detection for HT power underground cable from 35 sq. mm. to 400 sq. mm. by acoustic method by using surge wave tester & surge wave receiver (Duo phone) up to 250 meter length cable with recording results & submission of test reports.	job	8004
7-1-43	11kv/22kv/33kv Cable fault detection for HT power underground cable from 35 sq. mm. to 400 sq. mm. by acoustic method by using surge wave tester & surge wave receiver (Duo phone) 251 meter to 500 meter length cable with recording results & submission of test reports.	job	7676
7-1-44	Cable fault detection for all types of LT underground cable from 16sq. mm. to 400 sq. mm. by acoustic method by using surge wave tester & surge wave receiver (Duo phone) up to 250 meter length cable with recording results & submission of test reports.	job	7556
7-1-45	Cable fault detection for all types of LT underground cable from 16 sq. mm. to 400 sq. mm. by acoustic method by using surge wave tester & surge wave receiver (Duo phone) 251 meter to 500 meter length cable with recording results & submission of test reports.	job	7229
Note:-	1) Add Rs. 5/- per metre for erection of cables on stone wall. 2) Rate of all cables includes cost of lugs, glands, etc. required for erection and connection of cable. 3) In case of next fault for same cable add Rs 4000/- per fault for fault detection. 4)Add Rs 5000/- for high pressure testing charges of H.T. cable.		

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)

5) Transportation charges of fault finding machine above 20 km Rs 12/- per km

6) For Item No 7-1-11 to 7-1-25 and 7-1-28 to 7-1-40: For round wire armouring increase rates by 15%.

7) For use of XLPE insulation instead of FR-XLPE insulated armoured cable reduce rates by 5 %

8) For use of FRLS-XLPE insulation instead of FR-XLPE insulated armoured cable increase rates by 5 %

9) For use of XL-HFFR insulation instead of FR-XLPE insulated armoured cable increase rates by 14 %

10) XL-HFFR insulated armoured cable are applicable for indoor use only.

11) XL-HFFR insulated armoured cable shall be used for Hospital Buildings only. If used for other applications, prior permission from concern Superintending Engineer (Electrical), P.W. Region shall be taken.

7.2 LT Cables (Copper) (CB-LT/CU)

7-2-1	Supplying, erecting & terminating FR XLPE insulated unarmoured cable 1100 V. 1 core 25 sq. mm. copper conductor complete erected with provided lugs, laid in provided control panel /distribution boards / pipe as per specification no. CB-LT/CU	m	354
7-2-2	Supplying, erecting & terminating FR XLPE insulated unarmoured cable 1100 V. 1 core 35 sq. mm. copper conductor complete erected with provided lugs, laid in provided control panel /distribution boards / pipe as per specification no. CB-LT/CU	m	483
7-2-3	Supplying, erecting & terminating FR XLPE insulated unarmoured cable 1100 V. 1 core 50 sq. mm. copper conductor complete erected with provided lugs, laid in provided control panel /distribution boards / pipe as per specification no. CB-LT/CU	m	647
7-2-4	Supplying, erecting & terminating FR XLPE insulated unarmoured cable 1100 V. 1 core 70 sq. mm. copper conductor complete erected with provided lugs, laid in provided control panel/distribution boards / pipe as per specification no. CB-LT/CU	m	905
7-2-5	Supplying, erecting & terminating FR XLPE insulated unarmoured cable 1100 V. 1 core 95 sq. mm. copper conductor complete erected with provided lugs, laid in provided control panel /distribution boards / pipe as per specification no. CB-LT/CU	m	1203
7-2-6	Supplying, erecting & terminating FR XLPE insulated unarmoured cable 1100 V. 1 core 120 sq. mm. copper conductor complete erected with provided lugs, laid in provided control panel /distribution boards / pipe as per specification no. CB-LT/CU	m	1509
7-2-7	Supplying, erecting & terminating FR XLPE insulated unarmoured cable 1100 V. 1 core 150 sq. mm. copper conductor complete erected with provided lugs, laid in provided control panel /distribution boards / pipe as per specification no. CB-LT/CU	m	1875
7-2-8	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable 1100 V, 2 core 2.5 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	146
7-2-9	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable 1100 V, 2 core 4 sq mm copper conductor complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	197

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)
7-2-10	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable 1100 V, 2 core 6 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	248
7-2-11	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable 1100 V, 2 core 10 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	367
7-2-12	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 2 core 16 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	506
7-2-13	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 2 core 25 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	752
7-2-14	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable 1100 V, 3 core 2.5 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	175
7-2-15	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable 1100 V, 3 core 4 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	244
7-2-16	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable 1100 V, 3 core 6 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	318
7-2-17	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable 1100 V, 3 core 10 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	478
7-2-18	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 3 core 16 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	667
7-2-19	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 3 core 25 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	1068
7-2-20	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 3½ core 25 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	1284
7-2-21	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 3½ core 35 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	1668
7-2-22	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 3½ core 50 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	2302

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)
7-2-23	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 3½ core 70 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	3243
7-2-24	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 3½ core 95 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	4655
7-2-25	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 3½ core 120 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	5962
7-2-26	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 3½ core 150 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	7210
7-2-27	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 3½ core 185 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	8986
7-2-28	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 3½core 240 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	11525
7-2-29	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 3½ core 300 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	14328
7-2-30	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 3½core 400 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	18627
7-2-31	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable 1100 V, 4 core 4 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	299
7-2-32	Supplying, erecting & terminating FR XLPE insulated, galvanised steel wire armoured (round) cable 1100 V, 4 core 6 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	398
7-2-33	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 4 core 10 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	605
7-2-34	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 4 core 16 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	867
7-2-35	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 4 core 25 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	1385

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)
7-2-36	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 4 core 35 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	1889
7-2-37	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 4 core 50 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	2583
7-2-38	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 4 core 70 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	3704
7-2-39	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 4 core 95 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	5315
7-2-40	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 4 core 120 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	6689
7-2-41	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 4 core 150 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	8346
7-2-42	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 4 core 185 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	10260
7-2-43	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 4 core 240 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	13208
7-2-44	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 4 core 300 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	16428
7-2-45	Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 4 core 400 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	21536
Note:-	<p>1) Add Rs. 5/- per meter for erection of cables on stone wall.</p> <p>2) Rate of all cables includes cost of lugs, glands, etc. required for erection and connection of cable.</p> <p>3) For cable fault detection rates refer sub chapter 7.1 and notes below.</p> <p>4) For Item No 7-2-12, 7-2-13, 7-2-18 to 7-2-30 and 7-2-33 to 7-2-45: For round wire armouring increase rates by 15%.</p> <p>5) For use of FRLS-XLPE insulation instead of FR-XLPE insulated armoured cable increase rate by 2 %</p> <p>(New) 6) For use of XL-HFFR insulation instead of FR-XLPE insulated armoured cable increase material rates by 14 %</p> <p>(New) 7) XL-HFFR insulated armoured cable are applicable for indoor use only.</p>		

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)
(New)	8) XL-HFFR insulated armoured cable shall be used for Hospital Buildings only. For use in other applications, approval of concerned Superintending Engineer, P.W. Regional Circle (Electrical) shall be taken.		
<u>7.3 HT Cables (CB-HT)</u>			
7-3-1	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable , 11 kV(E), 3 x 70 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	1156
7-3-2	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 11 kV(E), 3 x 95 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	1354
7-3-3	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 11 kV(E), 3 x 120 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	1544
7-3-4	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 11 kV(E), 3 x 150 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	1735
7-3-5	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 11 kV(E), 3 x 185 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	2008
7-3-6	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 11 kV(E), 3 x 240 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	2388
7-3-7	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 11 kV(E), 3 x 300 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	2764
7-3-8	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 11 kV(E), 3 x 400 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	3425
7-3-9	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 11 kV(UE), 3 x 95 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	1712
7-3-10	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 11 kV(UE), 3 x 120 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	1956
7-3-11	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 11 kV(UE), 3 x 150 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	2178
7-3-12	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 11 kV(UE), 3 x 185 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	2436

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)
7-3-13	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 11 kV(UE), 3 x 240 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	2840
7-3-14	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 11 kV(UE), 3 x 300 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	3262
7-3-15	Supplying , erecting & terminating XLPE insulated galvanised steel formed wire armoured (strip) cable 11 kV(UE), 3 x 400 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	3830
7-3-16	Supplying , erecting & terminating XLPE insulated galvanised steel formed wire armoured (strip) cable 22 kV(E), 3 x 95 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	1778
7-3-17	Supplying , erecting & terminating XLPE insulated galvanised steel formed wire armoured (strip) cable, 22 kV(E), 3 x 120 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	2011
7-3-18	Supplying , erecting & terminating XLPE insulated galvanised steel formed wire armoured (strip) cable 22 kV(E), 3 x 150 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	2232
7-3-19	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 22 kV(E), 3 x 185 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	2491
7-3-20	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 22 kV(E), 3 x 240 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	2901
7-3-21	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 22 kV(E), 3 x 300 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	3327
7-3-22	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 33 kV(E), 3 x 95 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	2348
7-3-23	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 33 kV(E), 3 x 120 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	2632
7-3-24	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 33 kV(E), 3 x 150 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	2836
7-3-25	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 33 kV(E), 3 x 185 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	3124

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)
7-3-26	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 33 kV(E), 3 x 240 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	3553
7-3-27	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 33 kV(E), 3 x 300 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	3991
7-3-28	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 33 kV(UE), 3 x 150 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	2835
7-3-29	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 33 kV(UE), 3 x 185 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	3121
7-3-30	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire (strip) armoured cable 33 kV(UE), 3 x 240 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	3543
7-3-31	Supplying , erecting & terminating XLPE insulated, galvanised steel formed wire armoured (strip) cable 33 kV(UE), 3 x 300 sq. mm. aluminium conductor laid in provided trench / pipe as per specification no. CB-HT	m	3987
Note:-	<p>1) For cable fault detection rates refer sub chapter 7.1 and notes below.</p> <p>2) For round wire armouring increase rate</p> <p>For 11 kV (E) by 15%</p> <p>For 11 kV(UE), 22 kV, 33kV (E)/(UE) by 18%</p>		
<u>7.4 Cable Joints & End Termination Kits (LT Cables) (CB-JT/LT)</u>			
7-4-1	Providing & erecting epoxy straight through joint outdoor/indoor for LT XLPE armoured cable 2.5 to 16 sq mm. , with necessary material as per specification No. CB-JT/LT	Each	2075
7-4-2	Providing & erecting epoxy straight through joint outdoor/indoor for LT XLPE armoured cable 25 to 50 sq mm. , with necessary material as per specification No. CB-JT/LT	Each	2773
7-4-3	Providing & erecting epoxy straight through joint outdoor/indoor for LT XLPE armoured cable 70 to 95 sq mm. , with necessary material as per specification No. CB-JT/LT	Each	3838
7-4-4	Providing & erecting epoxy straight through joint outdoor/indoor for LT XLPE armoured cable 120 to 185 sq. mm. , with necessary material as per specification No. CB-JT/LT	Each	4014
7-4-5	Providing & erecting epoxy straight through joint outdoor/indoor for LT XLPE armoured cable 240 sq.mm. , with necessary material as per specification No. CB-JT/LT	Each	6214
7-4-6	Providing & erecting epoxy straight through joint outdoor/indoor for LT XLPE armoured cable 300 sq mm. , with necessary material as per specification No. CB-JT/LT	Each	7656
7-4-7	Providing & erecting epoxy straight through joint outdoor/indoor for LT XLPE armoured cable 400 sq mm. , with necessary material as per specification No. CB-JT/LT	Each	7747
7-4-8	Providing & erecting epoxy outdoor / indoor end termination kit for LT XLPE armoured cable 2.5 to 16 sq mm. , with necessary material as per specification No. CB-JT/LT	Each	1627

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)
7-4-9	Providing & erecting epoxy outdoor / indoor end termination kit for LT XLPE armoured cable 25 to 50 sq mm., with necessary material as per specification No. CB-JT/LT	Each	2295
7-4-10	Providing & erecting epoxy outdoor / indoor end termination kit for LT XLPE armoured cable 70 to 120 sq mm., with necessary material as per specification No. CB-JT/LT	Each	2583
7-4-11	Providing & erecting epoxy outdoor / indoor end termination kit for LT XLPE armoured cable 150 to 185 sq mm., with necessary material as per specification No. CB-JT/LT	Each	3075
7-4-12	Providing & erecting epoxy outdoor / indoor end termination kit for LT XLPE armoured cable 240 to 300 sq mm., with necessary material as per specification no. CB-JT/LT	Each	3489
7-4-13	Providing & erecting epoxy outdoor / indoor end termination kit for LT XLPE armoured cable 400 sq mm., with necessary material as per specification No. CB-JT/LT	Each	4257
<u>7.5 Cable Joints & End Termination Kits (HT Cables) (CB-JT/HT)</u>			
7-5-1	Providing and erecting Heat shrinkable indoor termination kit for 11 KV (E) XLPE HT cable 3x up to 95 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	8287
7-5-2	Providing and erecting Heat shrinkable indoor termination kit for 11 KV (E) XLPE HT cable 3x120 to 185 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	10187
7-5-3	Providing and erecting Heat shrinkable indoor termination kit for 11 KV (E) XLPE HT cable 3x240 to 300 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	11095
7-5-4	Providing and erecting Heat shrinkable indoor termination kit for 11 KV (E) XLPE HT cable 3x400 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	11423
7-5-5	Providing and erecting Heat shrinkable outdoor termination kit for 11 KV (E) XLPE HT cable 3 x up to 95 sq. mm. with necessary material as per specification No. CB-JT/HT	Each	13964
7-5-6	Providing and erecting Heat shrinkable outdoor termination kit for 11 KV (E) XLPE HT cable 3x120 to 185 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	13197
7-5-7	Providing and erecting Heat shrinkable outdoor termination kit for 11 KV (E) XLPE HT cable 3x240 to 300 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	14682
7-5-8	Providing and erecting Heat shrinkable outdoor termination kit for 11 KV (E) XLPE HT cable 3x400 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	15053
7-5-9	Providing and erecting Heat shrinkable straight through joint kit for 11 KV (E) XLPE HT cable 3x up to 95 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	22307
7-5-10	Providing and erecting Heat shrinkable straight through joint kit for 11 KV (E) XLPE HT cable 3x120 to 185 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	26804
7-5-11	Providing and erecting Heat shrinkable straight through joint kit for 11 KV (E) XLPE HT cable 3x240 to 400 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	29627
7-5-12	Providing and erecting Heat shrinkable indoor termination kit for 11 kV (UE)/22 kV (E) XLPE HT cable 3x up to 95 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	10799

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)
7-5-13	Providing and erecting Heat shrinkable indoor termination kit for 11 kV (UE)/ 22 kV (E) XLPE HT cable 3x120 to 185 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	12762
7-5-14	Providing and erecting Heat shrinkable indoor termination kit for 11 kV (UE)/ 22 kV (E) XLPE HT cable 3x240 to 400 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	15795
7-5-15	Providing and erecting Heat shrinkable outdoor termination kit for 11 kV (UE)/ 22 kV (E) XLPE HT cable 3x up to 95 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	15298
7-5-16	Providing and erecting Heat shrinkable outdoor termination kit for 11 kV (UE)/ 22 kV (E) XLPE HT cable 3x120 to 185 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	17803
7-5-17	Providing and erecting Heat shrinkable outdoor termination kit for 11 kV (UE)/ 22 kV (E) XLPE HT cable 3x240 to 400 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	23284
7-5-18	Providing and erecting Heat shrinkable straight through joint kit for 11 kV (UE)/22 kV (E) XLPE HT cable 3x up to 95 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	36641
7-5-19	Providing and erecting Heat shrinkable straight through joint kit for 11 kV (UE)/22 kV (E) XLPE HT cable 3x120 to 185 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	40064
7-5-20	Providing and erecting Heat shrinkable straight through joint kit for 11 kV (UE)/22 kV (E) XLPE HT cable 3x240 to 300 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	49151
7-5-21	Providing and erecting Heat shrinkable straight through joint kit for 11 kV (UE)/ 22 kV (E) XLPE HT cable 3x 400 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	55187
7-5-22	Providing and erecting Heat shrinkable indoor termination kit for 33 kV (E)/33 kV (UE) XLPE HT cable 3x up to 70 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	14800
7-5-23	Providing and erecting Heat shrinkable indoor termination kit for 33 kV (E)/33 kV (UE) XLPE HT cable 3x95 to 150 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	15224
7-5-24	Providing and erecting Heat shrinkable indoor termination kit for 33 kV (E)/33 kV (UE) XLPE HT cable 3x185 to 240 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	19623
7-5-25	Providing and erecting Heat shrinkable indoor termination kit for 33 kV (E)/33 kV (UE) XLPE HT cable 3x300 sq mm to 400 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	23684
7-5-26	Providing and erecting Heat shrinkable outdoor termination kit for 33 kV (E) /33 kV (UE)XLPE HT cable 3x up to 70 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	18065
7-5-27	Providing and erecting Heat shrinkable outdoor termination kit for 33 kV (E) /33 kV (UE)XLPE HT cable 3x 95 to 150 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	21306
7-5-28	Providing and erecting Heat shrinkable outdoor termination kit for 33 kV (E)/33 kV (UE) XLPE HT cable 3x185 to 240 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	31362
7-5-29	Providing and erecting Heat shrinkable outdoor termination kit for 33 kV (E)/33 kV (UE) XLPE HT cable 3x300 sq. mm. to 400 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	33057
7-5-30	Providing and erecting Heat shrinkable straight through joint kit for 33 kV (E)/33 kV (UE) XLPE HT cable 3x up to 70 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	43395

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)
7-5-31	Providing and erecting Heat shrinkable straight through joint kit for 33 kV (E)/33 kV (UE) XLPE HT cable 3x95 to 150 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	63341
7-5-32	Providing and erecting Heat shrinkable straight through joint kit for 33 kV (E)/33 kV (UE) XLPE HT cable 3x185 to 240 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	83880
7-5-33	Providing and erecting Heat shrinkable straight through joint kit for 33 kV (E)/33 kV (UE) XLPE HT cable 3x300 to 400 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	92799
Note:-	Above rates are for aluminum lugs & ferrules. For copper lugs & ferrules increase rates by 14 %		
<u>7.6 Cable Enclosures (CB-CE)</u>			
7-6-1	Supplying & erecting G.I. pipe 'A' class 25 mm dia. for enclosing XLPE armoured cable on wall/pole as per specification no. CB-CE	m	214
7-6-2	Supplying & erecting G.I. pipe 'A' class 40 mm dia. for enclosing XLPE armoured cable on wall/pole as per specification no. CB-CE	m	344
7-6-3	Supplying & erecting G.I. pipe 'A' class 50 mm dia. for enclosing XLPE armoured cable on wall/pole as per specification no. CB-CE	m	426
7-6-4	Supplying & erecting G.I. pipe 'A' class 75 mm dia. for enclosing XLPE armoured cable on wall/pole as per specification no. CB-CE	m	674
7-6-5	Supplying & laying (including excavation) reinforced cement concrete pipe of NP-2 class of 150 mm diameter in proper line, level and slope including providing and fixing collars in cement mortar 1:2 and curing etc. complete.	m	613
7-6-6	Supplying & laying (including excavation) half round reinforced cement concrete pipe of NP-2 class of 150 mm diameter in proper line, level and slope including providing and fixing collars in cement mortar 1:2 and curing etc. complete.	m	545
7-6-7	Supplying & laying (including excavation) reinforced cement concrete pipe of NP-2 class of 250 mm diameter in proper line, level and slope including providing and fixing collars in cement mortar 1:2 and curing etc. complete.	m	692
7-6-8	Supplying & laying (including excavation) half round reinforced cement concrete pipe of NP-2 class of 250 mm diameter in proper line, level and slope including providing and fixing collars in cement mortar 1:2 and curing etc. complete.	m	582
7-6-9	Supplying and laying (including excavation of suitable width & depth up to 90 cm) 50 mm outside dia. double wall corrugated pipes (DWC) of HDPE for enclosing cable below ground/road surface, complete.	m	204
7-6-10	Supplying and laying (including excavation of suitable width & depth up to 90 cm) 75 mm outside dia. double wall corrugated pipes (DWC) of HDPE for enclosing cable below ground/road surface, complete.	m	243
7-6-11	Supplying and laying (including excavation of suitable width & depth up to 90 cm) 90 mm outside dia. double wall corrugated pipes (DWC) of HDPE for enclosing cable below ground/road surface, complete.	m	333
7-6-12	Supplying and laying (including excavation of suitable width & depth up to 90 cm) 120 mm outside dia. double wall corrugated pipes (DWC) of HDPE for enclosing cable below ground/road surface, complete.	m	374
7-6-13	Supplying and laying (including excavation of suitable width & depth up to 90 cm) 160 mm outside dia, double wall corrugated pipes (DWC) of HDPE for enclosing cable below ground/road surface, complete.	m	474
7-6-14	Supplying and laying (including excavation of suitable width & depth up to 90 cm) 175 mm outside dia, double wall corrugated pipes (DWC) of HDPE for enclosing cable below ground/road surface, complete.	m	648

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)
7-6-15	Supplying and laying (including excavation of suitable width & depth up to 90 cm) 200 mm outside dia, double wall corrugated pipes (DWC) of HDPE for enclosing cable below ground/road surface, complete.	m	677
Note:	1)For erection of G I pipe on stone wall add Rs. 5/- per metre to the rate. 2)All the GI pipes and DWC pipes shall be ISI marked. 3) For running the cable across the field / along the road, it should be covered by half round Hume Pipe only.		
<u>7.7 Cable Glands(CB-GL)</u>			
7-7-1	Supplying & erecting single compression type brass cable glands for 2 to 4 core 2.5 sq mm /2 to 4 core 4 sq mm /2 core 6 sq mm cable as per specification No. CB-GL	Each	73
7-7-2	Supplying & erecting single compression type brass cable glands for 3 to 4 core 6 sq mm /2 to 4 core 10 sq mm cable as per specification No. CB-GL	Each	93
7-7-3	Supplying & erecting single compression type brass cable glands for 3 to 4 core 16 sq mm /3 to 4 core 25 sq mm /3 core 35 sq mm cable as per specification No. CB-GL	Each	185
7-7-4	Supplying & erecting single compression type brass cable glands for 4 core 35 Sq.mm./3 core 50 Sq.mm. cable as per specification no. CB-GL	Each	208
7-7-5	Supplying & erecting single compression type brass cable glands for 4 core 50 sq mm cable as per specification No. CB-GL	Each	280
7-7-6	Supplying & erecting single compression type brass cable glands for 3½ core 70 sq mm cable as per specification No. CB-GL	Each	280
7-7-7	Supplying & erecting single compression type brass cable glands for 3½ core 95 sq mm cable as per specification No. CB-GL	Each	315
7-7-8	Supplying & erecting single compression type brass cable glands for 3½ core 120 sq mm cable as per specification No. CB-GL	Each	372
7-7-9	Supplying & erecting single compression type brass cable glands for 3½ core 150 sq mm cable as per specification No. CB-GL	Each	372
7-7-10	Supplying & erecting single compression type brass cable glands for 3½ core 185 sq mm cable as per specification No. CB-GL	Each	586
7-7-11	Supplying & erecting Single Compression type brass cable glands for 3½core 240 sq mm cable as per specification No. CB-GL	Each	586
7-7-12	Supplying & erecting single compression type brass cable glands for 3½core 300 sq mm cable as per specification No. CB-GL	Each	799
7-7-13	Supplying & erecting single compression type brass cable glands for 3½core 400 sq mm cable as per specification No. CB-GL	Each	971
Note :	1) For use of flange type glands increase rate by 50%. 2) Glands are to be provided at the time of repairs.		
<u>7.8 Street Light Boxes & Cable Indicators (CB-SB/CB-CIP)</u>			
7-8-1	Supplying & erecting cast iron cable indicator plate buried along with route of cable for PVC / XLPE armoured cable as per specification No. CB-CIP	Each	174
7-8-2	Supplying & erecting watertight terminal box of 1.6 mm (16 gauge) CRCA sheet of size 200 x 150 x 150 mm. complete on pole as per specification No. CB-SB	Each	486
7-8-3	Supplying & erecting watertight terminal box of 1.6 mm (16 gauge) CRCA sheet of size 300 x 200 x 150 mm complete on pole as per specification No. CB-SB	Each	684

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)
7-8-4	Supplying & erecting watertight terminal box of 1.6 mm (16 gauge) CRCA sheet of size 150 x 100 x 100 mm complete on pole as per specification No. CB-SB	Each	329
7-8-5	Supplying & erecting watertight terminal box of cast iron of size 200 x 150 x 150 mm complete on pole as per specification No. CB-SB	Each	633
7-8-6	Supplying & erecting watertight terminal box of cast iron of size 300 x 200 x 150 mm complete on pole as per specification No. CB-SB	Each	747
7-8-7	Supplying & erecting watertight terminal box of cast iron of size 150 x 100 x 100 mm complete on pole as per specification No. CB-SB	Each	540
7-8-8	Supplying & erecting FRP box of size 150mm x 125mm x 100 mm, 2.7 mm thick complete on pole/wall as per specification No. CB-SB	Each	500
7-8-9	Supplying & erecting FRP box of size 250mm x 200mm x 100 mm, 2.7 mm thick complete on pole/wall as per specification No. CB-SB	Each	592
7-8-10	Supplying & erecting FRP box of size 300mm x 200mm x 125 mm, 2.7 mm thick complete on pole/wall as per specification No. CB-SB	Each	790

7.9 Cable Lugs (Copper) (CB-CL/CU)

7-9-1	Supplying & erecting crimping type copper lugs for cable upto 16 sq mm complete as per specification No. CB-CL/CU	Each	24
7-9-2	Supplying & erecting crimping type copper lugs for cable 25 sq mm complete as per specification No. CB-CL/CU	Each	36
7-9-3	Supplying & erecting crimping type copper lugs for cable 35 sq mm complete as per specification No. CB-CL/CU	Each	42
7-9-4	Supplying & erecting crimping type copper lugs for cable 50 sq mm complete as per specification No. CB-CL/CU	Each	53
7-9-5	Supplying & erecting crimping type copper lugs for cable 70 sq mm complete as per specification No. CB-CL/CU	Each	80
7-9-6	Supplying & erecting crimping type copper lugs for cable 95 sq mm complete as per specification No. CB-CL/CU	Each	110
7-9-7	Supplying & erecting crimping type copper lugs for cable 120 sq mm complete as per specification No. CB-CL/CU	Each	145
7-9-8	Supplying & erecting crimping type copper lugs for cable 150 sq mm complete as per specification No. CB-CL/CU	Each	230
7-9-9	Supplying & erecting crimping type copper lugs for cable 185 sq mm complete as per specification No. CB-CL/CU	Each	255
7-9-10	Supplying & erecting crimping type copper lugs for cable 240 sq mm complete as per specification No. CB-CL/CU	Each	345
7-9-11	Supplying & erecting crimping type copper lugs for cable 300 sq mm complete as per specification No. CB-CL/CU	Each	483
7-9-12	Supplying & erecting crimping type copper lugs for cable 400 sq mm complete as per specification No. CB-CL/CU	Each	676

7.10 Cable Lugs (Aluminium) (CB-CL/AL)

7-10-1	Supplying & erecting crimping type aluminium lugs for cable upto 16 sq mm complete as per specification No. CB-CL/AL	Each	11
7-10-2	Supplying & erecting crimping type aluminium lugs for cable 25 sq mm complete as per specification No. CB-CL/AL	Each	12
7-10-3	Supplying & erecting crimping type aluminium lugs for cable 35 sq mm complete as per specification No. CB-CL/AL	Each	19
7-10-4	Supplying & erecting crimping type aluminium lugs for cable 50 sq mm complete as per specification No. CB-CL/AL	Each	24
7-10-5	Supplying & erecting crimping type aluminium lugs for cable 70 sq mm complete as per specification No. CB-CL/AL	Each	31
7-10-6	Supplying & erecting crimping type aluminium lugs for cable 95 sq mm complete as per specification No. CB-CL/AL	Each	33

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)
7-10-7	Supplying & erecting crimping type aluminium lugs for cable 120 sq mm complete as per specification No. CB-CL/AL	Each	47
7-10-8	Supplying & erecting crimping type aluminium lugs for cable 150 sq mm complete as per specification No. CB-CL/AL	Each	59
7-10-9	Supplying & erecting crimping type aluminium lugs for cable 185 sq mm complete as per specification No. CB-CL/AL	Each	78
7-10-10	Supplying & erecting crimping type aluminium lugs for cable 240 sq mm complete as per specification No. CB-CL/AL	Each	112
7-10-11	Supplying & erecting crimping type aluminium lugs for cable 300 sq mm complete as per specification No. CB-CL/AL	Each	163
7-10-12	Supplying & erecting crimping type aluminium lugs for cable 400 sq mm complete as per specification No. CB-CL/AL	Each	221
<u>7.11 Cable Tray (CB-CT)</u>			
7-11-1	Providing & erecting hot dipped galvanised ladder type cable tray manufactured from 16 SWG GI sheet of 150 mm width & 100 mm height with required standard accessories.	m	789
7-11-2	Providing & erecting hot dipped galvanised ladder type cable tray manufactured from 16 SWG GI sheet of 200 mm width & 100 mm height with required standard accessories.	m	803
7-11-3	Providing & erecting hot dipped galvanised ladder type cable tray manufactured from 16 SWG GI sheet of 300 mm width & 100 mm height with required standard accessories.	m	859
7-11-4	Providing & erecting hot dipped galvanised ladder type cable tray manufactured from 16 SWG GI sheet of 400 mm width & 100 mm height with required standard accessories.	m	915
7-11-5	Providing & erecting hot dipped galvanised ladder type cable tray manufactured from 16 SWG GI sheet of 500 mm width & 100 mm height with required standard accessories.	m	970
7-11-6	Providing & erecting hot dipped galvanised perforated type cable tray manufactured from 16 SWG GI sheet of 150 mm width & 75 mm height complete with necessary coupler plates & hardware.	m	590
7-11-7	Providing & erecting hot dipped galvanised perforated type cable tray manufactured from 16 SWG GI sheet of 200 mm width & 75 mm height complete with necessary coupler plates & hardware.	m	676
7-11-8	Providing & erecting hot dipped galvanised perforated type cable tray manufactured from 16 SWG GI sheet of 300 mm width & 75 mm height complete with necessary coupler plates & hardware.	m	846
7-11-9	Providing & erecting hot dipped galvanised perforated type cable tray manufactured from 16 SWG GI sheet of 400 mm width & 75 mm height complete with necessary coupler plates & hardware.	m	1018
7-11-10	Providing & erecting hot dipped galvanised perforated type cable tray manufactured from 16 SWG GI sheet of 500 mm width & 75 mm height complete with necessary coupler plates & hardware.	m	1189
7-11-11	Providing & erecting hot dipped galvanised cover suitable for ladder/perforated type Cable tray manufactured from 18 SWG (1.2 mm thick) GI sheet of 150 mm width & 20 mm height complete with necessary hardware.	m	316
7-11-12	Providing & erecting hot dipped galvanised cover suitable for ladder/perforated type Cable tray manufactured from 18 SWG GI sheet of 200 mm width & 20 mm height complete with necessary hardware.	m	387
7-11-13	Providing & erecting hot dipped galvanised cover suitable for ladder/perforated type Cable tray manufactured from 18 SWG GI sheet of 300 mm width & 20 mm height complete with necessary hardware.	m	537

Item No	Short Description	Unit	Completed Rate
(1)	(2)	(3)	(4)
7-11-14	Providing & erecting hot dipped galvanised cover suitable for ladder/perforated type Cable tray manufactured from 18 SWG GI sheet of 400 mm width & 20 mm height complete with necessary hardware.	m	673
7-11-15	Providing & erecting hot dipped galvanised cover suitable for ladder/perforated type Cable tray manufactured from 18 SWG GI sheet of 500 mm width & 20 mm height complete with necessary hardware.	m	816
Note	<p>1) Standard accessories shall typically include :</p> <p>a) 'Z' section support - 30 x 35 mm in size - 312 mm in length - 6 nos. support for one piece ladder of 2.5 m in length each.</p> <p>b) Anchor fastener & nut bolts of adequate size - 16 nos. (2 nos. per support)</p> <p>c) Coupler plates with hardware - 70 x 200 x 3 mm thick - 2 nos. for each piece of 2.5 m ladder complete with necessary accessories such as reducer, horizontal elbow & tee, up & down vertical elbow & bends, cross piece complete.</p> <p>2) Provision for resting arrangement or support for perforated type cable tray shall be made separately as per required iron work.</p> <p>3) Provision of cover for perforated type cable tray shall be made only where it is absolutely necessary and make sure for locking arrangement.</p> <p>4) Both type of cable trays shall be earthed properly.</p>		
<u>7.12 Dismantling</u>			
7-12-1	Dismantling the existing cables of all types & size up to 10 sq mm.	m	17
7-12-2	Dismantling the existing cables of all types & size above 10 sq mm up to 50 sq.mm.	m	25
7-12-3	Dismantling the existing cables of all types & size above 50 sq mm.	m	34
7-12-4	Refilling the holes for dismantled cables with cement mortar & finishing etc. complete	m	64
7-12-5	Dismantling the existing underground cable without damaging it with glands, cable end box including refilling the trench up to ground level and making coils complete.	m	107
Note:-	<p>1)The rates for item no 7.12.1 to 7.12.5 are for dismantling and handing over to section office inclusive of transportation upto 25 km, between site and section office.</p> <p>2)Item No 7.12.5 shall be used only when the cost of dismantled cable is more than the cost of excavation.</p>		

Chapter 8 : OVER HEAD SYSTEMS (OH)

Item No (1)	Short Description (2)	Unit (3)	Competed Rate (4)
<u>8.1 Steel Poles (OH-PL)</u>			
8-1-1	Supplying and erecting steel tubular swaged pole 139.7 x 114.3 x 88.9 mm dia with 4.5x3.65x3.25 mm thickness (4.5+1.75+1.75 m) length respectively and total 8.0 m long with pole cap, base plate in provided foundation. (weight 101 kg) as per specification no. OH-PL/STP	Each	9191
8-1-2	Supplying and erecting steel tubular swaged pole 139.7 x 114.3 x 88.9 mm dia with 4.5x3.65x3.25 mm thickness (5+1.75+1.75 m) length respectively and total 8.5 m long with pole cap, base plate in provided foundation. (weight 109 kg.) as per specification no. OH-PL/STP	Each	9857
8-1-3	Supplying and erecting steel tubular swaged pole 139.7 x 114.3 x 88.9 mm dia with 4.5 x 3.65 x 3.25 mm thickness (5+2+2 m) length respectively and total 9 m long with pole cap, base plate in provided foundation (weight 113 kg) as per specification no. OH-PL/STP	Each	10505
8-1-4	Supplying and erecting steel tubular swaged pole 165.1 x 139.7 x 114.3 mm dia with 4.5 x 4.5 x 3.65 mm thickness (5+2+2 m) length respectively and total 9 m long with pole cap, base plate in provided foundation (weight 147 kg) as per specification no. OH-PL/STP	Each	13058
8-1-5	Supplying and erecting steel tubular swaged pole 165.1 x 139.7 x 114.3 mm dia with 4.5 x 4.5 x 3.65 mm. thickness (5+2.5+2.5 m) length respectively and total 10 m long with pole cap, base plate in provided foundation (weight 160 kg) as per specification no. OH-PL/STP	Each	14194
8-1-6	Supplying and erecting steel tubular swaged pole 165.1 x 139.7 x 114.3 mm dia with 4.5 x4.5 x3.65 mm thickness (5.60+2.7+2.7 m) length total 11 m long with pole cap, base plate in provided foundation (weight 175 kg.) as per specification no. OH-PL/STP	Each	15446
8-1-7	Supplying and erecting steel tubular swaged pole 165.1 x 139.7 x 114.3 mm dia with 5.4 x 4.5 x 3.65 mm thickness (5.8+3.1+3.1 m) length total 12 m long with pole cap, base plate in provided foundation (weight 208 kg.) as per specification no. OH-PL/STP	Each	18193
8-1-8	Supplying and erecting steel tubular swaged type welded pole with upper portion hydraulically bent swan neck, 165.1 x 139.7 x 114.3 mm dia with 4.5 x 4.50 x 3.65 mm thickness (5+2+3 m) respectively (net vertical height 9 m.) total length 10 m long with base plate in provided foundation. (weight 156.75 kg) as per specification no. OH-PL/STP	Each	15147
8-1-9	Supplying and erecting steel tubular swan neck swaged type welded pole with upper portion hydraulically bent swan neck, 165.1 x 139.7 x 114.3 mm dia with 4.5 x 4.5 x 3.65 mm thickness (5.6+2.7+2.7 m) respectively total (net vertical height 10 m.) 11 m long with base plate in provided foundation. (weight 175 kg) as per specification no. OH-PL/STP	Each	16845
8-1-10	Supplying and erecting rolled steel joist (girder) pole 125 x 70 mm (13.3 kg/m) with base plate in provided foundation as per specification no. OH-PL/RSJ	m	1164
8-1-11	Supplying and erecting rolled steel joist (girder) pole 150 x 80 mm/150 x75 mm (14.9 kg /m) with base plate in provided foundation as per specification no. OH-PL/RSJ	m	1274
8-1-12	Supplying and erecting rolled steel joist (girder) pole 175 x 75/ 85 mm (19.6 kg/m) with provided base plate in provided foundation as per specification no. OH-PL/RSJ	m	1588
8-1-13	Supplying and erecting rolled steel joist (girder) pole 100 x 116 mm (23 kg/m) with base plate in provided foundation as per specification no. OH-PL/RSJ	m	1840

Item No (1)	Short Description (2)	Unit (3)	Competed Rate (4)
8-1-14	Supplying and erecting rolled steel joist (girder) pole 200 x 100 mm (25.9 kg/m) with provided base plate in provided foundation as per specification no. OH-PL/RSJ	m	1876
8-1-15	Supplying and erecting rolled steel joist (girder) pole 152 x 152 mm (37.1 kg/m) with base plate in provided foundation as per specification no. OH-PL/RSJ	m	2681
8-1-16	Supplying and erecting G.I. pipe pole 'B' class 80 mm dia 6 m long with pole cap, base plate in provided foundation as per specification no. OH-PL/GIP	Each	5714
8-1-17	Supplying and erecting M.S. pipe pole 'B' class 80 mm dia 6 m long with pole cap, base plate in provided foundation as per specification no. OH-PL/GIP	Each	4849
Note:	As per contour of the site and position of different obstacles / layout the length of RSJ pole to be considered for each pole, also selection of size of pole shall be made on the basis of strength of pole which will decide its utility as normal, intermediate, cut point etc. The measurement sheet should be attached in estimate/bill. Necessary arrangement for earthing shall be provided.		
<u>8.2 Hot Dipped Galvanized Poles & High-Mast (OH-HM)</u>			
8-2-1	Supplying and erecting 12.5 m (clear height) motorized high-mast (Top -150mm, Bottom- 360mm) hot dipped galvanized material with average minimum thickness 65 micron, made from high tensile structure grade steel as per BSEN - 10025 S 355/E350 & 3mm thickness, with base plate 25 mm thick x OD 520 mm grade as per IS-2062, pole made in single section & submerge arc welded, with lowering & raising motorized unit, wire rope stainless steel 316 grade 2 nos., 7x19 construction 5mm, SG-DG U clamps, double drum with assembly 250 kg, 5x2.5 Sq.mm. flexible copper cable with lantern carriage assembly suitable for max. 12 nos. luminaries and its control gear box, lightning arrestor, arrangement for fixing aviation light, night glow reflector on pole at suitable height , high-mast with serial number, factory inspection report/test report of high-mast should be provided as per specifications on provided foundation J type stud/bolts with double check nuts & necessary accessories complete. specification no. OH-PL/HM	Set	230158
8-2-2	Supplying and erecting 16 m (clear height) motorized high-mast (Top-150mm, Bottom- 360mm) hot dipped galvanized material with average minimum thickness 65 micron, made from high tensile structure grade steel as per BSEN -10025 S 355/E350 & 3 mm thickness, with base plate 25 mm thick x OD 520 mm grade as per IS-2062, pole made in single section & submerge arc welded, with lowering & raising motorized unit, wire rope stainless steel 316 grade 2 nos., 7x19 construction 5mm, SG-DG U clamps, double drum winch assembly 350 kg, 5x2.5 sq.mm flexible copper cable with lantern carriage assembly suitable for max. 12 nos luminaries and its control gear box, lightning arrestor, arrangement for fixing aviation light, night glow reflector on pole at suitable height , high-mast with serial number, factory inspection report/test report of high-mast should be provided as per specifications on provided foundation J type stud/bolts with double check nuts & necessary accessories complete. specification no. OH-PL/HM	Set	262067

Item No (1)	Short Description (2)	Unit (3)	Competed Rate (4)
8-2-3	Supplying and erecting 16 m (clear height) motorized high-mast (Top-150mm, Bottom-410 mm) hot dipped galvanized material with average minimum thickness 65 micron, made from high tensile structure grade steel as per BSEN -10025 S 355/E350 & 3 mm thickness, with base plate 25 mm thick x OD 570 mm grade as per IS-2062, pole made in signal section & submerge arc welded, with lowering & raising motorized unit, wire rope stainless steel 316 grade 2 nos., 7x19 construction 6 mm, SG-DG U clamps, double drum winch assembly 350 kg, 5x2.5 sq.mm flexible copper cable with lantern carriage assembly suitable for max. 16 nos. luminaries and its control gear box, lightning arrestor, arrangement for fixing aviation light, night glow reflector on pole at suitable height , high-mast with serial number, factory inspection report/test report of high-mast should be provided as per specifications on provided foundation J type stud/bolts with double check nuts & necessary accessories complete. specification no. OH-PL/HM	Set	283094
8-2-4	Supplying and erecting 20 m (clear height) motorized high-mast (Top-150mm, Bottom-410 mm) hot dipped galvanized material with average minimum thickness 65 micron, made from high tensile structure grade steel as per BSEN -10025 S 355/E350 & 3+3 mm thickness, with base plate 25 mm thick x OD 570 mm grade as per IS-2062, pole made in signal section & submerge arc welded, with lowering & raising motorized unit, wire rope stainless steel 316 grade 2 nos., 7x19 construction 6 mm, SG-DG U clamps, double drum winch assembly 500 kg, 5x2.5 sq.mm flexible copper cable with lantern carriage assembly suitable for max. 16 nos. luminaries and its control gear box, lightning arrestor, arrangement for fixing aviation light, night glow reflector on pole at suitable height , high-mast with serial number, factory inspection report/test report of high-mast should be provided as per specifications on provided foundation J type stud/bolts with double check nuts & necessary accessories complete. specification no. OH-PL/HM	Set	343215
8-2-5	Supplying and erecting 20 m (clear height) motorized high-mast (Top-150mm, Bottom-460 mm) hot dipped galvanized material with average minimum thickness 65 micron, made from high tensile structure grade steel as per BSEN -10025 S 355/E350 & 3+4 mm thickness, with base plate 25 mm Thick x OD 670 mm grade as per IS-2062, pole made in signal section & submerge arc welded, with lowering & raising motorized unit, wire rope stainless steel -316 grade 2 nos., 7x19 construction 6 mm, SG-DG U clamps, double drum winch assembly 500 kg, 5x2.5 sq.mm. flexible copper cable with lantern carriage assembly suitable for max. 16 nos. luminaries and its control gear box, lightning arrestor, arrangement for fixing aviation light, night glow reflector on pole at suitable height , high-mast with serial number, factory inspection report/test report of high-mast should be provided as per specifications on provided foundation J type stud/bolts with double check nuts & necessary accessories complete. specification no. OH-PL/HM	Set	388405

Item No (1)	Short Description (2)	Unit (3)	Competed Rate (4)
8-2-6	Supplying and erecting 25 m (clear height) motorized high-mast (Top-150mm, Bottom- 540 mm) hot dipped galvanized material with average minimum thickness 65 micron, made from high tensile structure grade steel as per BSEN -10025 S 355/E350 & 3+4+4 mm thickness, with base plate 25 mm thick x OD 730 mm grade as per IS-2062, pole made in signal section & submerge arc welded, with lowering & raising motorized unit, wire rope stainless steel - 316 grade 2 nos., 7x19 construction 6 mm, SG-DG U clamps, double drum winch assembly 600 kg, 5x2.5 sq.mm flexible copper cable with lantern carriage assembly suitable for max. 16 nos. luminaries and its control gear box, lightning arrestor, arrangement for fixing aviation light, night glow reflector on pole at suitable height , high-mast with serial number, factory inspection report/test report of high-mast should be provided as per specifications on provided foundation J type stud/bolts with double check nuts & necessary accessories complete. specification no. OH-PL/HM	Set	444520
8-2-7	Supplying and erecting 25 m (clear height) motorized high-mast (Top-200mm, Bottom- 560 mm) hot dipped galvanized material with average minimum thickness 65 micron, made from high tensile structure grade steel as per BSEN -10025 S 355/E350 & 3+4+5 mm thickness, with base plate 25 mm thick x OD 730 mm grade as per IS-2062, pole made in signal section & submerge arc welded, with lowering & raising motorized unit, wire rope stainless steel - 316 grade 2 nos., 7x19 construction 6 mm, SG-DG U clamps, double drum winch assembly 600 kg, 5x2.5 sq.mm flexible copper cable with lantern carriage assembly suitable for max. 16 nos. luminaries and its control gear box, lightning arrestor, arrangement for fixing aviation light, night glow reflector on pole at suitable height , high-mast with serial number, factory inspection report/test report of high-mast should be provided as per specifications on provided foundation J type stud/bolts with double check nuts & necessary accessories complete. specification no. OH-PL/HM	Set	510475
8-2-8	Supply and erecting 9m (clear height) Fixed type high-mast (Top-100mm, Bottom- 200mm) with hexagonal /round bracket and foundation bolts suitable for max. 4 nos. flood light fixtures on provided foundation as per specification no. OH-PL/OPL (excluding luminaries).	Set	35726
<i>Hot Dipped Galvanized Octagonal Poles</i>			
8-2-9	Providing & erecting 3 m high (clear height) galvanised octagonal pole with foundation bolts having bottom of 130 mm A/F, top 70 mm A/F on provided foundation as per specification no. OH-PL/OPL	Each	10552
8-2-10	Providing & erecting 4 m high (clear height) galvanised octagonal pole with foundation bolts having bottom of 130 mm A/F, top 70 mm A/F on provided foundation as per specification no. OH-PL/OPL	Each	11743
8-2-11	Providing & erecting 5 m high (clear height) galvanised octagonal pole with foundation bolts having bottom of 130 mm A/F, top 70 mm A/F on provided foundation as per specification no. OH-PL/OPL .	Each	12872
8-2-12	Providing & erecting 6 m high (clear height) galvanised octagonal pole with foundation bolts having bottom of 130 mm A/F, top 70 mm A/F on provided foundation as per specification no. OH-PL/OPL	Each	15193
8-2-13	Providing & erecting 7 m high (clear height) galvanised octagonal pole with foundation bolts having bottom of 130 mm A/F, top 70 mm A/F on provided foundation as per specification no. OH-PL/OPL	Each	17220
8-2-14	Providing & erecting 8 m high (clear height) galvanised octagonal pole with foundation bolts having bottom of 135 mm A/F, top 70 mm A/F on provided foundation as per specification no. OH-PL/OPL	Each	19346

Item No (1)	Short Description (2)	Unit (3)	Competed Rate (4)
8-2-15	Providing & erecting 9 m high (clear height) galvanised octagonal pole with foundation bolts having bottom of 155 mm A/F, top 70 mm A/F on provided foundation as per specification no. OH-PL/OPL	Each	21847
8-2-16	Providing & erecting 10 m high (clear height) galvanised octagonal pole with foundation bolts having bottom of 175 mm A/F, top 70 mm A/F on provided foundation as per specification no. OH-PL/OPL	Each	24824
8-2-17	Providing & erecting 11 m high (clear height) galvanised octagonal pole with foundation bolts having bottom of 210 mm A/F, top 90 mm A/F on provided foundation as per specification no. OH-PL/OPL	Each	30146
8-2-18	Providing & erecting 12 m high (clear height) galvanised octagonal pole with foundation bolts having bottom of 240 mm A/F, top 90 mm A/F on provided foundation as per specification no. OH-PL/OPL	Each	34701
8-2-19	Providing and erecting galvanised 1000mm single arm sword type bracket with FRP dome and ball as per specification no. OH-PL/BKT	Each	2710
8-2-20	Providing and erecting galvanised 1000mm double arm sword type bracket with FRP dome and ball as per specification no. OH-PL/BKT	Each	4500
<i>Highmast Control Panels</i>			
8-2-21	Supplying and erecting outdoor stand mounted feeder pillar for high-mast of the same manufacturer with 32A TPN MCB incomer , 24hr astronomical time switch with minimum 5 years battery backup, 25 A TP contactor for automatic switching of luminaries, 2 no. 9A contactors and raise/lower push button, and provision for termination of adequate size of incoming and outgoing cables complete erected in min. 14 SWG CRCA sheet box with supporting angles, self lock, gasket and slanting top erected on CC foundation complete.	Job	29923
8-2-22	Supplying and erecting outdoor stand mounted feeder pillar for high-mast of the same manufacturer with 63A TPN MCB incomer , 24hr astronomical time switch with minimum 5 Years battery backup, 45 A TP contactor for automatic switching of luminaries, 2 no 9A contactors and raise/lower push button, and provision for termination of adequate size of incoming and outgoing cables complete erected in min. 14 SWG CRCA sheet box powder coated with supporting angles, self lock, gasket and slanting top erected on CC foundation complete.	Job	33144
Note: For item no. 8-2-21 & 8-2-22 rates are inclusive of foundation.			
<i>8.3 Brackets (OH-BKT)</i>			
8-3-1	Supplying & erecting MS pole bracket for guarding/LT OH line , fabricated from angle iron 50x50x6mm and 550mm long for necessary nos. of provided insulators , and erecting on pole with 50x6mm clamp complete as per specification no. OH-PL/BKT	Each	452
8-3-2	Supplying & erecting MS pole bracket for guarding/LT OH line , fabricated from angle iron 50x50x6mm and 1100mm long for necessary nos. of provided insulators , and erecting on pole with 50x6mm clamp complete as per specification no. OH-PL/BKT	Each	654
8-3-3	Supplying & erecting MS pole bracket for guarding/LT OH line , fabricated from ISM channel 75x40x6mm and 550mm long for necessary nos. of provided insulators and erecting on pole with 50x6mm clamp complete as per specification no. OH-PL/BKT	Each	580
8-3-4	Supplying & erecting MS pole bracket for guarding/LT OH line , fabricated from ISM channel 75x40x6mm and 1100mm long for necessary nos. of provided insulators and erecting on pole with 50x6mm clamp complete as per specification no. OH-PL/BKT	Each	922

Item No (1)	Short Description (2)	Unit (3)	Competed Rate (4)
8-3-5	Supplying & erecting MS pole bracket for LT OH conductor fabricated from 65x65x6 mm section, 550mm long for necessary nos. of provided insulators and erecting on pole with 50x6mm clamp complete as per specification no. OH-PL/BKT	Each	506
8-3-6	Supplying & erecting MS pole bracket for LT OH conductor fabricated from 65x65x6 mm section, 1100mm long for necessary nos. of provided insulators and erecting on pole with 50x6mm clamp complete as per specification no. OH-PL/BKT	Each	931
8-3-7	Supplying & erecting pole bracket for OH conductor fabricated from ISM channel, 75x40x6mm, 550mm long for necessary nos. of provided insulators and erecting on pole with 50x6mm clamp complete as per specification no. OH-PL/BKT	Each	501
8-3-8	Supplying & erecting pole bracket for OH conductor fabricated from ISM channel, 75x40x6mm 1100mm long for necessary nos. of provided insulators and erecting on pole with 50x6mm clamp complete as per specification no. OH-PL/BKT	Each	882
8-3-9	Supplying & erecting pole bracket for OH conductor fabricated from ISM channel, 75x40x6mm, 550mm long for necessary nos. of provided insulators and welded with extension channel pieces of same size 300 mm in length and erecting on pole with 50x6mm clamp complete as per specification no. OH-PL/BKT	Each	672
8-3-10	Supplying & erecting pole bracket fabricated from ISM channel of size 75x40x6mm, 1100mm long for necessary nos. of provided insulators and welded with extension channel pieces of same size 300 mm in length and erecting on pole with 50x6mm clamp complete as per specification no. OH-PL/BKT	Each	941
8-3-11	Supplying & erecting 100 x 50 x 6 mm with 4.7 mm thick web and 7.5 mm thick flange channel iron cross arm of suitable length for 2.4 m wide DP structure and erecting on DP with 50x6mm clamp complete as per specification no. OH-PL/BKT	Each	2104
	Note: For distance exceeding 2.4m between two pole structure add Rs. 500/- per meter for extra channel length.		
8-3-12	Supplying and erecting V cross arm with ISM channel of 75x40x6mm for 11kV HT OH line with arrangement to fix insulator at 45mm from the end & horizontal distance between insulators 1220mm bent at angle of 60 degree keeping base 305mm and the total vertical height of V cross arm as 460mm, and fixed on pole with MS clamp of 80x10 mm, nut bolts, washers complete as per specification no. OH-PL/VCA	Each	1303
8-3-13	Supplying and erecting V cross arm with ISM channel of 100x50x6mm or 22/33kV HT OH line with arrangement to fix insulator at 45mm from the end & horizontal distance between insulators 1530mm bent at angle of 60 degree keeping base 310mm and the total vertical height of V cross arm as 460mm, and fixed on pole with MS clamp of 80x10 mm, nut bolts, washers complete as per specification no. OH-PL/VCA	Each	1738
8-3-14	Supplying and erecting 75x40 x6mm with 4.4mm thick web and 7.3mm thick flange channel (top pin) with clamp of suitable length so as to maintain vertical clearance of 1065mm for 11kV, 1320mm for 22kV between insulators for erection of top pin insulators complete as per specification no. OH-PL/VCA	Each	623
8-3-15	Supplying and erecting bracket for guarding of HT OH Line , made from channel iron 1600mm in length and 75x40x6mm . erected on pole complete as per specification no. OH-PL/VCA	Each	1168
8-3-16	Supplying and erecting bracket for guarding of HT OH Line , made from channel iron 1600mm in length and 65x65x6mm thick erected on pole as per specification no. OH-PL/VCA	Each	1054

Item No (1)	Short Description (2)	Unit (3)	Competed Rate (4)
<u>D. P. Structure</u>			
8-3-17	Supplying & erecting single pole cut point channel set of for 11kV HT OH line two channel of size 100x50x6mm 1.6m long having stud angle of size 50x50x6mm 1.5m long with necessary clamps, nut bolts etc. complete as per drawing.	Each	4648
8-3-18	Supplying & erecting inline D.P. Structure for 11/0.415kV, 63kVA Transformer with RSJ pole 2 nos. of size 100x116mm x 11m long with suitable distribution box of CRCA sheet 16 SWG with 4 pole MCCB 100A as incomer & 6 nos. 63A kitkat/MCCB for outing circuits. Transformer D.P. Structure includes the A.B. switch 200A, D.O. fuse set & L.A. set. 2 nos. top channel of size 100x50mm for erection of A.B. Switch & 2 nos. base channel of size 100x50mm for erecting Transformer channel of size 75x40mm for erecting D.O. fuse set, L.A., A.B. switch handle etc. Angle of size 50x50x6mm for erecting distribution box, Transformer belt etc. as per drawing (min. 124 Kg. iron work) with necessary clamps, Nut-bolts. V cross arm, top clip, insulators etc. with caution board & barbed wire, D.P. structure shall be erected in c.c.. foundation complete.	Each	128435
8-3-19	Supplying & erecting inline D. P. Structure for 11/0.415 kV, 100 kVA Transformer with R.S.J. Pole 2 Nos. of size 100 x 116 mm x 11 Mtr. Long with suitable Distribution Box of C.R.C.A. Sheet 16 SWG with 4 Pole MCCB 200 Amps as incomer & 6 Nos. 100 Amps Kitkat / MCCB for out going circuits. Transformer D.P. Structure includes the A. B. Switch 200 Amps, D.O. fuse Set & L.A. Set. 2 Nos. of Top channel of size 100 mmx 50 mm for erection of A.B. Switch & 2 Nos. Base channel of size 100 mm x 50 mm for erecting Transformer Channel of size 75 x40 mm for erecting D.O. Fuse Set, L.A., A.B. Switch handle etc. Angle of size 50 x 50 x6 mm for erecting Distribution Box , Transformer Belt etc.as per drawing (min. 124 Kg. iron work) with necessary clamps, Nut-bolts. V cross arm, top clip, insulators etc. complete with caution board & barbed wire, D.P. Structure shall be erected in c.c. foundation complete	Each	137477
8-3-20	Supplying & erecting inline D. P. Structure for 11/0.415 kV, 200 kVA Transformer with R.S.J. Pole 2 Nos. of size 100 x 116 mm x 11 Mtr. Long with suitable Distribution Box of C.R.C.A. Sheet 16 SWG with 4 Pole MCCB 300 Amps as incomer & 6 Nos. 100 Amps Kitkat / MCCB for out going circuits. Transformer D.P. Structure includes the A. B. Switch 200 Amps, D.O. fuse Set & L.A. Set. 2 Nos of Top channel of size 100 mmx 50 mm for erection of A.B. Switch & 2 Nos. Base channel of size 100 mm x 50 mm for erecting Transformer Channel of size 75 x40 mm for erecting D.O. Fuse Set, L.A., A.B. Switch handle etc. Angle of size 50 x 50 x6 mm for erecting Distribution Box , Transformer Belt etc.as per drawing (min. 124 Kg. iron work) with necessary clamps, Nut-bolts. V cross arm, top clip, insulators etc. complete with caution board & barbed wire. D.P. Structure shall be erected in c.c. foundation complete.	Each	154492

Item No (1)	Short Description (2)	Unit (3)	Competed Rate (4)
8-3-21	Supplying & erecting inline cut point end pole D. P. Structure for 11/0.415 kV, 63 kVA Transformer with R.S.J. Pole 2 Nos. of size 100 x 116 mm x 11 Mtr. Long with suitable Distribution Box of C.R.C.A. Sheet 16 SWG with 4 Pole MCCB 100 Amps as incomer & 6 Nos. 63 Amps Kitkat /MCCB for outing circuits. Transformer D.P. Structure includes the A. B. Switch 200 Amps, D.O. fuse Set & L.A. Set. 2 Nos.Top channel of size 100 mmx 50 mm for erection of A.B. Switch & 2 Nos. Base channel of size 100 mm x 50 x mm for erecting Transformer. Channel of size 75 x40 mm for erecting D.O. Fuse Set, L.A., A.B. Switch handle etc.Angle of size 50 x 50 x6 mm for erecting Distribution Box , Transformer Belt etc.as per drawing(min. 176 Kg. iron work) with necessary clamps, Nut-bolts. V cross arm, top clip, insulators etc. complete with caution board & barbed wire. D.P. Structure shall be erected in c.c. foundation complete.	Each	146161
8-3-22	Supplying & erecting inline cut point end pole D. P. Structure for 11/0.415 kV, 100 kVA Transformer with R.S.J. Pole 2 Nos. of size 100 x 116 mm x 11 Mtr. Long with suitable Distribution Box of C.R.C.A. Sheet 16 SWG with 4 Pole MCCB 200 Amps as incomer & 6 Nos.100 Amps Kitkat /MCCB for out going circuits. Transformer D.P. Structure includes the A. B. Switch 200 Amps, D.O. fuse Set & L.A. Set. 2 Nos.Top channel of size 100 mmx 50 mm for erection of A.B. Switch & 2 Nos. Base channel of size 100 mm x 50 x mm for erecting Transformer Channel of size 75 x40 mm for erecting D.O. Fuse Set, L.A., A.B. Switch handle etc.Angle of size 50 x 50 x6 mm for erecting Distribution Box , Transformer Belt etc.as per drawing(min. 176 Kg. iron work) with necessary clamps, Nut-bolts. V cross arm, top clip, insulators etc. complete with caution board & barbed wire. D.P. Structure shall be erected in c.c. foundation complete.	Each	156897
8-3-23	Supplying & erecting inline cut point end pole D. P. Structure for 11/0.415 kV, 200 KVA Transformer with R.S.J. Pole 2 Nos. of size 100 x 116 mm x 11 Mtr. Long with suitable Distribution Box of C.R.C.A. Sheet 16 SWG with 4 Pole MCCB 400 Amps as incomer & 6 Nos. 200 Amps Kitkat / MCCB for out going circuits. Transformer D.P. Structure includes the A. B. Switch 200 Amps, D.O. fuse Set & L.A. Set. 2 Nos.Top channel of size 100 mmx 50 mm for erection of A.B. Switch & 2 Nos. Base channel of size 100 mm x 50 x mm for erecting Transformer. Channel of size 75 x40 mm for erecting D.O. Fuse Set, L.A., A.B. Switch handle etc.Angle of size 50 x 50 x6 mm for erecting Distribution Box , Transformer Belt etc.as per drawing (min.176 Kg. iron work) with necessary clamps, Nut-bolts. V cross arm, top clip, insulators etc. complete with caution board & barbed wire.D.P. Structure shall be erected in c.c. foundation complete.	Each	167122
8-3-24	Supplying & erecting end pole D. P. Structure for 11/0.415 kV, 63 kVA Transformer with R.S.J. Pole 2 Nos. of size 100 x 116 mm x 11 Mtr. Long with suitable Distribution Box of C.R.C.A. Sheet 16 SWG with 4 Pole MCCB 100 Amps as incomer & 6 Nos. 63 Amps Kitkat / MCCB for out going circuits. Transformer D.P. Structure includes the A. B. Switch 200 Amps, D.O. fuse Set & L.A. Set. 2 Nos.Top channel of size 100 mmx 50 mm for erection of A.B. Switch & 2 Nos. Base channel of size 100 mm x 50 x mm for erecting Transformer. Channel of size 75 x40 mm for erecting D.O. Fuse Set, L.A., A.B. Switch handle etc.Angle of size 50 x 50 x6 mm for erecting Distribution Box , Transformer Belt etc.as per drawing (min. 124 Kg. iron work) with necessary clamps, Nut-bolts. V cross arm, top clip, insulators etc. complete with caution board & barbed wire. D.P. Structure shall be erected in c.c. foundation complete.	Each	140020

Item No (1)	Short Description (2)	Unit (3)	Competed Rate (4)
8-3-25	Supplying & erecting end pole D. P. Structure for 11/0.415 kV, 100 kVA Transformer with R.S.J. Pole 2 Nos. of size 100 x 116 mm x 11 Mtr. Long with suitable Distribution Box of C.R.C.A. Sheet 16 SWG with 4 Pole MCCB 200 Amps as incomer & 6 Nos.100 Amps Kitkat / MCCB for out going circuits. Transformer D.P. Structure includes the A. B. Switch 200 Amps, D.O. fuse Set & L.A. Set. 2 Nos.Top channel of size 100 mmx 50 mm for erection of A.B. Switch & 2 Nos. Base channel of size 100 mm x 50 x mm for erecting Transformer. Channel of size 75 x40 mm for erecting D.O. Fuse Set, L.A., A.B. Switch handle etc.Angle of size 50 x 50 x6 mm for erecting Distribution Box , Transformer Belt etc.as per drawing (min. 124 Kg. iron work) with necessary clamps, Nut-bolts. V cross arm, top clip, insulators etc. complete with caution board & barbed wire. D.P. Structure shall be erected in c.c. foundation complete	Each	152967
8-3-26	Supplying & erecting end pole D. P. Structure for 11/0.415 kV, 200 kVA Transformer with R.S.J. Pole 2 Nos. of size 100mm x 116 mm x 11 m Long with suitable Distribution Box of C.R.C.A. Sheet 16 SWG with 4 Pole MCCB 400 Amps as incomer & 6 Nos.200 Amps Kitkat / MCCB for out going circuits. Transformer D.P. Structure includes the A. B. Switch 200 Amps, D.O. fuse Set & L.A. Set. 2 Nos.Top channel of size 100 mmx 50 mm for erection of A.B. Switch & 2 Nos. Base channel of size 100 mm x 50 x mm for erecting Transformer. Channel of size 75 x40 mm for erecting D.O. Fuse Set, L.A., A.B. Switch handle etc.Angle of size 50 x 50 x6 mm for erecting Distribution Box , Transformer Belt etc.as per drawing (min. 124 Kg. iron work) with necessary clamps, Nut-bolts. V cross arm, top clip, insulators etc. complete with caution board & barbed wire. D.P. Structure shall be erected in c.c. foundation complete.	Each	166202
<u>8.4 Conductors (OH-CON)</u>			
8-4-1	Supplying and erecting all aluminium stranded conductors 7/1.96 mm complete.(Rose) (58 kg/km) as per specification No. OH-CON/AAC	km	17889
8-4-2	Supplying and erecting all aluminium stranded conductors 7/2.21 mm. complete. (Gnat) (73.77kg/km) as per specification No. OH-CON/AAC	km	22430
8-4-3	Supplying and erecting all aluminium stranded conductors 7/2.48 mm.complete. (Iris) (91.8 kg/km) as per specification no. OH-CON/AAC	km	26631
8-4-4	Supplying and erecting all aluminium stranded conductors 7/2.78 mm.complete. (Pansy) (115.8 kg/km) as per specification No. OH-CON/AAC	km	32677
8-4-5	Supplying and erecting all aluminium stranded conductors 7/3.10 mm. complete. (Ant.) (145.0 kg/km) as per specification No. OH-CON/AAC	km	40312
8-4-6	Supplying and erecting ACSR conductor of size 6/1-2.11 mm complete. (squirrel) (85kg/km) as per specification No. OH-CON/ACSR	km	22314
8-4-7	Supplying and erecting ACSR conductor of size 6/1-2.59 mm complete. (Weasel) (127.7 kg/km) as per specification No. OH-CON/ACSR	km	30921
8-4-8	Supplying and erecting ACSR conductor of size 6/1-3.60 mm complete. (Ferret) (171.3 kg/km) as per specification No. OH-CON/ACSR	km	41991
8-4-9	Supplying and erecting ACSR conductor of size 6/1-3.66 mm complete.(Mink) (255 kg/km) as per specification No. OH-CON/ACSR	km	61697
8-4-10	Supplying and erecting ACSR conductor of size - 6/1-4.09 mm (Raccon) complete. (318.00 kg/km) as per specification No. OH-CON/ACSR	km	77065

Item No (1)	Short Description (2)	Unit (3)	Competed Rate (4)
8-4-11	Supplying and erecting ACSR conductor of size - 6/1-4.72 mm (Dog) complete. (394.00 kg/km) as per specification No. OH-CON/ACSR	km	97655
<u>A. B. Cable (OH-CBL)</u>			
8-4-12	Supplying, erecting & terminating XLPE insulated 1100 V 3 Core 16 sqmm + 1 Core 25 Sqmm Aerial bunched aluminium cable along with necessary accessories for LT distribution on provided LT pole as per specification no. OH-CBL/ABC	m	121
8-4-13	Supplying, erecting & terminating XLPE insulated 1100 V 3 Core 25 sqmm + 1 Core 25 Sqmm Aerial bunched aluminium cable along with necessary accessories for LT distribution on provided LT pole as per specification no. OH-CBL/ABC	m	156
8-4-14	Supplying, erecting & terminating XLPE insulated 1100 V 3 Core 35 sqmm + 1 Core 25 Sqmm Aerial bunched aluminium cable along with necessary accessories for LT distribution on provided LT pole as per specification no. OH-CBL/ABC	m	174
8-4-15	Supplying, erecting & terminating XLPE insulated 1100 V 3 Core 50 sqmm + 1 Core 35 Sqmm Aerial bunched aluminium cable along with necessary accessories for LT distribution on provided LT pole as per specification no. OH-CBL/ABC	m	225
8-4-16	Supplying, erecting & terminating XLPE insulated 1100 V 3 Core 70 sqmm + 1 Core 50 Aerial bunched aluminium cable along with necessary accessories for LT distribution on provided LT pole as per specification no. OH-CBL/ABC	m	379
8-4-17	Supplying, erecting & terminating XLPE insulated 1100 V 3 Core 95 sqmm + 1 Core 70 Aerial bunched aluminium cable along with necessary accessories for LT distribution on provided LT pole as per specification no. OH-CBL/ABC	m	515
8-4-18	Supplying, erecting & terminating XLPE insulated 1100 V 3 Core 16 sqmm + 1 Core 25 sqmm + 1 core 16 sqmm Aerial bunched aluminium cable along with necessary accessories for LT distribution on provided LT pole as per specification no. OH-CBL/ABC	m	149
8-4-19	Supplying, erecting & terminating XLPE insulated 1100 V 3 Core 25 sqmm + 1 Core 25 sqmm + 1 core 16 sqmm Aerial bunched aluminium cable along with necessary accessories for LT distribution on provided LT pole as per specification no. OH-CBL/ABC	m	183
8-4-20	Supplying, erecting & terminating XLPE insulated 1100 V 3 Core 35 sqmm + 1 Core 25 sqmm + 1 core 16 Aerial bunched aluminium cable along with necessary accessories for LT distribution on provided LT pole as per specification no. OH-CBL/ABC	m	224
8-4-21	Supplying, erecting & terminating XLPE insulated 1100 V 3 Core 50 sqmm + 1 Core 35 sqmm + 1 core 16 Aerial bunched aluminium cable along with necessary accessories for LT distribution on provided LT pole as per specification no. OH-CBL/ABC	m	237
8-4-22	Supplying, erecting & terminating XLPE insulated 1100 V 3 Core 70 sqmm + 1 Core 50 sqmm + 1 core 16 Aerial bunched aluminium cable along with necessary accessories for LT distribution on provided LT pole as per specification no. OH-CBL/ABC	m	332
8-4-23	Supplying, erecting & terminating XLPE insulated 3 Core 95 sqmm + 1 Core 50 sqmm + 1 core 16 Aerial bunched aluminium cable along with necessary accessories for LT distribution on provided LT pole as per specification no. OH-CBL/ABC	m	542

Item No (1)	Short Description (2)	Unit (3)	Competed Rate (4)
8-4-24	Supplying and erecting SMC Spring Loaded Service Connection 9 Way AB cable distribution box (3 Phase Incoming and 9 Nos. Single Phase Outgoing Connections) on provided pole with necessary accessories as per specification no. OH-CBL/JBS	Each	1756
8-4-25 (New)	Supplying and erecting SMC Spring Loaded Service Connection 16 Way AB cable distribution box (3 Phase Incoming and 16 Nos. Single Phase Outgoing Connections) on provided pole with necessary accessories as per specification no. OH-CBL/JBS	Each	2065
<i>8.5 Insulators (OH-INS)</i>			
8-5-1	Supplying and erecting pin type LT medium insulator 100mm x 62mm dia. with suitable G.I. spindle, nut, bolts complete.	Each	79
8-5-2	Supplying and erecting porcelain shackle type LT medium insulator 75x115mm dia. with G.I. (shackle) strips, nuts and bolts, complete.	Each	73
8-5-3	Supplying and erecting porcelain shackle type LT medium insulator, 50x89mm dia. with G.I. (shackle) strips, nuts and bolts, complete.	Each	69
8-5-4	Supplying and erecting aluminium bobbin with G.I. (shackle) strip, nuts complete.	Each	97
8-5-5	Providing and fixing GI earthing stud with necessary materials .	Each	69
8-5-6	Supplying and erecting porcelain disc type insulator 45KN with necessary hardware suitable for 11kV line, complete as per specification no. OH-INS/DI	Each	1255
8-5-7	Supplying and erecting porcelain disc type insulator 70KN with necessary hardware suitable for 22kV line, complete as per specification no. OH-INS/DI	Each	1684
8-5-8	Supplying and erecting porcelain disc type insulator 70 KN with necessary hardware suitable for 33kV line complete as per specification no. OH-INS/DI	Each	2037
8-5-9	Supplying and erecting porcelain pin type insulator with GI pin suitable for 11kV line, complete as per specification no. OH-INS/PN	Each	313
8-5-10	Supplying and erecting porcelain pin type insulator with GI pin suitable for 22kV line , complete as per specification no. OH-INS/PN	Each	477
8-5-11	Supplying and erecting porcelain pin type insulator with GI pin suitable for 33kV line, complete as per specification no. OH-INS/PN	Each	889
8-5-12	Supplying and erecting porcelain post type insulator with nut bolts suitable for 11kV line, complete as per specification no. OH-INS/PST	Each	632
8-5-13	Supplying and erecting porcelain post type insulator with nut bolts suitable for 22kV line, complete as per specification no. OH-INS/PST	Each	773
8-5-14	Supplying and erecting porcelain post type insulator with nut bolts suitable for 33kV line, complete as per specification no. OH-INS/PST	Each	1027
8-5-15	Supplying and erecting distribution class, 11 kV thyrite type lightning arrester with nut bolts, on provided MS channel as per specification no. OH-INS/LA	Each	1347
8-5-16	Supplying and erecting distribution class, 22 kV thyrite type lightning arrester with nut bolts, on provided MS channel as per specification no. OH-INS/LA	Each	1524
8-5-17 (New)	Supplying and erecting polymer pin type insulator with GI pin suitable for 11kV line, complete as per specification no. OH-INS/PN	Each	263
8-5-18 (New)	Supplying and erecting polymer pin type insulator with GI pin suitable for 22kV line, complete as per specification no. OH-INS/PN	Each	333
8-5-19 (New)	Supplying and erecting polymer pin type insulator with GI pin suitable for 33kV line, complete as per specification no. OH-INS/PN	Each	562
8-5-20 (New)	Supplying and erecting polymer disc type insulator 45KN with necessary hardware suitable for 11kV line, complete as per specification no. OH-INS/DI	Each	303

Item No (1)	Short Description (2)	Unit (3)	Competed Rate (4)
8-5-21 (New)	Supplying and erecting polymer disc type insulator 70KN with necessary hardware suitable for 22kV line, complete as per specification no. OH-INS/DI	Each	409
8-5-22 (New)	Supplying and erecting polymer disc type insulator 70KN with necessary hardware suitable for 33kV line complete as per specification no. OH-INS/DI	Each	548
<u>8.6 Accessories</u>			
8-6-1	Supplying and erecting G.I. stay set for poles , including loop insulators at inaccessible height with anchor plate 300x300x6mm., straining screws, G.I. stay wire 7/10 SWG , G.I. stay rod 20mmx1.8m length and pole clamps duly erected in provided cement concrete foundation complete.	Each	1546
8-6-2	Supplying and erecting G.I. stay set for poles , including loop insulators at inaccessible height with anchor plate 300x300x6 mm., straining screws, G.I. stay wire 7/8 SWG , G.I. stay rod 20mmx1.8m length and pole clamps duly erected in provided cement concrete foundation complete.	Each	2010
8-6-3	Supplying and erecting G.I. fly stay set for pole including straining screw, G.I. stay wire, 7/10 SWG (for to 15m long) with pole clamp, made of 50x6mm MS flat, erected on provided RSJ pole complete. (Add. Rs. 25/- per m for extra length beyond 15 m)	Each	2196
8-6-4	Supplying and erecting G.I. self stay set for pole , including anchor plate 300x300x6mm straining screw, loop-insulator, G.I. stay wire 7/10 SWG , G.I. stay rod 20mmx1.8m long, erected with pole clamps along with angle iron bracket of 50x50x6mm and one meter long fixed to pole at suitable height with suitable MS clamps duly erected in provided C.C. foundations complete.	Each	2007
8-6-5	Supplying and erecting G.I. wall hook , 10 to 15mm dia and overall length 250mm including grouting, cement plastering etc. complete.	Each	67
8-6-6	Supplying and erecting guarding loop using G.I. wire no. 8SWG for LT OH line of horizontal formation erected with 20SWG G.I. wire as binding wire and 50mm section on each side complete.	Each	62
8-6-7	Supplying and erecting fibre/PVC spacers for LT overhead line 3 to 5 conductors complete erected.	Each	111
8-6-8	Supplying and erecting pole clamp made from 50x6mm MS flat for pole or pipe, post erected with 15mm bolts and nuts duly painted with one coat of red oxide and two coats of aluminium paint complete.	Each	279
8-6-9	Supplying and erecting pole clamp made from 50x10mm MS flat for pole or pipe, post erected with 15mm bolts and nuts duly painted with one coat of red oxide and two coats of aluminium paint complete.	Each	315
8-6-10	Supplying and erecting D type pole clamps , fabricated from 50x6mm MS flat with 15mm bolts and nuts fixed to steel tubular pole duly painted with one coat of red oxide and two coats of aluminium paint complete.	Each	153
8-6-11	Supplying and erecting C type (half) clamps for pole made from 50x6mm flat for fixing cross arms by means of 15mm bolts and nuts painted with one coat of red oxide and two coats of aluminium paint complete.	Each	153
8-6-12	Supplying and erecting C type (half) clamps for pole made from 50x10mm flat for fixing cross arms by means of 15mm bolts and nuts painted with one coat of red oxide and two coats of aluminium paint complete.	Each	197
8-6-13	Supplying and fixing MS base plate 30x30x0.6cm size fixed to the pole base either by welding 12mm dia fixed at position.	Each	525
8-6-14	Supplying and fixing MS round base plate 25cm dia and 10mm thick fixed to pole welded and fixed at position.	Each	521
8-6-15	Supplying and fixing MS pole cap fabricated from MS pipe or cast iron fixed to pole by means of set screws and 75mm deep.	Each	136

Item No (1)	Short Description (2)	Unit (3)	Competed Rate (4)
8-6-16	Supplying and erecting guarding lace for HT OH line with 8SWG G.I. wire to protect the HT OH line with binding wire of 20SWG G.I. wire for 75mm section on either side.	Each	51
<i>8.7 Dismantling</i>			
8-7-1	Dismantling the existing pole up to 6 m height with brackets, clamps, insulators, stay from the c.c. foundation and making the site clear by refilling the pits with excavated materials and bringing it to the ground level.	Each	631
8-7-2	Dismantling the existing pole above 6 m height with brackets, clamps, insulators, stay from the c.c. foundation and making the site clear by refilling the pits with excavated materials and bringing it to the ground level.	Each	1043
8-7-3	Dismantling the existing overhead line including G.I. wires of all sizes without damaging & making the coils in suitable sizes.	km	1489
8-7-4	Dismantling the existing lightning arrester set, insulator from DP structure complete.	Job	108

Chapter 9 : EARTHING (EA)

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>9.1 Plate, Pipe type Earthing (EA-EP)</u>			
9-1-1	Supplying, installing and testing earthing with galvanised iron earth plate size 60 x 60 x 0.6 cm complete with all accessories of GI materials & recording the results as per specification No. EA-EP	Each	4819
9-1-2	Supplying, installing and testing earthing with copper earth plate size 30 x 30 x 0.315 cm complete with all accessories of copper materials & recording the results as per specification no. EA-EP	Each	6683
9-1-3	Supplying, installing and testing earthing with galvanized iron earth plate size 60 x 60 x 0.6 cm with funnel with a wire mesh for watering and brick masonry block C.I. cover complete with all accessories of G.I. materials & recording the results as per specification no. EA-EP	Each	6090
9-1-4	Supplying, installing and testing pipe type earthing with 40mm. dia. G.I. pipe or 20 mm dia. G.I. Rod complete with all accessories of GI materials & recording the results as per specification no. EA-EP	Each	1537
9-1-5	Supply, installing, and testing of maintenance free earthing comprising of electrode of 17.2 mm diameter Low Carbon Steel with 250 micron molecular copper bonded earthing rod of Length 3m along with Carbon based environment friendly back fill ground enhancing compound required to fill up the excavated earth with required quantity (min. 125kg) complete, and recording the results specification no. EA-MF	Each	12357
9-1-6	Supplying, installing and testing earthing with copper earth plate size 60 x 60 x 0.315 cm with funnel with a wire mesh for watering and brick masonry block C.I. cover with minimum 25 kg Carbon based environment friendly back fill ground enhancing compound complete with all accessories of copper materials & recording the results as per specification no EA-EP/EF	Each	15816
Note:-	<p>1) Resistivity of the soil shall be checked and no. of back filling ground enhancing compound bags shall be used as per guidelines elaborated in specification.</p> <p>2) If additional GI pipe required from earth pit and GI / Copper wire / strip more than 8 m in length shall be provided separately.</p>		
(New)	<p>3) for Item no 9-1-1, 9-1-3 and 9-1-4 if separate earth strip taken in estimate, then deduct cost of earth wire/conductor material of Rs.226/- and for Item No 9-1-2 deduct Rs. 1862/-</p>		
<u>9.2 Accessories</u>			
9-2-1	Supplying and erecting aluminium strip of required sizes used for earthing or any other purpose with necessary aluminium clamps fixed on wall painted with bituminous paint as per specification no EA-EP.	kg	427
9-2-2	Supplying and erecting copper strip of required sizes used for earthing on wall and/or any other purpose with necessary aluminium clamps fixed on wall painted with bituminous paint with joints required as per specification no EA-EP.	kg	932
9-2-3	Supplying and erecting GI strip of required size used for earthing on wall and/or any other purpose with necessary GI clamps fixed on wall painted with bituminous paint in an approved manner with joints required as per specification no EA-EP.	kg	236
9-2-4	Supplying and erecting annealed bare copper earth conductor of required sizes used for earthing on wall with necessary copper clamps fixed on wall/cable/conduit with screws complete.	kg	891
9-2-5	Supplying and erecting GI earth conductor of required sizes used for earthing or any other purposes on wall with necessary GI clamps fixed on wall/cable/ conduit with screws complete.	kg	168

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
9-2-6	Supplying and erecting aluminium strip of required sizes used for earthing on wall and/or any other purpose with necessary aluminium clamps fixed on wall with insulating and non-corrosive bond with required joints as per specification no. EA-EP.	kg	659
9-2-7	Supplying and erecting copper strip of required size used for earthing on wall and/or any other purpose with necessary copper clamps fixed on wall with insulating and non-corrosive bond with required joints as per specification no. EA-EP.	kg	1229
9-2-8	Supplying and erecting GI strip of required size used for earthing on wall and/or any other purpose with necessary GI clamps fixed on wall painted with insulating and non-corrosive bond with required joints as per specification no. EA-EP.	kg	467
<i>9.3 Lightning Conductor and Accessories</i>			
9-3-1	Supplying & erecting conventional spike type air termination suitable to carry lightning stroke made up of heavy gauge (C class) 40 mm dia 1.2mtr copper pipe of standard length with 5 Nos. copper spikes fixed on copper ball of size 100mm as air terminals duly threaded in copper pipe erected on provided foundation in an approved manner as per spicification no. EA-LA	Each	6411
9-3-2	Providing and back filling carbon based environment friendly back fill earth conductivity enhancing compound of 25 kg bag complete.	Each	1307

Chapter 10 : SUB-STATIONS (SS)

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
<u>10.1 Non-sealed transformer (SS-TR-NSL)</u>			
10-1-1	Supplying, installing, testing & commissioning of 3 phase, 11/0.433 kV, 50 Hz., 63 kVA, Mineral oil immersed and naturally cooled outdoor type, aluminium wound Non-sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with standard accessories complete with test certificate with losses below 340 Watts at 50% load, 1140 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-NSL .	Each	133855
10-1-2	Supplying, installing, testing & commissioning of 3 phase, 11/0.433 kV, 50 Hz., 100 kVA, Mineral oil immersed and naturally cooled outdoor type, aluminium wound Non-sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) , with standard accessories complete with test certificate with losses below 475 Watts at 50% load, 1650 Watts at 100% load as per IS:1180 (part 1) : 2014 , with necessary permissions of Electrical Inspector, as per specification no SS- TR-NSL .	Each	173774
10-1-3 (New)	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 200 kVA, Mineral oil immersed and naturally cooled outdoor type, aluminium wound Non-sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 45°C by thermometer in oil and 50 °C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with off load tap changer)off load +2.5 to -5 in steps of 2.5%, having 4 number of tap positions , with standard accessories complete with test certificate with losses below 780 Watts at 50% load, 2300 Watts at 100% load as per IS:1180 (part 1) : 2014 , with necessary permissions of Electrical Inspector, as per specification no SS- TR-NSL .	Each	308133
10-1-4	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 200 kVA, Mineral oil immersed and naturally cooled outdoor type, copper wound Non-sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with off load tap changer)off load +2.5 to -5 in steps of 2.5%, having 4 number of tap positions , with standard accessories complete with test certificate with losses below 780 Watts at 50% load, 2300 Watts at 100% load as per IS:1180 (part 1) : 2014 , with necessary permissions of Electrical Inspector, as per specification no SS-TR-NSL .	Each	598968

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
10-1-5	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 63 kVA, Mineral oil immersed and naturally cooled outdoor type, aluminium wound Non-sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) , with HV tapping (with off load tap changer) off load +2.5 to -5 in steps of 2.5%, having 4 number of tap positions , with standard accessories complete with test certificate with losses below 357 Watts at 50% load, 1197 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-NSL .	Each	229336
10-1-6	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 100 kVA, Mineral oil immersed and naturally cooled outdoor type, aluminium wound Non-sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance method in winding at full load rating, with HV tapping (with off load tap changer) off load +2.5 to -5 in steps of 2.5%, having 4 number of tap positions , with standard accessories complete with test certificate with losses below 499 Watts at 50% load, 1733 Watts at 100% load as per IS:1180(part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-NSL .	Each	291748
10-1-7	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 200 kVA, Mineral oil immersed and naturally cooled outdoor type, Copper wound Non-sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with off load tap changer) off load +2.5 to -5 in steps of 2.5%, having 4 number of tap positions , with standard accessories complete with test certificate with losses below 819 Watts at 50% load, 2415 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-NSL .	Each	478828
<u>10.2 Hermetically Sealed transformer (SS-TR-HSL)</u>			
10-2-1	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 25 kVA Mineral oil immersed and naturally cooled outdoor type, aluminium wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) , with standard accessories complete with test certificate with losses below 190 Watts at 50% load, 635 Watts at 100% load as per IS:1180 (part 1) : 2014 , with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	102168

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
10-2-2	Supplying, installing, testing & commissioning of 3 phase, 11/0.433 kV, 50 Hz., 63 kVA, Mineral oil immersed and naturally cooled outdoor type, aluminium wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with off load tap changer) off load +2.5 to -5 in steps of 2.5%, having 4 number of tap positions , with standard accessories complete with test certificate with losses below 340 Watts at 50% load, 1140 Watts at 100% load as per IS:1180 (part 1) : 2014 , with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	200783
10-2-3	Supplying, installing, testing & commissioning of 3 phase, 11/0.433 kV, 50 Hz., 100 kVA, Mineral oil immersed and naturally cooled outdoor type, aluminium wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with off load tap changer) off load +2.5 to -5 in steps of 2.5%, having 4 number of tap positions , with standard accessories complete with test certificate with losses below 475 Watts at 50% load, 1650 Watts at 100% load as per IS:1180 (part 1) : 2014 : 2021 , with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	244813
10-2-4	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 160 kVA, Mineral oil immersed and naturally cooled outdoor type, aluminium wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) , with HV tapping (with off load tap changer) off load +2.5 to -5 in steps of 2.5%, having 4 number of tap positions , with standard accessories complete with test certificate with losses below 670 Watts at 50% load, 1950 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	334091
10-2-5	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 200 kVA, Mineral oil immersed and naturally cooled outdoor type, Copper wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) , with HV tapping (with off load tap changer) off load +2.5 to -5 in steps of 2.5%, having 4 number of tap positions , with standard accessories complete with test certificate with losses below 780 Watts at 50% load, 2300 Watts at 100% load as per IS:1180 (part 1) : 2014 , with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	672577

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
10-2-6	Supplying, installing, testing & commissioning 3 phase,11/0.433 kV, 50 Hz., 250 kVA, Mineral oil immersed and naturally cooled outdoor type, Copper wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not Exceed 45°C by thermometer in oil and 50°C by the resistance method in winding at full load rating, with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, having 7 number of tap positions , with standard accessories complete with test certificate with losses below 980 Watts at 50% load, 2930 Watts at 100% load as per IS:1180 (part 1) : 2014 , with necessary permissions of Electrical Inspector, as per specification no SS-TR-HSL .	Each	812173
10-2-7	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 315 kVA, mineral oil immersed and naturally cooled outdoor type, Copper wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 45°C by thermometer in oil and 50°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%,having 7 number of tap positions , with standard accessories complete with test certificate with losses below 1025 Watts at 50% load, 3100 Watts at 100% load as per IS:1180 (part 1) : 2014 : 2021 with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	900300
10-2-8	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 400 kVA, Mineral oil immersed and naturally cooled outdoor type, Copper wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 45°C by thermometer in oil and 50°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) , with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%,having 7 number of tap positions with standard accessories complete with test certificate with below 1225 Watts at 50% load, 3450 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	1113697
10-2-9	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 500 kVA, Mineral oil immersed and naturally cooled outdoor type, Copper wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 45°C by thermometer in oil and 50°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%,having 7 number of tap positions with standard accessories complete with test certificate with losses below 1510 Watts at 50% load, 4300 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	1224741

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
10-2-10	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 630 kVA, Mineral oil immersed and naturally cooled outdoor type, Copper wound, without gas cushioning, hermetically Sealed transformer, delta/star connected additional neutral brought out on load side, temperature rise should not exceed 45°C by thermometer in oil and 50°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%,having 7 number of tap positions with standard accessories complete with test certificate with losses below 1860 Watts at 50% load, 5300 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	1514430
10-2-11	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 800 kVA, Mineral oil immersed and naturally cooled outdoor type, Copper wound, without gas cushioning, hermetically Sealed transformer , delta/star connected additional neutral brought out on load side, temperature rise should not exceed 45°C by thermometer in oil and 50°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with on load tap changer) on load +5 to -15 in steps of 2.5% , with standard accessories complete with test certificate with losses below 2287 Watts at 50% load, 6403 Watts at 100% load as per IS:1180 (part 1) : 2014 , with necessary permissions of Electrical Inspector, as per specification no SS-TR-HSL .	Each	1825383
10-2-12	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 1000 kVA, Mineral oil immersed and naturally cooled outdoor type, Copper wound, without gas cushioning, hermetically Sealed transformer , delta/star connected additional neutral brought out on load side, temperature rise should not exceed 45°C by thermometer in oil and 50°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with on load tap changer) on load +5 to -15 in steps of 2.5%, with standard accessories complete with test certificate with losses below 2790 Watts at 50% load, 7700 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	2010899
10-2-13	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 63 kVA, Mineral oil immersed and naturally cooled outdoor type, aluminium wound, without gas cushioning , hermetically Sealed transformer, delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with off load tap changer) off load +2.5 to -5 in steps of 2.5%, having 4 number of tap positions , with standard accessories complete with test certificate with losses below 357 Watts at 50% load, 1197 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	260051

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
10-2-14	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 100 kVA, Mineral oil immersed and naturally cooled outdoor type, aluminium wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) , with standard accessories complete with test certificate with losses below 499 Watts at 50% load, 1733 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	313988
10-2-15	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 160 kVA, Mineral oil immersed and naturally cooled outdoor type, aluminium wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper), with HV tapping (with off load tap changer) off load +2.5 to -5 in steps of 2.5%, having 4 number of tap positions , with standard accessories complete with test certificate with losses below 704 Watts at 50% load, 2048 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	388460
10-2-16	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 200 kVA, Mineral oil immersed and naturally cooled outdoor type, copper wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper), with HV tapping (with off load tap changer) off load +2.5 to -5 in steps of 2.5%, having 4 number of tap positions , with standard accessories complete with test certificate with losses below 819 Watts at 50% load, 2415 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	715451
10-2-17	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 250 kVA, Mineral oil immersed and naturally cooled outdoor type, Copper wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 45°C by thermometer in oil and 50°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%,having 7 number of tap positions , with standard accessories complete with test certificate with losses below 1029 Watts at 50% load, 3077 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	838815

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
10-2-18	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 315 kVA, Mineral oil immersed and naturally cooled outdoor type, Copper wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 45°C by thermometer in oil and 50°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with off load tap changer) off Load +5 to -10 in steps of 2.5%, having 7 number of tap positions with standard accessories complete with test certificate with losses below 1076 Watts at 50% load, 3255 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	963184
10-2-19	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 400 kVA, Mineral oil immersed and naturally cooled outdoor type, Copper wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 45°C by thermometer in oil and 50°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with off load tap changer) off Load +5 to -10 in steps of 2.5%, having 7 number of tap positions with standard accessories complete with test certificate with losses below 1286 Watts at 50% load, 3623 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	1081603
10-2-20	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 500 kVA, Mineral oil immersed and naturally cooled outdoor type, Copper wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 45°C by thermometer in oil and 50°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, having 7 number of tap positions with standard accessories complete with test certificate with losses below 1586 Watts at 50% load, 4515 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	1327009
10-2-21	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 630 kVA, Mineral oil immersed and naturally cooled outdoor type, Copper wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 45°C by thermometer in oil and 50°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, having 7 number of tap positions with standard accessories complete with test certificate with losses below 1953 Watts at 50% load, 5565 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	1847807

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
10-2-22	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 800 kVA, Mineral oil immersed and naturally cooled outdoor type, Copper wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 45°C by thermometer in oil and 50°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with on load tap changer) on load +5 to -15 in steps of 2.5% , with standard accessories complete with test certificate with losses below 2401 Watts at 50% load, 6723 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	1861536
10-2-23	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 1000 kVA, Mineral oil immersed and naturally cooled outdoor type, Copper wound, without gas cushioning, hermetically Sealed transformer , delta/star connected with additional neutral brought out on load side, temperature rise should not exceed 45°C by thermometer in oil and 50°C by the resistance method in winding at full load rating, using type A winding insulation (kraft paper) with HV tapping (with on load tap changer) on load +5 to -15 in steps of 2.5% , with standard accessories complete with test certificate with losses below 2930 Watts at 50% load, 8085 Watts at 100% load as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-HSL .	Each	2246951
Note :	<p>1) For indoor type transformer add Rs. 18000/- in completed rate of transformer.</p> <p>2) For use of transformer with copper winding for 63/100/160 kVA capacity. (To be used only for Licensee Job), rates shall be increased by 33 % from the rates for Transformer with aluminium winding.)</p> <p>3) To use natural ester oil instead of mineral oil and to use class B type insulation (thermally upgraded paper (TUP)) instead of Class A insulation (Kraft paper) in a hermetically sealed transformer increase the completed rate by 5 % .</p> <p>(New) 4) To use Synthetic ester oil instead of mineral oil and to use class B type insulation (thermally upgraded paper (TUP)) instead of Class A insulation (Kraft paper) in a hermetically sealed transformer increase the completed rate by 28 % .</p>		
10-2-24	Inspection of faulty distribution transformer 11kV / 22kV on HV side, 415 V on LV side upto 500 kVA capacity in workshop in presence of authority by opening top cover, disconnecting HV & LV studs, tap changer connections, taking out core along with winding for inspection and carrying out necessary tests on HV, LV side, oil, tap-changer etc. checking breather, body condition etc. and submitting inspection report, test reports (oil, insulation, resistance, ratio etc.) and quotation for repairs complete.	Job	4555
<u>10.3 Single Phase Sealed Transformer (SS-TR-SPSL)</u>			
10-3-1	Supplying, installing, testing & commissioning single phase, 11 kV/ V3/ 250V, 16 kVA, Mineral oil cooled with CSP features outdoor type, aluminium wound sealed transformer , temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance method in winding at full load rating, with 5 % continuously rated for full load with standard accessories complete with test certificate with losses should be below 82 Watts at 50% load & 224 Watts at 100 % load & first filling of oil having vector group- DYN-11 & first filling of silica gel, as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-SPSL .	Each	111860

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
10-3-2	Supplying, installing, testing & commissioning single phase, 11 kV/ V3/ 250V, 25 kVA , Mineral oil cooled with CSP Features outdoor type, aluminium wound sealed transformer , temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance method in winding at full load rating, with 5 % continuously rated for full load with standard accessories complete with test certificate with losses should be below 110 Watts at 50% load & 300 Watts at 100 % load & first filling of oil having vector group- DYN-11 & first filling of silica gel, as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS- TR-SPSL .	Each	127814
<u>10.4 Compact substation (SS-TR-CS)</u>			
10-4-1	Supplying, installing, testing & commissioning compact substation with 3 phase, 11/0.433 kV, 50 Hz., 400 kVA, Mineral oil immersed Copper wound, without gas cushioning, hermetically Sealed transformer having indoor type transformer bushings, with HT side (Incoming side) Circuit Breaker of appropriate rating & capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity, with inbuilt metering cubical having 3 epoxy coated CT's with CT Ratio/5 A, 10 or 15VA Burden, 0.5S Accuracy Class & 3 epoxy coated PT's with PT Ratio 11/0.110KV, 10 or 15 VA Burden, 0.5S Accuracy Class properly arranged in standard MSEDCL approved enclosure, using type A winding insulation (kraft paper) , standard accessories complete with test certificate with losses below 1225 Watts at 50% load, 3450 Watts at 100% load for transformer, as per IS:1180 (part 1) : 2014 , with necessary permissions of Electrical Inspector, as per specification no SS-TR-CS	Each	1792745
10-4-2	Supplying, installing, testing & commissioning compact substation with 3 phase, 11/0.433 kV, 50 Hz., 500 kVA, Mineral Oil immersed Copper wound, without gas cushioning, hermetically Sealed transformer having indoor type transformer bushings, with HT side (incoming side) Circuit Breaker of appropriate rating & capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity, with inbuilt metering cubical having 3 epoxy coated CT's with CT Ratio/5 A, 10 or 15VA Burden, 0.5S Accuracy Class, & 3 epoxy coated PT's with PT Ratio 11/0.110KV, 10 or 15 VA Burden, 0.5S Accuracy Class properly arranged in standard MSEDCL approved enclosure, using type A winding insulation (kraft paper) , standard accessories complete with test certificate with losses below 1510 Watts at 50% load, 4300 Watts at 100% load for transformer, as per IS:1180 (part 1) : 2014 , with necessary permissions of Electrical Inspectors, as per specification no SS-TR-CS	Each	2242728
10-4-3	Supplying, installing, testing & commissioning compact substation with 3 phase, 11/0.433 kV, 50 Hz., 630 kVA, Mineral oil immersed Copper wound, without gas cushioning ,hermetically Sealed transformer having indoor type transformer bushings, with HT side (incoming side) Circuit Breaker of appropriate rating & capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity, with inbuilt metering cubical having 3 epoxy coated CT's with CT Ratio/5 A, 10 or 15VA Burden, 0.5S Accuracy Class, & 3 epoxy coated PT's with PT Ratio 11/0.110KV, 10 or 15 VA Burden, 0.5S Accuracy Class properly arranged in standard MSEDCL approved enclosure, using type A winding insulation (kraft paper) , standard accessories complete with test certificate with losses below 1860 Watts at 50% load, 5300 Watts at 100% load for transformer, as per IS:1180 (part 1) : 2014 , with necessary permissions of Electrical Inspectors, as per specification no SS-TR-CS	Each	2591540

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
10-4-4	Supplying, installing, testing & commissioning compact substation with 3 phase, 11/0.433 kV, 50 Hz., 800 kVA, Mineral oil immersed Copper wound, without gas cushioning, hermetically Sealed transformer having indoor type transformer bushings, with HT side (incoming side) Circuit Breaker of appropriate rating & capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity, with inbuilt metering cubical having 3 epoxy coated CT's with CT Ratio/5 A, 10 or 15VA Burden, 0.5S Accuracy Class, & 3 epoxy coated PT's with PT Ratio 11/0.110KV, 10 or 15 VA Burden, 0.5S Accuracy Class properly arranged in standard MSEDCL approved enclosure, using type A winding insulation (kraft paper) , standard accessories complete with test certificate with losses below 2287 Watts at 50% load, 6403 Watts at 100% load for transformer, as per IS:1180 (part 1) : 2014 , with necessary permissions of Electrical Inspectors, as per specification no SS-TR-CS	Each	2765561
10-4-5	Supplying, installing, testing & commissioning compact substation with 3 phase, 11/0.433 kV, 50 Hz., 1000 kVA, Mineral oil immersed Copper wound, without gas cushioning, hermetically Sealed transformer having indoor type transformer bushings, with HT side (incoming side) Circuit Breaker of appropriate rating & capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity, with inbuilt metering cubical having 3 epoxy coated CT's with CT Ratio/5 A, 10 or 15VA Burden, 0.5S Accuracy Class, & 3 epoxy coated PT's with PT Ratio 11/0.110KV, 10 or 15 VA Burden, 0.5S Accuracy Class properly arranged in standard MSEDCL approved enclosure, using type A winding insulation (kraft paper) , standard accessories complete with test certificate with losses below 2790 Watts at 50% load, 7700 Watts at 100% load for transformer, as per IS:1180 (part 1) : 2014 , with necessary permissions of Electrical Inspectors, as per specification no SS-TR-CS	Each	3050021
10-4-6	Supplying, installing, testing & commissioning compact substation with 3 phase, 22/0.433 kV, 50 Hz., 400 kVA, Mineral oil immersed Copper wound, without gas cushioning, hermetically Sealed transformer having indoor type transformer bushings, with HT side (incoming side) Circuit Breaker of appropriate rating & capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity, with inbuilt metering cubical having 3 epoxy coated CT's with CT Ratio/5 A, 10 or 15VA Burden, 0.5S Accuracy Class, & 3 epoxy coated PT's with PT Ratio 22/0.110KV, 10 or 15 VA Burden, 0.5S Accuracy Class properly arranged in standard MSEDCL approved enclosure , using type A winding insulation (kraft paper) , standard accessories complete with test certificate with losses below 1286 Watts at 50% load, 3623 Watts at 100% load for transformer, as per IS:1180 (part 1) : 2014 , with necessary permissions of Electrical Inspector, as per specification no SS-TR-CS	Each	1844330

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
10-4-7	Supplying, installing, testing & commissioning compact substation with 3 phase, 22/0.433 kV, 50 Hz., 500 kVA, Mineral oil immersed Copper wound, without gas cushioning, hermetically Sealed transformer having indoor type transformer bushings, with HT side (incoming side) Circuit Breaker of appropriate rating & capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity, with inbuilt metering cubical having 3 epoxy coated CT's with CT Ratio/5 A, 10 or 15VA Burden, 0.5S Accuracy Class, & 3 epoxy coated PT's with PT Ratio 22/0.110KV, 10 or 15 VA Burden, 0.5S Accuracy Class properly arranged in standard MSEDCL approved enclosure, using type A winding insulation (kraft paper) , standard accessories complete with test certificate with losses below 1586 Watts at 50% load, 4515 Watts at 100% load for transformer, as per IS:1180 (part 1) : 2014 , with necessary permissions of Electrical Inspector, as per specification no SS-TR-CS	Each	2527284
10-4-8	Supplying, installing, testing & commissioning compact substation with 3 phase, 22/0.433 kV, 50 Hz., 630 kVA, Mineral oil immersed Copper wound, without gas cushioning, hermetically Sealed transformer having indoor type transformer bushings, with HT side (incoming side) Circuit Breaker of appropriate rating & capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity, with inbuilt metering cubical having 3 epoxy coated CT's with CT Ratio/5 A, 10 or 15VA Burden, 0.5S Accuracy Class, & 3 epoxy coated PT's with PT Ratio 22/0.110KV, 10 or 15 VA Burden, 0.5S Accuracy Class properly arranged in standard MSEDCL approved enclosure, using type A winding insulation (kraft paper) , standard accessories complete with test certificate with losses below 1953 Watts at 50% load, 5565 Watts at 100% load for transformer, as per IS:1180 (part 1) : 2014 with necessary permissions of Electrical Inspector, as per specification no SS-TR-CS	Each	2809661
10-4-9	Supplying, installing, testing & commissioning compact substation with 3 phase, 22/0.433 kV, 50 Hz., 800 kVA, Mineral oil immersed Copper wound, without gas cushioning, hermetically Sealed transformer having indoor type transformer bushings, with HT side (incoming side) Circuit Breaker of appropriate rating & capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity, with inbuilt metering cubical having 3 epoxy coated CT's with CT Ratio/5 A, 10 or 15VA Burden, 0.5S Accuracy Class, & 3 epoxy coated PT's with PT Ratio 22/0.110KV, 10 or 15 VA Burden, 0.5S Accuracy Class properly arranged in standard MSEDCL approved enclosure, using type A winding insulation (kraft paper) , standard accessories complete with test certificate with losses below 2401 Watts at 50% load, 6730 Watts at 100% load for transformer, as per IS:1180 (part 1) : 2014 , with necessary permissions of Electrical Inspector, as per specification no SS-TR-CS	Each	2953460

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
10-4-10	Supplying, installing, testing & commissioning compact substation with 3 phase, 22/0.433 kV, 50 Hz., 1000 kVA, Mineral oil immersed Copper wound, without gas cushioning , hermetically Sealed transformer having indoor type transformer bushings, with HT side (incoming side) Circuit Breaker of appropriate rating & capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity, with inbuilt metering cubical having 3 epoxy coated CT's with CT Ratio/5 A, 10 or 15VA Burden, 0.5S Accuracy Class, & 3 epoxy coated PT's with PT Ratio 22/0.110KV, 10 or 15 VA Burden, 0.5S Accuracy Class properly arranged in standard MSEDCL approved enclosure, using type A winding insulation (kraft paper) , standard accessories complete with test certificate with losses below 2930 Watts at 50% load, 8085 Watts at 100% load for transformer, as per IS:1180 (part 1) : 2014 , with necessary permissions of Electrical Inspector, as per specification no SS-TR-CS .	Each	3268993
Note : (New)	1) For compact substation without metering cubicle, deduct the cost of the corresponding items from 6-6-1 to 6-6-4 in Chapter 6 of CSR-2023-24		
(New)	2) MSEDCL testing charges for first-time installation shall be borne by the Contractor as part of the SITC job.		
<u>10.5 Accessories</u>			
10-5-1	Supplying and erecting 11 kV outdoor type gang operated air break, triple pole switch 200 A capacity with 3 post pin type insulator per phase, mounted in horizontal or vertical position with necessary channels on provided cross arm with adequate length of "C" class G.I. pipe for operating handle erected on extended square shaft. The operating handle provided with lock and key at suitable height from ground level with necessary clamp.	Set	10519
10-5-2	Supplying and erecting 11 kV outdoor type gang operated air break, triple pole switch 400 A capacity with 3 post pin type insulator per phase, mounted in horizontal or vertical position with necessary channels on provided cross arm with adequate length of "C" class G.I. pipe for operating handle erected on extended square shaft. The operating handle provided with lock and key at suitable height from ground level with necessary clamp.	Set	16128
10-5-3	Supplying and erecting 22 kV outdoor type gang operated air break, triple pole switch 200 A capacity with 3 post pin type insulator per phase, mounted in horizontal or vertical position with necessary channels on provided cross arm with adequate length of "C" class G.I. pipe for operating handle erected on extended square shaft. The operating handle provided with lock and key at suitable height from ground level with necessary clamp.	Set	18974
10-5-4	Supplying and erecting 33 kV outdoor type gang operated air break, triple pole switch 200 A capacity with 3 post pin type insulator double stack per phase, mounted in horizontal position with necessary channels on provided cross arm with adequate length of "C" class G.I. pipe for operating handle erected on extended square shaft. The operating handle provided with lock and key at suitable height from ground level with necessary clamp.	Set	39395
10-5-5	Supplying and erecting, 11 kV outdoor type drop out fuse with insulator complete with fuse holders, fuse barrel with metal fitting, fuse element mounted on M.S. channel with working current of 15A capacity complete erected on provided cross arm.	Set	6603

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
10-5-6	Supplying and erecting, 22 kV outdoor type drop out fuse with insulator complete with fuse holders, fuse barrel with metal fitting, fuse element mounted on M.S. channel with working current of 15A capacity complete erected on provided cross arm.	Set	10917
10-5-7	Supplying and erecting, 33 kV outdoor type drop out fuse with insulator complete with fuse holders, fuse barrel with metal fitting, fuse element mounted on M.S. channel with working current of 15A capacity complete erected on provided cross arm.	Set	18279
10-5-8	Supplying and erecting 11 kV fuse barrel with metal fittings complete.	Each	462
10-5-9	Supplying and erecting 22 kV fuse barrel with metal fittings complete.	Each	706
10-5-10	Supplying and erecting hard drawn copper solid wire no. 0 to 6 SWG complete erected for connections on H.T. sides.	kg	1111
10-5-11	Supplying and erecting extra thick alkathene pipe 10 mm dia. erected to enclose bare conductor wires complete.. (use shall be restricted to H.T.)	m	63
10-5-12	Supplying operating rod, suitable for 11/22 kV supply with clamps for removing drop out fuses at 6 meters length, 4 pieces each with rain shade with hand grip including earthling chain 1.5 m complete.(Light duty)	Each	4286
10-5-13	Supplying heavy duty operating rod, outer dia 25 mm & inner dia 20 mm suitable for 11 kV with brass couplings etc. for removing drop out fuses at 6 meters length, 4 pieces each with rain shade with hand grip including earthling chain 1.5 m complete.	Each	4660
10-5-14	Supplying heavy duty operating rod, outer dia 25 mm & inner dia 20 mm suitable for 22/33 kV with brass couplings etc. for removing drop out fuses at 6 m length, 4 pieces each with rain shade with hand grip including earthling chain 1.5 m complete.	Each	5510
10-5-15	Supplying and erecting copper tubular bus 20 mm dia 1.6 mm (16 SWG) thick for the use of high tension over head bus and erected on provided HT insulators with clamps, nuts and bolts complete. (weight per meter of bus is about 1.7 kg.)	m	1940
10-5-16	Supplying and erecting clamps, made out of 25x3 mm, copper strips to be fixed to tubular bus for connecting the bare copper wire to other equipment, with brass nuts bolts of suitable dia complete.	Each	260
10-5-17	Supplying and erecting anti climbing devices, fabricated from pole clamps of MS flat 40x5 mm, with drooping spikes 15 cm. in length, welded to it and erected on pole complete.	Each	205
10-5-18	Supplying and erecting fencing of section having size at least 2450 mm in height from ground level and 1200 mm width with angle iron frame work erected in CC foundation and painted complete with provided earthing as per specification no. SS-AS/FSG	Each	6973
	Note : For section less than 1200 mm width, reduce rate by Rs 200/- per 100 mm or part thereof.		
10-5-19	Supplying and erecting 50 x 50 x 6 mm angle iron as corner support 2.45m long fixed at the middle of the fencing frame and the other side inclined at 30 degree angle, in cement concrete foundation of 15 x 15 x 40 cm complete duly painted with one coat of red oxide and two coats aluminium paint complete.	Each	1417
10-5-20	Supplying and erecting double leaf hinged door each 1500 mm in width x 2450 mm in height using B class GI pipe, hinges and angle iron supports, chain link wire mesh (jali) complete supported on channel iron, erected in foundation and painted complete as per specification no SS-AS/DLD	Each	20350
10-5-21	Supplying and erecting barbed wire two ply with 12 SWG ply and 12 SWG barb with a gap between two bars of 75 mm. firmly fixed on provided angle supports with necessary materials complete. (6.044 meters/kg).	kg	141

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
10-5-22	Providing & Fixing of printed instruction chart for (with minimum 700 x 1000 mm in size) treating persons suffering from electric shock , printed in English & Marathi and duly laminated complete.	Each	153
10-5-23	Providing pair of duly tested rubber hand gloves as per IS :47705 suitable for working upto 22 kV supply complete.	Each	693
10-5-24	Supplying and fixing standard first aid box with necessary antiseptic cream, medicine for use on wounds due burn, crepe bandage, gauge bandage, medicated ready to use bandage (Band-Aid) adhesive tape for medicinal use, scissors, antiseptic solution, etc. (All above contents shall be of standard makes)	Each	922
10-5-25	Supplying and fixing PVC synthetic elastomer electrically insulating mat with class A insulation conforming to IS: 15652 – 2006 having 2 mm thickness upto 3.3 kV	sq.m.	2972
10-5-26	Supplying and fixing PVC synthetic elastomer electrically insulating mat with class B insulation conforming to IS: 15652 – 2006 having 2.5 mm thickness upto 11 kV	sq.m.	3695
10-5-27	Supplying and fixing PVC synthetic elastomer electrically insulating mat with class C insulation conforming to IS: 15652 – 2006 tested having 3mm thickness upto 33 kV	sq.m.	4306
10-5-28	Supplying shockproof leather safety shoes of electrical grade of standard size as IS :11226, 14544 duly tested, with necessary test certificate from manufacturer.	Per pair	2210
10-5-29	Supplying SMC chequered plates of size 4ft x 2ft , hot press moulded from advanced composites of plastics namely sheet moulding compound of thickness 2.5 mm with insulation level upto 22 kV and fixing it to substation floor with SR-998 adhesive along with 5 mm thick E.P. foam complete.	Each	5678
10-5-30	Supplying SMC chequered plates of size 4ft x 2ft , hot press moulded from advanced composites of plastics namely sheet moulding compound of thickness 5 mm with insulation level suitable for 33 kV and fixing it to substation floor with SR-998 adhesive along with 5 mm thick E.P. foam complete.	Each	11162
10-5-31	Transportation of 11/22 kV transformer upto 315 kVA without loading & unloading (for handing over to section store/ repair works only)	Per km	31
10-5-32	Transportation of 11/22 kV transformer above 315 kVA to 1000 kVA without loading & unloading (for handing over to section store/ repair works only)	Per km	40
<u>10.6 Dismantling</u>			
10-6-1	Dismantling the existing distribution transformer of any capacity from the plinth / foundation safely without any damages.	kVA	33
10-6-2	Dismantling existing pole mounted distribution transformer safely without any damages.	kVA	47
10-6-3	Dismantling existing DO / AB switch set complete from D.P. structure in an approved manner.	Set	384
Note:	The rate for item no 10.6.3 are for dismantling and handing over to section office inclusive of transportation upto 25 km, between site and section office.		

Chapter 11 : GENERATORS (GEN)

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
<u>11.1 Generators (GEN-GEN)</u>			
11-1-1	<p>Supplying, erecting, testing and commissioning of diesel generating set with standard control panel with alternator of 5 kVA output continuous rating, single phase, 230 V, 50 Hz, 0.8 p.f., A.C. supply, a totally enclosed air / liquid cooled multi cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption of 1.3 ltr/hr @75% loading. Engine and alternator directly coupled on a common fabricated steel base plate with anti-vibrating pad, with control panel comprising of standard meters, switchgears, indicators connected with suitable wires/cables. The complete set enclosed in acoustic enclosure made of 18 SWG CRCA sheet, sound absorbing material rockwool, covered from inside with 3/4 mm holes perforated sheet to restrict sound level up to 75 dB at 1.0 m. The engine with first filling of oil, diesel not less than 13 ltr etc., on provided M20 grade CC foundation as per specification no. GEN-DG</p>	Each	178754
11-1-2	<p>Supplying, erecting, testing and commissioning of diesel generating set with standard control panel with alternator of 10 kVA output continuous rating, single phase, 230 V, 50 Hz, 0.8 p.f., A.C. supply, a totally enclosed air / liquid cooled multi cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption of 2.4 ltr/hr @75% loading. Both the engine and alternator direct coupled on a common fabricated steel base plate with anti-vibrating pad, with control panel comprising of standard meters, switchgears, indicators connected with suitable wires/cables. The complete set enclosed in Acoustic enclosure made of 18 SWG CRCA sheet, sound absorbing material rockwool, covered from inside with 3/4 mm holes perforated sheet to restrict sound level up to 75 dB at 1.0 m. The engine with first filling of oil, diesel not less than 40 ltr etc., on provided M20 grade CC foundation as per specification no. GEN-DG</p>	Each	286356
11-1-3	<p>Supplying, erecting, testing and commissioning of diesel generating set with alternator of 10 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption of 2.4 ltr/hr @75% loading. Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising of meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 40 ltr etc., on provided M20 grade CC foundation as per specification No. GEN-DG</p>	Each	286724

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
11-1-4	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 15 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption of 3.0 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 40 ltr etc., on provided M20 grade CC foundation as per specification no. GEN-DG	Each	359131
11-1-5	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 20 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption of 3.8 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 50 ltr etc., on provided M20 grade CC foundation as per specification no. GEN-DG	Each	397542
11-1-6	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 25 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption 5.0 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 65 ltr etc., on provided M20 grade CC foundation as per specification no. GEN-DG	Each	446626

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
11-1-7	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 30 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption 5.9 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 65 ltr etc., on provided M20 grade CC foundation as per specification no. GEN-DG	Each	467692
11-1-8	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 40 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption 7.47 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 75 ltr etc., on provided M20 grade CC foundation as per specification no. GEN-DG	Each	550783
11-1-9	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 50 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption 9.98 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 150 ltr etc., on provided M20 grade CC foundation as per specification no. GEN-DG	Each	617544

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
11-1-10	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 62.5 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption 11.3 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 150 ltr etc., on provided M20 grade CC foundation as per specification no. GEN-DG	Each	661755
11-1-11	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 82.5 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption 14.0 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 145 ltr etc., on provided M20 grade CC foundation as per specification no. GEN-DG	Each	800808
11-1-12	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 100 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption 17.4 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 230 ltr etc., on provided M20 grade CC foundation as per specification no. GEN-DG	Each	921688

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
11-1-13	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 125 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption 21.4 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 230 ltr etc., on provided M20 grade CC foundation as per specification no. GEN-DG	Each	960636
11-1-14	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 140 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption 22.85 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 290 ltr etc., on provided M20 grade CC foundation as per specification no. GEN-DG	Each	1179980
11-1-15	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 160 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption 27.8 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 290 ltr etc., on provided M20 grade CC foundation as per specification no. GEN-DG	Each	1256636

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
11-1-16	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 180 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption 30.90 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 300 ltr etc., on provided M20 grade CC foundation as per specification no. GEN-DG	Each	1325546
11-1-17	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 200 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption 34.40 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 300 ltr etc., on provided M20 grade CC foundation as per specification no. GEN-DG	Each	1513863
11-1-18	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 250 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption 42.30 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 425 ltr etc., on provided M20 grade CC foundation and obtaining necessary approval from Electrical Inspector as per specification no. GEN-DG	Each	1847424

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
11-1-19	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 320 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption 54.89 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 480 ltr etc., on provided M20 grade CC foundation and obtaining necessary approval from Electrical Inspector as per specification no. GEN-DG	Each	2469023
11-1-20	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 380/400 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption 65.5 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 450 ltr etc., on provided M20 grade CC foundation and obtaining necessary approval from Electrical Inspector as per specification no. GEN-DG	Each	2994442
11-1-21	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 500 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption 81.90 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 690 ltr etc., on provided M20 grade CC foundation and obtaining necessary approval from Electrical Inspector as per specification no. GEN-DG	Each	3469250

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
11-1-22	Supplying, erecting, testing and commissioning of diesel generating set with alternator of 750 kVA output continuous rating, 3 phase, 415 V, 50 Hz, 0.8 p.f., A.C. supply , a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2/G3 and maximum fuel consumption 126.4 ltr/hr @75% loading . Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads, with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 990 ltr etc., on provided M20 grade CC foundation and obtaining necessary approval from Electrical Inspector as per specification no. GEN-DG	Each	5421443
Note:-			
1) DG set rating for altitudes more than 150 m above mean sea level shall be de-rated at 3.5 % for every 300 m above 150 m mean sea level.			
2) For all the engines, the emission standards/norms shall meet applicable pollution control board norms as amended by Government.			
<u>11.2 Auto Mains Failure Panels (AMF Panels) (GEN-AMF/SYNC)</u>			
11-2-1	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for diesel generating set of upto 10 kVA capacity single/three phase, 230/415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF .	Each	27522
11-2-2	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for diesel generating set of above 10 kVA upto 15 kVA capacity 3 phase, 415 V, 50 Hz A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF .	Each	34404
11-2-3	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for diesel generating set of above 15 kVA upto 20 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF .	Each	38068
11-2-4	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for diesel generating set of above 20 kVA upto 25 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF .	Each	46060
11-2-5	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for diesel generating set of above 25 kVA upto 35 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF .	Each	56665
11-2-6	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for diesel generating set of above 35 kVA upto 40 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF .	Each	66992
11-2-7	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for diesel generating set of above 40 kVA upto 50 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF .	Each	75304

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
11-2-8	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for diesel generating set of above 50 kVA upto 62.5 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF.	Each	80701
11-2-9	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for diesel generating set of above 62.5 kVA upto 82.5 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF.	Each	99831
11-2-10	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for diesel generating set of above 82.5 kVA upto 100 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF.	Each	117342
11-2-11	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for diesel generating set of above 100 kVA upto 125 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF.	Each	122889
11-2-12	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for diesel generating set of above 125 kVA upto 140 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF.	Each	148619
11-2-13	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for diesel generating set of above 140 kVA upto 180 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF.	Each	156644
11-2-14	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for Diesel generating set of above 180 kVA upto 200 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF.	Each	178709
11-2-15	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for Diesel generating set of above 200 kVA upto 250 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF.	Each	217080
11-2-16	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for Diesel generating set of above 250 kVA upto 320 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF.	Each	301552
11-2-17	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for Diesel generating set of above 320 kVA upto 400 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF.	Each	398073
11-2-18	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for Diesel generating set of above 400 kVA upto 500 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF.	Each	449750
11-2-19	Supplying, erecting, testing and commissioning of microprocessor based AMF panel suitable for Diesel generating set of above 500 kVA upto 750 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features, safeties etc as per specification no. GEN-AMF.	Each	689574
11-2-20	Supplying, erecting, testing and commissioning of microprocessor based generator control unit (synchronization panel) panel suitable for diesel generating set of 320 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features and safeties etc as per specification no. GEN-SYNC.	Each	813213

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
11-2-21	Supplying, erecting, testing and commissioning of microprocessor based generator control unit (synchronization panel) panel suitable for diesel generating set of above 320 kVA upto 380/400 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features and safeties etc as per specification no. GEN-SYNC.	Each	888246
11-2-22	Supplying, erecting, testing and commissioning of microprocessor based generator control unit (synchronization) panel suitable for diesel generating set of above 400 kVA upto 500 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features and safeties etc as per specification no. GEN-SYNC.	Each	991416
11-2-23	Supplying, erecting, testing and commissioning of microprocessor based generator control unit (synchronization) panel suitable for diesel generating set of above 500 kVA upto 750 kVA capacity 3 phase, 415 V, 50 Hz, A.C. supply with all standard features and safeties etc as per specification no. GEN-SYNC.	Each	1357199
Note:-	1) In case of new DG set, if AMF/SYNC panel is to be used in lieu of standard panel, reduce rate of Item No 11-2-1 to 11-2-23 by 10% of rate of new AMF panel/SYNC panel.		
(New)	2) DG set and AMF/SYNC panel shall be of same make.		
<u>11.3 Dismantling</u>			
11-3-1	Dismantling unserviceable DG set upto 50 kVA capacity along with switchgears & panel, etc. and remaking the site good as original.	Job	1827
11-3-2	Dismantling unserviceable DG set above 50 kVA capacity along with switchgears & panel, etc. and remaking the site good as original.	per kVA	37
Note:-	Above rate for dismantling does not include cost of transportation.		

Chapter 12: WATER PUMPS (WP)

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
<u>12.1 Centrifugal pumps (WP-CGP)</u>			
12-1-1	Supplying, erecting, testing and commissioning of minimum three & above star rated centrifugal water pump (monoblock), 230 V, single phase, 50 Hz, A.C. supply of 0.375 kW/0.5 HP with discharge 36/9 lpm for head of 6/21 m & 25 mm suction/25 mm delivery pipe on provided CC foundation as per specification no. WP-CGP .	Each	5479
12-1-2	Supplying, erecting, testing and commissioning of minimum three & above star rated centrifugal water pump (monoblock), 230 V, single phase, 50 Hz, A.C. supply of 0.375 kW/0.5 HP with discharge 285/67 lpm for head of 6/13.8 m & 40 mm suction/40 mm delivery pipe on provided CC foundation as per specification no. WP-CGP .	Each	7311
12-1-3	Supplying, erecting, testing and commissioning of minimum three & above star rated centrifugal water pump (monoblock), 230 V, single phase, 50 Hz, A.C. supply of 1.125 kW/1.5HP with discharge 198/50 lpm for head of 15/37.5 m & 40 mm suction/32 mm delivery pipe on provided CC foundation as per specification no. WP-CGP .	Each	12555
12-1-4	Supplying, erecting, testing and commissioning of minimum three & above star rated centrifugal water pump (monoblock), 230 V, single phase, 50 Hz, A.C. supply of 1.5 kW/2 HP with discharge 600/140 lpm for head of 8/22 m & 50 mm suction/50 mm delivery pipe on provided CC foundation as per specification no. WP-CGP .	Each	14342
12-1-5	Supplying, erecting, testing and commissioning of minimum three & above star rated centrifugal water pump (monoblock), 415V, three phase, 50 Hz, A.C. supply of 1.5 kW/2 HP with discharge 600/140 lpm for head of 8/22 m and 65 mm suction/50 mm delivery pipe on provided CC foundation as per specification no. WP-CGP .	Each	17712
12-1-6	Supplying, erecting, testing and commissioning of minimum three & above star rated centrifugal water pump (monoblock), 415V, three phase, 50 Hz, A.C. supply of 2.25 kW/ 3 HP with discharge 720/165 lpm for head of 12/26 m and 65 mm suction/50 mm delivery pipe on provided CC foundation as per specification no. WP-CGP .	Each	22474
12-1-7	Supplying, erecting, testing and commissioning of minimum three & above star rated centrifugal water pump (monoblock), 230 V, single phase, 50 Hz, A.C. supply of 1.125 kW/1.5HP with discharge 198/50 lpm for head of 15/37.5 m & 40 mm suction/32 mm delivery pipe on provided CC foundation as per specification no. WP-CGP .	Each	22802
12-1-8	Supplying, erecting, testing and commissioning of minimum three & above star rated centrifugal water pump (monoblock), 415 V, three phase, 50 Hz, A.C. supply of 3.75 kW/5 HP with discharge 420/120 lpm for head of 18/51 m and 65 mm suction/50 mm delivery pipe on provided CC foundation as per specification no. WP-CGP .	Each	27584
12-1-9	Supplying, erecting, testing and commissioning of minimum three & above star rated centrifugal water pump (monoblock), 415 V, three phase, 50 Hz, A.C. supply of 3.75 kW/5 HP with discharge 715/200 lpm for head of 17/39 m and 65 mm suction/50 mm delivery pipe on provided CC foundation as per specification no. WP-CGP .	Each	27800
12-1-10	Supplying, erecting, testing and commissioning of minimum three & above star rated centrifugal water pump (monoblock), 415 V, three phase, 50 Hz, A.C. supply of 5.625 kW/7.5 HP with discharge of 780/170 lpm for head of 33/54 m and 80 mm suction/65 mm delivery pipe on provided CC foundation as per specification no. WP-CGP .	Each	38733

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
12-1-11	Supplying, erecting, testing and commissioning of minimum three & above star rated centrifugal water pump (monoblock), 415 V, three phase, 50 Hz, A.C. supply of 7.5 kW/10 HP with discharge 1380/660 lpm for head of 24/72 m and 65 mm suction/50 mm delivery pipe on provided CC foundation as per specification no. WP-CGP .	Each	45737
12-1-12	Supplying, erecting, testing and commissioning of minimum three & above star rated centrifugal water pump (monoblock), 415 V, three phase, 50 Hz, A.C. supply of 9.375 kW/ 12.5 HP with discharge 1320/600 lpm for head of 25/52 m and 80 mm suction/65 mm delivery pipe on provided CC foundation as per specification no. WP-CGP .	Each	57742
12-1-13	Supplying, erecting, testing and commissioning of minimum three & above star rated centrifugal water pump (monoblock), 415 V, three phase, 50 Hz, A.C. supply of 11.25 kW/ 15 HP with discharge 1480/540 lpm for head of 24/74 m and 80 mm suction/65 mm delivery pipe on provided CC foundation as per specification no. WP-CGP .	Each	63302
12-1-14	Supplying, erecting, testing and commissioning of minimum three & above star rated centrifugal water pump centrifugal water pump (monoblock), 415 V, three phase, 50 Hz, A.C. supply of 15 kW/20 HP with discharge 2000/600 lpm for head of 27/80 m and 75 mm suction/65 mm delivery pipe on provided CC foundation as per specification no. WP-CGP .	Each	85309
12-1-15	Supplying, erecting, testing and commissioning of minimum three & above star rated centrifugal water pump centrifugal water pump (monoblock), 415 V, three phase, 50 Hz, A.C. supply of 18.75 kW/25 HP with discharge 1500/800 lpm for head of 48/60 m and 100 mm suction/80 mm delivery pipe on provided CC foundation as per specification no. WP-CGP .	Each	103023
12-1-16	Supplying, erecting, testing and commissioning of minimum three & above star rated centrifugal water pump (monoblock), 415 V, three phase, 50 Hz, A.C. supply of 22.5 kW/30 HP with discharge 1700/400 lpm for head of 48/69 m and 100 mm suction/80 mm delivery pipe on provided CC foundation as per specification no. WP-CGP .	Each	119895
<u>12.2 Submersible pumps for Borewell (WP-SMP)</u>			
12-2-1	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 2.25 kW/3 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 120 to 390 lpm discharge at 55 to 11 m head & discharge & delivery pipe of size-50mm dia. with a necessary H type clamps as per specification no. WP-SMP .	Each	31071
12-2-2	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 2.25 kW/3 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 120 to 475 lpm discharge at 36 to 10 m head & discharge & delivery pipe of size-50mm dia. with a necessary H type clamps as per specification no. WP-SMP .	Each	32401
12-2-3	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 3.75 kW/5 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 60 to 290 lpm discharge at 112 to 12 m head & discharge & delivery pipe of size-50mm dia. with a necessary H type clamps as per specification no. WP-SMP .	Each	40324

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
12-2-4	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 2.25 kW/3 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 100 to 450 lpm discharge at 53 to 5 m head & discharge & delivery pipe of size-50mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	32018
12-2-5	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 3 kW/4 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 130 to 500 lpm discharge at 49 to 18 m head & discharge & delivery pipe of size-50mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	35348
12-2-6	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 3.75 kW/5 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 210 to 860 lpm discharge at 38 to 13 m head & discharge & delivery pipe of size-65mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	38218
12-2-7	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 3 kW/4 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 200 to 750 lpm discharge at 29 to 7 m head & discharge & delivery pipe of size-75 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	37654
12-2-8	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 5.625 kW/7.5 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 100 to 400 lpm discharge at 132 to 27 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	44887
12-2-9	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 3.75kW/5 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 120 to 390 lpm discharge at 88 to 26 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	36837
12-2-10	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 5.625 kW/7.5 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 110 to 510 lpm discharge at 107 to 30 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	42583
12-2-11	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 3 kW/4 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 100 to 450 lpm discharge at 66 to 8 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	36461
12-2-12	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 4.5 kW/6 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 200 to 860 lpm discharge at 47 to 10 m head & discharge & delivery pipe of size-65 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	40694

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
12-2-13	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 3 kW/4 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 350 to 750 lpm discharge at 34 to 8 m head & discharge & delivery pipe of size-65 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	36119
12-2-14	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 3.75 kW/5 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 440 to 900 lpm discharge at 37 to 10 m head & discharge & delivery pipe of size-75 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	38298
12-2-15	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 3.75 kW/5 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 120 to 390 lpm discharge at 67 to 21 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	37270
12-2-16	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 4.5 kW/6 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 90 to 400 lpm discharge at 115 to 16 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	42576
12-2-17	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 3.75 kW/5 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 120 to 475 lpm discharge at 60 to 17 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	36448
12-2-18	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 5.625 kW/7.5 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 410 to 970 lpm discharge at 48 to 8 m head & discharge & delivery pipe of size-75 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	47940
12-2-19	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 4.5 kW/6 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 60 to 180 lpm discharge at 177 to 88 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	46154
12-2-20	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 5.625 kW/7.5 HP with 4415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 200 to 860 lpm discharge at 68 to 6 m head & discharge & delivery pipe of size-65 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	52647
12-2-21	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 3.75 kW/5 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 40 to 190 lpm discharge at 120 to 32 m head & discharge & delivery pipe of size-65 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	41459

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
12-2-22	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 5.625kW/7.5 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 60 to 330 lpm discharge at 209 to 14 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	58560
12-2-23	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 5.625 kW/7.5 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 60 to 300 lpm discharge at 257 to 15 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	64580
12-2-24	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 5.625 kW/7.5 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 50 to 330 lpm discharge at 169 to 18 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	54896
12-2-25	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 7.5 kW/10 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 200 to 800 lpm discharge at 65 to 8 m head & discharge & delivery pipe of size-75 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	58009
12-2-26	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 7.5 kW/10 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 200 to 800 lpm discharge at 79 to 9 m head & discharge & delivery pipe of size-80 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	53049
12-2-27	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 7.5 kW/10 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 110 to 510 lpm discharge at 154 to 35 m head & discharge & delivery pipe of size-80 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	63993
12-2-28	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 4.5 kW/6 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 50 to 330 lpm discharge at 171 to 16 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	52104
12-2-29	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 5.6 kW/7.5 HP with 415 V, three phase, 50 Hz A.C. supply suitable for 150 mm dia. borewell with 50 to 330 lpm discharge at 171 to 16 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	56487
12-2-30	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 2.25 kW/3 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 150 mm dia. borewell with 10 to 730 lpm discharge at 43 to 6 m head & discharge & delivery pipe of size-75 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	34855

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
12-2-31	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 1.5 kW/2 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 30 to 300 lpm discharge at 50 to 20 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	24439
12-2-32	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 1.5 kW/2 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 30 to 150 lpm discharge at 61 to 31 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	24686
12-2-33	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 0.75 kW/1 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 10 to 60 lpm discharge at 88 to 33 m head & discharge & delivery pipe of size-32 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	18552
12-2-34	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 1.5 kW/2 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 155 to 425 lpm discharge at 28 to 11 m head & (max. efficiency at 24 m head & 130 lpm) discharge & delivery pipe of size-65 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	25656
12-2-35	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 2.25 kW/3 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 70 to 170 lpm discharge at 74 to 38 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	27035
12-2-36	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 1.5 kW/2 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 30 to 140 lpm discharge at 61 to 23 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	24832
12-2-37	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 2.25 kW/3 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 150 to 380 lpm discharge at 33 to 7 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	25135
12-2-38	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 1.125 kW/1.5 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 10 to 100 lpm discharge at 137 to 40 m head & discharge & delivery pipe of size-32 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	22019
12-2-39	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 1.5 kW/2 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 10 to 95 lpm discharge at 167 to 36 m head & discharge & delivery pipe of size-32 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	24889

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
12-2-40	Supplying, erecting, testing and commissioning of g minimum three & above star rated submersible pumpset of 1.125 kW/1.5 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 10 to 95 lpm discharge at 94 to 26 m head & discharge & delivery pipe of size-40 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	21287
12-2-41	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 1.5 kW/2 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 10 to 100 lpm discharge at 120 to 43 m head & discharge & delivery pipe of size-32 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	24508
12-2-42	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 1.5 kw/2 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 10 to 100 lpm discharge at 144 to 46 m head & discharge & delivery pipe of size-32 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	27996
12-2-43	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 2.25 kW/3 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 120 to 370 lpm discharge at 35 to 17 m head & discharge & delivery pipe of size-65 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	31998
12-2-44	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 1.5 kW/2 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 10 to 60 lpm discharge at 166 to 55 m head & discharge & delivery pipe of size-40 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	29043
12-2-45	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 0.75 kW/1 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 10 to 40 lpm discharge at 95 to 42 m head & discharge & delivery pipe of size-32 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	20482
12-2-46	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 1.125 kW/1.5 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 10 to 100 lpm discharge at 110 to 15 m head & discharge & delivery pipe of size-40 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	21950
12-2-47	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 1.5 kW/2 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 30 to 140 lpm discharge at 73 to 28 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	26816
12-2-48	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 1.5 kW/2 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 30 to 140 lpm discharge at 85 to 32 m head & discharge & delivery pipe of size-40 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	28399

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
12-2-49	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 1.125 kW/1.5 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 10 to 40 lpm discharge at 121 to 64 m head & discharge & delivery pipe of size-32 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	24960
12-2-50	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 1.125 kW/1.5 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 10 to 50 lpm discharge at 150 to 40 m head & discharge & delivery pipe of size-32 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	29094
12-2-51	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 2.25 kW/3 HP with 415 V, three phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 60 to 170 lpm discharge at 97 to 30 m head & discharge & delivery pipe of size-40 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	28294
12-2-52	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 1.5 kW/2 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 10 to 70 lpm discharge at 170 to 37 m head & discharge & delivery pipe of size-40 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	30033
12-2-53	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 2.25 kW/3 HP with 415 V, 50 Hz AC supply suitable for 100 mm dia. borewell with 10 to 240 lpm discharge at 74 to 25 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	28730
12-2-54	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 1.5 kW/2 HP with 230 V, single phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 20 to 100 lpm discharge at 101 to 410 m head & discharge & delivery pipe of size-40 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	25792
12-2-55	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 2.25 kW/3 HP with 415 V, three phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 35 to 120 lpm discharge at 144 to 35 m head & discharge & delivery pipe of size-40 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	31265
12-2-56	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 2.25 kW/3HP with 415 V, three phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 50 to 180 lpm discharge at 98 to 39 m head & discharge & delivery pipe of size-50 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	30558
12-2-57	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 3.75 kW/5 HP with 415 V, three phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 50 to 130 lpm discharge at 162 to 77 m head & discharge & delivery pipe of size-40 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	39773

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
12-2-58	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 3 kW/4 HP with 415 V, three phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 10 to 60 lpm discharge at 182 to 42 m head & discharge & delivery pipe of size-32 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	43781
12-2-59	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 3 kW/4 HP with 415 V, three phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 10 to 60 lpm discharge at 296 to 44 m head & discharge & delivery pipe of size-32 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	40246
12-2-60	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pumpset of 3.75 kW/5 HP with 415 V, three phase, 50 Hz, A.C. supply suitable for 100 mm dia. borewell with 50 to 230 lpm discharge at 131 to 10 m head & discharge & delivery pipe of size-65 mm dia. with a necessary H type clamps as per specification no. WP-SMP.	Each	44321
<i>12.3 Submersible pumps for Openwells (WP-OSP)</i>			
12-3-1	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pump set for open well of 2.25 kW/3 HP with 415 V, three phase, 50 Hz, A.C. supply having delivery head from 27 to 9 m and discharge from 300 to 660 lpm & 65 mm suction/50 mm delivery dia. as per specification no. WP-OSP.	Each	27308
12-3-2	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pump set for open well of 3.75 kW/5 HP with 415 V, three phase, 50 Hz, A.C. supply having delivery head from 43 to 21 m and discharge from 120 to 840 lpm & 65 mm suction/50 mm delivery dia. as per specification no. WP-OSP.	Each	28285
12-3-3	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pump set suitable for erection on open well of 5.625 kW/7.5 HP with 415 V, three phase, 50 Hz, A.C. supply having delivery head from 36 to 14m and discharge from 225 to 1680 lpm & 75 mm suction/65 mm delivery dia. as per specification no. WP-OSP.	Each	37136
12-3-4	Supplying, erecting, testing and commissioning of minimum three & above star rated submersible pump set suitable for erection on open well of 5.625 kW/7.5 HP with 415 V, three phase, 50 Hz, A.C. supply having delivery head from 57 to 22 m and discharge from 120 to 900 lpm & 75 mm suction/65 mm delivery dia. as per specification no. WP-OSP.	Each	41089
12-3-5	Supplying, erecting, testing and commissioning of minimum three & above star rated 230 V, single phase, 50 Hz, A.C. supply submersible pump set of 0.75 kW/1HP for erection on open well, pump having delivery head from 34 to 15 m and discharge from 5 to 180 lpm & 32 mm suction/25 mm delivery dia. as per specification no. WP-OSP.	Each	16218
12-3-6	Supplying, erecting, testing and commissioning of minimum three & above star rated single phase, 230 V, 50 Hz, submersible pump set of 1.5 kW/2HP suitable for erection on open well, pump having delivery head from 30 to 7 m and discharge from 30 to 600 litres per minute & 50 mm suction/50 mm delivery dia. as per specification no. WP-OSP.	Each	19911
12-3-7	Supplying, erecting, testing and commissioning of minimum three & above star rated 3 phase, 415 V, 50 Hz, submersible pump set of 7.5 kW/10HP suitable for erection on open well, pump having delivery head from 60 to 28 m and discharge from 120 to 840 litres per minute & 65 mm suction/50 mm delivery dia. as per specification no. WP-OSP.	Each	43380

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
12-3-8 (New)	Supplying, erecting, testing and commissioning of minimum three & above star rated 3 phase, 415 V, 50 Hz , submersible pump set of 11 kW/15HP suitable for erection on open well, pump having delivery head from 78 to 18.m and discharge from 280 to 2400 litres per minute & 65/80/100 mm suction/50/65/80 mm delivery dia. as per specification no. WP-OSP .	Each	65752
12-3-9 (New)	Supplying, erecting, testing and commissioning of minimum three & above star rated 3 phase, 415 V, 50 Hz , submersible pump set of 14.92kW/20 HP suitable for erection on open well, pump having delivery head from 60 to 36 m and discharge from 1425 to 825 litres per minute & 80 mm suction/65 mm delivery dia. as per specification no. WP-OSP .	Each	78111
<u>12.4 Accessories</u>			
12-4-1	Supplying, erecting, testing and commissioning of D.O.L starter suitable for 250 V, single phase 50 Hz with overload element with necessary materials and connected to supply upto 3 HP .	Each	1224
12-4-2	Supplying, erecting, testing and commissioning of D.O.L starter suitable for 400 V, 3 phase 50 Hz with no volt coil and overload element with necessary materials and connected to supply above 3 HP to 7.5 HP .	Each	1802
12-4-3	Supplying, erecting, testing and commissioning of D.O.L Starter suitable for 400 V, 3 phase 50 Hz with no volt coil and overload element with necessary materials and connected to supply for above 7.5 HP 10 HP .	Each	3192
12-4-4	Supplying, erecting, testing and commissioning of fully automatic star/delta starter suitable for 12.5 HP to 15 HP for three phase squirrel cage motor totally enclosed with overload and no volt relay complete erected on provided angle iron frame.	Each	7657
12-4-5	Supplying, erecting, testing and commissioning of fully automatic star/delta starter suitable for above 15 HP upto 25 HP for three phase squirrel cage motor totally enclosed with overload and no volt relay complete erected on provided angle iron frame.	Each	9615
12-4-6	Supplying, erecting, testing and commissioning of fully automatic star/delta starter suitable for above 25 upto 35 HP for three phase squirrel cage motor totally enclosed with overload and no volt relay complete erected on provided angle iron frame.	Each	20547
12-4-7	Supplying, erecting, testing and commissioning of pump protection relay comprising current sensing phase failure and UV+OV relay with dry run and overload protection suitable for three phase pumps.	Each	2897
12-4-8	Supplying, erecting, testing and commissioning of flat flexible 3 core 2.5 sq.mm PVC sheathed submersible type copper cable suitably clamped at fixed intervals with column pipe assembly complete.	m	141
12-4-9	Supplying, erecting, testing and commissioning of flat flexible 3 core 4 sq.mm PVC sheathed submersible type copper cable suitably clamped at fixed intervals with column pipe assembly complete.	m	193
12-4-10	Supplying, erecting, testing and commissioning of flat flexible 3 core 6 sq.mm PVC sheathed submersible type copper cable suitably clamped at fixed intervals with column pipe assembly complete.	m	267
12-4-11	Supplying, erecting, testing and commissioning of flat flexible 3 core 1.5 sq.mm PVC sheathed submersible type copper cable suitably clamped at fixed intervals with column pipe assembly complete.	m	104
12-4-12	Supplying, erecting, testing and commissioning of flat flexible 3 core 10 sq.mm PVC sheathed submersible type copper cable suitably clamped at fixed intervals with column pipe assembly complete.	m	432

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
12-4-13	Supplying, erecting, testing and commissioning of flat flexible 3 core 16 sq.mm PVC sheathed submersible type copper cable suitably clamped at fixed intervals with column pipe assembly complete.	m	657
12-4-14	Supplying, erecting, testing and commissioning of water level controller 230/415 V, A.C. supply , two way under ground tank operation only.	Each	1257
12-4-15	Supplying, erecting, testing and commissioning of water level controller 230/415 V, A.C. supply , four way under ground & over head tank operation only.	Each	1305
12-4-16	Supplying, erecting, testing and commissioning of PVC coated 5 mm dia. brass sensor/electrode duly wired with nuts & bolts complete (Set of 3 nos).	Each	254
12-4-17	Supplying, erecting, testing and commissioning of automatic control panel for three phase , 415 V, A.C. supply, submersible/centrifugal pump set upto 7.5 HP consisting of D.O.L. starter having relay range 9-14 A, S.P.P., combined ammeter/voltmeter, phase indicating lamp enclosed in CRCA powder coated vibration proof enclosure with IP54 protection with single phasing, phase reversal, phase imbalance, etc.	Each	6673
12-4-18	Supplying, erecting, testing and commissioning of automatic control panel for three phase, 415 V, A.C. supply submersible/centrifugal pump set for 7.5 HP to 10 HP consisting of D.O.L. starter having relay range 13-21 A, S.P.P., combined ammeter/voltmeter, phase indicating lamp enclosed in CRCA powder coated vibration proof enclosure with IP54 protection with single phasing, phase reversal, phase imbalance, etc.	Each	7591
12-4-19	Supplying, erecting, testing and commissioning of automatic control panel for three phase, 415 V, A.C. supply submersible/centrifugal pump set upto 7.5 HP - 10 HP consisting of D.O.L. starter having relay range 28-42 A, S.P.P., combined ammeter/voltmeter, phase indicating lamp enclosed in CRCA powder coated vibration proof enclosure with IP54 protection with single phasing, phase reversal, phase imbalance, etc.	Each	8211
12-4-20	Supplying, erecting, testing and commissioning of automatic control panel for single phase, 230 V, A.C. supply submersible/centrifugal pump set upto 3 HP consisting of D.O.L. starter of suitable relay range, S.P.P., combined ammeter/ voltmeter, phase indicating lamp enclosed in CRCA powder coated vibration proof enclosure with IP54 protection.	Each	4342
12-4-21	Supplying, erecting, testing and commissioning of automatic control panel for three phase, 415 V, A.C. supply submersible/centrifugal pump set upto 20 HP consisting of star delta starter having relay range 13-21 A, S.P.P., combined ammeter/ voltmeter, phase indicating lamp enclosed in CRCA powder coated vibration proof enclosure with IP54 protection with single phasing, phase reversal, phase imbalance, etc.	Each	14416
12-4-22	Supplying, erecting, testing and commissioning of automatic control panel for three phase, 415 V, A.C. supply submersible/centrifugal pump set upto 20 HP consisting of star delta starter having relay range 28-42 A, S.P.P., combined ammeter/ voltmeter, phase indicating lamp enclosed in CRCA powder coated vibration proof enclosure with IP54 protection with single phasing, phase reversal, phase imbalance, etc .	Each	17077
12-4-23	Supplying, erecting, testing and commissioning of automatic control panel for three phase, 415 V, A.C. supply submersible/centrifugal pump set upto 30 HP consisting of star delta starter having relay range 30-50 A, S.P.P., combined ammeter/ voltmeter, phase indicating lamp enclosed in CRCA powder coated Vibration proof enclosure with IP54 protection with single phasing, phase reversal, phase imbalance, etc .	Each	26163

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
12-4-24	Supplying, erecting, testing and commissioning of soft starters for three phase, 415 V, A.C. supply water pump upto 15 HP consisting of RS-485 communication port, compact size & range, internal bypass contactor, 400% max. allowed overload of nominal current, with compatibility with teleservice software "remote drive" on internet, having protection for motor overload, phase sequence, excess start time, phase loss, power circuit fault, supply frequency, communication failure etc. complete.	Each	28814
12-4-25	Supplying, erecting, testing and commissioning of soft starters for three phase 415 V, A.C. supply water pump 25 HP consisting of RS-485 communication port, compact size & range, internal bypass contactor, 400% max. allowed overload of nominal current, with compatibility with teleservice software "remote drive" on internet, having protection for motor overload, phase sequence, excess start time, phase loss, power circuit fault, supply frequency, communication failure etc. complete.	Each	38749
12-4-26	Supplying, erecting, testing and commissioning of automatic control panel for three phase, 415 V, submersible/centrifugal pump set upto 10 HP consisting of star delta starter having relay range 9-14 A, S.P.P., combined ammeter/ voltmeter, phase indicating lamp enclosed in CRCA powder coated vibration proof enclosure with IP54 protection with single phasing, phase reversal, phase imbalance, etc.	Each	10189
12-4-27	Supplying, erecting, testing and commissioning of automatic control panel for three phase, 415 V, submersible/centrifugal pump set upto 10 - 15 HP consisting of star delta starter having relay range 13-22 A, S.P.P., combined ammeter/ voltmeter, phase indicating lamp enclosed in CRCA powder coated vibration proof enclosure with IP54 protection with single phasing, phase reversal, phase imbalance, etc.	Each	10318
12-4-28	Supplying, erecting, testing and commissioning of float sensor switch for water level controller working on 250 V & rated current 8A, with 2 m wire & high quality of wire & plastic body.	Each	413
12-4-29	Supplying, erecting, testing and commissioning of directly operated single phasing preventer complete erected and connected to supply to operate in case of single phasing with guarantee for minimum one year.	Each	741
<u>12.5 Dewatering Pump (WP-DWP-SMP)</u>			
12-5-1	Supplying, erecting, testing and commissioning of dewatering monoblock pump set 415 V, three phase, 50 Hz, A.C. supply of 2.25kW/ 3 HP , of 12 to 26 m head with 560 to 70 lpm discharge, 10.5mm solid handling capacity, non clogging minimised abrasive wear, large impeller clearance & maintenance free pump set with waterproof cable duly sealed with epoxy material built in protection to prevent the motor from burn out due to abnormal operation. specially designed high efficiency motor with F class insulation & the pump mechanically sealed in the oil chamber, etc. complete as per specification no. DWP- SMP .	Each	43097
12-5-2	Supplying, erecting, testing and commissioning of dewatering monoblock pump set 415 V, three phase, 50 Hz, A.C. supply of 3.73kW/ 5 HP of 9 to 18 m head with 1125 to 500 lpm discharge, 15.5mm solid handling capacity, non-clogging minimised abrasive wear, large impeller clearance & maintenance free pump set with waterproof cable duly sealed with epoxy material built in protection to prevent the motor from burn out due to abnormal operation, specially designed high efficiency motor with F class insulation & the pump mechanically sealed in the oil chamber,. etc. complete as per specification no. DWP- SMP .	Each	57330

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
12-5-3	Supplying, erecting, testing and commissioning of dewatering monoblock pump set 415 V, three phase, 50 Hz, A.C. supply of 5.5kW/ 7.5 HP , of 21 to 36 m head with 910 to 190 lpm discharge, 14.5 mm Solid handling capacity, non-clogging minimised abrasive wear, large impeller clearance & maintenance free pump set with waterproof cable duly sealed with epoxy material built in protection to prevent the motor from burn out due to abnormal operation. specially designed high efficiency motor with F class insulation & the pump mechanically sealed in the oil chamber,. etc. complete as per specification no. DWP- SMP .	Each	67201
<u>12.6 Pressure Pump (WP-PP)</u>			
12-6-1	Supplying & erecting pressure booster pump, single phase, 50 Hz, A.C. supply of 0.375 kW/ 0.5 HP , with discharge of 210 to 60 lpm for 10 to 40 m head & 25 mm suction/ 25 mm delivery pipe, for domestic pressure boosting applications (with 2 ltr water tank) as per specification no. WP-PP	Each	9778
12-6-2	Supplying & erecting pressure booster pump, single phase, 50 Hz, A.C. supply of 0.75 kW/ 1 HP , With discharge of 480 to 13 lpm for 10 to 50 mtr head & 25 mm suction/ 25 mm delivery pipe, for domestic pressure boosting applications (with 24 ltr water tank) as per specification no. WP-PP	Each	23964
12-6-3	Supplying & erecting pressure booster pump, single phase, 50 Hz, A.C. supply of 1.125 kW/1.5 HP , with discharge of 480 to 31 lpm for 10 to 50 m head & 25 mm suction/ 25 mm delivery pipe, for domestic Pressure boosting applications (with 24 ltr water tank) as per specification no. WP-PP	Each	26434
<u>12.7 Dismantling</u>			
12-7-1	Dismantling the existing monoblock /open well submersible water pump set centrifugal type without pipeline complete and making the site clear.	HP	104
12-7-2	Dismantling the existing ejecto type water pump set without pipeline complete and making the site clear.	HP	104
12-7-3	Dismantling the existing ejecto pump with PVC pipeline .	Each	1200
12-7-4	Dismantling the existing ejecto pump with GI pipeline upto 10 m depth.	Each	3193
12-7-5	Dismantling the existing submersible pump with PVC pipeline .	Each	1200
12-7-6	Dismantling the existing submersible pump with GI pipeline upto 10 m depth. (For additional depth of each 3 m or part thereof add Rs. 50/- per 3 m, in the rates)	Each	2958
Note:	Select a suitable water pump for underground/overhead water tank so the tank can fill within 3 Hrs.		
(New)			

Chapter 13 : FIRE FIGHTING & FIRE ALARM SYSTEM (FF)

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>13.1 Main Fire Pumps (Single Stage Centrifugal) (FF-MFP/SSC)</u>			
13-1-1	<p>Supplying, installation, testing and commissioning of main fire pump (MFP / EP) suitable for water discharge of 1400 to 1600 LPM at 60 to 50 m head driven by electric motor 415 volts, 3 phase 50 Hz, AC supply of 22kW or of suitable kW capacity for manual/automatic operation and consisting of following :</p> <p>(a) Horizontal type, single stage, centrifugal/split casing pump of cast iron body & bronze impeller with stainless steel shaft (SS410 grade), mechanical seal conforming to IS 1520.</p> <p>(b) Squirrel cage induction motor, TEFC, synchronous speed 3000 RPM, suitable for operation with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Erected on provided suitable size cement concrete foundation duly plastered with anti vibration pads with perfect aligning, proper levelling complete pump set with accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete, as per specification no. FF-MFP/SSC/EP</p>	Each	124796
13-1-2	<p>Supplying, installation, testing and commissioning of main fire pump (MFP / EP) suitable for water discharge of 1600 to 1800 LPM at 70 to 55 m head driven by electric motor 415 volts, 3 phase 50 Hz, AC supply of 30kW or of suitable kW capacity for manual/automatic operation and consisting of following :</p> <p>(a) Horizontal type, single stage, centrifugal/split casing pump of cast iron body & bronze impeller with stainless steel shaft (SS410 grade), mechanical seal conforming to IS 1520.</p> <p>(b) Squirrel cage induction motor, TEFC, synchronous speed 3000 RPM, suitable for operation with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Erected on provided suitable size cement concrete foundation duly plastered with anti vibration pads with perfect aligning, proper levelling complete pump set with accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete, as per specification no. FF-MFP/SSC/EP</p>	Each	176861

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
13-1-3	<p>Supplying, installation, testing and commissioning of main fire pump (MFP / EP) suitable for water discharge of 1800 to 2280 LPM at 80 to 60 m head driven by electric motor 415 volts, 3 phase 50 Hz, AC supply of 37kW or of suitable kW capacity for manual/automatic operation and consisting of following :</p> <p>(a) Horizontal type, single stage, centrifugal/split casing pump of cast iron body & bronze impeller with stainless steel shaft(SS410 grade), mechanical seal conforming to IS 1520.</p> <p>(b) Squirrel cage induction motor, TEFC, synchronous speed 3000 RPM, suitable for operation with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Erected on provided suitable size cement concrete foundation duly plastered with anti vibration pads with perfect aligning, proper levelling complete pump set with accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete, as per specification no. FF-MFP/SSC/EP</p>	Each	214926
13-1-4	<p>Supplying, installation, testing and commissioning of main fire pump (MFP / EP) suitable for water discharge of 2280 to 2850LPM at 80 to 60 m head driven by electric motor 415 volts, 3 phase 50 Hz, AC supply of 45kW or of suitable kW capacity for manual/automatic operation and consisting of following :</p> <p>(a) Horizontal type, single stage, centrifugal/split casing pump of cast iron body & bronze impeller with stainless steel shaft(SS410 grade), mechanical seal conforming to IS 1520.</p> <p>(b) Squirrel cage induction motor, TEFC, synchronous speed 3000 RPM, suitable for operation with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Erected on provided suitable size cement concrete foundation duly plastered with anti vibration pads with perfect aligning, proper levelling complete pump set with accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete, as per specification no. FF-MFP/SSC/EP</p>	Each	249059
13-1-5	<p>Supplying, installation, testing and commissioning of main fire pump (MFP / EP) suitable for water discharge of 2280 to 2850 LPM at 90 to 70 m head driven by electric motor 415 volts, 3 phase 50 Hz, AC supply of 55kW or of suitable kW capacity for manual/automatic operation and consisting of following :</p> <p>(a) Horizontal type, single stage, centrifugal/split casing pump of cast iron body & bronze impeller with stainless steel shaft (SS410 grade), mechanical seal conforming to IS 1520.</p> <p>(b) Squirrel cage induction motor, TEFC, synchronous speed 3000 RPM, suitable for operation on with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Erected on provided suitable size cement concrete foundation duly plastered with anti vibration pads with perfect aligning, proper levelling complete pump set with accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete, as per specification no. FF-MFP/SSC/EP</p>	Each	313493

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
13-1-6	<p>Supplying, installation, testing and commissioning of main fire pump(MFP / EP) suitable for water discharge of 2280 to 2850 LPM at 120 to 90 m head driven by electric motor 415 volts, 3 phase 50 Hz, AC supply of 75kW or of suitable kW capacity for manual/automatic operation and consisting of following :</p> <p>(a) Horizontal type, single stage, centrifugal/split casing pump of cast iron body & bronze impeller with stainless steel shaft(SS410 grade), mechanical seal conforming to IS 1520.</p> <p>(b) Squirrel cage induction motor, TEFC, synchronous speed 3000 RPM, suitable for operation with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Erected on provided suitable size cement concrete foundation duly plastered with anti vibration pads with perfect aligning, proper levelling complete pump set with accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete, as per specification no. FF-MFP/SSC/EP</p>	Each	410893
13-1-7	<p>Supplying, installation, testing and commissioning of main fire pump (MFP / EP) suitable for water discharge of 2280 to 2850 LPM at 140 to 120 m head driven by electric motor 415 volts, 3 phase 50 Hz, AC supply of 93kW or of suitable kW capacity for manual/automatic operation and consisting of following :</p> <p>(a) Horizontal type, single/multi stage, centrifugal/split casing pump of cast iron body & bronze impeller with stainless steel shaft(SS410 grade), mechanical seal conforming to IS 1520.</p> <p>(b) Squirrel cage induction motor, TEFC, synchronous speed 3000 RPM, suitable for operation with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Erected on provided suitable size cement concrete foundation duly plastered with anti vibration pads with perfect aligning, proper levelling complete pump set with accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete, as per specification no. FF-MFP/SSC/MS/EP</p>	Each	476863
13-1-8	<p>Supplying, installation, testing and commissioning of main fire pump (MFP/EP) suitable for water discharge of 2850 LPM at 145 m head driven by electric motor 415 volts, 3 phase 50 Hz, AC supply of 112 kW or of suitable kW capacity for manual/automatic operation and consisting of following :</p> <p>(a) Horizontal type, single/multi stage, centrifugal/split casing pump of cast iron body & bronze impeller with stainless steel shaft(SS410 grade), mechanical seal conforming to IS 1520.</p> <p>(b) Squirrel cage induction motor, TEFC, synchronous speed 3000 RPM, suitable for operation with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Erected on provided suitable size cement concrete foundation duly plastered with anti vibration pads with perfect aligning, proper levelling complete pump set with accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete, as per specification no. FF-MFP/SSC/MS/EP</p>	Each	586223

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>13.2 Jockey Pumps (Centrifugal) (FF-MFP/JP)</u>			
13-2-1	<p>Supplying, installation, testing and commissioning of jockey fire pump (JP) suitable for water discharge of 180 to 240 LPM at 70 to 50 m head driven by electric motor 415 volts, 3 phase 50 Hz, AC supply of 5.5 kW or of suitable kW capacity for manual/automatic operation and consisting of following :</p> <p>(a) Horizontal/vertical type, multi stage, centrifugal casing pump of cast iron body & bronze impeller with stainless steel shaft (SS410 grade), mechanical seal conforming to IS 1520.</p> <p>(b) Squirrel cage induction motor, TEFC, synchronous speed 3000 RPM, suitable for operation with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Erected on provided suitable size cement concrete foundation duly plastered with anti vibration pads with perfect aligning, proper levelling complete pump set with accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003)complete, as per specification no. FF-MFP/JP</p>	Each	65917
13-2-2	<p>Supplying, installation, testing and commissioning of jockey fire pump (JP) suitable for water discharge of 180 to 240 LPM at 90 to 70 m head driven by electric motor 415 volts, 3 phase 50 Hz, AC supply of 9.3 kW or of suitable kW capacity for manual/automatic operation and consisting of following :</p> <p>(a) Horizontal/vertical type, multi stage, centrifugal casing pump of cast iron body & bronze impeller with stainless steel shaft(SS410 grade), mechanical seal conforming to IS 1520.</p> <p>(b) Squirrel cage induction motor, TEFC, synchronous speed 3000 RPM, suitable for operation with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Erected on provided suitable size cement concrete foundation duly plastered with anti vibration pads with perfect aligning, proper levelling complete pump set with accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003)complete, as per specification no. FF-MFP/JP</p>	Each	97914

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
13-2-3	<p>Supplying, installation, testing and commissioning of jockey fire pump (JP) suitable for water discharge of 180 to 240 LPM at 110 to 90 m head driven by electric motor 415 volts, 3 phase 50 Hz, AC supply of 11 kW or of suitable kW capacity for manual/automatic operation and consisting of following :</p> <p>(a) Horizontal/vertical type, multi stage, centrifugal casing pump of cast iron body & bronze impeller with stainless steel shaft (SS410 grade), mechanical seal conforming to IS 1520.</p> <p>(b) Squirrel cage induction motor, TEFC, synchronous speed 3000 RPM, suitable for operation with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Erected on provided suitable size cement concrete foundation duly plastered with anti vibration pads with perfect aligning, proper levelling complete pump set with accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete, as per specification no. FF-MFP/JP</p>	Each	110863
13-2-4	<p>Supplying, installation, testing and commissioning of jockey fire pump (JP) suitable for water discharge of 180 to 240 LPM at 140 to 110 m head driven by electric motor 415 volts, 3 phase 50 Hz, AC supply of 15 kW or of suitable kW capacity for manual/automatic operation and consisting of following :</p> <p>(a) Horizontal/vertical type, multi stage, centrifugal casing pump of cast iron body & bronze impeller with stainless steel shaft(SS410 grade), mechanical seal conforming to IS 1520.</p> <p>(b) Suitable kW Squirrel cage induction motor, TEFC, synchronous speed 3000 RPM, suitable for operation on 415 volts, 3 phase 50 Hz, AC supply with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Erected on provided suitable size cement concrete foundation duly plastered with anti vibration pads with perfect aligning, proper levelling complete pump set with accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003)complete, as per specification no. FF-MFP/JP</p>	Each	147549

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>13.3 Booster Pump (FF-MFP/BP)</u>			
13-3-1	<p>Supplying, installation, testing and commissioning of booster fire pump [BP] suitable for water discharge of 450 LPM at 35 m head driven by electric motor 415 volts, 3 phase 50 Hz, AC supply of 5.5 kW or of suitable kW capacity for manual/automatic operation and consisting of following :</p> <p>(a) Horizontal/vertical type, single/multi stage, centrifugal casing pump of cast iron body & bronze/CI impeller with stainless steel shaft (SS410 grade), mechanical seal conforming to IS 1520.</p> <p>(b) Squirrel cage induction motor, TEFC, synchronous speed 3000 RPM, suitable for operation with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Erected on provided suitable size cement concrete foundation duly plastered with anti vibration pads with perfect aligning, proper levelling complete pump set with accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete, as per specification no. FF-MFP/BP</p>	Each	45951
13-3-2	<p>Supplying, installation, testing and commissioning of booster fire pump [BP] suitable for water discharge of 900 LPM at 35 m head driven by electric motor 415 volts, 3 phase 50 Hz, AC supply of 7.5 kW or of suitable kW capacity for manual/automatic operation and consisting of following :</p> <p>(a) Horizontal/vertical type, single/multi stage, centrifugal casing pump of cast iron body & bronze/CI impeller with stainless steel shaft (SS410 grade), mechanical seal conforming to IS 1520.</p> <p>(b) Squirrel cage induction motor, TEFC, synchronous speed 3000 RPM, suitable for operation on with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Erected on provided suitable size cement concrete foundation duly plastered with anti vibration pads with perfect aligning, proper levelling complete pump set with accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete, as per specification no. FF-MFP/BP</p>	Each	71816

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>13.4 Main Fire Pump</u>			
<u>Diesel Engine Driven (Centrifugal) (FF-MFP/DP)</u>			
13-4-1	<p>Supplying, installation, testing and commissioning of main fire pump (MFP/DP) suitable for water discharge of 1600 to 1800 LPM at 70 to 50 m head driven by 45 HP or suitable HP capacity diesel engine at required working speed suitable for manual/automatic operation and consisting of following :</p> <p>(a) Horizontal type, single stage, centrifugal casing pump of cast iron body & bronze impeller with stainless steel shaft (SS410 grade), mechanical seal conforming to IS 1520.</p> <p>(b) Water cooled with radiator, diesel engine conforming to relevant IS standard complete with auto starting mechanism, 12/24 volts DC electric starting equipment with battery of required AH capacity with necessary charger suitable to work on 230v, 50Hz AC supply, diesel tank of minimum 150ltr capacity with first filling of diesel up to 100% level with necessary piping with valves up to engine, exhaust pipe extended upto 10 m outside pump house duly insulated with 50 mm thick glass wool with 1.0 mm thick aluminium sheet cladding, residential silencer, instruments and protection as per standard specification, stop solenoid for auto stop in the event of fault with audio indications etc. as required.</p> <p>(c) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Erected on provided suitable size cement concrete foundation duly plastered with anti vibration pads with perfect aligning, proper levelling complete pump set with engine assembly and accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete, as per specification no. FF-MFP/SSC/DP</p>	Each	533791
13-4-2	<p>Supplying, installation, testing and commissioning of main fire pump (MFP/DP) suitable for water discharge of 2280 to 2850 LPM at 90 to 60 m head driven by 76 HP or suitable HP capacity diesel engine at required working speed suitable for manual/automatic operation and consisting of following :</p> <p>(a) Horizontal type, single stage, centrifugal casing pump of cast iron body & bronze impeller with stainless steel shaft(SS410 grade), mechanical seal conforming to IS 1520.</p> <p>(b) Water cooled with radiator, diesel engine conforming to relevant IS standard complete with auto starting mechanism, 12/24 volts DC electric starting equipment with battery of required AH capacity with necessary charger suitable to work on 230v, 50Hz AC supply, diesel tank of minimum 150ltr capacity with first filling of diesel up to 100% level with necessary piping with valves up to engine , exhaust pipe extended upto 10 m outside pump house duly insulated with 50 mm thick glass wool with 1.0 mm thick aluminium sheet cladding, residential silencer, instruments and protection as per standard specification, stop solenoid for auto stop in the event of fault with audio indications etc. as required.</p> <p>(c) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Erected on provided suitable size cement concrete foundation duly plastered with anti vibration pads with perfect aligning, proper levelling complete pump set with engine assembly and accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete, as per specification no. FF-MFP/SSC/DP</p>	Each	605498

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
13-4-3	<p>Supplying, installation, testing and commissioning of main fire pump (MFP/DP) suitable for water discharge of 2280 to 2850 LPM at 120 to 90 m head driven by 110 HP or suitable HP capacity diesel engine at required working speed suitable for automatic operation and consisting of following :</p> <p>(a) Horizontal type, single stage, centrifugal casing pump of cast iron body & bronze impeller with stainless steel shaft(SS410 grade), mechanical seal conforming to IS 1520.</p> <p>(b) Water cooled with radiator, diesel engine conforming to relevant IS standard complete with auto starting mechanism, 12/24 volts DC electric starting equipment with battery of required AH capacity with necessary charger suitable to work on 230v, 50Hz AC supply, diesel tank of minimum 150ltr capacity with first filling of diesel up to 100% level with necessary piping with valves up to engine , exhaust pipe extended upto 10 m outside pump house duly insulated with 50 mm thick glass wool with 1.0 mm thick aluminium sheet cladding, residential silencer, instruments and protection as per standard specification, stop solenoid for auto stop in the event of fault with audio indications etc. as required.</p> <p>(c) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Erected on provided suitable size cement concrete foundation duly plastered with anti vibration pads with perfect aligning, proper levelling complete pump set with engine assembly and accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete, as per specification no. FF-MFP/SSC/DP</p>	Each	646056

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>13.5- Fire Pump Control Panel (FF-FCP)</u>			
13-5-1	<p>Supplying, erecting, testing & commissioning of fire pump control panel (FCP) of cubical construction, floor mounted type, fabricated from minimum 2 mm thick CRCA sheet, compartmentalised with hinged lockable doors, with enclosure protection class IP54, duly powder coated or painted with accessories duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003), cable alley, interconnection with suitable size solid copper busbar strip of adequate size for all power connections having switchgears and accessories, mountings and internal wiring with adequate size copper conductor cable, earth terminals, numbering etc. complete in all respect, suitable for satisfactory operation of main fire pump and jockey (pressurisation) pumps (1working+1standby) with necessary accessories, wiring & cabling along with allied accessories with following incoming and outgoings, suitable for automatic & manual operation on 415V, 3 phase, 50Hz ac supply as per specifications</p> <p>the capacity of electric motor driven pump are as follows</p> <p>a. Main fire pump(MFP) having capacity of 22kW 1no (1 working)</p> <p>b. Jockey pump(JP) capacity of suitable capacity 2 nos(1 working +1 standby, alternate run per start in auto mode)</p> <p>comprises of the following features & switchgears:</p> <ol style="list-style-type: none"> 1. Main incomer FP SFU having rotary handle with HRC fuses of suitable rating. 2. Electrolytic grade copper strips for busbar of suitable sizes for main incomer and branches to motor SFU's, starters & outgoing terminals with necessary accessories like stainless steel nut bolts with spring washers for connections, mounted on required no of epoxy or porcelain support insulators of suitable ratings etc. 3. Individual pump TPN SFU having rotary handle with HRC fuses of suitable rating. 4. Digital voltmeter & ammeter & RYB indicating lamps & push buttons & SPP, O/L & phase reversal protection with emergency stop switch. 5. TPN SPD 100kA Type 1 +2 tested. 6. Required pressure transducer with pressure indication on panel with cabling required for monitoring & automatic operation of fire pumps. 7. System controller to control operation of main electric fire pump, jockey (pressurization) pumps in sequence with interlocking for operation of pumps as per specification with automatic/manual operation with selector switch & alternate run of standby Pumps consisting of relays, timers. sensors, annunciation window for fault indication, complete as per specification. 8.Suitable capacity electric motor starters for all individual pumps with necessary push buttons & indications. 9. Siren of required capacity to be activated when main pump starts & allied accessories as per requirements of local CFO or as directed by engineer in charge. 10. Danger board as per IS. 11. Spare HRC fuses minimum 2 nos of each individual rating with required bakelite fuse holder for main & jockey fire pumps MFP=(1working), JP = (1working+1standby, alternate run per start in auto mode) complete panel, as per specification no. FF-MFP/ECP 	Each	183701

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
	Add on		
A	For addition of capacity of main electric motor driven fire pump MFP (1 working) for hydrant system is more than 22kW , add as follows in the basic cost of Item no 13-5-1 towards increased capacity switchgears and motor starters for main & jockey pumps alongwith necessary accessories for main & jockey fire pumps MFP=(1working), JP = (1working + 1standby, alternate run per start in auto mode)		
1	For main electric motor driven fire hydrant system pump of 30kW capacity & relevant capacity jockey pump add Rs....	Each	14317
2	For main electric motor driven fire hydrant system pump of 37kW capacity & relevant capacity jockey pump add Rs....	Each	26327
3	For main electric motor driven fire hydrant system pump of 45kW capacity & relevant capacity jockey pump add Rs....	Each	47871
4	For main electric motor driven fire hydrant system pump of 55kW capacity & relevant capacity jockey pump add Rs...	Each	69433
5	For main electric motor driven fire hydrant system pump of 75kW capacity & relevant capacity jockey pump add Rs....	Each	100910
6	For main electric motor driven fire hydrant system pump of 93kW capacity & relevant capacity jockey pump add Rs....	Each	105074
7	For main electric motor driven fire hydrant system pump of 112kW capacity & relevant capacity jockey pump add Rs....	Each	120001
B	For addition of fire sprinkler system to basic fire hydrant system control panel(FCP) which includes one main electric motor driven fire pump MFP (1working) having __kW capacity & relevant capacity jockey pumps , add as follows in the basic cost of Item no 13-5-1 towards increased capacity switchgears busbar and additional motor starters for main & jockey pumps alongwith necessary accessories with software & hardware for main & jockey fire pumps additional Sprinkler system MFP=(1working)@22kW, JP = (1working+1standby, alternate run per start in auto mode) @relevant capacity		
1	For main electric motor driven fire sprinkler system pump of 22kW capacity (1Working) & relevant capacity jockey pumps (1working+1standby, alternate run per start in auto mode, add Rs....	Each	112771
2	For main electric motor driven fire sprinkler system pump of 30kW capacity (1Working) & relevant capacity jockey pumps (1working+1standby, alternate run per start in auto mode, add Rs....	Each	138213
3	For main electric motor driven fire sprinkler system pump of 37kW capacity (1Working) & relevant capacity jockey pumps (1working+1standby, alternate run per start in auto mode, add Rs....	Each	163005
4	For main electric motor driven fire sprinkler system pump of 45kW capacity (1Working) & relevant capacity jockey pumps (1working+1standby, alternate run per start in auto mode, add Rs....	Each	200853
5	For main electric motor driven fire sprinkler system pump of 55kW capacity (1Working) & relevant capacity jockey pumps (1working+1standby, alternate run per start in auto mode, add Rs....	Each	239808
6	For main electric motor driven fire sprinkler system pump of 75kW capacity (1Working) & relevant capacity jockey pumps (1working+1standby, alternate run per start in auto mode, add Rs....	Each	306285
7	For main electric motor driven fire sprinkler system pump of 93kW capacity (1Working) & relevant capacity jockey pumps (1working+1standby, alternate run per start in auto mode, add Rs....	Each	321486
8	For main electric motor driven fire sprinkler system pump of 112kW capacity (1Working) & relevant capacity jockey pumps (1working+1standby, alternate run per start in auto mode, add Rs....	Each	346320

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
C	<p>For standby main electric motor driven fire hydrant/sprinkler system pump (MFP- 1 standby), add as follows in the basic cost of Item no 13-5-1 towards required switchgears and motor starter alongwith necessary accessories and updation of control logic with interlocking for operation of pumps MFP=(1working+1standby, alternate run per start in auto mode) JP = (1working+1standby, alternate run per start in auto mode) for main & jockey fire pumps</p>		
1	For standby main electric driven fire hydrant/sprinkler system pump of 22kW capacity Rs.....	Each	27024
2	For standby main electric driven fire hydrant/sprinkler system pump of 30kW capacity, add Rs.....	Each	30290
3	For standby main electric driven fire hydrant/sprinkler system pump of 37kW capacity, add Rs.....	Each	33808
4	For standby main electric driven fire hydrant/sprinkler system pump of 45kW capacity, add Rs.....	Each	37358
5	For standby main electric driven fire hydrant/sprinkler system pump of 55kW capacity, add Rs.....	Each	43809
6	For standby main electric driven fire hydrant/sprinkler system pump of 75kW capacity, add Rs.....	Each	54713
7	For standby main electric driven fire hydrant/sprinkler system pump of 93kW capacity, add Rs.....	Each	55613
8	For standby main electric driven fire hydrant/sprinkler system pump of 112kW capacity, add Rs.....	Each	58795
D	<p>For addition of standby main diesel engine driven fire pump (1standby), add as follows in the basic cost of Item no 13-5-1 towards required 12/24 v battery charger and diesel engine starter alongwith necessary accessories, indicators etc. with necessary interlocking and updation of control logic with interlocking for operation of pumps MFP for main (1working+1standby mode) & jockey fire pumps (1working+1standby, alternate run per start in auto mode) , add Rs.....</p> <p>The control for diesel engine comprises of automatic/manual selector switch & 3 attempts starting device, timers and relays as required, push buttons, start/stop in manual mode indicating lamp for high/ low Lub. oil pressure, high water temp and engine on indication battery charger suitable for 12V/24 V DC with boost and trickle selector switch, 0-30 V DC voltmeter, and 0-20 A DC ammeter with all standard relays and accessories required for automatic operation of diesel engine with interlocking for operation of main fire pumps</p>	Each	69162
E	<p>For addition of booster pump for fire hydrant/sprinkler, add as follows in the basic cost of item no 13-5-1 towards necessary accessories, indicators etc. with necessary interlocking and updation of control logic, add Rs.....</p>		
1	for 5.5/ 7.5 kW centrifugal type booster pump 1no(1working) , add Rs.....	Each	18203
2	for 11kW centrifugal type booster pump 1no(1working) , add Rs.....	Each	18872
<u>13.6 Pipes (FF-PP)</u>			
13-6-1	Supplying and erecting G.I. pipe 'C' class ERW 20 mm dia with necessary fittings duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete as per specification no. FF-PP	m	261

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
13-6-2	Supplying and erecting G.I. pipe 'C' class ERW 25 mm dia with necessary fittings duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete as per specification no. FF-PP	m	363
13-6-3 (New)	Supplying and erecting G.I. pipe 'C' class ERW 32 mm dia with necessary fittings duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete as per specification no. FF-PP	m	426
13-6-4 (New)	Supplying and erecting G.I. pipe 'C' class ERW 40 mm dia with necessary fittings duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete as per specification no. FF-PP		473
13-6-5	Supplying and erecting G.I. pipe 'C' class ERW 50 mm dia with necessary fittings duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete as per specification no. FF-PP	m	719
13-6-6	Supplying and erecting G.I. pipe 'C' class ERW 65 mm dia with necessary fittings duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete as per specification no. FF-PP	m	916
13-6-7	Supplying and erecting G.I. pipe 'C' class ERW 75/80 mm dia with necessary fittings duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete as per specification no. FF-PP	m	1164
13-6-8	Supplying and erecting G.I. pipe 'C' class ERW 100 mm dia with necessary fittings duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete as per specification no. FF-PP	m	1640
13-6-9	Supplying and erecting G.I. pipe 'C' class ERW 150 mm dia with necessary fittings duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete as per specification no. FF-PP	m	2463
13-6-10	Supplying and erecting G.I. pipe 'C' class ERW 200 mm dia with necessary fittings duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003) complete as per specification no. FF-PP	m	3631
13-6-11	Providing coating of bitumen paint & pipeline corrosion resistant Pypkote tape conforming to IS 10221 Appendix B specification having 4mm thick wrapping for underground 100 mm ring main of fire fighting system. (Pypkote tape comprises of a Tar based Polymeric mix supported on a fabric of high tensile strength Fibreglass).	m	262
13-6-12	Providing coating of bitumen paint & pipeline corrosion resistant Pypkote tape conforming to IS 10221 Appendix B specification having 4mm thick wrapping for underground 150 mm ring main of fire fighting system. (Pypkote tape comprises of a Tar based Polymeric mix supported on a fabric of high tensile strength Fibreglass).	m	364
13-6-13	Providing coating of bitumen paint & pipeline corrosion resistant Pypkote tape conforming to IS 10221 Appendix B specification having 4mm thick wrapping for underground 200 mm ring main of fire fighting system. (Pypkote tape comprises of a Tar based Polymeric mix supported on a fabric of high tensile strength Fibreglass).	m	447

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>13.7 Valves (FF-VL)</u>			
13-7-1	Supplying and erecting 80 mm dia cast iron foot valve ball type/flap type with strainer for negative suction complete as per specification no. FF-VL/FV	Each	5434
13-7-2	Supplying and erecting 100 mm dia cast iron foot valve ball type/flap type with strainer for negative suction complete as per specification no. FF-VL/FV	Each	6991
13-7-3	Supplying and erecting 150 mm dia cast iron foot valve ball type/flap type with strainer for negative suction complete as per specification no. FF-VL/FV	Each	19561
13-7-4	Supplying and erecting 200 mm dia cast iron foot valve ball type/flap type with strainer for negative suction complete as per specification no. FF-VL/FV	Each	32647
<u>End Line Strainer (positive suction) (ELS)</u>			
13-7-5	Supplying and erecting 75/80 mm dia Cast Iron end line strainer of Y-type flanged end pattern, PN16 pressure rating, SS screen, end connection with Flanged / Screwed / Socket Weld / Butt Weld End etc with standard OAR (open area Ratio) for positive suction complete as per specification no. FF-VL/ELS	Each	4595
13-7-6	Supplying and erecting 100 mm dia Cast Iron end line strainer of Y-type flanged end pattern, PN16 pressure rating, SS screen, end connection with Flanged / Screwed / Socket Weld / Butt Weld End etc with standard OAR (open area Ratio) for positive suction complete as per specification no. FF-VL/ELS	Each	6670
13-7-7	Supplying and erecting 150 mm dia Cast Iron end line strainer of Y-type flanged end pattern, PN16 pressure rating, SS screen, end connection with Flanged / Screwed / Socket Weld / Butt Weld End etc with standard OAR (open area Ratio) for positive suction complete as per specification no. FF-VL/ELS	Each	11651
13-7-8	Supplying and erecting 200 mm dia Cast Iron end line strainer of Y-type flanged end pattern, PN16 pressure rating, screen of SS end connection with Flanged / Screwed / Socket Weld / Butt Weld End etc with standard OAR (open area Ratio) for positive suction complete as per specification no. FF-VL/ELS	Each	21356
13-7-9	Supplying and erecting 75/80 mm dia Cast Iron end line strainer of T-Pot type flanged end pattern, PN16 pressure rating, SS screen, end connection with flanged, for positive suction complete as per specification no. FF-VL/ELS	Each	4422
13-7-10	Supplying and erecting 100 mm dia Cast Iron end line strainer of T-Pot type flanged end pattern, PN16 pressure rating, screen of SS and end connection with flanged, for positive suction complete as per specification no. FF-VL/ELS	Each	5988
13-7-11	Supplying and erecting 150 mm dia Cast Iron end line strainer of T-Pot type flanged end pattern, PN16 pressure rating, screen of SS and end connection with flanged,for positive suction complete as per specification no. FF-VL/ELS	Each	10843
13-7-12	Supplying and erecting 200 mm dia Cast Iron end line strainer of T-Pot type flanged end pattern, PN16 pressure rating, screen of SS and end connection with flanged,for positive suction complete as per specification no. FF-VL/ELS	Each	19385

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>Sluice Valve</u>			
13-7-13	Supplying and erecting 75/80 mm dia. cast iron double flange sluice valve complete with PN16 pressure rating, as per specification no. FF-VL/SV	Each	6232
13-7-14	Supplying and erecting 100 mm dia. cast iron double flange sluice valve complete with PN16 pressure rating, as per specification no. FF-VL/SV	Each	9181
13-7-15	Supplying and erecting 150 mm dia. cast iron double flange sluice valve complete with PN16 pressure rating, as per specification no. FF-VL/SV	Each	14310
13-7-16	Supplying and erecting 200 mm dia. cast iron double flange sluice valve complete with PN16 pressure rating, as per specification no. FF-VL/SV	Each	23746
<u>Butterfly Valves (BFV)</u>			
13-7-17	Supplying and erecting 50 mm dia. cast iron double flange butterfly valve of size complete with PN16 pressure rating, as per specification no. FF-VL/BFV	Each	2508
13-7-18	Supplying and erecting 65 mm dia. cast iron double flange butterfly valve of size complete with PN16 pressure rating, as per specification no. FF-VL/BFV	Each	2709
13-7-19	Supplying and erecting 75/80 mm dia. cast iron double flange butterfly valve of size complete with PN16 pressure rating, as per specification no. FF-VL/BFV	Each	3222
13-7-20	Supplying and erecting 100 mm dia. cast iron double flange butterfly valve of size complete with PN16 pressure rating, as per specification no. FF-VL/BFV	Each	4317
13-7-21	Supplying and erecting 150 mm dia. cast iron double flange butterfly valve of size complete with PN16 pressure rating, as per specification no. FF-VL/BFV	Each	6416
13-7-22	Supplying and erecting 200 mm dia. cast iron double flange butterfly valve of size complete with PN16 pressure rating, as per specification no. FF-VL/BFV	Each	10285
<u>Non Return Valve (NRV)</u>			
13-7-23	Supplying and erecting 75/80 mm dia cast iron double flange NRV complete with PN16 pressure rating, as per specification no. FF-VL/NRV	Each	6439
13-7-24	Supplying and erecting 100 mm dia cast iron double flange NRV complete with PN16 pressure rating, as per specification no. FF-VL/NRV	Each	8642
13-7-25	Supplying and erecting 150 mm dia cast iron double flange NRV complete with PN16 pressure rating, as per specification no. FF-VL/NRV	Each	14147
13-7-26	Supplying and erecting 200 mm dia cast iron double flange NRV complete with PN16 pressure rating, as per specification no. FF-VL/NRV	Each	22344
13-7-27	Supplying and erecting 75/80 mm dia cast iron double flange ball type NRV complete with PN16 pressure rating, as per specification no. FF-VL/NRV	Each	8758
13-7-28	Supplying and erecting 100 mm dia cast iron double flange ball type NRV complete with PN16 pressure rating, as per specification no. FF-VL/NRV	Each	11878
13-7-29	Supplying and erecting 150 mm dia cast iron double flange ball type NRV complete with PN16 pressure rating, as per specification no. FF-VL/NRV	Each	28549
13-7-30	Supplying and erecting 200 mm dia cast iron double flange ball type NRV complete with PN16 pressure rating, as per specification no. FF-VL/NRV	Each	45690
<u>Gate / Wheel Valves (GV)</u>			
13-7-31	Supplying and erecting 20 mm dia gun metal gate valve complete with PN16 pressure rating, as per specification no. FF-VL/GV	Each	956

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
13-7-32	Supplying and erecting 25 mm dia gun metal gate valve complete with PN16 pressure rating, as per specification no. FF-VL/GV	Each	1260
13-7-33	Supplying and erecting 32/40 mm dia gun metal gate valve complete with PN16 pressure rating, as per specification no. FF-VL/GV	Each	1476
13-7-34	Supplying and erecting 50 mm dia gun metal gate valve complete with PN16 pressure rating, as per specification no. FF-VL/GV	Each	1524
<u>Hydrant Valves (HV)</u>			
13-7-35	Supplying and erecting gun metal single outlet hydrant valve fitted with necessary accessories complete as per specification no. FF-VL/HV	Each	8030
13-7-36	Supplying and erecting stainless steel single outlet hydrant valve fitted with necessary accessories complete as per specification no. FF-VL/HV	Each	6090
13-7-37	Supplying gun metal double outlet hydrant valve fitted with necessary accessories complete as per specification no. FF-VL/HV	Each	17560
13-7-38	Supplying and erecting stainless steel double outlet hydrant valve fitted with necessary accessories complete as per specification no. FF-VL/HV	Each	12561
<u>Ball Valve (BV)</u>			
13-7-39	Supplying and erecting 25 mm Ball Valve complete with PN16 pressure rating, as per specification no. FF-VL/BV	Each	1475
13-7-40	Providing and fixing 32/40 mm Ball Valve complete with PN16 pressure rating, as per specification no. FF-VL/BV	Each	2433
13-7-41	Providing and fixing 50 mm Ball Valve with complete with PN16 pressure rating, as per specification no. FF-VL/BV	Each	3388
<u>Installation control valve(ICV)</u>			
13-7-42	Supplying and erecting, testing and commissioning of 100 mm dia. installation control valve(Alarm Valve) of cast iron body, brass/bronze working parts comprising of water motor alarm, bronze seat clapper, clapper arm and hydraulically driven mechanical gong bell to sound continuous alarm when the wet riser/sprinkler system activates, pressure gauges, emergency releases, strainer, pressure switch,cock valve complete with drain valve and bypass, test control box, ball valves, MS pipes of required size, flanges, orifice plate, gasket etc. complete as per specification no. FF-VL/ICV	Each	33560
13-7-43	Supplying and erecting, testing and commissioning of 150 mm dia. installation control valve(Alarm Valve) of cast iron body, brass/bronze working parts comprising of water motor alarm, bronze seat clapper, clapper arm and hydraulically driven mechanical gong bell to sound continuous alarm when the wet riser/sprinkler system activates, pressure gauges, emergency releases, strainer, pressure switch,cock valve complete with drain valve and bypass, test control box, ball valves, MS pipes of required size, flanges, orifice plate, gasket etc. complete as per specification no. FF-VL/ICV	Each	39143
<u>13.8 Fire Fighting Accessories (FF-FFA)</u>			
<u>Priming Tank</u>			
13-8-1	Supplying and installing one piece moulded HDP/ fibre water tank for negative suction only, having capacity 1000 litres fitted with necessary accessories complete as per specification no. FF-FFA/PT	Each	10183
<u>Hose Reel with Drum (HR)</u>			
13-8-2	Supplying and installing wall mounting swinging hose reel drum fitted with 19 mm dia. 30m long high pressure polypropylene (Polyhose) alongwith necessary accessories complete as per specification no. FF-FFA/HV	Each	7023

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>Hose Pipes</u>			
13-8-3	Supplying and erecting 63mm dia, controlled percolation (C.P.) hose pipe, 15m in length , fitted with necessary accessories complete as per specification no. FF-FFA/CPH	Each	4074
13-8-4	Supplying and erecting 63mm dia, reinforced rubber lined (R.R.L.) hose pipe, 15m in length , fitted with necessary accessories complete as per specification no. FF-FFA/RRL	Each	5491
13-8-5	Supplying and erecting 19 mm dia high pressure poly propylene hose pipe complete as per specification no. FF-FFA/HOP	m	163
13-8-6	Supplying and erecting 19 mm dia high pressure rubber hose pipe complete as per specification no. FF-FFA/RHP	m	108
<u>Nozzles (NZ)</u>			
13-8-7	Supplying and erecting gun metal branch pipe of 63 mm dia fitted with 20 mm dia detachable hexagonal nozzle complete as per specification no. FF-FFA/NZ	Each	2023
13-8-8	Supplying and erecting stainless steel branch pipe 63 mm dia fitted with 20 mm dia detachable hexagonal nozzle complete as per specifications no. FF-FFA/NZ	Each	2028
13-8-9	Supplying and erecting 19 mm dia gun metal chrome plated nozzle complete as per specification no. FF-FFA/NZ	Each	1010
<u>Fire Brigade Connection (FBC)</u>			
13-8-10	Supplying and erecting 150 mm dia fire brigade header suitable for supplying water in fire tank complete as per specification no. FF-FA/FBC	Each	9937
<u>Siamese Connection (SMC)</u>			
13-8-11	Supplying and erecting fire brigade header (Siamese connection) of 150 mm dia, for supplying water in fire tank complete as per specification no. FF-FA/FMC	Each	12169
<u>Air Cushion Tank (Air Vessel) (ACT)</u>			
13-8-12	Supplying and erecting 300 mm dia 1.5m in height air vessel / tank fabricated from min 5mm thick M.S. sheet complete as per specification no. FF-FFA/ACT	Each	13097
<u>Air Release Valve (ARV)</u>			
13-8-13	Supplying and erecting 20/25mm dia gun metal air release cock , with necessary G.I. coupling to be fitted on top of air vessel or on wet riser complete as per specification no. FF-FFA/ARV	Each	884
<u>Pressure Gauge (PG)</u>			
13-8-14	Supplying and erecting 100 mm dia. pressure gauge , 0-300 PSI or 0-14 kg per cm square fitted with 12/15 mm dia. pad cock valve, erected with provided G.I. pipe, elbow etc. complete as per specification no. FF-FFA/PG	Each	810
<u>Pressure Switch(PS)</u>			
13-8-15	Supplying and erecting 12/15 mm dia pressure switch with provided isolation valve, G.I. nipple, elbow, etc complete as per specification no. FF-FFA/PS	Each	1853
<u>Orifice Plate(OP)</u>			
13-8-16	Supplying and erecting brass orifice plate having 6 mm. thickness, 140 mm outer dia with required diameter of inner hole at every single outlet hydrant valve as per specification no. FF-FFA/OP	Each	1061

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
13-8-17	Supplying and erecting brass orifice plate having 6 mm. thickness, 160 mm outer dia with required diameter of inner hole at every double outlet hydrant valve as per specification no. FF-FFA/OP	Each	1075
<u>MS / CRCA Boxes (BOX)</u>			
13-8-18	Supplying and erecting M.S./CRCA cabinet for housing single hydrant valve of size (400 x 400 x 400)mm made from min. 1.5 mm thick CRCA sheet with angle iron work of min. of size (25 x 25 x 4) mm having front doors with viewing glass of size (200x150) mm and locking arrangement with necessary fixing material such as rubber bidding etc. duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003)	Each	5414
13-8-19	Supplying and erecting M.S./CRCA cabinet for housing Fire Brigade / SIAMESE connections (size 1250 x 400 x 300 mm.) made from 16 SWG sheet and angle iron 25 mm. x 25 mm. x 4 mm. having front doors with viewing glass (8" x 6") and locking arrangement with necessary fixing material such as rubber bidding etc. duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003)	Each	8624
13-8-20	Supplying and erecting M.S./CRCA cabinet for housing Floor Hydrant valve, hose pipe, hose reel and branch pipe (size 1000 x 736 x 736 mm.) made from 16 SWG sheet and angle iron 25 x 25 x 4 mm. having front doors with viewing glass (8"x6") and locking arrangement with necessary fixing material such as rubber bidding etc. duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003)	Each	16660
13-8-21 (New)	Supplying and erecting M.S./CRCA cabinet for housing single hose pipe with nozzle (size 500 x 500 x 200 mm.) made from 16 SWG sheet and angle iron 25 x 25 x 4 mm. having front doors with viewing glass (8"x6") and locking arrangement with necessary fixing material such as rubber bidding etc. duly painted with two coats of synthetic enamel paint of fire red colour over a coat of primer (ISC code 536 as per IS 2932 of 2003)	Each	5465
13-8-22 (New)	Supplying and erecting M.S./CRCA cabinet for housing double hose pipe with nozzle (size 750 x 600x 250 mm.) made from 16 SWG sheet and angle iron 25 x 25 x 4 mm. having front doors with viewing glass (8"x6") and locking arrangement with necessary fixing material such as rubber bidding etc. duly painted in post box red colour(Code 538 of IS 5)	Each	7331
<u>13.9 Conventional Fire Alarm System (FF-FAS)</u>			
13-9-1	Supplying, erecting testing and commissioning heat detector with combination "ROR and Fixed Temp." complete as per specification no. FF-FAS/HD	Each	1685
13-9-2	Supplying, erecting testing and commissioning Multi Sensor (Smoke + Heat) detector with base on back box, necessary connections complete as per specification no. FF-FAS/MSD	Each	2065
13-9-3	Supplying, erecting testing and commissioning Optical Type Smoke Detector on suitable back box with necessary connections complete as per specification no. FF-FAS/SD	Each	1740
13-9-4	Supplying, erecting testing and commissioning beam smoke detector four wire single ended reflected type with 8 " receiver having digital display for easy alignment, adjustable sensitivity & heater kit for transmitter/receiver and reflector with necessary connections on suitable back box. The protection range of beam detector is 5 to 100 Meters.	Each	58386
Note: For large areas and passages beam detectors should be preferably used			

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
13-9-5	Supplying, erecting testing and commissioning Manual Call Point with break glass, push button (Resettable Type) in metal enclosure complete as per specification no. FF-FAAS/MCP	Each	585
13-9-6	Supplying, erecting, testing and commissioning hooters having high (100dB @ 1m) and low (94dB @ 1m) volume setting , group addressing facility allowing multiple sounders to be activated with CRCA enclosure complete as per specification no. FF-FAAS/HTR	Each	643
13-9-7 (New)	Supplying, erecting, testing and commissioning of Conventional Sounder cum Strobe rated at minimum 75 dB @ 3m for Audible annunciation and minimum 75cd flashing at 1 Hz for visual indication.. FF-FAAS/S-ST	Each	1729
13-9-8	Supplying, installing, testing and commissioning remote response indicators suitable to operate on 5 - 28 V dc supply having FR Polymer ABS Housing complete as per specification no. FF-FAAS/RRI	Each	210
13-9-9	Supplying, installing, testing and commissioning FR, XLPE armoured cable 2 core 1.5 sq.mm. copper conductor complete erected on wall/ ceiling complete as per specification no. CB-LT/CU	m	112
13-9-10	Supplying, installing, testing and commissioning FR, XLPE armoured cable 4 core 1.5 sq.mm. copper conductor complete erected on wall/ ceiling complete as per specification no. CB-LT/CU	m	136
13-9-11	Supplying, installing, testing and commissioning FR, XLPE armoured cable 8 core 1.5 sq.mm. copper conductor complete erected on wall/ ceiling complete as per specification no. CB-LT/CU	m	239
13-9-12	Supplying, installing, testing and commissioning FR, XLPE armoured cable 12 core 1.5 sq.mm. copper conductor complete erected on wall/ ceiling complete as per specification no. CB-LT/CU	m	323
13-9-13	Supplying, installing, testing and commissioning of 2 Zone Microprocessor based, conventional fire alarm control panel (FACP) with standard accessories , 16x2 Character LCD Display, provision for zone wise contact and beep sound alarm, suitable to operate on 120-220 V AC, complete as per specification no. FF-FAAS/FACP	Each	17929
Note:-	1) Item no 13-9-9 to 13-9-12 -For use of FRLS-XLPE insulation instead of FR-XLPE insulated armoured cable increase rate by 2 %		
(New)	2) Item no 13-9-9 to 13-9-12 -For use of XL-HFFR insulation instead of FR-XLPE insulated armoured cable increase material rates by 14 %		
(New)	3) XL-HFFR insulated armoured cable are applicable for indoor use only.		
(New)	4) XL-HFFR insulated armoured cable shall be used for Hospital Buildings only. For use in other applications, approval of concerned Superintending Engineer, P.W. Regional Circle (Electrical) shall be taken.		
	5) For Item no.13.9.13 increase rate by 25% for additional zone as per requirement.		
13-9-14	Supplying, installing, testing and commissioning 2 Zone, local signal conventional control panel (LCP) with standard accessories complete as per specification no. FF-FAAS/LCP	Each	5991
Note:	Increase completed rate by 10% for additional zone as per requirement.		

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
13-9-15 (New)	Supplying installation testing commissioning of Microcontroller based GSM(suitable for 2G/3G/4G network) speech and SMS dialer suitable for fire alarm system The dialer shall have 2 Alarm inputs - intrusion and Fire. And 2 separate speech / Voice messages (intrusion and Fire)recording facility. Compatible to add upto 9 mobile numbers for intrusion alert and 9 for Fire alert. The First 2 mobile numbers are the administrators having all permissions like register / modify site's name & address, register/modify security & Fire alert numbers and Record & playback of voice alert messages. The dialer shall have a 32 Bit LCD Display and LED indicating power, dialing, Signal, Play, Record status, the system should include sim with validity of 1 Year.	Each	12376
<i>13.10 Intelligent Addressable Fire Alarm System (FF-AFAS)</i>			
13-10-1	Supplying, installing, testing and commissioning of micro processor based intelligent addressable main fire alarm panel , central processing unit with the 1 loop capacity and capable of supporting not less than 250 devices and detectors per loop, with on-board LCD alphanumeric backlit display suitable for minimum 80 characters, operating at 230 V 50 Hz - AC with inbuilt Battery Backup of a minimum 24 hours in normal condition and 30 minutes in alarm condition, The panel shall have suitable provision for network connectivity & compatible for third party integration(Open Protocol to communicate) via a MODBUS/BACNET interface etc. conforming to IS 15908:2021, IS 2189: 2008, NFPA-72, EN 54 / VdS/FM & UL 864(10th edition) with 3 years replacement warranty and inclusive of lifetime software license validity, as per specification no FF-AFAS/CP.	Each	157245
13-10-2	Supplying, installing, testing and commissioning of micro processor based intelligent addressable main fire alarm panel , central processing unit with the 2 loop capacity and capable of supporting not less than 250 devices and detectors per loop, with on-board LCD alphanumeric backlit display suitable for minimum 80 characters, operating at 230 V 50 Hz - AC with inbuilt Battery Backup of a minimum 24 hours in normal condition and 30 minutes in alarm condition, The panel shall have suitable provision for network connectivity & compatible for third party integration(Open Protocol to communicate) via a MODBUS/BACNET interface etc. conforming to IS 15908:2021, IS 2189: 2008, NFPA-72, EN 54 / VdS/FM & UL 864(10th edition) with 3 years replacement warranty and inclusive of lifetime software license validity , as per specification no FF-AFAS/CP.	Each	172095
13-10-3	Supplying, installing, testing and commissioning of micro processor based intelligent addressable main fire alarm panel , central processing unit with the 4 loop capacity and capable of supporting not less than 250 devices and detectors per loop, with on-board LCD alphanumeric backlit display suitable for minimum 80 characters, operating at 230 V 50 Hz - AC with inbuilt Battery Backup of a minimum 24 hours in normal condition and 30 minutes in alarm condition, The panel shall have suitable provision for network connectivity & compatible for third party integration(Open Protocol to communicate) via a MODBUS/BACNET interface etc. conforming to IS 15908:2021, IS 2189: 2008, NFPA-72, EN 54 / VdS/FM & UL 864(10th edition) with 3 years replacement warranty and inclusive of lifetime software license validity , as per specification no FF-AFAS/CP.	Each	279040

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
13-10-4	Supplying, installing, testing and commissioning of micro processor based intelligent addressable main fire alarm panel , central processing unit with the 8 loop capacity and capable of supporting not less than 250 devices and detectors per loop, with on-board LCD alphanumeric backlit display suitable for minimum 80 characters, operating at 230 V 50 HZ - AC with inbuilt Battery Backup of a minimum 24 hours in normal condition and 30 minutes in alarm condition, The panel shall have suitable provision for network connectivity & compatible for third party integration(Open Protocol to communicate) via a MODBUS/BACNET interface etc. conforming to IS 15908:2021, IS 2189: 2008, NFPA-72, EN 54 / VdS/FM & UL 864(10th edition) with 3 years replacement warranty and inclusive of lifetime software license validity , as per specification no FF-AFAS/CP .	Each	394226
13-10-5	Supplying, installing, testing and commissioning of Addressable Optical Photo Smoke Detector . The detector shall have multi co-operative sensing technology for faster response & avoid false alarms. The detector shall have single/twin bi-colour LED for 360 deg viewing. The detector is conforming to IS 2189: 2008, 11360_1985_Reff2020_EN 54 /VdS / UL & FM approved with 3 years equipment replacement warranty, Designed to meet UL268, 7th Edition. FF-AFAS/SD .	Each	2380
13-10-6	Supplying, installing, testing and commissioning of intelligent addressable thermal/heat detector with rate of rise cum fixed temperature thermistor complete with 0°C to 58°C temperature range, with base as required, single/twin LED's with 360 degree view, in-built locking mechanism to check the removal and pilferage of the detector, Detector Shall conforming to IS : 2175 - 1988 reaffirmed 2000, IS 15908:2021 / EN 54 / VdS / UL & FM approved with 3 years equipment replacement warranty, Designed to meet UL268, 7th Edition. FF-AFAS/HD - ROR .	Each	2714
13-10-7	Supplying, installing, testing and commissioning of intelligent addressable thermal/heat detector with fixed temperature thermistor with 0°C to 88°C temperature range, complete with base as required, single/twin LED's with 360 degree view, in-built locking mechanism to check the removal and pilferage of the detector, . Detector Shall conforming to IS : 2175 - 1988 reaffirmed 2000, IS 15908:2021 / EN 54 / VdS / UL & FM approved with 3 years equipment replacement warranty, Designed to meet UL268, 7th Edition, , as per specification no FF-AFAS/HD - ROR .	Each	2825
13-10-8 (New)	Supplying, installing, testing and commissioning of Addressable Multisensor/Multicriteria Photo Thermal (Smoke + Heat) Detector . The detector shall have twin bi-colour LED for 360 deg viewing. The intelligent multi criteria detection device shall include the ability to combine the signal of the thermal sensor with the signal of the photoelectric signal in an effort to react hastily in the event of a fire situation. It shall also include the inherent ability to distinguish between a fire condition and a false alarm condition by examining the characteristics of the thermal and smoke sensing chambers and comparing them to a database of actual fire and deceptive phenomena. This item is referred for Non-conditioning Area conforming to EN 54/VdS / UL & FM approved with 3 years equipment replacement warranty, Designed to meet UL268, 7th Edition.	Each	4289

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
13-10-9 (New)	Supplying, installing, testing and commissioning of Addressable Multisensor/Multicriteria (Smoke/IR + Heat + CO) Detector . The detector shall have four sensing elements viz. Photo electric smoke, Heat, Carbon Monoxide & Infra Red Flame detection combined in a single detector. The detector shall have twin bi-colour LED for 360 deg viewing. Addressing shall be with user friendly rotary decimal switches. The internal CO Sensor should be replaceable upon EOL. It should be possible to generate 2 distinctive tones if the CO concentration reaches 2 definite user defined levels. This detector conforming to EN 54/VdS / UL & FM approved with 3 years equipment replacement warranty, Designed to meet UL268, 7th Edition.	Each	19328
13-10-10	Supplying, installing, testing and commissioning of addressable fire control/relay module for AHU, Access Control, Lifts, Staircase Pressurization, Fire Suppression & other Third Party Outputs etc., Module shall conforming to IS 5051 Part 2 (Sec 1 to 3) : 1982 reed relays / EN 54/VdS / UL & FM approved with 3 years equipment replacement warranty, as per specification no FF-AFAS/CRM-FCM	Each	3779
13-10-11	Supplying, installing, testing and commissioning of addressable fire monitor module for flow switches, Panic Bars & other Third Party Inputs. The monitor module shall monitor potential free contacts. The device shall have an LED which shall blink in normal state & get steady on activation to monitor the health status of the device complete as required. Module shall conforming to IS 5051 Part 2 (Sec 1 to 3) : 1982 Reed relays, EN 54/VdS / UL & FM approved with 3 years equipment replacement warranty, as per specification no FF-AFAS/MM	Each	3730
13-10-12	Supplying, installing, testing and commissioning of addressable fire isolator module for isolating short / dewired / loose circuits with automatic resetting arrangement. Isolator Base can also be proposed, however in that case needs to be considered with each detector & module. The device shall have an LED which shall blink in normal state & get steady on activation to monitor the health status of the device. module complete as required. Module shall conforming to IS 5051 Part 2 (Sec 1 to 3) : 1982, , EN 54/VdS / UL & FM approved with 3 years equipment replacement warranty, FF-AFAS/ISM	Each	3055
13-10-13	Supplying, installing, testing and commissioning of addressable manual call points (break glass type/pull station type), made of addressable break glass plastic square in shape surface/flush mounted with "Break Glass" message embedded on the glass, complete erected with mounting base and required accessories, Module shall conform to EN 54/VdS / UL & FM approved with 3 years equipment replacement warranty, as per specification no FF-AFAS/MCP .	Each	3579
13-10-14	Supplying, installing, testing and commissioning of Addressable Sounder cum Strobe rated at minimum 75 dB @ 3m for Audible annunciation and minimum 75cd flashing at 1 Hz for visual indication. Module shall conforming to IS 2189: 2008, IS 15908:2021 / EN 54/VdS / UL & FM approved with 3 years equipment replacement warranty, as per specification no FF-AFAS/ S-ST	Each	7837
13-10-15	Supplying, installing, testing and commissioning of digital linear heat detection cable along installation accessories e.g. clips, nails & end cap etc. duly addressable through monitor module with temperature ratings such as, 58°-105°C , conforming to IS 2189: 2008, EN 54 or UL listed, as per specification no. FF-AFAS/LHDC .	m	397

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
13-10-16	Supplying, installing, testing and commissioning of repeater panel with suitable battery backup of a minimum of 24 hours in normal condition and 30 min in alarm condition, minimum 10" LCD or LED display with resistive touch screen or function keys and automatic back-light dimming and the status of any Fire/Fault of Integrated Fire Alarm Panels or minimum 80 characters backlit alphanumeric LCD display with inbuilt buzzer to indicate fault/fire alarm, manual control keys for silence/mute and to reset the FACP from the repeater station. Panel shall conforming to IS 15908:2021, IS 2189: 2008, NFPA-72, EN 54 / VdS/FM & UL with 3 years replacement warranty FF-AFAS/RP. (Compatible with 1/2 Loop Fire Alarm Control Panel), as per specification no FF-AFAS/RP	Each	74506
13-10-17 (New)	Supplying, installing, testing and commissioning of repeater panel with suitable battery backup of a minimum of 24 hours in normal condition and 30 min in alarm condition, minimum 10" LCD or LED display with resistive touch screen or function keys and automatic back-light dimming and the status of any Fire/Fault of Integrated Fire Alarm Panels or on-board LCD alphanumeric backlit display suitable up to 640 characters with inbuilt buzzer to indicate fault/fire alarm, manual control keys for silence/mute and to reset the FACP from the repeater station. Panel shall conforming to IS 15908:2021, IS 2189: 2008, NFPA-72, EN 54 / VdS/FM & UL with 3 years replacement warranty FF-AFAS/RP. (Compatible with modular FAS panel from 4 loop upto 10 Loop Fire Alarm Control Panel), as per specification no FF-AFAS/RP	Each	96732
<i>13.11 Sprinklers (FF-SPR)</i>			
13-11-1	Supplying, erecting, testing and commissioning of Upright/ Pendent quartzoid bulb sprinkler, 15 mm (½") dia. NBCM Body chrome finished, 68° C fixed temperature rating with deflector disc of conventional construction complete as per specification no. FF-SPR./UP	Each	448
13-11-2 (New)	Supplying, erecting, testing and commissioning of horizontal sidewall quartzoid bulb sprinkler, 15 mm (½") dia quartzoid bulb. NBCM Body chrome finished, 68° C fixed temperature rating with deflector disc of conventional construction complete as per specification no. FF-SPR/SS	Each	495
13-11-3 (New)	Supplying, erecting, testing and commissioning of concealed quartzoid bulb sprinkler, 15 mm (½") dia quartzoid bulb. NBCM Body chrome finished, 68° C fixed temperature rating with deflector disc of conventional construction complete as per specification no. FF-SPR/CON	Each	1177
13-11-4	Supplying, erecting, testing and commissioning vane type water flow detector 75/80 mm dia. with 1) Visual switch activation 2) Rugged switch assembly 3) Heavy duty aluminium pipe saddles 4)Durable metal enclosure 5) Steel U bolts for secure mounting 6) Two SPDT (Single pole double track) synchronised switches 7) serviceable without draining pipes. as per specification no. FF-SPR/WFD	Each	7483
13-11-5	Supplying, erecting, testing and commissioning vane type water flow detector 100 mm dia. with 1) Visual switch activation 2) Rugged switch assembly 3) Heavy duty aluminium pipe saddles 4)Durable metal enclosure 5) Steel U bolts for secure mounting 6) Two SPDT (Single pole double track) synchronised switches 7) serviceable without draining pipes. as per specification no. FF-SPR/WFD	Each	8755

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<i>Flexible Hose Pipe</i>			
13-11-6 (New)	Supplying erecting, testing and commissioning of sprinkler flexible pipe of stainless steel complete with 15 NPT on reducer thread with maximum working pressure of 175 PSI test pressure of 875 PSI (Burst) with branch line (Inlet) 25mm NPT male thread to sprinkler head (Outlet) 15mm NPT female thread with reducer, nipple, 2 side brackets, center bracket, stockbar of 700mm size (UL Listed) complete as required as per specification no. FF-SPR/FHP	Each	635
13-11-7 (New)	Supplying erecting, testing and commissioning of sprinkler flexible pipe of stainless steel complete with 15 NPT on reducer thread with maximum working pressure of 175 PSI test pressure of 875 PSI (Burst) with branch line (Inlet) 25mm NPT male thread to sprinkler head (Outlet) 15mm NPT female thread with reducer, nipple, 2 side brackets, center bracket, stockbar of 1000 mm size (UL Listed) complete as required as per specification no. FF-SPR/FHP	Each	666
13-11-8 (New)	Supplying erecting, testing and commissioning of sprinkler flexible pipe of stainless steel complete with 15 NPT on reducer thread with maximum working pressure of 175 PSI test pressure of 875 PSI (Burst) with branch line (Inlet) 25mm NPT male thread to sprinkler head (Outlet) 15mm NPT female thread with reducer, nipple, 2 side brackets, center bracket, stockbar of 1200 mm size (UL Listed) complete as required as per specification no. FF-SPR/FHP	Each	705
13-11-9 (New)	Supplying erecting, testing and commissioning of sprinkler flexible pipe of stainless steel complete with 15 NPT on reducer thread with maximum working pressure of 175 PSI test pressure of 875 PSI (Burst) with branch line (Inlet) 25mm NPT male thread to sprinkler head (Outlet) 15mm NPT female thread with reducer, nipple, 2 side brackets, center bracket, stockbar of 1500 mm size (UL Listed) complete as required as per specification no. FF-SPR/FHP	Each	763
<i>13.12 Fire Sealant Systems (FF-FRS)</i>			
13-12-1 (New)	Supplying and fixing of self expanding, ready to use polyurethane(PU) foam sealant of minimum 750ml bottle, suitable to seal the openings of all kinds of cables, pipes and cable support system in steel, aluminium and plastic profiles (except hollow core conductors). Sealant shall have minimum 2 hour fire rating, conforming to EN 1366-4:2021 as per specification no FF-FRS .	Each	1495

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>13.13 Fire and Life Safety Audit</u>			
13-13-1	<p>Providing/conducting complete fire and life safety audit including submission of fire audit report for the premises</p> <p>The fire and life safety audit shall cover safety management and technical aspects required for the safe operation in the respective premises which covers:</p> <ol style="list-style-type: none"> 1. Review of existing safety measures, procedures and systems for controlling hazards with inclusion of brief information for the same in audit report and suggest for improvement if any 2. Identifying potential Fire Hazards and their Control Measures & Fire Load with inclusion of brief information for the same in audit report and suggest for improvement if any 3. Recommending changes if any to improve the effectiveness of the existing safety programmes, procedures & systems. 4. Review of Fire & Safety Management systems, general housekeeping, storage of inflammable substances, general cleanliness and access to fire fighting equipment with inclusion of brief information for the same in audit report and suggest for improvement if any 5. Review and testing of existing Fire Protection Systems including fire alarm systems, fire suppression systems and fire fighting systems, including Fire Extinguishers etc. if provided with inclusion of brief information for the same in audit report and suggest for improvement if any 6. Review of Fire safety Compliance with Statutory Requirements under The Maharashtra fire prevention and Life safety measures Act 2023 & relevant rules, Development Control Rules, IS codes and NBC2016 (Amended up to date) with inclusion of brief information for the same in audit report and suggest for improvement if any 7. Review of Impart training and mock drills on the instructions and code of conduct in case of an emergency with inclusion of brief information for the same in audit report and suggest for improvement if any 8. Review of Emergency Plans, Exit and Evacuation Preparedness, Fire Drills Verification of occupants response to FIRE and their capacity to handle fire extinguishers and other equipment with inclusion of brief information for the same in audit report and suggest for improvement if any 9. Review of Escape Routes and Signage's. with inclusion of brief information for the same in audit report and suggest for improvement if any 10. Review of Occupants' knowledge on the use of Fire extinguishers and other systems with inclusion of brief information for the same in audit report and suggest for improvement if any 11. Assess the current SOPs in place with inclusion of brief information for the same in audit report and suggest for improvement if any 12. The fire audit report shall include present scenario colour photographs, observations & recommendations for fieldwise grouped improvement 	sq.m	9

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
----------------	--------------------------	-------------	--------------------------

13. The fire audit report shall be submitted in Draft copy for review to user deptt. & engineer in charge for review jointly

14. Submitting final fire audit report in ay least 3 hard copies and soft copy to engineer in charge

Note:-

1. The Fire and life safety Audit shall be conducted by a third party auditor having requisite experience in fire and life safety inspections/from the Licensed Fire Contractor, issued by Directororate Maharashtra fire services, Government of Maharashtra

2. The PW Deptt will not provide assistance in the form of men/material and the Agency will have to make their own arrangement

3) Fire and life safety audit shall be carried out for all buildings having a height of more than 15 m.

4) Frequency of Fire and life safety Audit shall shall be once in two years.

13.14 Fire Extinguishers

13-14-1	Supplying & erecting Carbon Dioxide (CO2) fire extinguisher of 4.5 kg. capacity cartridge type conform to IS 2878 /15683 complete erected with necessary clamp made from 50 x 6 mm. M. S. flat with nut & bolts routed in wall complete.	Each	9943
---------	---	------	------

13-14-2	Refilling of fire extinguisher of CO2 type by dismantling from site to workshop for refilling which includes removing of existing CO2 gas and cleaning the cylinder, delivery pipe , nozzle internally and refilling fresh CO2 gas complete with reinstalling properly at site with necessary certificate.	kg	207
---------	---	----	-----

13.15 Clean Agent Fire Suppression System (FF-FSS)

13-15-1 (New)	Supplying erecting, testing and commissioning of Direct Low Pressure (DLP), automatic electrical cabinet fire suppression system kit comprises of the mild steel cylinder, hydraulic tested to 30kg /cm ² to check for leakages & burst pressure above 110kg/cm2. duly hot phosphate & epoxy powder coated internally and externally more than 65 microns or painted with 1 coat of primer and 2 coats of red enamel paint all complete. The Cylinder assembly is filled with 1kg to 1.13kgs of clean agent gas (FK-5-1-12 UL listed) and pre-pressurized to 15/16 Bar having storage & operating temperature range of (-) 17.8 deg.C to 54.4deg.C with all important accessories e.g. brass assembly valve with pressure gauge, end of line plug with pressure gauge suitable to connect with provided Linear heat detection tube complete with mounting bracket assembly, required size rubber grommets, plastic loop clamps, pressure switch and caution & cylinder Labels etc.	Each	79127
------------------	---	------	-------

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
13-15-2 (New)	Supplying erecting, testing and commissioning of Direct Low Pressure (DLP), automatic electrical cabinet fire suppression system kit comprises of the mild steel cylinder, hydraulic tested to 30kg/cm ² to check for leakages & burst pressure above 110kg/cm ² . duly hot phosphate & epoxy powder coated internally and externally more than 65 microns or painted with 1 coat of primer and 2 coats of red enamel paint all complete. The Cylinder assembly is filled with 2kg to 2.27kgs of clean agent gas (FK-5-1-12 UL listed) and pre-pressurized to 15/16 Bar having storage & operating temperature range of (-)17.8deg.C to 54.4deg.C with all important accessories e.g. brass assembly valve with pressure gauge, end of line plug with pressure gauge suitable to connect with provided Linear heat detection tube, complete with mounting bracket assembly, required size rubber grommets, plastic loop clamps, pressure switch and caution & cylinder Labels etc.	Each	99532
13-15-3 (New)	Supplying erecting, testing and commissioning of Direct Low Pressure (DLP), automatic electrical cabinet fire suppression system kit comprises of the mild steel cylinder, hydraulic tested to 30kg/cm ² to check for leakages & burst pressure above 110kg/cm ² . duly hot phosphate & epoxy powder coated internally and externally more than 65 microns or painted with 1 coat of primer and 2 coats of red enamel paint all complete. The Cylinder assembly is filled with 4 kg to 4.54 kgs of clean agent gas (FK-5-1-12 UL listed) and pre-pressurized to 15/16 Bar having storage & operating temperature range of (-)17.8deg.C to 54.4deg.C with all important accessories e.g. brass assembly valve with pressure gauge, end of line plug with pressure gauge suitable to connect with provided Linear heat detection tube, complete with mounting bracket assembly, required size rubber grommets, plastic loop clamps, pressure switch and caution & cylinder Labels etc.	Each	150047
13-15-4 (New)	Supplying erecting, testing and commissioning of Direct Low Pressure (DLP), automatic electrical cabinet fire suppression system kit comprises of the mild steel cylinder, hydraulic tested to 30kg/cm ² to check for leakages & burst pressure above 110kg/cm ² . duly hot phosphate & epoxy powder coated internally and externally more than 65 microns or painted with 1 coat of primer and 2 coats of red enamel paint all complete. The Cylinder assembly is filled with 6 kg of clean agent gas (FK-5-1-12 UL listed) and pre-pressurized to 15/16 Bar having storage & operating temperature range of (-)17.8deg.C to 54.4deg.C with all important accessories e.g. brass assembly valve with pressure gauge, end of line plug with pressure gauge suitable to connect with provided Linear heat detection tube, complete with mounting bracket assembly, required size rubber grommets, plastic loop clamps, pressure switch and caution & cylinder Labels etc.	Each	173216
13-15-5 (New)	Supplying and erecting of linear heat detection tube (UL Listed) made from special flexible polymer material having 6 mm outside & 4 mm inside diameter suitable for working pressure of 20 bar having Red RAL 3000 colour with operating rupture temperature between 110 deg C to 120 deg C or 125 deg C to 145 deg C or 170 deg C to 180 deg C. The tube shall be flexible and shall be kink resistant having minimum bending radius of 100 mm complete erected with necessary drilling at panel wall entries duly connecting with provided end line plug fittings, with rubber grommets, plastic loop clips/clamps etc. complete with all accessories	m	2202

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
13-15-6 (New)	Supplying erecting, testing and commissioning of Master Control Unit (MCU) with 12/24Vdc Audio Visual Alarm with wiring to alert discharge of the DLP system suitable to work at 230V AC 50Hz supply with battery backup for minimum 30 minutes in alarm condition, equipped with green LED indicator for healthy system & red LED indicator for discharged system the MCU suitable provide outputs for activation of sounders or to third party devices which may be used for notification.	Each	17812
13-15-7 (New)	Refilling of Direct Low Pressure (DLP) Mild steel cylinder of clean agent gas automatic electrical cabinet fire suppression system by dismantling from site to workshop/factory for refilling which includes removing of existing gas if any and cleaning the cylinder with valve assembly internally and refilling new clean agent gas (FK-5-1-12 UL listed) Fire Protection fluid compound of carbon, fluorine and oxygen (CF ₃ CF ₂ C(O)CF(CF ₃) ₂) in complete with reinstalling back at site properly with necessary certificate complete	Each	4037
Note : (New)	The automatic electrical cabinet fire suppression system shall be LPCB approved		

Chapter 14 : TEMPORARY ILLUMINATION (TE)

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
<u>14.1 Temporary Illumination (TE-IL)</u>			
14-1-1	Providing temporary illumination consisting of LED tube light 4' x 20w or Fluorescent tube light 4' x 36/40w, 230v, 50 Hz having colour temp up to 6500k complete erected with copper mains and required switchgears with continuous earth wire erected and dismantled without using scaffolding , up to three days as per specification no. TE-IL/FL	Each	52
14-1-2	Providing temporary illumination consisting of LED tube light 4' x 20w or Fluorescent tube light 4' x 36/40w, 230v, 50 Hz having colour temp up to 6500k complete erected with copper mains and required switchgears with continuous earth wire erected and dismantled with using scaffolding , up to three days as per specification no. TE-IL/FL	Each	70
14-1-3	Providing temporary illumination consisting of flood light fitting 1000/500W, 230v, 50Hz complete halogen fitting with lamp, holders, copper mains and required switchgears with continuous earth wire erected and dismantled without using scaffolding , up to three days as per specification no. TE-IL/FLF	Each	252
14-1-4	Providing temporary illumination consisting of flood light fitting 1000/500W, 230v, 50Hz complete halogen fitting with lamp, holders, copper mains and required switchgears with continuous earth wire erected and dismantled with using scaffolding , up to three days as per specification no. TE-IL/FLF	Each	262
14-1-5	Providing temporary illumination consisting of LED flood light fitting 100w, having colour temp up to 6500k, IP65, housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete erected with copper mains, switchgears with continuous earth wire erected and dismantled without using scaffolding , up to three days as per specification no. TE-IL/LFL	Each	633
14-1-6	Providing temporary illumination consisting of LED flood light fitting 100w, having colour temp up to 6500k, IP65, housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete erected with copper mains, switchgears with continuous earth wire erected and dismantled with using scaffolding , up to three days as per specification no. TE-IL/LFL	Each	649
14-1-7	Providing temporary illumination consisting of flood light fitting 200 W complete LED fitting having colour temp up to 6500k, IP65, housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete required switchgear erected and dismantled without using scaffolding , up to three days as per specification no. TE-IL/LFL	Each	1208
14-1-8	Providing temporary illumination consisting of flood light fitting 200 W complete LED fitting having colour temp up to 6500k, IP65, housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete required switchgear erected and dismantled with using scaffolding , up to three days as per specification no. TE-IL/LFL	Each	1239
14-1-9	Providing temporary illumination consisting of flood light fitting 300 W complete LED fitting having colour temp up to 6500k, IP65, housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete required switchgear erected and dismantled without using scaffolding , up to three days as per specification no. TE-IL/LFL	Each	1950

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
14-1-10	Providing temporary illumination consisting of flood light fitting 300 W complete LED fitting having colour temp up to 6500k, IP65, housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete required switchgear erected and dismantled with using scaffolding , up to three days as per specification no. TE-IL/LFL	Each	1966
14-1-11	Providing temporary illumination consisting of white/colour series lights with 8mm LED miniature lamps of 2 to 3.4V [1000 nos] with cap with required switchgears erected and dismantled with rotor effect as approved without scaffolding , up to three days as per specification no. TE-IL/SRL	Per Thousand	927
14-1-12	Providing temporary illumination consisting of white/colour series lights with 8mm LED miniature lamps of 2 to 3.4V [1000 nos] with cap with required switchgears erected and dismantled with rotor effect as approved with scaffolding , up to three days as per specification no. TE-IL/SRL	Per Thousand	1102
14-1-13	Providing and fixing temporary electronic rotating machine to give running effect to strips lights and miniature lights up to a load of 5000 W 230v, 50Hz, complete with copper mains and required switchgears with continuous earth wire and dismantling, up to three days.	Each	561
14-1-14	Providing temporary illumination consisting of round LED/ neon flex LED/ flexible strip LED having 2 to 5 W capacity per meter and consisting suitable power adaptor with copper mains, required switchgears erected and dismantled without using scaffolding and maintaining the same, up to 3 days as per specification no. TE-IL/SRL	m	18
14-1-15	Providing temporary illumination consisting of round LED/ neon flex LED/ flexible strip LED having 2 to 5 W capacity per meter and consisting suitable power adaptor with copper mains, required switchgears erected and dismantled with using scaffolding and maintaining the same, up to 3 days as per specification no. TE-IL/SRL	m	21
14-1-16	Providing temporary illumination consisting of water proof LED Par Light, 54 pieces x 3W, 230v, 50Hz, with RGBW controller complete erected with copper mains, switchgears with continuous earth wire erected and dismantled without using scaffolding , up to three days as per specification no. TE-IL/PAR	Each	932
14-1-17	Providing temporary illumination consisting of water proof LED Par Light, 54 pieces x 3W, 230v, 50Hz, with RGBW controller complete erected with copper mains, switchgears with continuous earth wire erected and dismantled with using scaffolding , up to three days as per specification no. TE-IL/PAR	Each	2432
14-1-18	Providing temporary illumination consisting of water proof HMI Par Light, 4000 w, 230v, 50Hz, colour temp 6500k housing of pressure die cast aluminium alloy [multi colour] complete erected with copper mains, switchgears with continuous earth wire erected and dismantled without using scaffolding , up to three days as per specification no. TE-IL/PAR	Each	6180
14-1-19	Providing temporary illumination consisting of water proof HMI Par Light, 4000 w, 230v, 50Hz, colour temp 6500k housing of pressure die cast aluminium alloy [multi colour] complete erected with copper mains, switchgears with continuous earth wire erected and dismantled with using scaffolding , up to three days as per specification no. TE-IL/PAR	Each	6256
14-1-20	Providing temporary illumination consisting of LED rope Light having 4 to 6 W capacity per meter [multi colour] and consisting suitable power adaptor with copper mains, switchgears erected and dismantled without using scaffolding and maintaining the same, up to 3 days as per specification no. TE-IL/SRL	m	21

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
14-1-21	Providing temporary illumination consisting of LED rope Light having 4 to 6 W capacity per meter [multi colour] and consisting suitable power adaptor with copper mains, switchgears erected and dismantled with using scaffolding and maintaining the same, up to 3 days as per specification no. TE-IL/SRL	m	23
14-1-22	Providing temporary 8-10 Watt rechargeable LED emergency lamp connected with necessary copper mains, required switchgears and continuous earthing maintaining the same during the function and including dismantling, for three days.	Each	155
14-1-23	Providing temporary oscillating type pedestal air circulators 600/900 mm or air cooler connected with necessary copper mains, required switchgears with continuous earthing maintaining the same during the function and including dismantling, up to three days as per specification no. TE-IL/PAC	Each	391
14-1-24	Providing temporary oscillating type pedestal fan 16" (400 mm) or ceiling fan [1200/1400mm], 230v,50Hz connected with necessary copper mains, required switchgears with continuous earthing maintaining the same during the function and including dismantling, up to three days as per specification no. TE-IL/FAN	Each	193
14-1-25	Providing temporary oscillating type pedestal mist fan 16" to 26" having 10-25 litres water tank 230v 50Hz connected with necessary copper mains, required switchgears with continuous earthing maintaining the same during the function and including dismantling, up to three days as per specification no. TE-IL/FAN	Each	496
14-1-26	Providing temporary heavy duty exhaust fan 18" or 24" 230v, 50Hz connected with necessary copper mains, required switchgears with continuous earthing maintaining the same during the function and including dismantling, for three days as per specification no. TE-IL/EXF	Each	412
14-1-27	Providing temporary evaporative air cooler (desert cooler) with 230V, 50 cycles, with 12"-17" exhaust, minimum 40 to 80 litre water capacity tank connected with necessary copper mains, required switchgears with continuous earthing maintaining the same during the function and including dismantling, up to three days as per specification no. TE-IL/DAC	Each	465
14-1-28	Providing and maintaining temporary 1.5 to 2 Ton capacity split type air conditioning unit complete with refrigerant R32 with temporary stand and fabrication work and required material to achieve cooling temperature connected along with necessary copper mains, required switchgears and continuous earthing maintaining the same during the function and including dismantling, for three days as per specification no. TE-IL/SAC	Each	6254
14-1-29	Providing and maintaining temporary 1.5 to 2 Ton capacity window type air conditioning unit complete with refrigerant R32 with temporary stand and fabrication work and required material to achieve cooling temperature connected along with necessary copper mains, switchgear and continuous earthing maintaining the same during the function and including dismantling, for three days as per specification no. TE-IL/WAC	Each	4773
14-1-30	Providing and maintaining temporary 2.5 to 3.5 Ton capacity tower type air conditioning unit complete with refrigerant R32 with temporary stand and fabrication work and required material to achieve cooling temperature connected along with necessary copper mains, required switchgears and continuous earthing maintaining the same during the function and including dismantling, for three days.	Each	10316

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
14-1-31	Providing and maintaining temporary 4.5 Ton capacity tower type air conditioning unit complete with refrigerant R32 with temporary stand and fabrication work and required material to achieve cooling temperature connected along with necessary copper mains, required switchgears and continuous earthing, maintaining the same during the function and including dismantling, for three days.	Each	13199
14-1-32	Providing temporary 284 to 310 litres capacity double door refrigerator complete with M.S. stand if necessary connected with copper mains, switchgear and continuous earthing maintaining the same during the function and including dismantling, for three days.	Each	701
14-1-33	Providing temporary 120/150 litre capacity water cooler with water filter (candle type or UV tube) with M.S. stand complete with minor plumbing work if necessary connected with copper mains, required switchgears and continuous earthing maintaining the same during the function and including dismantling, for three days as per specification no. TE-IL/WC	Each	2014
14-1-34	Providing and maintaining temporary 1 KVA online UPS pure sine wave single phase 230V,50 Hz with required batteries suitable for 30 minutes battery backup to provided computer with necessary interconnecting cabling, wiring etc., for three days as per specification no. TE-IL/UPS	Each	2470
14-1-35 (New)	Providing and maintaining temporary 2 to 3 KVA online pure sine wave , with backup time of 1 hrs. PWM & IGBT based UPS with 0.8 to unity output pf, single phase input & 1 phase output complete with all protections with required batteries, necessary interconnecting cabling, wiring etc., for three days as per specification no. TE-IL/UPS	Each	4787
14-1-36 (New)	Providing and maintaining temporary 5 to 10 KVA online pure sine wave , with backup time of 1 hrs. PWM & IGBT based UPS with 0.8 to unity output pf, single phase input & 1 phase output complete with all protections with required batteries, necessary interconnecting cabling, wiring etc., for three days as per specification no. TE-IL/UPS	Each	12105
14-1-37	Providing and maintaining temporary 700 VA digital pure sine wave Inverter with required batteries based on IGBT technology suitable single phase 230V,50 Hz for 120 minutes battery backup to electrical installation with necessary interconnecting cabling, wiring etc., for one day as per specification no. TE-IL/INV	Each	630
14-1-38	Providing and maintaining temporary 1400 VA to 1600 VA digital pure sine wave Inverter with required batteries based on IGBT technology single phase 230V,50 Hz suitable for 120 minutes battery backup to electrical installation with necessary interconnecting cabling, wiring etc., for one day as per specification no. TE-IL/INV	Each	948
14-1-39	Providing and maintaining temporary 2500 VA digital pure sine wave Inverter with required batteries based on IGBT technology single phase 230V,50 Hz suitable for 120 minutes battery backup to electrical installation with necessary interconnecting cabling, wiring etc., for one day as per specification no. TE-IL/INV	Each	1964
14-1-40	Providing temporary plug point with 3 pin 6A/16A with necessary copper mains, required switchgears and continuous earth connection., up to three days.	Each	41
14-1-41	Providing temporary CRCA sheet metal enclosures of 1.2mm thickness with 32 A, 3 pin plug & earth socket and 32A, 3 pin plug top with 32A triple pole MCB having having rated short - circuit breaking capacity (Icn) 10kA with continuous copper mains and earth wire, up to three days.	Each	121
14-1-42 (New)	Providing temporary XLPE/PVC armoured cable 4 core upto 16 sq mm Aluminium conductor complete erected with gland and lugs and switchgears and required cable protector wherever necessary, up to three days as per specification no. TE-IL/LT	m	19

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
14-1-43 (New)	Providing temporary XLPE/PVC armoured cable 4 core 25/35 sq mm Aluminium conductor complete erected with gland and lugs and switchgears and required cable protector wherever necessary, up to three days as per specification no. TE-IL/LT	m	26
14-1-44	Providing temporary XLPE/PVC armoured cable 4 core 50 sq mm Aluminium conductor with continuous 12 SWG G.I. Earth wire complete erected with gland and lugs and switchgears and required cable protector wherever necessary. up to three days as per specification no. TE-IL/LT	m	28
14-1-45	Providing temporary XLPE/PVC armoured cable 4 core 95 sq mm Aluminium conductor with continuous 10 SWG G.I. Earth wire complete erected with gland and lugs and switchgears and required cable protector wherever necessary. up to three days as per specification no. TE-IL/LT	m	34
14-1-46	Providing temporary XLPE/PVC armoured cable 3.5 core 150 sq mm aluminium conductor with continuous 8 SWG G.I. earth wire complete erected with gland and lugs and switchgears and required cable protector wherever necessary, up to three days as per specification no. TE-IL/LT	m	53
14-1-47	Providing temporary XLPE/PVC armoured cable 3.5 core 240 sq mm aluminium conductor with continuous 8 SWG G.I. Earth wire complete erected with gland and lugs and switchgears and required cable protector wherever necessary, up to three days as per specification no. TE-IL/LT	m	67
14-1-48	Providing temporary XLPE/PVC armoured cable 3.5 core 300 sq mm aluminium conductor with continuous 8 SWG G.I. Earth wire complete erected with gland and lugs and switchgears and required cable protector wherever necessary, up to three days as per specification no. TE-IL/LT	m	80
14-1-49	Providing temporary XLPE/PVC armoured cable 3.5 core 400 sq mm aluminium conductor with continuous 8 SWG G.I. Earth wire complete erected with gland and lugs and switchgears and required cable protector wherever necessary, up to three days as per specification no. TE-IL/LT	m	87
14-1-50 (New)	Providing and maintaining temporary triple pole mini feeder pillar with 500V, 200A/300A FP MCCB as incomer and 2/3 outgoing circuits with HRC fuse base and cartridge of 100A with aluminium bus bar erected in 14 SWG CRCA sheet box with supporting angles, self locks, gasket having IP54,IK10 protection and slanting top etc., for three days.	Each	3138
14-1-51	Providing and maintaining temporary LCD/LED T.V. (43" to 55" size) with HDMI port, USB port, AV port, and positioning at site with required cabling for connection as per direction of authority, duly connecting and testing, for three days.	Each	1138
14-1-52	Providing temporary digital projector having Full HD 1080p resolution with White and Colour Brightness at range of 3000-4000lm,HDMI port, USB port, AV port, computer port with spring loaded white screen connected with necessary copper mains, required switchgears and maintaining the same during the function including dismantling, for one day as per specification no. TE-IL/DP	Each	5410
14-1-53	Providing, maintaining and operating temporary public address system on hire consisting 02 Nos. solid state heavy wattage amplifier 250 watts (one for working and another for stand by emergency) working on AC / generator and 24 volt car battery supply, 06 Nos. of matching of 100 volt line (200 watts) box type speakers/sound column, 02 Nos super sensitive microphone with suitable size of microphone holding stand. The system shall be in a fully automatic change over operation in case of failure of supply, for one day as per specification no. TE-IL/PA	Job	10188

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
14-1-54	Providing, maintaining and operating temporary PA Mixer 14 channel With MP3 Player, USB/SD card reader and Bluetooth facility, 48V Phantom Supply on all Channels, Professional mixer with 24 Digital Effects, 2 Group Outputs, 12 MIC and 10 LINE Balanced mono inputs, 2 STEREO Balanced inputs , Mic input -impedence/ gain -2k Ω /65dB, Frequency response 25Hz- 20kHz, impedance- 600 Ω ,S/N ratio- >80dB, Operates on 240V 50Hz AC mains, LCD display for viewing the EFFECTS/USB settings, each input channel has a GAIN control, 4 band active Equalizer controls, AUX1, AUX2, AUX3/EFX, AUX4/FX and PAN control with Channel Mute Switch, with Easy and accurate monitoring of Left & Right output levels through individual 12 segment LED array, with 11 preset Equalizer settings & Headphone output with Level Control for output monitoring, completely for one day.	Job	2349
14-1-55	Providing, maintaining and operating temporary Dual channel UHF wireless microphone & receiver , including 2 handheld dynamic transmitters with operating range of minimum 30 mtr distance in line of sight between transmitter & receiver and with 2 x 1.5V batteries of suitable size and and Current consumption <150mA, RF power output 10 mW or higher suitable for frequency stability +/-0.005%, frequency response 50-15000Hz, channel frequency display & receiver with 220V-240V AC 50Hz AC Adaptor, distortion -/< 1% S/N ratio 100 dB suitable for same frequency as transmitter having controls like ON/OFF Switch, Volume control for both channels, LED indicators for RF & Audio Signal, channel frequency displays & operates on 12V DC through an AC adaptor complete, for one day.	Job	638
14-1-56	Providing & maintaining temporary 2-Way PA Cabinet Loudspeaker of 100W power rating, frequency response 50-20000Hz, impedance 8 Ω , Max Rated SPL 97dB, 2 nos. 12" low frequency speaker, acoustically treated, bass reflex cabinet sturdy metal grill for safety of speaker, complete, for one day.	Each	405
14-1-57	Providing and maintaining temporary Single Channel UHF Wireless Microphone & Receiver , including 1 handheld dynamic transmitters with operating range of minimum 30 mtr distance in line of sight between transmitter & receiver and with 2x1.5V batteries of suitable size and Current consumption <150mA, RF power output 10mW (Max)suitable for frequency stability \pm 0.005% ,frequency response 50-15000Hz, channel frequency display & receiver with distortion \leq 1% S/N ratio 100 dB suitable for same frequency as transmitter having controls like ON/OFF Switch, Volume control for both channels, LED indicators for RF & Audio Signal, channel frequency displays & operates on 12V DC through an AC adaptor complete, for one day.	Each	1021
14-1-58	Providing temporary line matching transformer (40-XT) for speakers having distance more than 60 Mtrs from Amplifiers and maintaining the same, up to three day.	Each	235
14-1-59	Providing, maintaining and operating temporary fingertip switcher of 8 ways to operate the public address system between dais and participants in the hall with necessary cabling, wiring, etc for one day.	Each	2048
14-1-60	Providing, commissioning and maintaining temporary CCTV system with 8/10 channel NVR , IP video/audio input - 1 no, IP based 4/5 MP, Full HD, IR IP dome camera - 2 nos, IP based 4/5 MP, Full HD, IR IP PTZ camera - 2 nos, 4TB Hard Disk - 2 no, 43" Full H D professional display - 1 no, 8 port PoE Switch - 1 no, On Line UPS - 1 no with necessary mains, switchgears, on hire basis for one day as per specification no. TE-IL/CCTV	Job	11490
14-1-61	Providing, commissioning and maintaining additional IP based 4/5 MP, full HD,IP67 , IR IP dome camera in existing CCTV system with necessary mains, switchgears, on hire basis for one day.	Each	777

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
14-1-62	Providing, commissioning and maintaining additional IP based 4/5 MP, Full HD, IP67, IR IP PTZ camera in existing CCTV system with necessary mains, switchgears, on hire basis for one day.	Each	2931
14-1-63	Providing and maintaining temporary all in one desktop PC with following configuration Intel Core i3, 8 GB DDR4 RAM, 1TB HDD, DVDRW optical drive 22-24" LED screen, web camera, Wi-Fi, Bluetooth, keyboard and mouse, media card reader, HDMI port, USB type-A port [2nos]with windows 10[64 bit] etc, for three days.	Each	1241
14-1-64	Providing and maintaining temporary Laptop with following configuration Intel TM s 11th generation core i3 , 8GB DDR4 RAM, 256GB SSD, DVDRW optical drive, 15" LED screen, speakers, web camera, Wi-Fi, Bluetooth, media card reader, HDMI port, USB type-A port [2nos]with windows 10[64 bit] & laptop charger etc, for three days.	Each	1445
14-1-65	Providing and maintaining temporary Laser Printer , resolution (in dpi) mono 600, paper size A4, print speed in PPM (A4 size) 25, Port : 1 USB, memory (in MB): NA network card 10/100:YES, Duplexing: YES etc ,on hire basis for three days.	Each	389
14-1-66	Providing and maintaining distribution transformer 11kV / 22kV on HV side & 415 V on LV side from 63 to 200 kVA Capacity Indoor/outdoor type as per IS 1180 , for ten days on hired basis as per specification no. TE-IL/TF	Each	18346
14-1-67	Providing and maintaining distribution transformer 11kV / 22kV on HV side & 415 V on LV side from 250 to 500 kVA Capacity Indoor/outdoor type as per IS 1180 , for ten days on hired basis as per specification no. TE-IL/TF	Each	29945
14-1-68	Providing and maintaining distribution transformer 11/ 22 kV on HV side 415 V on LV side having 630 kVA capacity Indoor/outdoor type as per IS 1180 , on hired basis, subsequent to first ten days after commissioning as per specification no. TE-IL/TF	Each	45995
14-1-69	Erecting 11kV / 22 kV on HV side & 415 V on LV side up to 630 kVA capacity hired/provided transformer on existing plinth / DP structure, making connections on HV & LV side, carrying out necessary tests before and after charging up to full load to satisfaction as per specification no. TE-IL/TF	Each	10970
Note (New)	<p>1) The rental charges for an item shall not exceed 80% of the completed rate of the new item.</p> <p>2) For item no. 14-1-1 to 14-1-36 and 14-1-40 to 14-1-51 and 14-1-58 and 14-1-63 to 14-1-65 the rates are for the period of 3 days function which includes preparatory period with testing and connecting, commissioning and maintaining in healthy condition with transportation.</p> <p>3) For each additional day after 3 days but not exceeding 15 days, consider 25% of completed item rate for every additional day.</p> <p>4) For each additional day after (3+15) days but cost of rental item not exceeding 80% cost of completed rate of new item, consider 5% of completed item rate for every additional day.</p> <p>5) For item no. 14-1-52 the rates of projector for 1 function or for max. period of 1 day whichever is more, including transportation, connections with projector, operator till completion of function.</p> <p>6) Cartridge refilling is not added in the cost of Item no.14-1-65. Rs. 300/- shall be added for each cartridge refilling.</p> <p>7) Rate for Item no 14-1-37 to 14-1-39 and 14-1-52 to 14-1-57 and 14-1-59 to 14-1-62 is for one day only . For next five days the rate shall be reduced by 10% of the first day . From 7th to 15th day rate shall be reduced by 50% of first day. From 16th to 30th day rates shall be reduced by 75 % of first day</p>		

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
<u>14.2 Hiring of Generators (TE-DG)</u>			
14-2-1	Hiring charges for supplying and maintaining 230V, 50 cycles AC generating set 1 to 2 kVA capacity with necessary fuel, mains, switchgears and accessories complete with continuous running on load/no load as per requirements complete with self certification.	Per Day	2669
14-2-2	Hiring charges for supplying and maintaining 230/415 V, 50 cycles AC generating set 3 to 10 kVA capacity with necessary fuel, mains, switchgears and accessories complete with continuous running on load/no load as per requirements complete with self certification.	Per Day	5519
14-2-3	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 11 to 20 kVA capacity with necessary fuel, mains, switchgears and accessories complete with continuous running on load/no load as per requirements complete with self certification, as per specification no. TE-DG	Per Day	8507
14-2-4	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 25 to 40 kVA capacity with voltage regulation +/- 5 %, and complete set enclosed in composite acoustic enclosure to restrict sound level up to 75 dB at 1.0 m with necessary fuel, mains, switchgears and accessories complete with continuous running on load/no load as per requirements complete with self certification, as per specification no. TE-DG	Per Day	10115
14-2-5	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 50/62.5 kVA capacity with voltage regulation +/- 5 %, and complete set enclosed in composite acoustic enclosure to restrict sound level up to 75 dB at 1.0 m with necessary fuel, mains, switchgears and accessories complete with continuous running on load/no load as per requirements complete with self certification, as per specification no. TE-DG	Per Day	12950
14-2-6	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 75 to 100 kVA capacity with voltage regulation +/- 5 %, and complete set enclosed in composite acoustic enclosure to restrict sound level up to 75 dB at 1.0 m with necessary fuel, mains, switchgears and accessories complete with continuous running on load/no load as per requirements complete with self certification, as per specification no. TE-DG	Per Day	16803
14-2-7	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 125 kVA capacity with voltage regulation +/- 5 %, and complete set enclosed in composite acoustic enclosure to restrict sound level up to 75 dB at 1.0 m , with necessary fuel, mains, switchgears and accessories complete with continuous running on load/no load as per requirements complete with self certification, as per specification no. TE-DG	Per Day	22507
14-2-8	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 250 kVA capacity with voltage regulation +/- 5 %, and complete set enclosed in composite acoustic enclosure to restrict sound level up to 75 dB at 1.0 m , with necessary fuel, mains, switchgears and accessories complete with continuous running on load/no load as per requirements complete with self certification, as per specification no. TE-DG	Per Day	43758

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
14-2-9	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 320 kVA capacity with voltage regulation +/- 5 %, and complete set enclosed in composite acoustic enclosure to restrict sound level up to 75 dB at 1.0 m, with necessary fuel, mains, switchgears and accessories complete with continuous running on load/no load as per requirements with necessary certificate from Electrical Inspector, as per specification no. TE-DG	Per Day	54019
14-2-10	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 500 kVA capacity with voltage regulation +/- 5 %, and complete set enclosed in composite Acoustic enclosure to restrict sound level up to 75 dB at 1.0 m with necessary fuel, mains, switchgears and accessories complete with continuous running on load/no load as per requirements with necessary certificate from Electrical Inspector, as per specification no. TE-DG	Per Day	73417
14-2-11	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 750 kVA capacity with voltage regulation +/- 5 %, and complete set enclosed in composite acoustic enclosure to restrict sound level up to 75 dB at 1.0 m with necessary fuel, mains, switchgears and accessories complete with continuous running on load/no load as per requirements with necessary certificate from Electrical Inspector, as per specification no. TE-DG	Per Day	113042
14-2-12	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 1000 kVA capacity with voltage regulation +/- 5 %, and complete set enclosed in composite acoustic enclosure to restrict sound level up to 75 dB at 1.0 m with necessary fuel, mains, switchgears and accessories complete with continuous running on load/no load as per requirements with necessary certificate from Electrical Inspector, as per specification no. TE-DG	Per Day	117494

- Note :
- 1) Above rates are applicable for first day. For subsequent five days, the above rate shall be reduced by 10%
 - 2) The above rates are inclusive of transportation.
 - 3) No additional amount shall be paid for preparing and testing period.
 - 4) The above rates are with on load working of DG set upto 5 hours per day. For additional working hours exceeding average 5 hours per day cost of diesel shall be considered as per actual.
 - 5) Lumpsum provision for the additional fuel (if DG set is to be used for more than five hours) shall be made as a separate item in the estimate of temporary DG Set. (Fuel payment shall be made on the basis of actual consumption and invoice produced by Contractor.)

Chapter 15 : SIREN (SRN)

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
<u>15.1 Siren (SRN-SM)</u>			
15-1-1	Supplying, erecting, testing and commissioning of 220/250 Volts, single phase, 0.5 HP, 6000 RPM, 50 Hz Siren of 3.25 km range (Diametrical), horizontal double mounting type with metal elastic anti vibration rubber mounting pad on provided C. C. foundation complete as per specification no SRN-SM-SP.	Each	14507
15-1-2	Supplying, erecting, testing and commissioning of 415 Volts, 3 phase, 5 H.P. 2800-2880 RPM, 50 Hz Siren of 8 km range (Diametrical), horizontal double mounting type with metal elastic anti vibration rubber mounting pad on provided C.C. foundation complete as per specification no SRN-SM-TP.	Each	77391
15-1-3	Re-erecting repaired/replaced 0.5 HP, 230/250 V, single phase, 50 Hz siren motor duly lifting at site and connected with assembly of existing siren with proper alignment, testing and giving test trial as per the required standard.	Each	448
15-1-4	Re-erecting repaired/replaced 5 HP, 415 V, 3 phase, 50 Hz siren motor duly lifting at site and connected with assembly of existing siren with proper alignment, testing and giving test trial as per the required standard.	Each	809
Note :-	Items of sub chapter 15.1 are conforming to IS 1941 (Part I) 1976.(Reaffirmed in 2002) - Functional requirements for electric motor sirens (second revision)		
<u>15.2 Accessories for Siren (SRN-AS)</u>			
15-2-1	Scrapping the existing paint of outer surface of weather shade for siren, cleaning the surface and applying two coats of anti corrosive epoxy air dry paint of approved colour mixed in special type thinner complete as per specification no. SRN-AS/PTG-WS.	Job	1284
15-2-2	Scrapping existing paint of Siren motor, blower and iron foundation completely and painting the same by one coat of red oxide and two coats epoxy paint of superior quality of required colour as per specification no. SRN-AS/PTG-SM.	Job	840
15-2-3	Providing C.C. foundation (1:2:4) with plastering of size 60 x 60 x 20 cm for Siren motor with nut bolts of required size with 1.2 cm thick hard rubber sheet packing provided in between the foundation and motor base to minimise the jerks and vibration to the slab complete.	Each	1735
15-2-4	Supplying and fixing required quality metal elastic anti vibration rubber mounting pad of size 75mm x 75mm x 25 mm to siren motor complete with testing and satisfactory results as per specification No. SRN-AS/ MEAVRMP.	Each	839
15-2-5	Replacing the existing unserviceable worn-out bearing for heavy duty siren motor with testing and satisfactory results.	Each	1015
<u>15.3 Dismantling</u>			
15-3-1 (New)	Transportation of siren motor from site to workshop and back to the site/store in original condition upto 10 km.	Job	450
Note :	In case distance of transporting exceeds 10 kilometers, add Rs. 30/- of rate, for every additional distance of 1 kilometer or part thereof.		
15-3-2 (New)	Dismantling the existing Siren motor from the existing location, lowering from terrace to ground, loading and unloading without damage and making site in original condition.	Each	831

Chapter 16: CIVIL WORKS

Item No (1)	Short Description (2)	Unit (3)	Completed rate (4)
<u>16.1 Excavation (CW-EXN)</u>			
16-1-1	Making trench in Soft soil having 0.75m depth and minimum 0.3m width for laying provided cables up to voltage level of 1.1kV complete as per specification no. CW-EXN-CTR	m	189
16-1-2	Making trench in Hard murum/Tar road having 0.75m depth and minimum 0.3m width for laying provided cables up to voltage level 1.1kV cable complete as per specification no. CW-EXN-CTR	m	219
16-1-3	Making trench in Soft soil having 0.9m depth and minimum 0.3m width for laying provided cables of voltage range 3.3kV to 11kV complete as per specification no. CW-EXN-CTR	m	249
16-1-4	Making trench in Hard murum/Tar road having 0.9m depth and minimum 0.3m width for laying provided cables of voltage range 3.3kV to 11kV complete as per specification no. CW-EXN-CTR	m	309
16-1-5	Excavating Hard rock or bituminous road by chiselling for preparing pit for pole/ stay/ earth plate/ for laying cable/ pipe & clearing the site by removing debris & making the site as required complete.	Cu.m	1202
16-1-6	Excavating Soft murum/Soft soil road by chiselling for preparing pit for poles stay or earth plates or for laying cables, pipes & clearing the site by removing debris & making the site good complete.	Cu.m	255
16-1-7	Excavating Hard murum/Stone metal road by chiselling for preparing pit for poles stay or earth plates or for laying cables, pipes & clearing the site by removing debris & making the site as required complete.	Cu.m	300
Note:-	1) For laying additional cable in same trench add Rs. 48/- per meter for additional bricks between and above the extra cable. 2) For laying additional cable in same trench above 25 sq.mm, bricks shall be laid width wise above the cable. Completed rate shall be increased by Rs. 50/- per meter.		
<u>16.2 Masonry Work</u>			
16-2-1	Providing and making Second class burnt Brick masonry with conventional /I.S. type bricks in cement mortar 1:6 in foundation sand plinth of inner walls /in plinth external walls including bailing out water manually, striking joints on unexposed faces, raking out joints on exposed faces and watering etc. complete.	Cu.m	7755
16-2-2	Supplying and arranging Ist Class bricks (Red) properly for various purposes (size 9"x4.25"x3") at work for 100 bricks complete.	Job	986
16-2-3	Supplying and spreading stone metal 25mm size for 100mm depth above the ground level complete.	Sq.m	126
16-2-4	Providing and fixing reinforced cement concrete cover of size 60cm x 45cm with frame over inspection chamber etc. complete of medium duty (100 Kilogram).	Each	3575
<u>16.3 C.C. Foundation</u>			
16-3-1	Making Transformer plinth (1.5 x 1.5 x 1.5)m in size with necessary excavation in ground with 150mm thick M-10 PCC at the bottom and top and 250mm thick, burnt brick wall constructed at periphery and remaining hollow portion shall be filled with 40mm hard broken aggregate. External surface duly plastered by 12mm thick including watering etc. complete.	Each	19628

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
	Note:- The above rates are for 1.2 meter height plinth above ground level. If excess height is required to maintain ground clearance as per Central Electricity Authority (Measures Relating to Safety and Electric Supply) regulations, 2010 regulations, add Rs. 850/- for every 100mm.		
16-3-2	Making Cement concrete foundation including excavation (45 x 45 x 120)cm deep in 1:3:6 cement concrete, 20 to 25 mm stone metal, (45 x 45 x 45)cm/ 45cm dia. x 45cm height plinth duly plastered, with necessary curing and finishing complete. (for 6m pole)	Each	2019
16-3-3	Making Cement concrete foundation including excavation (60 x 60 x 150)cm deep in 1:3:6 cement concrete 20 x 25 mm stone metal, (45 x 45 x 45)cm /45cm dia. x 45cm height plinth duly plastered, with necessary curing and finishing complete. (above 6m to 9m poles)	Each	3283
16-3-4	Making Cement concrete foundation including excavation (60 x 60)cm x deep 1/6 of pole length in 1:3:6 cement concrete 20 x 25 mm stone metal, 45cm x 45cm x 45cm/ 45cm dia. x 45cm height plinth duly plastered, with necessary curing and finishing complete. (for above 9m poles)	Each	3536
16-3-5	Making Cement concrete foundation in 1:2:4 cement concrete with foundation bolts and nuts complete. (cost of wooden box is included) (for pumps).	Cu.m	6394
16-3-6	Making Cement concrete foundation including excavation (60 x 60 x 150)cm deep in 1:3:6 cement concrete, (20 to 25) mm stone metal with necessary curing and finishing complete. (for stay).	Each	2491
16-3-7	Making cement concrete foundation in 1:3:6 cement concrete, (20 to 25) mm. stone metal duly plastered with necessary curing for complete. (pole muffing or any other purpose).	Cu.m	5278
16-3-8	Making M-20 grade reinforced cement concrete foundation by considering the safe soil bearing capacity as 10 T/sq.m at 1.5m depth including supply of steel, concrete, excavation, fixing provided nut bolts with the help of template, duly plastered as per design complete (for 3 to 5m octagonal/ conical GI pole).	Each	4090
16-3-9	Making M-20 grade reinforced cement concrete foundation by considering the safe soil bearing capacity at site as 10 T/sq.m at 1.5m depth including supply of steel, concrete, excavation and fixing provided nut bolts with the help of template, duly plastered as per design complete (for 6m to 8m high octagonal/conical GI pole).	Each	4873
16-3-10	Making M-20 grade reinforced cement concrete foundation by considering the safe soil bearing capacity at site as 10 T/sq.m at 1.5m depth including supply of steel, concrete, excavation and fixing provided nut bolts with the help of template, duly plastered as per design complete (for 9m & 10m high octagonal/conical GI pole).	Each	6437
16-3-11	Making M-20 grade reinforced cement concrete foundation by considering the safe soil bearing capacity at site as 10 T/sq.m at 1.5m depth including supply of steel, concrete, excavation and fixing provided nut bolts with the help of template, duly plastered as per design complete (for 11m & 12.5m high octagonal/conical GI pole).	Each	8953
16-3-12	Making M-20 cement concrete foundation by considering the safe soil bearing capacity at site as 10 T/sq.m at 2m depth including excavation and fixing provided nut bolts with the help of template, duly plastered as per design complete (for 12.5m raising lowering high mast).	Each	29037
16-3-13	Making M-20 cement concrete foundation by considering the safe soil bearing capacity at site as 10 T/sq.m at 2m depth including excavation and fixing provided nut bolts with the help of template, duly plastered as per design complete (for 16m raising lowering high mast).	Each	35915

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
16-3-14	Making M-20 cement concrete foundation by considering the safe soil bearing capacity at site as 10 T/sq.m at 2m depth including excavation and fixing provided nut bolts with the help of template, duly plastered as per design complete (for 20m raising lowering high mast) .	Each	44610
16-3-15	Making M-20 cement concrete foundation suitable by considering the safe soil bearing capacity at site as 10 T/sq.m at 2m depth including excavation and fixing provided nut bolts with the help of template, duly plastered as per design complete (for 25m high mast).	Each	49891
<u>16.4 Painting (CW-PTG)</u>			
16-4-1	Spray painting the table fan/ pedestal fan/ cabin fan/ ceiling fan/ exhaust fan including guards etc by scrapping the existing paint complete as per specification no. CW-PTG/PTF.	Each	147
16-4-2	Painting of pipe pole up to 6 m length along with street light/ pole brackets/ clamps etc by scrapping the existing paint complete as per specification no CW -PTG/PTP.	m	65
16-4-3	Painting of steel tubular/ rail/ RSJ pole above 6.0m length along with street light pole brackets, clamps etc by scrapping the existing paint complete as per specification no CW -PTG/PTP.	m	87
16-4-4	Spray painting of panel type lift doors of MS complete as per specification no. CW-PTG/PLD1.	Each	960
16-4-5	Painting lift door of collapsible type complete as per specification no. CW-PTG/PLD2.	Each	772
16-4-6	Spray painting of distribution transformer up to 200 kVA capacity complete as per specification no. CW-PTG/PDT.	Job	2782
16-4-7	Spray painting of distribution transformer above 200 kVA capacity complete as per specification no. CW-PTG/PDT.	Job	3605
16-4-8	Painting fencing of transformer substation including all supports, iron work and doors from both sides by scraping existing paint, with one coat of red oxide & two coats of aluminium paint complete.	m ²	121
16-4-9	Painting of feeder pillar/ switchgears and frame of panel board with single coat of red oxide & two coats of approved quality enamel paint by scraping existing paint complete. (while calculating square meter area, area of angle iron frame on which the switchgears are erected shall be considered if required)	m ²	269
16-4-10	Powder coating of approved colour shade on both sides of provided iron work/ MS/ CRCA sheet steel work complete including anti-rust treatment complete.	m ²	408
16-4-11	Epoxy painting on both side of approved colour shade of provided iron work/ MS/ CRCA sheet steel work complete along with anti-rust treatment complete.	m ²	562
16-4-12	Painting identification number by indelible ink marker/ enamel paint on fittings/ equipment with the help of ladders if necessary by dismantling and refitting the enclosures, tubes etc if required the same and refitting complete.	Each	10
<u>16.5 Plumbing (CW-PLB)</u>			
16-5-1	Supplying and erecting GI pipe 15mm dia. 'B' class at position with accessories complete as per specification no. CW-PLB/GP.	m	187
16-5-2	Supplying and erecting GI pipe 20mm dia.'B' class at position with accessories complete as per specification no. CW-PLB/GP.	m	235
16-5-3	Supplying and erecting GI pipe 25mm dia. 'B' class at position with accessories complete as per specification no. CW-PLB/GP.	m	327

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
16-5-4	Supplying and erecting GI pipe 32mm dia. 'B' class at position with accessories complete as per specification no. CW-PLB/GP.	m	381
16-5-5	Supplying and erecting GI pipe 40mm dia. 'B' class at position with accessories complete as per specification no. CW-PLB/GP.	m	433
16-5-6	Supplying and erecting GI pipe 50 mm dia. 'B' class at position with accessories complete as per specification no. CW-PLB/GP.	m	605
16-5-7	Supplying and erecting GI pipe 65mm dia. 'B' class at position with accessories complete as per specification no. CW-PLB/GP.	m	763
16-5-8	Supplying and erecting GI pipe 75/80mm dia. 'B' class at position with accessories complete as per specification no. CW-PLB/GP.	m	990
16-5-9	Supplying and erecting GI pipe 100mm dia. 'B' class at position with accessories complete as per specification no. CW-PLB/GP.	m	1440
16-5-10	Supplying and erecting GI pipe 32mm dia 'C' class at position with accessories complete as per specification no. CW-PLB/GP.	m	405
16-5-11	Supplying and erecting GI pipe 40mm dia 'C' class at position with accessories complete as per specification no. CW-PLB/GP.	m	461
16-5-12	Supplying and erecting GI pipe 50mm dia 'C' class position with accessories complete as per specification no. CW-PLB/GP.	m	680
16-5-13	Supplying and erecting GI pipe 65mm dia 'C' class position with accessories complete as per specification no. CW-PLB/GP.	m	862
16-5-14	Supplying and erecting GI pipe 75/80mm dia 'C' class position with accessories complete as per specification no. CW-PLB/GP.	m	1073
16-5-15	Supplying and erecting GI pipe 100mm dia 'C' class position with accessories complete as per specification no. CW-PLB/GP.	m	1466
16-5-16	Supplying and erecting high density polythene pipe 32mm dia. suitable for pressure of 6 kg/cm ² connected to jet/submersible pump with required material complete.	m	60
16-5-17	Supplying and erecting high density polythene pipe 40mm dia. suitable for pressure of 6 kg/cm ² connected to jet/submersible pump with required material complete.	m	100
16-5-18	Supplying and erecting high density polythene pipe 50mm dia. suitable for pressure of 6 kg/cm ² connected to jet/submersible pump with required material complete.	m	135
<i>16.6 Plumbing Accessories</i>			
16-6-1	Supplying and erecting 25mm dia. gun metal foot valve position with necessary materials complete.	Each	467
16-6-2	Supplying and erecting 40mm dia. gun metal foot valve at position with necessary materials complete.	Each	867
16-6-3	Supplying and erecting 50mm dia. gun metal foot valve at position with necessary materials complete.	Each	1154
16-6-4	Supplying and erecting 65mm dia. gun metal foot valve at position with necessary materials complete.	Each	2087
16-6-5	Supplying and erecting 75/80mm dia. gun metal foot valve at position with necessary materials complete.	Each	2739
16-6-6	Supplying and erecting 100mm dia. gun metal foot valve at position with necessary materials complete.	Each	4191
16-6-7	Supplying and erecting 25mm dia. cast iron foot valve at position with necessary materials complete.	Each	326
16-6-8	Supplying and erecting 40mm dia. cast iron foot valve at position with necessary materials complete.	Each	529
16-6-9	Supplying and erecting 50mm dia. cast iron foot valve at position with necessary materials complete.	Each	671
16-6-10	Supplying and erecting 65mm dia. cast iron foot valve at position with necessary materials complete.	Each	1066

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
16-6-11	Supplying and erecting 75/80mm dia. cast iron foot valve at position with necessary materials complete.	Each	1543
16-6-12	Supplying and erecting 100mm dia. cast iron foot valve at position with necessary materials complete.	Each	3196
16-6-13	Supplying and erecting 25mm dia. gun metal sluice valve at position with necessary materials complete.	Each	903
16-6-14	Supplying and erecting 40mm. dia. gun metal sluice valve at position with necessary materials complete.	Each	1737
16-6-15	Supplying and erecting 50mm dia. gun metal sluice valve at position with necessary materials complete.	Each	2508
16-6-16	Supplying and erecting 65mm dia. gun metal sluice valve at position with necessary materials complete.	Each	4611
16-6-17	Supplying and erecting 75/80mm dia. gun metal sluice valve at position with necessary materials complete.	Each	6492
16-6-18	Supplying and erecting 100mm dia. gun metal sluice valve at position with necessary materials complete.	Each	12659
16-6-19	Supplying and erecting non return valve 25mm dia. in position made of gun metal complete.	Each	580
16-6-20	Supplying and erecting non return valve 40mm dia. in position made of gun metal complete.	Each	1090
16-6-21	Supplying and erecting non return valve 50mm dia. in position made of gun metal complete.	Each	1594
16-6-22	Supplying and erecting non return valve 65mm dia. in position made of gun metal complete.	Each	3471
16-6-23	Supplying and erecting non return valve 75/80mm dia. in position made of gun metal complete.	Each	4645
16-6-24	Supplying and erecting non return valve 100mm dia. in position made of gun metal complete.	Each	8669
16-6-25	Supplying and erecting CI flange 25mm dia. with necessary nuts bolts and washers with rubber seal in position complete.	Each	165
16-6-26	Supplying and erecting CI flange 40mm dia. with necessary nuts bolts and washers with rubber seal in position complete.	Each	176
16-6-27	Supplying and erecting CI flange 50mm dia. with necessary nuts bolts and washers with rubber seal in position complete.	Each	209
16-6-28	Supplying and erecting CI flange 65mm dia. with necessary nuts bolts and washers with rubber seal in position complete.	Each	263
16-6-29	Supplying and erecting CI flange 75/80mm dia. with necessary nuts bolts and washers with rubber seal in position complete.	Each	441
16-6-30	Supplying and erecting CI flange 100mm dia. with necessary nuts bolts and washers with rubber seal in position complete.	Each	471
16-6-31	Supplying and erecting 0-100 lb/sq.inch pressure gauge having 4" dia. complete with socket for 1/2" GI pipe complete.	Each	748
16-6-32	Supplying and erecting 40mm dia. ball type foot valve having CI body lined with FRP from inside and synthetic rubber coated reinforced, nitrile rubber ball, leaded tin bronze, FRP sheet, carbon steel fasteners, CI/MS strainer complete.	Each	1287
16-6-33	Supplying and erecting 50mm dia. ball type foot valve having CI body lined with FRP from inside and synthetic rubber coated reinforced, nitrile rubber ball, leaded tin bronze, FRP sheet, carbon steel fasteners, CI/MS strainer complete.	Each	1820
16-6-34	Supplying and erecting 65mm dia. ball type foot valve having CI body lined with FRP from inside and synthetic rubber coated reinforced, nitrile rubber ball, leaded tin bronze, FRP sheet, carbon steel fasteners, CI/MS strainer complete.	Each	2545

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
16-6-35	Providing and fixing 45cm wide mild steel ladder of 40mm x 6mm mild steel flat stringers and steps of 18mm dia. mild steel bar for water tank including fixing it in (1:2:4) M-15 cement concrete block 60cm x 30cm x 30cm and painting the ladder complete. (Anti-corrosive paint)	m	1173
16-6-36	Providing and applying white-wash in one coat on old/ new plastered or masonry surfaces and asbestos cement sheets including scaffolding and preparing the surface by brushing and brooming down etc. complete.	sq.m	10
16-6-37	Providing internal cement plaster 12mm thick in single coat in cement mortar 1:5 without neeru finish to concrete or brick surfaces, in all positions including scaffolding and curing etc. complete.	sq.m	281
16-6-38	Providing sand faced plaster externally in cement mortar using approved screened sand, in all positions including base coat of 15mm thick in cement mortar 1:4 using waterproofing compound at 1 kg per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in cement mortar 1:4 finishing the surface by taking out grains and curing for fourteen days with scaffolding etc. complete.	sq.m	665

Note:- For ball type foot valve above 65mm refer chapter 13.

Chapter 17 : LIFT (LFT)

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

17.1 New Installation (LFT)

17-1-1	<p>SITC of Electric Traction Passenger Lift with</p> <ul style="list-style-type: none"> · Rated capacity :- 4 Passenger/272Kg · Floors :- G+1 floor (2Stops/2 Landings) · Travel :- 3 to 4.2 mtrs · Location of Lift Machine:- MR/MRL · Rated speed :- 1.0mps VS · Car/Landing door clear opening of 700/800 mm wide x 2000 mm high · Clear Car size ofmm wide xmm deep x 2250mm high · Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. · Doors type :- COPO/TOPO Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory) · Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge. · COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor · LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings 	Job	990671
--------	---	-----	--------

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".

- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "T" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge.
- The above rate includes Fully Comprehensive AMC for one year from the date of commissioning

17-1-2 **SITC of Electric Traction Passenger Lift** with Job 1015231

- Rated capacity :- **6 Passenger/408Kg**
- Floors :- **G+1 floor (2Stops/2 Landings)**
- Travel :- **3 to 4.2 mtrs**
- Location of Lift Machine:- **MR/MRL**
- Rated speed :- **1.0mps** VS
- **Car/Landing door clear opening of 800 mm wide x 2000mm**
- **Clear Car size ofmm wide xmm deep x 2250mm high**
- **Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead.**
- Doors type :- **COPO/TOPO** Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory)
- Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge.
- COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor
- LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".

- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "T" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge.
- The above rate includes Fully Comprehensive AMC for one year from the date of commissioning

17-1-3 **SITC of Electric Traction Passenger Lift** with Job 1098078

- Rated capacity :- **8 Passenger/544Kg**
- Floors :- **G+1 floor (2Stops/2 Landings)**
- Travel :- **3 to 4.2 mtrs**
- Location of Lift Machine:- **MR/MRL**
- Rated speed :- **1.0mps** VS
- **Car/Landing door clear opening of 800 mm wide x 2000 mm high**
- **Clear Car size ofmm wide xmm deep x 2250mm high**
- **Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead.**
- Doors type :- **COPO/TOPO** Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory)
- Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge.
- COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor
- LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".

- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "T" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge.
- The above rate includes Fully Comprehensive AMC for one year from the date of commissioning

17-1-4 **SITC of Electric Traction Passenger Lift** with Job 1312249

- Rated capacity :- **10 Passenger/680Kg**
- Floors :- **G+1 floor (2Stops/2 Landings)**
- Travel :- **3 to 4.2 mtrs**
- Location of Lift Machine:- **MR/MRL**
- Rated speed :- **1.0mps** VS
- **Car/Landing door clear opening of 800 mm wide x 2000 mm high**
- **Clear Car size ofmm wide xmm deep x 2250mm high**
- **Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead.**
- Doors type :- **COPO/TOPO** Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory)
- Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge.
- COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor
- LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".

- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "I" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge.
- The above rate includes Fully Comprehensive AMC for one year from the date of commissioning

17-1-5 **SITC of Electric Traction Passenger Lift** with Job 1399583

- Rated capacity :- **13 Passenger/884Kg**
- Floors :- **G+1 floor (2Stops/2 Landings)**
- Travel :- **3 to 4.2 mtrs.**
- Location of Lift Machine:- **MR/MRL**
- Rated speed :- **1.0mps** VS
- **Car/Landing door clear opening of 900/1000 mm wide x 2000 mm high**
- **Clear Car size ofmm wide xmm deep x 2250mm high**
- **Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead.**
- Doors type :- **COPO/TOPO** Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory)
- Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge.
- COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor
- LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".

- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "I" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge.
- The above rate includes Fully Comprehensive AMC for one year from the date of commissioning

17-1-6 **SITC of Electric Traction Passenger Lift** with Job 1546839

- Rated capacity :- **14 Passenger/952Kg**
- Floors :- **G+1 floor (2Stops/2 Landings)**
- Travel :- **3 to 4.2 mtrs**
- Location of Lift Machine:- **MR**
- Rated speed :- **1.0mps** VS
- **Car/Landing door clear opening of 900 mm wide x 2000mm**
- **Clear Car size ofmm wide xmm deep x 2250mm high**
- **Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead.**
- Doors type :- **COPO/TOPO** Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory)
- Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge.
- COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor
- LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".

- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "I" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge.
- The above rate includes Fully Comprehensive AMC for one year from the date of commissioning

17-1-7 **SITC of Electric Traction Passenger cum Stretcher/Hospital Lift** Job 1641165
with

- Rated capacity :- **15 Passenger/1020Kg**
- Floors :- **G+1 floor (2Stops/2 Landings)**
- Travel :- **3 to 4.2 mtrs**
- Location of Lift Machine:- **MR/MRL [applicable for Passenger Lift with MRL only & Stretcher/Hospital Lift with MR & MRL]**
- Rated speed :- **1.0mps VS**
- **Car/Landing door clear opening of 800/900/1000 mm wide x 2000mm high**
- **Clear Car size ofmm wide xmm deep x 2250mm high**
- **Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead.**
- Doors type :- **COPO/TOPO** Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory)
- Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge.
- COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor
- LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".
- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "I" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge.
- The above rate includes Fully Comprehensive AMC for one year from the date of commissioning

17-1-8 **SITC of Electric Traction Passenger Lift** with Job 1685050

- Rated capacity :- **16 Passenger/1088Kg**
- Floors :- **G+1 floor (2Stops/2 Landings)**
- Travel :- **3 to 4.2 mtrs**
- Location of Lift Machine:- **MR/MRL**
- Rated speed :- **1.0mps** VS
- **Car/Landing door clear opening of 1000mm wide x 2000 mm high**
- **Clear Car size ofmm wide xmm deep x 2250mm high**
- **Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead.**
- Doors type :- **COPO/TOPO** Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory)
- Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge.
- COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor
- LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".
- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "T" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge.
- The above rate includes Fully Comprehensive AMC for one year from the date of commissioning

17-1-9 **SITC of Electric Traction Passenger Lift** with Job 1775682

- Rated capacity :- **18 Passenger/1224Kg**
- Floors :- **G+1 floor (2Stops/2 Landings)**
- Travel :- **3 to 4.2 mtrs**
- Location of Lift Machine:- **MR**
- Speed :- **1.0mps** VS
- **Car/Landing door clear opening of 1100 mm wide x 2000 mm high**
- **Clear Car size ofmm wide xmm deep x 2250mm high**
- **Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead.**
- Doors type :- **COPO/TOPO** Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory)
- Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge.
- COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor
- LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".

- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "T" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge.
- The above rate includes Fully Comprehensive AMC for one year from the date of commissioning

17-1-10 **SITC of Electric Traction Passenger cum Stretcher/Hospital Lift** Job 1950810
with

- Rated capacity :- **20 Passenger/1360Kg**
- Floors :- **G+1 floor (2Stops/2 Landings)**
- Travel :- **3 to 4.2 mtrs**
- Location of Lift Machine:- **MR/MRL**
- Rated speed :- **1.0mps VS**
- **Car/Landing door clear opening of 1100/1200 mm wide x 2000 mm high**
- **Clear Car size ofmm wide xmm deep x 2250mm high**
- **Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead.**
- Doors type :- **COPO/TOPO** Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory)
- Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge.
- COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor
- LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".

- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "T" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge.
- The above rate includes Fully Comprehensive AMC for one year from the date of commissioning

Note : Item nos 17-1-1 to 17-1-10 shall invariably used for Lifts traveling up to six floors only.

17-1-11	<p>SITC of Electric Traction Passenger Lift with</p> <ul style="list-style-type: none"> · Rated capacity :- 4 Passenger/272Kg · Floors :- G+7 floor (8Stops/8 Landings) · Travel :- 21 to 29.4 mtrs · Location of Lift Machine:- MR/MRL · Rated speed :- 1.5mps VS · Car/Landing door clear opening of 700/800 mm wide x 2000 mm high · Clear Car size ofmm wide xmm deep x 2250mm high · Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. · Doors type :- COPO/TOPO Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory) · Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge. · COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor · LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings 	Job	1993854
---------	---	-----	---------

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".

- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "T" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing of girders of adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
	<ul style="list-style-type: none"> · General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge. · The above rate includes Fully Comprehensive AMC for one year from the date of commissioning 		
17-1-12	<p>SITC of Electric Traction Passenger Lift with</p> <ul style="list-style-type: none"> · Rated capacity :- 6 Passenger/408Kg · Floors :- G+7 floor (8Stops/8 Landings) · Travel :- 21 to 29.4 mtrs · Location of Lift Machine:- MR/MRL · Rated speed :- 1.5mps VS · Car/Landing door clear opening of 800 mm wide x 2000mm · Clear Car size ofmm wide xmm deep x 2250mm high · Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. · Doors type :- COPO/TOPO Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory) · Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge. · COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor · LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings 	Job	2046266

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".

- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "T" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge.
- The above rate includes Fully Comprehensive AMC for one year from the date of commissioning

17-1-13 **SITC of Electric Traction Passenger Lift** with Job 2133459

- Rated capacity :- **8 Passenger/544Kg**
- Floors :- **G+7 floor (8Stops/8 Landings)**
- Travel :- **21 to 29.4 mtrs**
- Location of Lift Machine:- **MR/MRL**
- Rated speed :- **1.5mps** VS
- **Car/Landing door clear opening of 800 mm wide x 2000 mm high**
- **Clear Car size ofmm wide xmm deep x 2250mm high**
- **Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead.**
- Doors type :- **COPO/TOPO** Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory)
- Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge.
- COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor
- LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".
- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "T" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
	<ul style="list-style-type: none"> · General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge. · The above rate includes Fully Comprehensive AMC for one year from the date of commissioning 		
17-1-14	<p>SITC of Electric Traction Passenger Lift with</p> <ul style="list-style-type: none"> · Rated capacity :- 10 Passenger/680Kg · Floors :- G+7 floor (8Stops/8 Landings) · Travel :- 21 to 29.4 mtrs · Location of Lift Machine:- MR/MRL · Rated speed :- 1.5mps VS · Car/Landing door clear opening of 800 mm wide x 2000 mm high · Clear Car size ofmm wide xmm deep x 2250mm high · Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. · Doors type :- COPO/TOPO Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory) · Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge. · COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor · LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings 	Job	2359424

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
	<ul style="list-style-type: none"> · Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class · ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate “Low battery”. · Fireman controller having fireman switch at fire Landing. · CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20” FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. · Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength · Other mechanical parts such as "I" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work · Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT. 		

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge.
- The above rate includes Fully Comprehensive AMC for one year from the date of commissioning

17-1-15 **SITC of Electric Traction Passenger Lift** with Job 2483948

- Rated capacity :- **13 Passenger/884Kg**
- Floors :- **G+7 floor (8Stops/8 Landings)**
- Travel :- **21 to 29.4 mtrs**
- Location of Lift Machine:- **MR/MRL**
- Rated speed :- **1.5mps** VS
- **Car/Landing door clear opening of 900/1000 mm wide x 2000 mm high**
- **Clear Car size ofmm wide xmm deep x 2250mm high**
- **Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead.**
- Doors type :- **COPO/TOPO** Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory)
- Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge.
- COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor
- LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".

- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "T" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge.
- The above rate includes Fully Comprehensive AMC for one year from the date of commissioning

17-1-16 **SITC of Electric Traction Passenger Lift** with Job 2639332

- Rated capacity :- **14 Passenger/952Kg**
- Floors :- **G+7 floor (8Stops/8 Landings)**
- Travel :- **21 to 29.4 mtrs**
- Location of Lift Machine:- **MR**
- Rated speed :- **1.5mps** VS
- **Car/Landing door clear opening of 900 mm wide x 2000mm**
- **Clear Car size ofmm wide xmm deep x 2250mm high**
- **Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead.**
- Doors type :- **COPO/TOPO** Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames. The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory)
- Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge.
- COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor
- LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".

- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "T" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge.
- The above rate includes Fully Comprehensive AMC for one year from the date of commissioning

17-1-17 **SITC of Electric Traction Passenger cum Stretcher/Hospital Lift** with Job 2727557

- Rated capacity :- **15 Passenger/1020Kg**
- Floors :- **G+7 floor (8Stops/8 Landings)**
- Travel :- **21 to 29.4 mtrs**
- Location of Lift Machine:- **MR/MRL [applicable for Passenger Lift with MRL only & Stretcher/Hospital Lift with MR & MRL]**
- Rated speed :- **1.5mps VS**
- **Car/Landing door clear opening of 800/900/1000 mm wide x 2000mm high**
- **Clear Car size ofmm wide xmm deep x 2250mm high**
- **Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead.**
- Doors type :- **COPO/TOPO** Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory)
- Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge.
- COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor
- LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".

- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "T" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
	<ul style="list-style-type: none"> · General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge. · The above rate includes Fully Comprehensive AMC for one year from the date of commissioning 		
17-1-18	<p>SITC of Electric Traction Passenger Lift with</p> <ul style="list-style-type: none"> · Rated capacity :- 16 Passenger/1088Kg · Floors :- G+7 floor (8Stops/8 Landings) · Travel :- 21 to 29.4 mtrs · Location of Lift Machine:- MR/MRL · Rated speed :- 1.5mps VS · Car/Landing door clear opening of 1000mm wide x 2000 mm high · Clear Car size ofmm wide xmm deep x 2250mm high · Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. · Doors type :- COPO/TOPO Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory) · Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge. · COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor · LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings 	Job	2809468

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
	<ul style="list-style-type: none"> · Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class · ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate “Low battery”. · Fireman controller having fireman switch at fire Landing. · CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20” FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. · Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength · Other mechanical parts such as "T" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work · Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT. 		

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge.
- The above rate includes Fully Comprehensive AMC for one year from the date of commissioning

17-1-19 **SITC of Electric Traction Passenger Lift** with Job 2937571

- Rated capacity :- **18 Passenger/1224Kg**
- Floors :- **G+7 floor (8Stops/8 Landings)**
- Travel :- **21 to 29.4 mtrs**
- Location of Lift Machine:- **MR**
- Rated speed :- **1.5mps** VS
- **Car/Landing door clear opening of 1100 mm wide x 2000 mm high**
- **Clear Car size ofmm wide xmm deep x 2250mm high**
- **Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead.**
- Doors type :- **COPO/TOPO** Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory)
- Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge.
- COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor
- LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".

- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "T" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge.
- The above rate includes Fully Comprehensive AMC for one year from the date of commissioning

17-1-20 **SITC of Electric Traction Passenger cum Stretcher/Hospital Lift** Job 3122147
with

- Rated capacity :- **20 Passenger/1360Kg**
- Floors :- **G+7 floor (8Stops/8 Landings)**
- Travel :- **21 to 29.4 mtrs**
- Location of Lift Machine:- **MR/MRL**
- Rated speed :- **1.5mps VS**
- **Car/Landing door clear opening of 1100/1200 mm wide x 2000 mm high**
- **Clear Car size ofmm wide xmm deep x 2250mm high**
- **Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead.**
- Doors type :- **COPO/TOPO** Doors with frame made from SS 304 grade solid(non-claded) sheet of 1.5mm thick in hairline finish for car and all landing doors with SS door architraves/frames The lift doors shall have minimum 1 hour fire rating (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory)
- Lift car enclosure made from SS 304 grade solid(non-claded) sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with LED lights having light intensity of at least 100 lux in car, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. The lift car interior design shall be done as per the directions of engineer in charge.
- COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with / without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor
- LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

- Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, The Controller shall have necessary Protections such as overcurrent, overvoltage, over speed, overheat for all devices including lift motor and travel direction protection, protection for phase loss at input or output, Ascending Car Overspeed Protection etc. various operation modes such as maintenance, change direction by attendant, full load bypass, VIP call operation, self leveling operation, call cancel facility, auto return to home landing, fireman evacuation operation, door open/close operation from COP etc. The system can record information for minimum 30 latest faults, with Real-time clock management and Handheld keypad with LCD screen for view and setting of parameters, The control panel duly wired with proper size & strength, copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class

- ARD complete with necessary SMF VRLA batteries shall be such that minimum three consecutive rescue operations can be performed without recharging for the maximum travel distance between two consecutive served stops. ARD have a suitable audio alarm with visual indication or voice annunciation in the lift car or lift controller to indicate "Low battery".
- Fireman controller having fireman switch at fire Landing.

- CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 90 days with 20" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.

- Lift Machine of Gearless PMSM of suitable kW with duty cycle of minimum 120 starts/hr (with submission of necessary valid Test Certificate issued by NABL accredited or Independent Test laboratory), with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength

- Other mechanical parts such as "I" section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work

- Minor civil work such as alteration work if any necessary for erection of landing door frames and it's accessories e.g. sill, header, hole pass etc complete with plaster finish, civil work for erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails, providing and fixing steel girders/RCC work having adequate strength for mounting and hoisting lift machine etc. complete as per specification no. LFT.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
	<ul style="list-style-type: none"> · General: - Job includes entire procedure of obtaining all necessary erection permissions & "License to Work the Lift" from Electrical Inspector(Lifts) with submission to the Engineer In Charge. · The above rate includes Fully Comprehensive AMC for one year from the date of commissioning 		
17-1-21	SITC of Duplex Lift control system for two nos. microprocessor/PLC based simplex Lift controllers along with necessary software with programming and hardware e.g. logic board, necessary communication/control/data cabling laying in rigid PVC conduits/trunking etc. complete	Each	38913
17-1-22	SITC of Triplex Lift control system for three nos. microprocessor/PLC based simplex Lift controllers along with necessary software with programming and hardware e.g. logic board, necessary communication/control/data cabling laying in rigid PVC conduits/trunking etc. complete	Each	58164
17-1-23	SITC of Quadruplex Lift control system for four nos. microprocessor/PLC based simplex Lift controllers along with necessary software with programming and hardware e.g. logic board, necessary communication/control/data cabling laying in rigid PVC conduits/trunking etc. complete	Each	78426
	Add On		
A	For Lift travelling up to six floors or at a speed of 1.0 mps, add as below,		
1	For Lift having 700mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade solid(non-claded) landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-indicators, extension of guide rails, shaft wiring with trunking, travelling cables, main hoisting ropes/belts, & OSG rope landing doors with all accessories etc. necessary for the normal safe functioning of lift installation complete	Floor	133352
2	For Lift having 800mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade solid(non-claded) landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-indicators, extension of guide rails, shaft wiring with trunking, traveling cables, main hoisting ropes/belts, & OSG rope landing doors with all accessories etc. necessary for the normal safe functioning of lift installation complete	Floor	137335
3	For Lift having 900mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade solid(non-claded) landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-indicators, extension of guide rails, shaft wiring with trunking, travelling cables, main hoisting ropes/belts, & OSG rope landing doors with all accessories etc. necessary for the normal safe functioning of lift installation complete	Floor	142161

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
4	For Lift having 1000mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade solid(non-claded) landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-indicators, extension of guide rails, shaft wiring with trunking, travelling cables, main hoisting ropes/belts, & OSG rope landing doors with all accessories etc. necessary for the normal safe functioning of lift installation complete	Floor	146458
5	For Lift having 1100mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade solid(non-claded) landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-indicators, extension of guide rails, shaft wiring with trunking, travelling cables, main hoisting ropes/belts, & OSG rope landing doors with all accessories etc. necessary for the normal safe functioning of lift installation complete	Floor	151029
6	For Lift having 1200mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade solid(non-claded) landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-indicators, extension of guide rails, shaft wiring with trunking, travelling cables, main hoisting ropes/belts, & OSG rope landing doors with all accessories etc. necessary for the normal safe functioning of lift installation complete	Floor	156444
A1	For Lift travelling above seven floors & up to fifteen floors or at a speed of 1.5 mps, add as below,		
1	For Lift having 700mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade solid(non-claded) landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-indicators, extension of guide rails, shaft wiring with trunking, travelling cables, main hoisting ropes/belts, & OSG rope landing doors with all accessories etc. necessary for the normal safe functioning of lift installation complete	Floor	139299
2	For Lift having 800mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade solid(non-claded) landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-indicators, extension of guide rails, shaft wiring with trunking, travelling cables, main hoisting ropes/belts, & OSG rope landing doors with all accessories etc. necessary for the normal safe functioning of lift installation complete	Floor	143479
3	For Lift having 900mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade solid(non-claded) landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-indicators, extension of guide rails, shaft wiring with trunking, travelling cables, main hoisting ropes/belts, & OSG rope landing doors with all accessories etc. necessary for the normal safe functioning of lift installation complete	Floor	148517
4	For Lift having 1000mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade solid(non-claded) landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-indicators, extension of guide rails, shaft wiring with trunking, travelling cables, main hoisting ropes/belts, & OSG rope landing doors with all accessories etc. necessary for the normal safe functioning of lift installation complete	Floor	152993

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
5	For Lift having 1100mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade solid(non-claded) landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-indicators, extension of guide rails, shaft wiring with trunking, travelling cables, main hoisting ropes/belts, & OSG rope landing doors with all accessories etc. necessary for the normal safe functioning of lift installation complete	Floor	157751
6	For Lift having 1200mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade solid(non-claded) landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-indicators, extension of guide rails, shaft wiring with trunking, travelling cables, main hoisting ropes/belts, & OSG rope landing doors with all accessories etc. necessary for the normal safe functioning of lift installation complete	Floor	163425
A2	For Lift travelling above fifteen floors & up to twenty floors or at a speed of 1.75 mps, add as below,		
1	For Lift having 800mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade solid(non-claded) landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-indicators, extension of guide rails, shaft wiring with trunking, travelling cables, main hoisting ropes/belts, & OSG rope, landing doors with all accessories etc. complete for the safe functioning of lift installation.	Floor	147729
2	For Lift having 900mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade solid(non-claded) landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-indicators, extension of guide rails, shaft wiring with trunking, travelling cables, main hoisting ropes/belts, & OSG rope, landing doors with all accessories etc. complete for the safe functioning of lift installation.	Floor	152929
3	For Lift having 1000mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade solid(non-claded) landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-indicators, extension of guide rails, shaft wiring with trunking, travelling cables, main hoisting ropes/belts, & OSG rope, landing doors with all accessories etc. complete for the safe functioning of lift installation.	Floor	157483
4	For Lift having 1100mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade solid(non-claded) landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-indicators, extension of guide rails, shaft wiring with trunking, travelling cables, main hoisting ropes/belts, & OSG rope, landing doors with all accessories etc. complete for the safe functioning of lift installation.	Floor	162402
5	For Lift having 1200mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade solid(non-claded) landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-indicators, extension of guide rails, shaft wiring with trunking, travelling cables, main hoisting ropes/belts, & OSG rope, landing doors with all accessories etc. complete for the safe functioning of lift installation	Floor	168189
B	For Full Collective control system, add as below.		
1	For Lift travelling above First floor & up to Sixth floor	Each	27532

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
C	For additional 2MP Camera along with necessary accessories at Home Landing, add as given.	Each	13563
D	The above rates are for landing & car door height of 2000mm and Lift car ceiling height of 2250mm . If the requirements for landing & car doors height above 2000mm & Lift car height above 2250mm, add overall Rs. per 100mm rise per Lift per landing.		
a	For Lift car enclosure & car door per 100mm Step rise		
1	for Lift car door, having clear entrance of 700/800/900mm wide	per landing	45747
2	for Lift car door, having clear entrance 1000/1100/1200/1300mm wide	per landing	62231
b	For Lift Landings per 100mm Step rise		
1	for Lift Landing door having clear entrance of 700/800/900mm wide	per landing	11762
2	for Lift Landing door, having clear entrance of 1000/1100/1200/1300mm wide	per landing	15896
Note :	<p>1) If the lift shaft is greater than the required size of the lift as mentioned in relevant Indian Standard [with Amendments up to date], the provision of extra steel required for erecting supports of guide rails shall be made by the department as a separate item.</p> <p>2) The Electric power supply of 415 volts, 3 phase 4 wire, 50Hz shall be made available up to Lift controller, and as per the provisions laid down in relevant The Electricity Safety Regulations 2010[with Amendments up to date], Indian Standard, The Maharashtra Lift, escalators & moving walkway Act 2017 & relevant Rules, the separate cables for lighting and power & shall be erected through lift shaft only with 2nos distinct earth connections from lift machine & controller</p> <p>3) The technical specification of Lift duty motor, control panel, brakes, guide rails, and guide shoes, lift car frame, car, counter weight and suspension, lift safety gear and governor, buffer, lift doors, locking device and contacts, lift wire rope of lifts shall be as per actual requirement of</p> <p>4) For nonstandard lift shafts the Lift capacity shall be selected so that all the safety clearances to be maintained as per the provisions laid down in relevant Indian Standard, The Maharashtra Lift, escalators & moving walkway Act 2017 & relevant Rules and work shall be carried out</p> <p>5) For building having height of 15 mtrs or more, lift shall meet the requirement of fireman lift as per the statutory requirements laid in relevant Indian Standard</p> <p>6) While framing estimates of lifts for handicapped persons/ Hospital/Goods Lifts, the relevant Indian standard shall be referred for dimensions.</p> <p>7) The sizes in mm for Lift car, entrance, available lift Shaft etc. with travel shall be mentioned in the Detailed Estimate</p> <p>8) The above rates are for mostly installed Electric Traction Lifts, for Lift requirements with different purposes/ specifications, the items should be got approved from the competent authority</p>		

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

9) The Traffic Analysis [TA] shall be done as per the provisions laid down in relevant Indian standards for finalizing the capacity and number of Lifts in different types of buildings.

17.2 Dismantling

17-2-1	Dismantling the existing 4 to 7 Passenger lift of all types travelling G+1 floors (2 Landings/2Stops) having with auto/manual operated doors for lift car & all landings with door frames, guide rails, controller, wiring buffers, Lift Machine, ropes complete with all allied accessories of Lift and making the site clear in all respect complete with refilling the holes with cement mortar & making the site as original this job includes transportation of the dismantled material up to division/section store and handing over to the section engineer/store keeper in charge complete.	Job	33805
17-2-2	Dismantling the existing 8 to 12 Passenger lift of all types travelling G+1 floors (2 Landings/2Stops) having with auto/manual operated doors for lift car & all landings with door frames, guide rails, controller, wiring buffers, Lift Machine, ropes complete with all allied accessories of Lift and making the site clear in all respect complete with refilling the holes with cement mortar & making the site as original this job includes transportation of the dismantled material up to division/section store and handing over to the section engineer/store keeper in charge complete.	Job	36595
17-2-3	Dismantling the existing 13 to 17 Passenger/Stretcher/Goods lift of all types travelling G+1 floors (2 Landings/2Stops) having with auto/manual operated doors for lift car & all landings with door frames, guide rails, controller, wiring buffers, Lift Machine, ropes complete with all allied accessories of Lift and making the site clear in all respect complete with refilling the holes with cement mortar & making the site as original this job includes transportation of the dismantled material up to division/section store and handing over to the section engineer/store keeper in charge complete	Job	39346
17-2-4	Dismantling the existing 18 to 22 Passenger/Stretcher/Goods lift of all types travelling G+1 floors (2 Landings/2Stops) having with auto/manual operated doors for lift car & all landings with door frames, guide rails, controller, wiring buffers, Lift Machine, ropes complete with all allied accessories of Lift and making the site clear in all respect complete with refilling the holes with cement mortar & making the site as original this job includes transportation of the dismantled material up to division/section store and handing over to the section engineer/store keeper in charge complete	Job	42457

Add On

A If there are addition of floors for lift travelling up to six floors, add as given below

1	For 4 to 7 passenger lift of all types	Floor	2072
2	For 8 to 12 passenger lift of all types	Floor	2265
3	For 13 to 17 passenger/stretcher/goods lift of all types	Floor	2399
4	For 18 to 23 passenger/stretcher/goods lift of all types	Floor	2740

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
A1	If there are additional floors for Lift travelling above Six floors and up to Fifteen floors Add as given below		
1	For 4 to 7 passenger lift of all types	Floor	2265
2	For 8 to 12 passenger lift of all types	Floor	2399
3	For 13 to 17 passenger/stretcher/goods lift of all types	Floor	2740
4	For 18 to 23 passenger/stretcher/goods lift of all types	Floor	2872
A2	If there are additional floors for Lift travelling above fifteen floors and up to Twenty floors , add as given below		
1	For 4 to 7 passenger lift of all types	Floor	2399
2	For 8 to 12 passenger lift of all types	Floor	2740
3	For 13 to 17 passenger/stretcher/goods lift of all types	Floor	2872
4	For 18 to 23 passenger/stretcher/goods lift of all types	Floor	3052
B	If there are additional set of lift car door and landing door, add as given below		
1	For 4 to 7 passenger lift of all types	Set	1540
2	For 8 to 12 passenger lift of all types	Set	1670
3	For 13 to 17 passenger/stretcher/goods lift of all types	Set	1819
4	For 18 to 23 passenger/stretcher/goods lift of all types	Set	2091
Note :	1) The lift dismantled material cost shall be calculated on the rate analysis based on weight density calculations of actual dismantled material i.e. mild steel/MS/GI/SS sheets, motors, copper wire, wooden parts etc 2) The lift dismantled material will be the property of the department.		

Chapter 18 : MISCELLANEOUS (MSC)

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
<u>18.1 Rewinding</u>			
18-1-1	Rewinding the motor of table / pedestal / wall bracket / cabin fans of all type and makes including minor repairs lubricating of ball bearings & bush bearing, replacing condenser, screws etc. & testing for original speed and consumption with guarantee for 1 year including transportation from site and back.	Each	507
18-1-2	Rewinding the motor of the ceiling fan 900 mm of all types and makes and overhauling including minor repairs lubricating of ball bearings & bush bearing, replacing condenser, screws etc. & testing for original speed and consumption with guarantee for one year.	Each	537
18-1-3	Rewinding the motor of the ceiling fan 1200 mm / 1400 mm of all types and makes and overhauling including minor repairs lubricating of ball bearings & bush bearing, replacing condenser, screws etc. & testing for original speed and consumption with guarantee for one year.	Each	552
18-1-4	Rewinding the motor of the exhaust fan 900 / 1400 RPM 300 mm of all types and makes and overhauling including minor repairs, lubricating of ball bearings & bush bearing, replacing condenser, screws etc. & testing for original speed and consumption with guarantee for one year	Each	552
18-1-5	Rewinding the motor of the exhaust fan 900/1400 RPM 375 mm of all types and makes and overhauling including minor repairs, lubricating of ball bearings & bush bearing, replacing screws etc. & testing for original speed and consumption with guarantee for one year	Each	652
18-1-6	Rewinding the motor of the exhaust fan 900/1400 RPM 450 mm of all types and makes and overhauling including minor repairs, lubricating of ball bearings & bush bearing, replacing condenser, screws etc. & testing for original speed and consumption with guarantee for one year	Each	940
18-1-7	Rewinding of electric motor upto 1 HP single phase upto 1400 RPM of all types and makes with copper wire conforming to IS:13730 , overhauling with minor repairs, lubricating of ball bearings & bush bearing, replacing condenser, screws etc. testing for the original speed and no load consumption with guarantee for one year.	Each	1306
18-1-8	Rewinding of electric motor upto 1 HP three phase upto 1400 RPM of all types and makes with copper wire conforming to IS:13730 , overhauling with minor repairs, lubricating of ball bearings & bush bearing, replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	1671
18-1-9	Rewinding of electric motor above 1 HP and upto 2 HP three phase upto 1400 RPM of all types and makes with copper wire conforming to IS 13730 : 2012 , overhauling with minor repairs, lubricating of ball bearings & bush bearing, replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	1899
18-1-10	Rewinding of electric motor above 2 HP upto 3 HP three phase upto 1400 RPM of all types and makes with copper wire conforming to IS 13730 : 2012 , overhauling with minor repairs, lubricating of ball bearings & bush bearing, replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	2155
18-1-11	Rewinding of electric motor above 3 HP upto 5 HP three phase upto 1400 RPM of all types and makes with copper wire confirming to IS 13730 : 2012 , overhauling with minor repairs, lubricating of ball bearings & bush bearing, replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	3674

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
18-1-12	Rewinding of electric motor above 5 HP upto 7.5 HP three phase upto 1400 RPM of all types and makes with copper wire confirming to IS 13730 : 2012 , overhauling with minor repairs, lubricating of ball bearings & bush bearing, replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	4396
18-1-13	Rewinding of electric motor above 7.5 HP upto 10 HP three phase upto 1400 RPM of all types and makes with copper wire confirming to IS 13730 : 2012 , overhauling with minor repairs, lubricating of ball bearings & bush bearing, replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	5206
18-1-14	Rewinding of electric motor above 10 HP upto 12.5 HP three phase upto 1400 RPM of all types and makes with copper wire confirming to IS 13730 : 2012 , overhauling with minor repairs, lubricating of ball bearings & bush bearing, replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	5071
18-1-15	Rewinding of electric motor above 12.5 HP upto 15 HP three phase upto 1400 RPM of all types and makes with copper wire confirming to IS 13730 : 2012 , overhauling with minor repairs, lubricating of ball bearings & bush bearing, replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	5976
18-1-16	Rewinding of electric motor above 15 HP upto 20 HP three phase upto 1400 RPM of all types and makes with copper wire confirming to IS 13730 : 2012 , overhauling with minor repairs, lubricating of ball bearings & bush bearing, replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	8215
18-1-17	Rewinding of electric motor above 20 H.P. upto 25 HP three phase upto 1400 RPM of all types and makes with copper wire confirming to IS 13730 : 2012 , overhauling with minor repairs, lubricating of ball bearings & bush bearing, replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	HP	10807
18-1-18	Rewinding of electric motor above 25 H.P. upto 30 HP three phase up to 1400 RPM of all types and makes with copper wire conforming to IS 13730 : 2012 , overhauling with minor repairs, lubricating of ball bearings & bush bearing, replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	HP	12941
18-1-19	Rewinding of submersible pump motor in borewell of all types and makes up to and including 5 HP with coated copper wire conforming to IS 13730 : 2012 , overhauling with minor repairs, lubricating of ball bearings & bush bearing, replacing screws etc. testing for the original speed, H.P. and no load consumption & guarantee for one year.	Each	1850
18-1-20	Rewinding of submersible pump motor in borewell of all types and makes above 5 HP up to 25 HP with coated copper wire conforming to IS 13730: 2012 , overhauling with minor repairs, lubricating of ball bearings & bush bearing, replacing screws etc. testing for the original speed, H.P. and no load consumption & guarantee for one year.	Each	2067
Note:-	<p>1) Item no. 18-1-7 is for rewinding of motors other than table / pedestal / cabin / wall mounting / ceiling / exhaust fan.</p> <p>2) All above rewinding items are excluding of bearing replacement.</p> <p>3) The electric motor of the same fan shall not be rewound for more than 2 no of times.</p> <p>4) Burnt ceiling fans and motor older than 10 years shall not be rewound.</p> <p>5) Rates for rewinding of 2 pole motors e.g. 2800 / 2900 RPM, shall be decreased by 5%.</p>		

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)

6) Rates of Item No. 18-1-19 & 18-1-20 for rewinding of submersible pump in open well and water tank shall be decreased by 40%.

7) The dismantled material shall be retained by the contractor.

18.2 Replacement

18-2-1	Replacing the existing driving end bearing of original make for electric motor AC single phase / three phase upto 1 HP of all types with required alignment of the shaft and testing the same.	Each	308
18-2-2	Replacing the existing driving end bearing of original make for electric motor AC single phase / three phase 1.5 HP to 2 HP of all types with required alignment of the shaft and testing the same.	Each	387
18-2-3	Replacing the existing driving end bearing of original make for electric motor AC single phase / three phase 3 HP to 7.5 HP of all types with required alignment of the shaft and testing the same..	Each	589
18-2-4	Replacing the existing driving end bearing of original make for electric motor AC single phase / three phase 10 HP of all types with required alignment of the shaft and testing the same.	Each	909
18-2-5	Replacing the existing driving end bearing of original make for electric motor AC single phase / three phase 12.5 HP to 20 HP of all types with required alignment of the shaft and testing the same.	Each	1483
18-2-6	Replacing the existing driving end bearing of original make for electric motor AC single phase / three phase above 20 HP to 30 HP of all types with required alignment of the shaft and testing the same.	Each	1768
18-2-7	Replacing the existing non driving end bearing of original make for electric motor AC single phase / three phase up to 1 HP of all types with required alignment of the shaft and testing the same.	Each	292
18-2-8	Replacing the existing non driving end bearing of original make for electric motor AC single phase / three phase 1.5 HP to 2 HP of all types with required alignment of the shaft and testing the same.	Each	311
18-2-9	Replacing the existing non driving end bearing of original make for electric motor AC single phase / three phase 3 HP to 7.5 HP of all types with required alignment of the shaft and testing the same.	Each	492
18-2-10	Replacing the existing non driving end bearing of original make for electric motor AC single phase / three phase 10 HP of all types with required alignment of the shaft and testing the same.	Each	499
18-2-11	Replacing the existing non driving end bearing of original make for electric motor AC single phase / three phase 12.5 HP to 20 HP of all types with required alignment of the shaft and testing the same.	Each	988
18-2-12	Replacing the existing non driving end bearing of original make for electric motor AC single phase / three phase above 20 HP to 30 HP of all types with required alignment of the shaft and testing the same.	Each	1235
18-2-13	Replacing the existing ball bearing of table/ cabin/ pedestal/ ceiling/ exhaust fan complete with alignment of shaft & testing the same.	Each	202
18-2-14	Replacing the existing bush / rubber with ring and washers of table/ cabin/ pedestal/ ceiling/ exhaust fan complete with alignment of shaft & testing the same.	Each	108

Note:- 1) Above rates are applicable for replacement of bearing only.

2) The dismantled material shall be retained by the contractor.

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
<u>18.3 Accessories</u>			
18-3-1	Filtration of transformer oil conforming to IS 1886 : 2000 on site till satisfactory test results.	Litre	36
18-3-2	Supplying and topping up new insulating oil for transformer conforming to IS 335 :1993 of approved make with test certificate.	Litre	144
18-3-3	Supplying and replacing no-volt-coil for motor having DOL starters up to 7.5 HP.	Each	316
18-3-4	Supplying and replacing no-volt-coil for motor having DOL starters from 7.5 HP to 10 HP.	Each	574
18-3-5	Supplying and replacing no-volt-coil for motor having star-delta starter from 12.5 HP to 15 HP motor.	Each	551
18-3-6	Supplying and replacing no-volt-coil for motor having star-delta starter from 15 HP to 25 HP motor.	Each	693
18-3-7	Supplying and replacing no-volt-coil for motor having star-delta starter from 20 HP to 30 HP motor.	Each	716
18-3-8	Supplying and replacing no-volt-coil for motor having star-delta starter from 25 HP to 35 HP motor.	Each	1194
18-3-9	Supplying and replacing no-volt-coil from 30 HP to 90 HP motor starter.	Each	1178
18-3-10	Supplying and replacing no-volt-coil from 90 HP to 125 HP motor starter.	Each	2197
18-3-11	Supplying and replacing thermal overload relay for motor starter suitable for up to 12.5 HP.	Each	1127
18-3-12	Supplying and replacing thermal overload relay for motor starter suitable for up to 15 HP.	Each	1201
18-3-13	Supplying and replacing thermal overload relay for motor starter 10 HP to 17.5 HP.	Each	1294
18-3-14	Supplying and replacing thermal overload relay for motor starter 20 HP to 25 HP.	Each	1453
18-3-15	Supplying and replacing thermal overload relay for motor starter 30 HP to 35 HP.	Each	1562
18-3-16	Supplying and replacing thermal overload relay for motor starter 40 HP to 50 HP.	Each	1702
18-3-17	Supplying and replacing thermal overload relay for motor starter 60 HP to 90 HP.	Each	3204
18-3-18	Supplying and replacing thermal overload relay for motor starter from 100 HP to 125 HP.	Each	3633
18-3-19	Supplying & replacing timer for star-delta motor starter up to 12.5 HP.	Each	671
18-3-20	Supplying & replacing timer with combination coil for motor starter suitable from 15 HP to 30 HP.	Each	2556
18-3-21	Supplying & replacing electronic timer above 30 HP motor starter.	Each	1353
18-3-22	Supplying & replacing contactor for DOL motor starter from 7.5 HP to 10 HP.	Each	1323
18-3-23	Supplying & replacing contactor for star-delta motor starter from 12.5 HP to 15 HP.	Each	1833
18-3-24	Supplying & replacing contactor for star-delta motor starter from 15 HP to 25 HP.	Each	2631
18-3-25	Supplying and replacing contactor for star-delta motor starter suitable from 25 HP to 30 HP.	Each	2631
18-3-26	Supplying and replacing contactor for star-delta motor starter suitable for above 30 HP to 40 HP.	Each	5350
18-3-27	Supplying and replacing contactor for star-delta motor starter suitable for above 45 HP to 50 HP.	Each	7839

Item No	Short Description	Unit	Completed rate
(1)	(2)	(3)	(4)
18-3-28	Supplying and replacing contactor for star-delta motor starter suitable from 55 HP to 60 HP.	Each	7858
18-3-29	Supplying and replacing contactor for star-delta motor starter suitable for 75 HP to 90 HP.	Each	12828
18-3-30	Supplying and replacing contactor for star-delta motor starter suitable for 100 HP to 125 HP.	Each	20178
18-3-31	Dismantling the existing ceiling fan of various sizes and replacing the bolt and nuts at reel insulator and at bottom of the down rod with half threaded bolt of 3/8" dia 2-1/2" to 3-1/2" long and 5/16" dia 1-3/4" to 2-1/4" long respectively required sizes with 2 plate washers with oiling, greasing and painting the date of repair and re-replacing at position.	Each	153
18-3-32	Replacing suitable capacity motor of water pump of air cooler of any capacity and type in lieu of old one.	Each	591

Note : Follow type II co-ordination of respective manufacturer for starter / spares solution.

Note : Item in Sub-chapter 18-1, 18-2 & 18-3 shall be used after approval of concerned Superintending Engineer PW regional Circle (Electrical).

Chapter 19 : LV & Networking Systems (LVN)

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>19.1 Telephone, Audio and Video Wiring (WG-TW/TW)</u>			
19-1-1	Supplying, erecting & terminating 2 pair telephone copper cable 0.5 mm dia. with high density polyethylene insulation, polyester taped, nylon rip cord & grey colour sheathed with FR PVC, confirming to ITD specification S/WS 113C laid in provided PVC casing-n-capping/conduit as per specification no. WG-TW	m	24
19-1-2	Supplying, erecting & terminating 3 pair telephone copper cable 0.5 mm dia. with high density polyethylene insulation, polyester taped, nylon rip cord & grey colour sheathed with FR PVC, confirming to ITD specification S/WS 113C laid in provided PVC casing-n-capping/conduit as per specification no. WG-TW	m	32
19-1-3	Supplying, erecting & terminating 4 pair telephone copper cable 0.5 mm dia. with high density polyethylene insulation, polyester taped, nylon rip cord & grey colour sheathed with FR PVC, confirming to ITD specification S/WS 113C laid in provided PVC casing-n-capping/conduit as per specification no. WG-TW	m	36
19-1-4	Supplying, erecting & terminating 5 pair telephone copper cable 0.5 mm dia. with high density polyethylene insulation, polyester taped, nylon rip cord & grey colour sheathed with FR PVC, confirming to ITD specification S/WS 113C laid in provided PVC casing-n-capping/conduit as per specification no. WG-TW	m	45
19-1-5	Supplying, erecting & terminating 10 pair telephone copper cable 0.5 mm dia. with high density polyethylene insulation, polyester taped, nylon rip cord & grey colour sheathed with FR PVC, confirming to ITD specification S/WS 113C laid in provided PVC casing-n-capping/conduit as per specification no. WG-TW	m	80
19-1-6	Supplying, erecting & terminating 20 pair telephone copper cable 0.5 mm dia. with high density polyethylene insulation, polyester taped, nylon rip cord & grey colour sheathed with FR PVC, confirming to ITD specification S/WS 113C laid in provided PVC casing-n-capping/conduit as per specification no. WG-TW	m	145
19-1-7	Supplying, erecting & terminating 50 pair telephone copper cable 0.5 mm dia. with high density polyethylene insulation, polyester taped, nylon rip cord & grey colour sheathed with FR PVC, confirming to ITD specification S/WS 113C laid in provided PVC casing-n-capping/conduit as per specification no. WG-TW	m	350
19-1-8	Supplying, erecting & terminating 100 pair telephone copper cable 0.5 mm dia. with high density polyethylene insulation, polyester taped, nylon rip cord & grey colour sheathed with FR PVC, confirming to ITD specification S/WS 113C laid in provided PVC casing-n-capping/conduit as per specification no. WG-TW	m	670
19-1-9	Supplying, erecting & terminating 10 pair, 0.5mm dia, jelly filled unarmoured telephone copper cable with poly-al laminate moisture barrier, laid in provided PVC casing-n-capping/conduit as per specification no. WG-TW	m	110
19-1-10	Supplying, erecting & terminating 20 pair, 0.5mm dia, jelly filled unarmoured telephone copper cable with poly-al laminate moisture barrier, laid in provided PVC casing-n-capping/conduit as per specification no. WG-TW	m	162

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-1-11	Supplying, erecting & terminating 50 pair, 0.5mm dia, jelly filled unarmoured telephone copper cable with poly-al laminate moisture barrier, laid in provided PVC casing-n-capping/conduit as per specification no. WG-TW	m	304
19-1-12	Supplying, erecting & terminating 100 pair, 0.5mm dia, jelly filled unarmoured telephone copper cable with poly-al laminate moisture barrier, laid in provided PVC casing-n-capping/conduit as per specification no. WG-TW	m	494
19-1-13	Supplying, erecting & terminating 10 pair, 0.5 mm dia. jelly filled armoured telephone copper cable with poly-al laminate moisture barrier, polythene sheathed, G.S. Tape armoured polythene jacketed having laid in provided trench as per specification no. WG-TW	m	158
19-1-14	Supplying & erecting 20 pair, 0.5 mm dia. jelly filled armoured telephone copper cable with poly-al laminate moisture barrier, polythene sheathed, G.S. Tape armoured polythene jacketed having laid in provided trench as per specification no. WG-TW	m	225
19-1-15	Supplying, erecting & terminating 50 pair, 0.5 mm dia. jelly filled armoured telephone copper cable with poly-al laminate moisture barrier, polythene sheathed, G.S. Tape armoured polythene jacketed laid in provided trench as per specification no. WG-TW	m	422
19-1-16	Supplying, erecting & terminating 100 pair, 0.5 mm dia. jelly filled armoured telephone copper cable with poly-al laminate moisture barrier, polythene sheathed, G.S. Tape armoured polythene jacketed laid in provided trench as per specification no. WG-TW	m	701
19-1-17	Supplying, erecting & terminating 0.5 mm dia, copper jumper wire as per specification no. WG-TW	m	22
19-1-18	Supplying, erecting & terminating co-axial copper cable low voltage grade tri-shielded RG-11 as per specification no. WG-TW	m	70
19-1-19	Supplying, erecting & terminating co-axial copper cable low voltage grade tri-shielded RG-6 as per specification no. WG-TW	m	42
19-1-20	Supplying, erecting & terminating 15 m VGA cord low voltage grade to be laid in provided conduits and terminated with male/female VGA connectors complete.	Each	2645
19-1-21	Supplying, erecting & terminating 3 m HDMI cord low voltage grade minimum 4k compliant to be laid in provided conduits with male/female 19pin HDMI connectors complete.	Each	1274
19-1-22	Supplying, erecting & terminating 5 m HDMI cord low voltage grade minimum 4k compliant to be laid in provided conduits with male/female 19pin HDMI connectors complete.	Each	2399
19-1-23	Supplying, erecting & terminating 10 m HDMI cord low voltage grade minimum 4k compliant to be laid in provided conduits with male/female 19pin HDMI connectors complete.	Each	4641
19-1-24	Supplying, erecting & terminating 15 m HDMI cord low voltage grade minimum 4k compliant to be laid in provided conduits with male/female 19pin HDMI connectors complete.	Each	5325
19-1-25	Supplying, erecting & terminating 20 m HDMI cord low voltage grade minimum 4k compliant to be laid in provided conduits with male/female 19pin HDMI connectors complete.	Each	6056
19-1-26	Supplying, erecting & terminating 25 m HDMI cord low voltage grade minimum 4k compliant to be laid in provided conduits with male/female 19pin HDMI connectors complete.	Each	8911
19-1-27	Supplying, erecting & terminating 15 m Audio Video cord low voltage grade as per specification with required 3 RCA x 3 RCA connector complete.	Each	3721

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-1-28	Supplying, erecting & terminating HDMI Extender Over RJ45 Ethernet Cable Cat 6, 60m/200ft complete.	Each	6308
19-1-29	Supplying, installing, testing & commissioning of DVI to HDMI Convertor high-speed category, supporting full HD 1080p, 2K and 4K video up to 30 ft lengths , 3D having 24k gold-plated 19-pin Type-A connectors with High-flex CL3-rated jacket, RoHS compliant complete.	Each	7956
<u>19.2 Telephone Accessories (WG-TW/TA)</u>			
19-2-1	Supplying, erecting & commissioning MDF Box 50x50 pairs made from min. 1.5mm thick MS sheet as per specification no. WG-TA	Each	2263
19-2-2	Supplying, erecting & commissioning MDF Box 100x100 pairs made from min. 1.5mm thick MS sheet as per specification no. WG-TA	Each	3815
19-2-3	Supplying, erecting & commissioning MDF Box 150x150 pairs made from min. 1.5mm thick MS sheet as per specification no. WG-TA	Each	5128
19-2-4	Supplying, erecting & commissioning MDF Box 200x200 pairs made from min. 1.5mm thick MS sheet as per specification no. WG-TA	Each	7851
19-2-5	Supplying, erecting & commissioning MDF Box 250x250 pairs made from min. 1.5mm thick MS sheet as per specification no. WG-TA	Each	9827
19-2-6	Supplying, erecting & commissioning MDF Box 300x300 pairs made from min. 1.5mm thick MS sheet as per specification no. WG-TA	Each	11014
19-2-7	Supplying, erecting & commissioning MDF Box 400x400 pairs made from min. 1.5mm thick MS sheet as per specification no. WG-TA	Each	15407
19-2-8	Supplying, erecting & commissioning MDF Box 500x500 pairs made from min. 1.5mm thick MS sheet as per specification no. WG-TA	Each	18399
19-2-9	Supplying, erecting & commissioning MDF Box 600x600 pairs made from min. 1.5mm thick MS sheet as per specification no. WG-TA	Each	22081
19-2-10	Supplying, erecting & commissioning MDF Box 800x800 pairs made from min. 1.5mm thick MS sheet as per specification no. WG-TA	Each	28571
19-2-11	Supplying, erecting & commissioning 10 pairs FR junction box with moulded plastic enclosure as per specification no. WG-TA	Each	764
19-2-12	Supplying, erecting & commissioning 20 pairs FR junction box with moulded plastic enclosure as per specification no. WG-TA	Each	932
19-2-13	Supplying, erecting & commissioning 30 pairs FR junction box with moulded plastic enclosure as per specification no. WG-TA	Each	1209
19-2-14	Supplying, erecting & commissioning 40 pairs FR junction box with moulded plastic enclosure as per specification no. WG-TA	Each	1322
19-2-15	Supplying, erecting & commissioning 50 pairs FR junction box with moulded plastic enclosure as per specification no. WG-TA	Each	1585
19-2-16	Supplying, erecting & commissioning 100 pairs MS junction box made from min. 1.5mm thick MS sheet as per specification no. WG-TA	Each	2456
19-2-17	Supplying, erecting & commissioning 150 pairs MS junction box made from min. 1.5mm thick MS sheet as per specification no. WG-TA	Each	3140
19-2-18	Supplying, erecting & commissioning 10 pair module for connection & disconnection of telephone cable as per specification no. WG-TA	Each	396
19-2-19	Supplying & erecting over voltage protection magazine suitable for 10 pair as per specification no. WG-TA	Each	436
19-2-20	Supplying & erecting rosette box RJ type bakelite box on wall with LED indication duly connected as per specification no. WG-TA	Each	126
19-2-21	Supplying and erecting broadband splitter unit with 1 input & 2 output RJ 11 female connectors complete.	Each	299
19-2-22	Supplying, installing, testing & commissioning analogue type EPABX of 3 x 8 extension complete as per specification no. WG-TA	Job	14671
19-2-23	Supplying, installing, testing & commissioning analogue type EPABX of 3 x 8 extension complete with CLI and voice DISA (Direct inward station access) expandable upto 32 extension as per specification no. WG-TA .	Job	19079

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-2-24	Supplying, installing, testing & commissioning digital (hybrid) type EPABX of 3 x 8 universal extensions compliant to IEC 61000, EN 60950, CISPR 22, IS:9000 part 2/section 4 having LAN/WAN Port, USB port, RS232 port as per specification complete as per specification no. WG-TA	Job	24766
19-2-25	Supplying, installing, testing & commissioning digital (hybrid) type EPABX of 6 x 16 universal extensions compliant to IEC 61000, EN 60950, CISPR 22, IS:9000 part 2/section 4 having LAN/WAN Port, USB port, RS232 port as per specification complete as per specification no. WG-TA	Job	48774
19-2-26	Supplying, installing, testing & commissioning digital (hybrid) type EPABX of 6 x 32 universal extensions suitable upto 96 extensions compliant to IEC 61000, EN 60950, CISPR 22, IS:9000 part 2/section 4 having LAN/WAN port, USB port, RS232 port as per specification complete as per specification no. WG-TA	Job	66769
19-2-27	Supplying, installing, testing & commissioning IP EPABX for 10 extensions complete as per specification no. WG-TA	Job	31770
19-2-28	Supplying, installing, testing & commissioning push button telephone instrument desk top unit as per specification complete	Each	735
19-2-29	Supplying, installing, testing & commissioning push button telephone instrument desk top/wall mount with caller ID & speaker unit as per specification complete.	Each	1029
19-2-30	Supplying, installing, testing & commissioning IP telephone instrument as per specification complete.	Each	7539
19-2-31	Supplying, installing, testing & commissioning analogue type 1+1 basic twin instrument telephone set without display complete	Each	4414
19-2-32	Supplying, installing, testing & commissioning analogue type 1+1 cordless twin instrument telephone set with speaker phone and display complete	Each	5645
19-2-33	Supplying, installing, testing & commissioning expansion cabinet for extension of digital hybrid EPABX to expand system by 32 ports with programming and configuration of extensions and direct lines with required accessories complete.	Job	45226
Note :-	1) Add Rs. 37421.00 for additional 16 extension card for digital (hybrid) type EPABX 2) Add Rs.19662.00 for additional 8 extension card for digital (hybrid) type EPABX 3) Add Rs. 22229.00 for additional 8 trunks lines card for digital (hybrid) type EPABX 4) Minimum one digital key telephone instrument is essential for commissioning digital type EPABX		
<u>19.3 ELV Cabling (WG-ELVC)</u>			
19-3-1	Supplying and installing FR PVC sheathed HDPE insulated copper cat-6 cable suitable for networking compliant with ANSI/TIA-568.2-D standards in provided conduit/casing-n-capping as per specification no. WG-ELVC/NC	m	57
19-3-2	Supplying and installing LSZH sheathed HDPE insulated copper cat-6 cable suitable for networking compliant with ANSI/TIA-568.2-D standards in provided conduit/casing-n-capping as per specification no. WG-ELVC/NC	m	71

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-3-3	Supplying and installing FR PVC sheathed HDPE insulated copper cat-6A cable suitable for networking compliant with ANSI/TIA-568.2-D standards in provided conduit/casing-n-capping as per specification no. WG-ELVC/NC	m	73
19-3-4	Supplying and installing LSZH sheathed HDPE insulated copper cat-6A cable suitable for networking compliant with ANSI/TIA-568.2-D standards in provided conduit/casing-n-capping as per specification no. WG-ELVC/NC	m	85
19-3-5	Supplying and installing FR PVC sheathed Aluminum foiled wrapped over all tinned copper braided HDPE insulated copper cat-6 STP cable suitable for networking compliant with ANSI/TIA-568.2-D standards in provided conduit/casing-n-capping as per specification no. WG-ELVC/NC	m	105
19-3-6	Supplying and installing FR PVC sheathed HDPE insulated copper cat-6 cable with rodent proof and anti termite jacket suitable for networking compliant with ANSI/TIA-568.2-D standards in provided conduit/casing-n-capping as per specification no. WG-ELVC/NC	m	138
19-3-7	Supplying and installing FR PVC sheathed HDPE insulated copper cat-6 armoured cable suitable for networking compliant with ANSI/TIA-568.2-D standards as per specification no. WG-ELVC/NC	m	130
19-3-8	Supplying and erecting 6 fibers LSZH armoured multimode optical fiber cable with, core dia 50/125 µm (OM3), suitable upto 10 GBPS , compliant to IEC 60793/IEC 60794 standards, on wall/ceiling or laid in provided pipe/trench as per specification no. WG-ELVC/OFC	m	183
19-3-9	Supplying and installing PBT loose tube HDPE sheathed armoured single mode optical fiber cable with 6 fiber , core dia 9/125µm (OS1/OS2) 10 GBPS speed compliant to IEC 60793/IEC 60794 standards in provided pipe/trench complete.	m	71
19-3-10	Supplying and installing a PBT loose tube HDPE sheathed armoured single mode optical fiber cable with 12 fiber , core dia 9/125µm (OS1/OS2) 10 GBPS speed compliant to IEC 60793/IEC 60794 standards in provided pipe/trench complete.	m	87
19-3-11	Supplying and erecting 12 fibers LSZH armoured multimode optical fiber cable with , core dia 50/125 µm (OM3), suitable upto 10 GBPS , compliant to IEC 60793/IEC 60794 standards, on wall/ceiling or laid in provided pipe/trench as per specification no. WG-ELVC/OFC	m	302
19-3-12	Supplying and erecting 24 fibers LSZH armoured multimode optical fiber cable with , core dia 50/125 µm (OM3), suitable upto 10 GBPS , compliant to IEC 60793/IEC 60794 standards, on wall/ceiling or laid in provided pipe/trench as per specification no. WG-ELVC/OFC	m	432
19-3-13	Supplying and erecting LSZH armoured multimode optical fiber cable with 6 fibers , core dia 50/125 µm (OM4), suitable upto 10 GBPS , compliant to IEC 60793/IEC 60794 standards, on wall/ceiling or laid in provided pipe/trench as per specification no. WG-ELVC/OFC	m	1289
19-3-14	Supplying and erecting LSZH armoured multimode optical fiber cable with 12 fibers , core dia 50/125 µm (OM4), suitable upto 10 GBPS , compliant to IEC 60793/IEC 60794 standards, on wall/ceiling or laid in provided pipe/trench as per specification no. WG-ELVC/OFC	m	2164
19-3-15	Supplying and erecting LSZH armoured multimode optical fiber cable with 24 fibers , core dia 50/125 µm (OM4), suitable upto 10 GBPS , compliant to IEC 60793/IEC 60794 standards, on wall/ceiling or laid in provided pipe/trench as per specification no. WG-ELVC/OFC	m	3621

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-3-16	Supplying and fixing 1 m 24 AWG multi stranded UTP patch cord with RJ-45 factory crimped connector of Cat 6 type, compliant ANSI/TIA-568.2-D standards in position as per specification no. WG-ELVC/PC	Each	243
19-3-17	Supplying and fixing 1 m 24 AWG multi stranded length, UTP patch cord of (New) enhanced Cat 6A type compliant ANSI/TIA-568.2-D standards in position as per specification no. WG-ELVC/PC	Each	254
19-3-18	Supplying and fixing 2 m 24 AWG multi stranded UTP patch cord with RJ-45 factory crimped connector of cat 6 type compliant ANSI/TIA-568.2-D standards in position as per specification no. WG-ELVC/PC	Each	316
19-3-19	Supplying and fixing 2 m 24 AWG multi stranded UTP patch cord with RJ-45 factory crimped connector of cat 6A type compliant ANSI/TIA-568.2-D standards in position as per specification no. WG-ELVC/PC	Each	478
19-3-20	Supplying and fixing 3 m 24 AWG multi stranded UTP patch cord with RJ-45 factory crimped connector of cat 6 type compliant ANSI/TIA-568.2-D standards in position as per specification no. WG-ELVC/PC	Each	327
19-3-21	Supplying and fixing 3 m 24 AWG multi stranded, UTP patch cord of (New) enhanced cat 6A type, compliant ANSI/TIA-568.2-D standards in position as per specification no. WG-ELVC/PC	Each	401
19-3-22	Supplying and installing 3 m fiber patch cord LC-LC duplex single mode for OS1/OS2 compliant to IEC 60793/IEC 60794 standards complete as per specification no. WG-ELVC/FPC	Each	2339
19-3-23	Supplying and plugging 3 m fiber patch cord LC-SC MM (50) OM3 LSZH duplex compliant to IEC 60793/IEC 60794 standards complete as per specification no. WG-ELVC/FPC	Each	2849
19-3-24	Supplying and plugging 3 m fiber patch cord LC-SC MM (50) OM4 LSZH duplex complete compliant to IEC 60793/IEC 60794 standards as per specification no. WG-ELVC/FPC	Each	3232
19-3-25	Supplying and plugging 3 m fiber patch cord LC-LC MM (50) OM3 LSZH duplex complete compliant to IEC 60793/IEC 60794 standards as per specification no. WG-ELVC/FPC	Each	3414
19-3-26	Supplying and plugging 3 m fiber patch cord LC-LC MM (50) OM4 LSZH duplex, compliant to IEC 60793/IEC 60794 standards, complete as per specification no. WG-ELVC/FPC	Each	4970
19-3-27	Supplying and installing 6 port single mode fiber adapter panel suitable for FC,LC,SC,ST adapters with SS plate complete.	Each	4676
19-3-28	Supplying and installing single mode simplex pigtail with SC/LC splicing complete.	Each	819
19-3-29	Supplying and fixing multimode pigtails with SC/SC type splicing for (OM4) complete.	Each	1061
19-3-30	Supplying and fixing IP66 ABS enclosure for fiber splicing with raised hinged splice trays to house upto 48 fibers with multiple galnd entry points including heat shrink splice protectors complete.	Each	9686
19-3-31	Supplying, fixing, and configuring 10GbE SFP to SFP 1m direct attach cord complete as per specification no. WG-COC/PC	Each	6814

19.4 Networking Components (WG- NWC)

19-4-1	Supplying, fixing, and configuring 8-ports 1 GE un-managed gigabit PoE switch compliant with IEEE 802.3 standards, min. 120W PoE capacity with 2GE SFP uplink erected in provided rack complete.	Each	17737
19-4-2	Supplying, fixing, and configuring 8-ports managed gigabit, layer-2 switch, 10/100/1000 base-T, PoE smart switch plus 2 SFP erected in provided rack compliant with IEEE 802.3 standards complete.	Each	24791

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-4-3 (New)	Supplying, fixing, and configuring 8-port 10/100M un-managed standalone switch compliant with IEEE 802.3 standards as per specification complete.	Each	1197
19-4-4 (New)	Supplying, fixing, and configuring 8-port 10/100M un-managed,10/100/1000 base-T, gigabit switch compliant with IEEE 802.3 standards as per specification complete.	Each	2453
19-4-5 (New)	Supplying, fixing, and configuring 16-port 10/100M un-managed standalone switch compliant with IEEE 802.3 standards as per specification complete.	Each	2846
19-4-6 (New)	Supplying, fixing, and configuring 16-port 10/100M un-managed, 10/100/1000 Base-t, gigabit switch compliant with IEEE 802.3 standards as per specification complete.	Each	7517
19-4-7	Supplying, fixing, and configuring 24 ports, PoE switch compliant with IEEE 802.3 standards with min. 193W PoE capacity with 4GE SFP uplink in provided rack as per specification no. WG-NWC/ENS	Each	51713
19-4-8	Supplying, fixing, and configuring 24 ports with 4 combo SFP Port ethernet managed switch compliant with IEEE 802.3 standards, min. 370W PoE capacity , with web view ethernet port for management in provided rack as per specification no. WG-NWC/GBS	Each	41675
19-4-9	Supplying, fixing, and configuring 24G SFP ports with 2X10G RJ-45 & 4X10GSFP+ & support stacking , VRRP,OSPF,policy based routing compliant with IEEE 802.3 standards erected in provided rack complete.	Each	224167
19-4-10	Supplying, fixing, and configuring 24G PoE ports with 2X10G RJ-45 & 4X10G SFP+ & support stacking , VRRP,OSPF,policy based routing managed layer 2+ PoE switch compliant with IEEE 802.3 standards erected in provided rack complete.	Each	130553
19-4-11	Supplying, fixing, and configuring 24 Ports + 4 SFP combo, layer 2, GB managed ethernet switch, with web view compliant with IEEE 802.3 standards erected in provided rack complete	Each	60778
19-4-12	Supplying, fixing, and configuring 20 (1G-RJ45) ports + 4 combo 1G ports + 4 10G (SFP+) ports, layer 3 switch , 6KV surge protection on ethernet port and console port for management & support OSPF, BGP, MPLS, policy based routing compliant with IEEE 802.3 standards erected in provided rack complete.	Each	267194
19-4-13 (New)	Supplying, fixing, and configuring 20 GE SFP ports + 4 combo 1G ports + 4 10G (SFP+) ports, layer 3 switch , 6kV surge protection on ethernet port and console port for management & support OSPF, BGP, MPLS, policy based routing compliant with IEEE 802.3 standards erected in provided rack complete.	Each	365907
19-4-14	Supplying, fixing, and configuring 24 ports managed gigabit switch 10/100/1000 Mbps + 4SFP+ ports & 2X10G RJ-45 ports compliant with IEEE 802.3 af/at standards & supports OSPF/policy based routing/Stacking erected in provided rack complete.	Each	97892
19-4-15 (New)	Supplying, fixing, and configuring 24 port 10/100M un-managed standalone switch compliant with IEEE 802.3 standards as per specification complete.	Each	6459
19-4-16 (New)	Supplying, fixing, and configuring 24-port 10/100M un-managed 10/100/1000 base-T gigabit switch compliant with IEEE 802.3 standards as per specification complete.	Each	10512
19-4-17 (New)	Supplying, fixing, and configuring 24G SFP+ ports with 4X100G optical ports switch with VRRP,OSPF,BGP ,policy based routing compliant with IEEE 802.3 standards erected in provided rack complete.	Each	160716

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-4-18	Supplying, fixing, and configuring 48 ports managed gigabit switch 10/100/1000 Mbps + 4SFP+ ports & 2X10G RJ-45 ports compliant with IEEE 802.3 af/at standards & supports OSPF/policy based routing/stacking erected in provided rack complete.	Each	73461
19-4-19	Supplying, fixing, and configuring 48 ports PoE managed gigabit switch 10/100/1000 Mbps + 4SFP+ ports & 2X10G RJ-45 ports compliant with IEEE 802.3 af/at standards, PoE budget 370W & supports OSPF/policy based routing/stacking erected in provided rack complete.	Each	198539
19-4-20	Supplying, fixing, and configuring 48 Ports + 4 SFP combo, layer 2, GB (New) managed ethernet switch , with web view compliant with IEEE 802.3 standards erected in provided rack complete	Each	148779
19-4-21	Supplying, fixing, and configuring min. 650 watt redundant power supply system compliant with IEEE 802.3 standards erected in provided rack complete.	Each	96935
19-4-22	Supplying, fixing, and configuring 10G Base -SR (SFP+) MM transceiver compliant with IEEE 802.3 standards erected in provided rack complete.	Each	29931
19-4-23	Supplying, fixing, and configuring mini-GBIC SX MM fiber transceiver (up to 550m) compliant with IEEE 802.3 standards erected in provided rack complete.	Each	10647
19-4-24	Supplying, fixing, and configuring 10G Base -LR (SFP+) SM transceiver (New) compliant with IEEE 802.3 standards erected in provided rack complete.	Each	45836
19-4-25	Supplying, fixing, and configuring LX SM fiber transceiver (up to 10 km) (New) compliant with IEEE 802.3 standards erected in provided rack complete.	Each	20237
19-4-26	Supplying, fixing, and configuring broadband router with all accessories on provided rack.	Each	5368
19-4-27	Supplying, fixing, and configuring modularised multi-service router , 802.11/a/n/ac unified wave 2.5 GHz, with RJ-45 port, supporting upto 13 Users for 2.4 GHz, with unified wireless access point complete.	Each	180172
19-4-28	Supplying, fixing, and configuring dual-path serial card , single-lane(x1)PCI-Express endpoint controller, PHY integrated, compliant with PCI Express 2.0 gen-1 & PCI power management 1.2 supporting for all operating system complete.	Each	43997
19-4-29	Supplying, fixing, and configuring DB-60 (male) to 2 x DB-34 (male) connector cable for V.35 DTE complete.	Each	3892
19-4-30	Supplying, fixing, and configuring 300 Mbps single band wireless router (New) having 4 Nos. of 10/100 LAN ports with 2 nos. of external antennas compliant with IEEE 802.3 standards erected on desktop/wall complete.	Each	1741
19-4-31	Supplying, fixing, and configuring 750 Mbps dual band wireless router (New) having 4 Nos. of 10/100 LAN ports external with 3 Nos. of external antennas compliant with IEEE 802.3 standards erected on desktop/wall complete.	Each	2427
19-4-32	Supplying, fixing, and configuring 1200 Mbps dual band wireless router (New) having 4 Nos. of 10/100/1000 LAN ports external with 4 nos. of external antennas compliant with IEEE 802.3 standards erected on desktop/wall complete.	Each	3247
<u>19.5 Networking Accessories (WG-NAS)</u>			
19-5-1	Supplying, installing and testing UTP connector (RJ-45) as per specification no. WG-NAS/UTPC.	Each	74
19-5-2	Supplying and fixing tool-less IO (ethernet) flush/surface type in provided modular box as per specification no. WG-NAS/IO	Each	517
19-5-3	Supplying and fixing Cat 6, keystone jack RJ-45 information outlet compliant with ANSI/TIA/EIA 568.C.2 & ISO/IEC 11810 (ethernet) as per specification no. WG-NAS/KJ	Each	124

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-5-4	Supplying and fixing Cat 6, 24 port patch panel with keystone jacks compliant with ANSI/TIA/EIA 568.C.2 & ISO/IEC 11810 complete as per specification no. WG-NAS/PP	Each	11017
19-5-5 (New)	Supplying and fixing Cat 6A 24 port patch panel with keystone jacks compliant with ANSI/TIA/EIA 568.C.2 & ISO/IEC 11810 complete as per specification no. WG-NAS/PP	Each	16057
19-5-6	Supplying and fixing 12 ports light guide unloaded interconnect unit, rack mounted type , with adapter panel for termination of optical fiber cables in provided U rack complete as per specification no. WG-NAS/ LIU	Each	5265
19-5-7	Supplying and fixing 12 ports light guide unloaded interconnect unit, wall mounted type , with adapter panel for termination of optical fiber cables on wall in provided U rack complete as per specification no. WG-NAS/ LIU	Each	5391
19-5-8	Supplying and fixing 24 ports light guide unloaded interconnect unit, rack mounted type , with adapter panel for termination of optical fiber cables in provided U rack complete as per specification no. WG-NAS/ LIU	Each	5691
19-5-9	Supplying and fixing 24 ports light guide unloaded interconnect unit, wall mounted type , with adapter panel for termination of optical fiber cables on wall in provided U rack complete as per specification no. WG-NAS/ LIU	Each	6126
19-5-10	Supplying and fixing 1 x 6 Port SC duplex adapter panel-SC complete.	Each	376
19-5-11	Supplying and fixing 1 x 12 Port SC duplex adapter panel-SC complete.	Each	421
19-5-12	Supplying and fixing SC/LC type multimode duplex adapter to couple two connectors between OFC & fiber switch/fiber module as per specification no. WG-NAS/MMA	Each	561
19-5-13	Supplying and fixing SC/SC type multimode pigtails (OM3) for LIU to terminate OFC in LIU as per specification no. WG-NAS/LIU2	Each	815
19-5-14	Supplying and fixing SC/LC type multimode pigtails (OM3) for LIU to terminate OFC in LIU as per specification no. WG-NAS/LIU2	Each	913
19-5-15	Supplying and fixing SC/LC type multimode pigtails (OM4) as per specification complete. WG-NAS/LIU2	Each	1254
19-5-16	Supplying and fixing PoE adaptor to provide DC supply to ethernet devices as per specification no. WG-NAS/PEA	Each	5498
19-5-17	Supplying and fixing power distribution unit for networking rack comprises of 6/16A (6 Nos. sockets), 16A modular MCB , appropriate rating, enclosed in black powder coated metal with necessary arrangement for fixing complete.	Each	5270
19-5-18	Supplying and fixing 6U wall mount rack (Dimension-DxWxH – 500x550x347 mm) as per specification no. WG-NAS/RAK	Each	8925
19-5-19	Supplying and fixing 9U wall mount rack (Dimension-DxWxH – 500x550x480 mm) as per specification no. WG-NAS/RAK	Each	9615
19-5-20	Supplying and fixing 12U wall mount rack (Dimension-DxWxH – 500x550x613 mm) as per specification no. WG-NAS/RAK	Each	11314
19-5-21	Supplying and fixing 15U wall mount rack (Dimension-DxWxH – 500x550x747 mm) as per specification no. WG-NAS/RAK	Each	12853
19-5-22	Supplying and fixing 17U floor mount rack (Dimension-DxWxH – 800x600x931 mm) as per specification no. WG-NAS/RAK	Each	34707
19-5-23	Supplying and fixing 22U floor mount rack (Dimension-DxWxH – 800x600x1153 mm) as per specification no. WG-NAS/RAK	Each	41570
19-5-24	Supplying and fixing 24U floor mount rack (Dimension-DxWxH – 800x600x1267 mm) as per specification no. WG-NAS/RAK	Each	48236
19-5-25	Supplying and fixing 27U floor mount rack (Dimension-DxWxH – 800x600x1400 mm) as per specification no. WG-NAS/RAK	Each	52074

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-5-26	Supplying and fixing 32U floor mount server rack (Dimension- DxWxH - 800X1000x1622 mm) as per specification no. WG-NAS/RAK	Each	69216
19-5-27	Supplying and fixing 36U floor mount server rack (Dimension- DxWxH – 800x600x1800 mm) as per specification no. WG-NAS/RAK	Each	58611
19-5-28	Supplying and fixing 36U floor mount server rack (Dimension-DxWxH - 800X1000 x1800mm) as per specification no. WG-NAS/RAK	Each	74070
19-5-29	Supplying and fixing 42U floor mount server rack (Dimension-DxWxH – 800x600x2070 mm) as per specification no. WG-NAS/RAK	Each	74121
19-5-30	Supplying and fixing 42U floor mount server rack (Dimension-DxWxH – 800x1000x2070 mm) as per specification no. WG-NAS/RAK	Each	81432
19-5-31	Supplying and fixing 6U Hybrid IP66 outdoor mount server rack with pole mount bracket (Dimension-DxWxH - 500x550x350 mm) as per specification no. WG-NAS/RAK	Each	33837
19-5-32	Supplying and fixing 9U Hybrid IP66 outdoor mount server rack with pole mount bracket (Dimension- DxWxH - 500x550x450 mm) as per specification no. WG-NAS/RAK	Each	41034
19-5-33	Supplying, fixing, and configuring wireless n 150 desktop adapter in provided computer as per specification no. WG-NAS/LANC2	Each	1571
19-5-34	Supplying, fixing, and configuring manageable wireless router with 2.4Ghz indoor access point, dual-band 802.11 n 300mbps unified wireless access point complete as per specification no. WG-NAS/LAP1	Each	28530
19-5-35	Supplying, fixing, and configuring manageable wireless router with 2.4/5Ghz indoor access point, dual-band 802.11 n/ac, 1750mbps unified wireless access point complete as per specification no. WG-NAS/LAP1	Each	51036
19-5-36	Supplying, fixing, and configuring dual-band manageable wireless router , 2x2 802.11 AX wifi 6 high performance, 1750mbps unified, concurrent access point with PoE in networking as per specification no. WG-NAS/LAP2	Each	33479
19-5-37	Supplying, fixing, and configuring dual-band manageable wireless , 4x4 802.11 AX Wifi 6 high performance, 3600mbps , with 2 ethernet ports 1 supporting GE & another port supporting 2.GE unified, concurrent access point with POE in networking as per specification no. WG-NAS/LAP2	Each	37252
19-5-38 (New)	Supplying, fixing and configuring hardware wireless controller supporting minimum 100 Indoor/Outdoor AP complete as per specification WG-NAS/APWC	Each	100339
19-5-39 (New)	Supplying, fixing and configuring 10/100 BASE-TX to 100 BASE-FX (SC) Multimode Media converter for transmission distance upto 2 kms with LED indication complete as per specification no. WG-NAS/MMC	Each	8633
19-5-40 (New)	Supplying, fixing and configuring 10/100 BASE-TX to 100 BASE-FX (SC) single mode media converter for transmission distance upto 15 kms with LED indication complete as per specification no. WG-NAS/SMMC	Each	11873
19-5-41 (New)	Supplying, fixing and configuring 1000 BASE-T to 1000 BASE-SX (SC) multimode media converter for transmission distance upto 550 m with LED indication complete as per specification no. WG-NAS/MMC	Each	8791
19-5-42 (New)	Supplying, fixing and configuring 1000 BASE-T to 1000 BASE-SX (SC) single media converter for transmission distance upto 10 km with LED indication complete as per specification no. WG-NAS/SMMC	Each	22567

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
----------------	--------------------------	-------------	--------------------------

19.6 CCTV Systems (CCTV)

Cameras (CCTV-CAM)

19-6-1 (New)	<p>Supplying & erecting of High definition 2 Megapixel IP IR Bullet Camera with following features :</p> <p>Image Sensor : minimum 1/2.8" Progressive Scan CMOS, Video Resolution : minimum 1920 x 1080 Video Compression : H.264, H.265 or higher, at least Three individually configurable stream, Frame rate : minimum 25 fps at all resolutions, WDR : minimum 120 dB Wide Dynamic Range, ONVIF profile conformant, minimum IR distance : 30m, Lens Type : 2.8/4/6 mm Lens, fixed focal, Field of View : 2.8 mm, horizontal FOV 107°, vertical FOV 57°, diagonal FOV 129° 4 mm, horizontal FOV 86°, vertical FOV 47°, diagonal FOV 102° 6 mm, horizontal FOV 55°, vertical FOV 29°, diagonal FOV 65° Lux sensitivity - minimum 0.2 Lux at color, minimum 0.05 Lux at Black & White, 0.0 Lux (IR) Night Vision Distance minimum IR - 30m. Camera minimum Adjustment Angles - Pan : 350°, Tilt : 72°, Rotate : 350°. Power Supply : Support 12VDC & PoE, IP67, IK10 - Vandal Resistant. Built in micro SD/SDHC/SDXC card slot of minimum 128 GB, Built in microphone. minimum Input/Output - Audio in × 1, Audio Out × 1, Alarm in × 1, Alarm Out × 1. Image Settings : Rotate mode, saturation, brightness, contrast, sharpness, gain, white balance. Image Enhancements : Day/Night-Auto (ICR)/Color/Black & White, 3D Digital Noise Reduction, Automatic White Balance, Automatic Gain Control, Backlight Compensation, Highlight Compensation.</p> <p>Events : Privacy Masking, Motion detection, Scene change detection, Face capture, Video tampering, audio exception detection, Region entrance detection, Region exiting detection. Operating temperature (-30 to 60° C) . Security- User account and password protection, HTTPS, IP filter, IEEE 802.1X, digest authentication, user access log, TLS1.2, AES - 256, SSH/Telnet closed, FTP disabled. Protocol - DHCP, UDP, HTTP, HTTPS, NTP, DNS, RTP, RTSP, SMTP, SSL/TLS, TCP/IP, Secure Real-Time Transport Protocol (SRTP), Bonjour, SNMP and Secure shell (SSH) supported protocol. RoHS, WEEE, ISO-14001 and REACH compliant, UL/EN OR equivalent BIS/TECH/STQC or any indian standards as applicable, CE, FCC certified. duly erected in position on wall/ceiling/false ceiling/provided pole (mounting height not more than 5 meter) etc with all accessories etc complete as per specification no.CCTV-CAM.</p>	Each	7917
-----------------	---	------	------

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-6-2 (New)	<p>Supplying & erecting of High definition 4/5 Megapixel IP IR Bullet Camera with following features</p> <p>Image Sensor : minimum 1/2.8" Progressive Scan CMOS, Video Resolution : minimum 2592 x 1520 Video Compression : H.264, H.265 or higher, at least Three individually configurable stream, Frame rate : minimum 25 fps at all resolutions, WDR : minimum 120 dB Wide Dynamic Range, ONVIF profile conformant, minimum IR distance : 50m, Lens Type : 2.8/4/6 mm Lens, fixed focal, Field of View : 2.8 mm, horizontal FOV 107°, vertical FOV 57°, diagonal FOV 129° 4 mm, horizontal FOV 86°, vertical FOV 47°, diagonal FOV 102° 6 mm, horizontal FOV 55°, vertical FOV 29°, diagonal FOV 65° Lux sensitivity - minimum 0.2 Lux at color, minimum 0.05 Lux at Black & White, 0.0 Lux (IR) Night Vision Distance minimum IR - 50m. Camera minimum Adjustment Angles - Pan : 350°, Tilt : 72°, Rotate : 350°. Power Supply : Support 12VDC & PoE, IP67, IK10 - Vandal Resistant. Built in micro SD/SDHC/SDXC card slot of minimum 128 GB, Built in microphone. minimum Input/Output - Audio in × 1, Audio Out × 1, Alarm in × 1, Alarm Out × 1. Image Settings : Rotate mode, saturation, brightness, contrast, sharpness, gain, white balance. Image Enhancements : Day/Night-Auto (ICR)/Color/Black & White, 3D Digital Noise Reduction, Automatic White Balance, Automatic Gain Control, Backlight Compensation, Highlight Compensation.</p> <p>Events : Privacy Masking, Motion detection, Scene change detection, Face capture, Video tampering, audio exception detection, Region entrance detection, Region exiting detection. Operating temperature (-30 to 60° C) . Security - User account and password protection, HTTPS, IP filter, IEEE 802.1X, digest authentication, user access log, TLS1.2, AES - 256, SSH/Telnet closed, FTP disabled. Protocol - DHCP, UDP, HTTP, HTTPS, NTP, DNS, RTP, RTSP, SMTP, SSL/TLS, TCP/IP, Secure Real-Time Transport Protocol (SRTP), Bonjour, SNMP and Secure shell (SSH) supported protocol. RoHS, WEEE, ISO-14001 and REACH compliant, UL/EN OR equivalent BIS/TECH/STQC or any indian standards as applicable, CE, FCC certified. duly erected in position on wall/ceiling/false ceiling/provided pole (mounting height not more than 5 meter) etc with all accessories etc complete as per specification no. CCTV-CAM</p>	Each	10743

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-6-3 (New)	<p>Supplying & erecting of High definition 2 Megapixel IP IR Dome Camera with following features</p> <p>Image Sensor : minimum 1/2.8" Progressive Scan CMOS, Video Resolution : minimum 1920 x 1080 Video Compression : H.264, H.265 or higher, at least Three individually configurable stream, Frame rate : minimum 25 fps at all resolutions, WDR : minimum 120 dB Wide Dynamic Range, ONVIF profile conformant, minimum IR distance : 30m, Lens Type : 2.8/4/6 mm Lens, fixed focal, Field of View : 2.8 mm, horizontal FOV 107°, vertical FOV 57°, diagonal FOV 129° 4 mm, horizontal FOV 86°, vertical FOV 47°, diagonal FOV 102° 6 mm, horizontal FOV 55°, vertical FOV 29°, diagonal FOV 65° Lux sensitivity - minimum 0.2 Lux at color, minimum 0.05 Lux at Black & White, 0.0 Lux (IR) Night Vision Distance minimum IR - 30m. Camera minimum Adjustment Angles - Pan : 350°, Tilt : 72°, Rotate : 350°. Power Supply : Support 12VDC & PoE, IP67, IK10 - Vandal Resistant. Built in micro SD/SDHC/SDXC card slot of minimum 128 GB, Built in microphone. minimum Input/Output - Audio in × 1, Audio Out × 1, Alarm in × 1, Alarm Out × 1. Image Settings : Rotate mode, saturation, brightness, contrast, sharpness, gain, white balance. Image Enhancements : Day/Night-Auto (ICR)/Color/Black & White, 3D Digital Noise Reduction, Automatic White Balance, Automatic Gain Control, Backlight Compensation, Highlight Compensation.</p> <p>Events : Privacy Masking, Motion detection, Scene change detection, Face capture, Video tampering, audio exception detection, Region entrance detection, Region exiting detection. Operating temperature (-30 to 60° C) . Security - User account and password protection, HTTPS, IP filter, IEEE 802.1X, digest authentication, user access log, TLS1.2, AES - 256, SSH/Telnet closed, FTP disabled. Protocol - DHCP, UDP, HTTP, HTTPS, NTP, DNS, RTP, RTSP, SMTP, SSL/TLS, TCP/IP, Secure Real-Time Transport Protocol (SRTP), Bonjour, SNMP and Secure shell (SSH) supported protocol. RoHS, WEEE, ISO-14001 and REACH compliant, UL/EN OR equivalent BIS/TECH/STQC or any indian standards as applicable, CE, FCC certified. duly erected in position on wall/ceiling/false ceiling/provided pole (mounting height not more than 5 meter) etc with all accessories etc complete as per specification no. CCTV-CAM.</p>	Each	7854

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-6-4 (New)	<p>Supplying & erecting of High definition 4/5 Megapixel IP IR Dome Camera with following features</p> <p>Image Sensor : minimum 1/2.8" Progressive Scan CMOS, Video Resolution : minimum 2592 x 1520 Video Compression : H.264, H.265 or higher, at least Three individually configurable stream, Frame rate : minimum 25 fps at all resolutions, WDR : minimum 120 dB Wide Dynamic Range, ONVIF profile conformant, minimum IR distance : 50m, Lens Type : 2.8/4/6 mm Lens, fixed focal, Field of View : 2.8 mm, horizontal FOV 107°, vertical FOV 57°, diagonal FOV 129° 4 mm, horizontal FOV 86°, vertical FOV 47°, diagonal FOV 102° 6 mm, horizontal FOV 55°, vertical FOV 29°, diagonal FOV 65° Lux sensitivity - minimum 0.2 Lux at color, minimum 0.05 Lux at Black & White, 0.0 Lux (IR) Night Vision Distance minimum IR - 50m. Camera minimum Adjustment Angles - Pan : 350°, Tilt : 72°, Rotate : 350°. Power Supply : Support 12VDC & PoE, IP67, IK10 - Vandal Resistant. Built in micro SD/SDHC/SDXC card slot of minimum 128 GB, Built in microphone. minimum Input/Output - Audio in × 1, Audio Out × 1, Alarm in × 1, Alarm Out × 1. Image Settings : Rotate mode, saturation, brightness, contrast, sharpness, gain, white balance. Image Enhancements : Day/Night-Auto (ICR)/Color/Black & White, 3D Digital Noise Reduction, Automatic White Balance, Automatic Gain Control, Backlight Compensation, Highlight Compensation.</p> <p>Events : Privacy Masking, Motion detection, Scene change detection, Face capture, Video tampering, audio exception detection, Region entrance detection, Region exiting detection. Operating temperature (-30 to 60° C) . Security - User account and password protection, HTTPS, IP filter, IEEE 802.1X, digest authentication, user access log, TLS1.2, AES - 256, SSH/Telnet closed, FTP disabled. Protocol - DHCP, UDP, HTTP, HTTPS, NTP, DNS, RTP, RTSP, SMTP, SSL/TLS, TCP/IP, Secure Real-Time Transport Protocol (SRTP), Bonjour, SNMP and Secure shell (SSH) supported protocol. RoHS, WEEE, ISO-14001 and REACH compliant, UL/EN OR equivalent BIS/TECH/STQC or any indian standards as applicable, CE, FCC certified. duly erected in position on wall/ceiling/false ceiling/provided pole (mounting height not more than 5 meter) etc with all accessories etc complete as per specification no. CCTV-CAM.</p>	Each	10610

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-6-5 (New)	<p>Supplying & erecting of High definition 2 Megapixel IP IR varifocal Bullet Camera with following features,</p> <p>Image Sensor : minimum 1/2.8" Progressive Scan CMOS, Video Resolution : minimum 1920 x 1080 Video Compression : H.264, H.265 or higher, at least Three individually configurable stream, Frame rate : minimum 25 fps at all resolutions WDR : minimum 120 dB Wide Dynamic Range, ONVIF profile conformant, minimum IR distance : 50m, Lens Type : 2.8 - 13 mm Lens, auto/motorized varifocal focal, Field of View : horizontal FOV 103° to 32°, vertical FOV 73° to 24°, diagonal FOV 142° to 40° Lux sensitivity - minimum 0.2 Lux at color, minimum 0.05 Lux at Black & White, 0.0 Lux (IR) Night Vision Distance Min IR- 50m, Camera minimum Adjustment Angles - Pan : 350°, Tilt : 72°, Rotate : 350°. Power Supply : Support 12VDC & PoE, IP67, IK10 – Vandal Resistant. Built in micro SD/SDHC/SDXC card slot of min 128 GB, Built in microphone. minimum Input/Output - Audio in × 1, Audio Out × 1, Alarm in× 1, Alarm Out × 1. Image Settings : Rotate mode, saturation, brightness, contrast, sharpness, gain, white balance. Image Enhancements : Day/Night - Auto (ICR)/Color/Black & White, 3D Digital Noise Reduction, Automatic White Balance, Automatic Gain Control, Backlight Compensation, Highlight Compensation.</p> <p>Events : Privacy Masking, Motion detection, Scene change detection, Face capture, Video tampering, audio exception detection, Region entrance detection, Region exiting detection. Operating temperature (-30 to 60° C) . Security - User account and password protection, HTTPS, IP filter, IEEE 802.1X, digest authentication, user access log, TLS1.2, AES-256, SSH/Telnet closed, FTP disabled. Protocol - DHCP, UDP, HTTP, HTTPS, NTP, DNS, RTP, RTSP, SMTP, SSL/TLS, TCP/IP, Secure Real-Time Transport Protocol (SRTP), Bonjour, SNMP and Secure shell (SSH) supported protocol. RoHS, WEEE, ISO-14001 and REACH compliant, UL/EN OR equivalent BIS/TECH/STQC or any indian standards as applicable, CE, FCC certified. duly erected in position on wall/ceiling/false ceiling/provided pole (mounting height not more than 5 meter) etc with all accessories etc complete as per specification no. CCTV-CAM.</p>	Each	19219

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-6-6 (New)	<p>Supplying & erecting of High definition 4/5 Megapixel IP IR varifocal Bullet Camera with following features</p> <p>Image Sensor : minimum 1/ 2.8" Progressive Scan CMOS, Video Resolution : minimum 2592 x 1520 Video compression : H.264, H.265 or higher, at least Three individually configurable stream, Frame Rate : minimum 25 fps at all resolutions. WDR : minimum 120 dB Wide Dynamic Range, ONVIF profile conformant, minimum IR distance : 50m, Lens Type: 2.8 - 13mm Lens, auto/motorized varifocal focal, Field of View : horizontal FOV 103° to 32°, vertical FOV 73° to 24°, diagonal FOV 142° to 40° Lux sensitivity - minimum 0.2 Lux at color, minimum 0.05 Lux at Black & White, 0.0 Lux (IR) Night Vision Distance Min IR- 50m, Camera minimum Adjustment Angles - Pan : 350°, Tilt : 72°, Rotate : 350°. Power Supply : Support 12VDC & PoE, IP67, IK10 – Vandal Resistant, built in micro SD/SDHC/SDXC card slot of min 128 GB, built in microphone. minimum Input/Output- Audio in × 1, Audio Out × 1 , Alarm in× 1, Alarm Out × 1. Image Settings: Rotate mode, saturation, brightness, contrast, sharpness, gain, white balance. Image Enhancements: Day/ Night-Auto (ICR)/Color/Black & White, 3D Digital Noise Reduction, Automatic White Balance, Automatic Gain Control, Backlight Compensation, Highlight Compensation.</p> <p>Events: Privacy Masking, Motion detection, Scene change detection, Face capture, Video tampering, audio exception detection, Region entrance detection, Region exiting detection. Operating temperature (-30 to 60° C) . Security- User account and password protection, HTTPS, IP filter, IEEE 802.1X, digest authentication, user access log, TLS1.2, AES-256, SSH/Telnet closed, FTP disabled. Protocol - DHCP, UDP, HTTP, HTTPS, NTP, DNS, RTP, RTSP, SMTP, SSL/TLS, TCP/IP, Secure Real-Time Transport Protocol (SRTP), Bonjour, SNMP and Secure shell (SSH) supported protocol. RoHS, WEEE, ISO-14001 and REACH compliant, UL/EN OR equivalent BIS/TECH/STQC or any indian standards as applicable, CE, FCC certified. duly erected in position on wall/ceiling/false ceiling/provided pole (mounting height not more than 5 meter) etc with all accessories etc complete as per specification no. CCTV-CAM.</p>	Each	22993

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-6-7 (New)	<p>Supplying & erecting of High definition 2 Megapixel IP IR Varifocal Dome Camera with following features</p> <p>Image Sensor : minimum 1/2.8" Progressive Scan CMOS, Video Resolution : minimum 1920 x 1080 Video Compression : H.264, H.265 or higher, at least Three individually configurable stream, Frame Rate : minimum 25 fps at all resolutions, WDR : minimum 120 dB Wide Dynamic Range, ONVIF profile conformant. minimum IR distance : 30m, Lens Type : 2.8 - 13 mm Lens, auto/motorized varifocal focal, Field of View : horizontal FOV 103° to 32°, vertical FOV 73° to 24°, diagonal FOV 142° to 40° Lux sensitivity - minimum 0.2 Lux at color, minimum 0.05 Lux at Black & White, 0.0 Lux (IR) Night Vision Distance Min IR- 30m, Camera minimum Adjustment Angles - Pan : 350°, Tilt : 72°, Rotate : 350°. Power Supply : Support 12VDC & PoE, IP67/IP66, IK10, built in micro SD/SDHC/SDXC card slot of min 128 GB, built in microphone. minimum Input/Output - Audio in × 1, Audio Out × 1 , Alarm in × 1, Alarm Out × 1. Image Settings : Rotate mode, saturation, brightness, contrast, sharpness, gain, white balance. Image Enhancements: Day/Night - Auto (ICR)/Color/Black & White, 3D Digital Noise Reduction, Automatic White Balance, Automatic Gain Control, Backlight Compensation, Highlight Compensation.</p> <p>Events : Privacy Masking, Motion detection, Scene change detection, Face capture, Video tampering, audio exception detection, Region entrance detection, Region exiting detection. Operating temperature (-30 to 60° C) . Security - User account and password protection, HTTPS, IP filter, IEEE 802.1X, digest authentication, user access log, TLS1.2, AES-256, SSH/Telnet closed, FTP disabled. Protocol - DHCP, UDP, HTTP, HTTPS, NTP, DNS, RTP, RTSP, SMTP, SSL/TLS, TCP/IP, Secure Real-Time Transport Protocol (SRTP), Bonjour, SNMP and Secure shell (SSH) supported protocol. RoHS, WEEE, ISO-14001 and REACH compliant, UL/EN OR equivalent BIS/TECH/STQC or any indian standards as applicable, CE, FCC certified. duly erected in position on wall/ceiling/false ceiling/provided pole (mounting height not more than 5 meter) etc with all accessories etc complete as per specification no. CCTV-CAM.</p>	Each	19078

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-6-8 (New)	<p>Supplying & erecting approved make High definition 4/5 Megapixel IP IR Varifocal Dome Camera with following features</p> <p>Image Sensor : minimum 1/2.8" Progressive Scan CMOS, Video Resolution: minimum 2592 x 1520 Video Compression : H.264, H.265 or higher, at least Three individually configurable stream, Frame Rate : minimum 25 fps at all resolutions WDR : minimum 120 dB Wide Dynamic Range, ONVIF profile conformant. minimum IR distance : 50m, Lens Type: 2.8 - 13mm Lens, auto/motorized varifocal focal, Field of View : horizontal FOV 103° to 32°, vertical FOV 73° to 24°, diagonal FOV 142° to 40° Lux sensitivity - minimum 0.2 Lux at color, minimum 0.05 Lux at Black & White, 0.0 Lux (IR) Night Vision Distance Min IR- 30m, Camera minimum Adjustment Angles - Pan : 350°, Tilt : 72°, Rotate : 350°. Power Supply : Support 12VDC & PoE, IP67/IP66, IK10, built in micro SD/SDHC/SDXC card slot of min 128 GB, built in microphone. minimum Input/Output - Audio in × 1, Audio Out × 1, Alarm in× 1, Alarm Out × 1. Image Settings : Rotate mode, saturation, brightness, contrast, sharpness, gain, white balance. Image Enhancements : Day/Night-Auto (ICR)/Color/Black & White, 3D Digital Noise Reduction, Automatic White Balance, Automatic Gain Control, Backlight Compensation, Highlight Compensation.</p> <p>Events : Privacy Masking, Motion detection, Scene change detection, Face capture, Video tampering, audio exception detection, Region entrance detection, Region exiting detection. Operating temperature (-30 to 60° C) . Security - User account and password protection, HTTPS, IP filter, IEEE 802.1X, digest authentication, user access log, TLS1.2, AES-256, SSH/Telnet closed, FTP disabled. Protocol - DHCP, UDP, HTTP, HTTPS, NTP, DNS, RTP, RTSP, SMTP, SSL/TLS, TCP/IP, Secure Real-Time Transport Protocol (SRTP),Bonjour, SNMP and Secure shell (SSH) supported protocol. RoHS, WEEE, ISO-14001 and REACH compliant, UL/EN OR equivalent BIS/TECH/STQC or any indian standards as applicable, CE, FCC certified. duly erected in position on wall/ceiling/false ceiling/provided pole (mounting height not more than 5 meter) etc with all accessories etc complete as per specification no. CCTV-CAM.</p>	Each	22782

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-6-9 (New)	<p>Supplying & erecting of High definition 2 Megapixel IP IR PTZ Camera with following features</p> <p>Image Sensor : minimum 1/2.8" Progressive Scan CMOS, Video Resolution: minimum 1920 x 1080 Video Compression : H.264, H.265 or higher, at least Three individually configurable stream, Frame Rate : minimum 30 fps at all resolutions, WDR : minimum 120 dB Wide Dynamic Range, ONVIF profile conformant. Auto Tracking, Pre-set Tour Settings, Pan : 360° endless, Tilt : From -15° to 90° (auto-flip 180°) , minimum Pan Speed - from 0.1°/s to 160°/s, minimum Preset Speed: 240°/s, minimum Tilt Speed- from 0.1°/s to 120°/s, minimum Preset Speed: 200°/s, Min Presets - 250, minimum IR distance : 100m, Lens Type : minimum 4.3 - 125mm Lens min 16 x digital zoom, min 30 x optical Zoom, Focus Mode : Auto/Zooming/One Push Manual, Lux sensitivity : minimum 0.2 Lux at color, minimum 0.05 Lux at Black & White, 0.0 Lux (IR), Night Vision Distance minimum IR- 100m, Power Supply : support 12/24 VDC, 24 VAC & PoE, IP67/IP66, IK10, built in micro SD/SDHC/SDXC card slot, minimum 256 GB, built in microphone. minimum Input/Output - Audio in × 1, Audio Out × 1, Alarm in × 1, Alarm Out × 1. Image Settings : Rotate mode, saturation, brightness, contrast, sharpness, gain, white balance. Image Enhancements : Day/Night-Auto (ICR)/Color/Black & White, 3D Digital Noise Reduction, Automatic White Balance, Automatic Gain Control, Backlight Compensation, Highlight Compensation.</p> <p>Events : Privacy Masking, Motion detection, Scene change detection, Face capture, Video tampering, audio exception detection, Region entrance detection, Region exiting detection. Operating temperature (-30 to 60° C) . Security - User account and password protection, HTTPS, IP filter, IEEE 802.1X, digest authentication, user access log, TLS1.2, AES-256, SSH/Telnet closed, FTP disabled. Protocol - DHCP, UDP, HTTP, HTTPS, NTP, DNS, RTP, RTSP, SMTP, SSL/TLS, TCP/IP, Secure Real-Time Transport Protocol (SRTP), Bonjour, SNMP and Secure shell (SSH) supported protocol. RoHS, WEEE, ISO-14001 and REACH compliant, UL/EN OR equivalent BIS/TECH/STQC or any indian standards as applicable, CE, FCC certified. duly erected in position on wall ceiling/false ceiling/provided pole (mounting height not more than 5 meter) etc with all accessories etc complete as per specification no. CCTV-CAM</p>	Each	55865

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-6-10 (New)	<p>Supplying & erecting of High definition 4/5 Megapixel IP IR PTZ Camera with following features</p> <p>Image Sensor : minimum 1/2.8" Progressive Scan CMOS</p> <p>Video Resolution: minimum 2880 x 1620</p> <p>Video Compression : H.264, H.265 or higher, at least Three individually configurable stream,</p> <p>Frame Rate : minimum 30 fps at all resolutions,</p> <p>WDR : minimum 120 dB Wide Dynamic Range,</p> <p>ONVIF profile conformant.</p> <p>Auto Tracking, Pre-set Tour Settings, Pan : 360° endless, Tilt : From -15° to 90° (auto-flip 180°), minimum Pan Speed - from 0.1°/s to 160°/s, minimum Preset Speed: 240°/s, minimum Tilt Speed - from 0.1°/s to 120°/s, minimum Preset Speed : 200°/s, Min Presets- 250,</p> <p>Min IR distance :150m,</p> <p>Lens Type : minimum 4.3 - 12.5mm Lens min 16 x digital zoom, min 30 x optical Zoom.</p> <p>Focus Mode : Auto/Zooming/One Push Manual,</p> <p>Lux sensitivity- minimum 0.2 Lux at color, minimum 0.05 Lux at Black & White, 0.0 Lux (IR) Night Vision Distance Min IR- 150m,</p> <p>Power Supply : support 12/24 VDC, 24 VAC & PoE,</p> <p>IP67/IP66, IK10,</p> <p>built in micro SD/SDHC/SDXC card slot minimum 256 GB,</p> <p>built in microphone.</p> <p>minimum Input/Output : Audio in × 1, Audio Out × 1, Alarm in× 1, Alarm Out × 1.</p> <p>Image Settings : Rotate mode, saturation, brightness, contrast, sharpness, gain, white balance.</p> <p>Image Enhancements : Day/Night-Auto (ICR)/Color/Black & White, 3D Digital Noise Reduction, Automatic White Balance, Automatic Gain Control, Backlight Compensation, Highlight Compensation.</p> <p>Events : Privacy Masking, Motion detection, Scene change detection, Face capture, Video tampering, audio exception detection, Region entrance detection, Region exiting detection.</p> <p>Operating temperature (-30 to 60° C) .</p> <p>Security : User account and password protection, HTTPS, IP filter, IEEE 802.1X, digest authentication, user access log, TLS1.2, AES-256, SSH/Telnet closed, FTP disabled.</p> <p>Protocol-DHCP, UDP, HTTP, HTTPS, NTP, DNS, RTP, RTSP, SMTP, SSL/TLS, TCP/IP, Secure Real-Time Transport Protocol (SRTP),Bonjour, SNMP and Secure shell (SSH) supported protocol.</p> <p>RoHS, WEEE, ISO-14001 and REACH compliant, UL/EN OR equivalent BIS/TECH/STQC or any indian standards as applicable, CE, FCC certified.</p> <p>duly erected in position on wall/ceiling/false ceiling/provided pole (mounting height not more than 5 meter) etc with all accessories etc complete as per specification no CCTV-CAM.</p>	Each	92256

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<i>NVR (CCTV-NVR)</i>			
19-6-11 (New)	<p>Supplying, installing, testing & commissioning of minimum 4 Ch. Network Video Recorder (NVR), suitable for 2 MP cameras only with HDMI/VGA outputs provided HDMI output of 4K resolution or VGA output with output up to 1920x1080.</p> <p>Support H.265 or higher, H.264, MJPEG, Incoming Bandwidth 40Mbps with minimum 1 SATA ports, ANR Technology, 1 SATA interfaces for 1 HDDs and capacity of each HDD up to 8 TB, Min. 02 USB port, RJ-45 10 /100 Mbps self-adaptive Ethernet interface, support multi brand network Cameras, ONVIF conformance, Multiple network monitoring: Web viewer . support protocol TCP/IP, DHCP, DNS, DDNS, NTP, SADP, SMTP, NFS, iSCSI, UPnP™, HTTPS. RoHS, UL, CE, FCC certified. duly erected in provided U Rack with wiring connections, tagging and programming etc complete as per specifications no. CCTV-NVR</p>	Each	9675
19-6-12 (New)	<p>Supplying, installing, testing & commissioning of 8/10 Ch. Network Video Recorder (NVR), suitable for 2 MP cameras only with HDMI/VGA outputs provided HDMI output of 4K resolution or VGA output with output up to 1920x1080.</p> <p>Support H.265 or higher, H.264, MJPEG, Incoming Bandwidth 80Mbps with minimum 2 SATA Hard Disks, ANR Technology, 2 SATA interfaces for 2 HDDs and capacity of each HDD up to 8TB, minimum 02 USB port, Alarm I/O 4/1, RJ-45 10 /100/1000 Mbps self-adaptive Ethernet interface, support multi brand network Cameras, ONVIF conformance, Multiple network monitoring: Web viewer . support protocol TCP/IP, DHCP, DNS, DDNS, NTP, SADP, SMTP, NFS, iSCSI, UPnP™, HTTPS. RoHS, UL, CE, FCC certified. duly erected in provided U Rack with wiring connections, tagging and programming etc complete as per specifications no. CCTV-NVR</p>	Each	12491
19-6-13 (New)	<p>Supplying, installing, testing & commissioning of 16/20 Ch. Network Video Recorder (NVR), suitable for 2 MP cameras only with HDMI/VGA outputs provided HDMI output of 4K resolution or VGA output with output up to 1920 × 1080.</p> <p>Support H.265 or higher, H.264, MJPEG, Incoming Bandwidth 160Mbps with minimum 2 SATA Hard Disks, ANR Technology, 2 SATA interfaces for 2 HDDs and capacity of each HDD up to 8TB, minimum 02 USB port, Alarm I/O 4/1, RJ-45 10 /100/1000 Mbps self-adaptive Ethernet interface, support multibrand network Cameras, ONVIF conformance, Multiple network monitoring: Web viewer. support protocol TCP/IP, DHCP, DNS, DDNS, NTP, SADP, SMTP, NFS, iSCSI, UPnP™, HTTPS. RoHS, UL, CE, FCC certified. duly erected in provided U Rack with wiring connections, tagging and programming etc. complete as per specifications no. CCTV-NVR</p>	Each	18298

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-6-14 (New)	<p>Supplying, installing, testing & commissioning of 16/20 Ch Network Video Recorder (NVR), suitable for 2 MP cameras only with HDMI/VGA outputs provided HDMI output of 4K resolution or VGA output with output up to 1920 × 1080.</p> <p>Support H.265 or higher, H.264, MJPEG, Incoming Bandwidth 160Mbps with minimum 4 SATA Hard Disks, ANR Technology, 4 SATA interfaces for 4 HDDs and capacity of each HDD up to 8TB, minimum 02 USB port, Alarm I/O 16/4, RJ-45 10 /100/1000 Mbps self-adaptive Ethernet interface, support multi brand network Cameras, ONVIF conformance, Multiple network monitoring: Web viewer . support protocol TCP/IP, DHCP, DNS, DDNS, NTP, SADP, SMTP, NFS, iSCSI, UPnP™, HTTPS. RoHS, UL, CE, FCC certified. duly erected in provided U Rack with wiring connections, tagging and programming etc. complete as per specifications no. CCTV-NVR</p>	Each	39207
19-6-15 (New)	<p>Supplying, installing, testing & commissioning of 32/40 Ch. Network Video Recorder (NVR), suitable connect Min. 32 IP Cameras, up to 5 Megapixel Resolution, with HDMI/VGA outputs, provided HDMI output of 4K resolution or VGA output with output up to 1920 × 1080.</p> <p>Support H.265 or higher, H.264, MJPEG, Incoming Bandwidth 250Mbps with minimum 4 SATA Hard Disks, ANR Technology, 4 SATA interfaces for 4 HDDs and capacity of each HDD up to 8TB, minimum 02 USB port, Alarm I/O 16/4, RJ-45 10/100/ 1000 Mbps self-adaptive Ethernet interface, ONVIF conformance, Multiple network monitoring: Web viewer . support protocol TCP/IP, DHCP, DNS, DDNS, NTP, SADP, SMTP, NFS, iSCSI, UPnP™, HTTPS. RoHS, UL, CE, FCC certified. duly erected in provided U Rack with wiring connections, tagging and programming etc. complete as per specification no. CCTV-NVR</p>	Each	45460

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-6-16 (New)	<p>Supplying, installing, testing & commissioning of 32/40 Ch Network Video Recorder (NVR), suitable connect Min. 32 IP Cameras, up to 5 Megapixel Resolution, with HDMI1/VGA1 outputs, provided Atleast one HDMI output of 4K resolution, atleast one VGA output with output up to 1920x1080, Support H.265 or higher, H.264, MJPEG, Supports Redundant Dual Power, Incoming Bandwidth 320 Mbps with minimum 8 SATA ports, ANR Technology,</p> <p>8 SATA interfaces for 8 HDDs and capacity of each HDD up to 8TB, minimum 02 USB port, Alarm I/O 16/4, RJ-45 10/100/ 1000 Mbps self-adaptive Ethernet interface, support multibrand network Cameras, ONVIF conformance, Multiple network monitoring: Web viewer . support protocol TCP/IP, DHCP, DNS, DDNS, NTP, SADP, SMTP, NFS, iSCSI, UPnP™, HTTPS. RoHS, UL, CE, FCC certified. duly erected in provided U Rack with wiring connections, tagging and programming etc. complete as per specifications no. CCTV-NVR</p>	Each	60689
19-6-17 (New)	<p>Supplying, installing, testing & commissioning of 64/80 Ch Network Video Recorder (NVR), suitable connect Min. 64 IP Cameras, up to 5 Megapixel Resolution, with HDMI 1/VGA 1 and HDMI 2/VGA 2 outputs provided, Atleast one HDMI output of 4K resolution, atleast one VGA output with output up to 1920 × 1080, Support H.265 or higher, H.264, MJPEG, Supports Redundant Dual Power, Incoming Bandwidth 320 Mbps with minimum 8 SATA Hard Disks, ANR Technology,</p> <p>8 SATA interfaces for 8 HDDs and capacity of each HDD up to 8TB, minimum 02 USB port, Alarm I/O 16/4, RJ-45 10/100/ 1000 Mbps self-adaptive Ethernet interface, support multi brand network Cameras, ONVIF conformance, Multiple network monitoring: Web viewer . support protocol TCP/IP, DHCP, DNS, DDNS, NTP, SADP, SMTP, NFS, iSCSI, UPnP™, HTTPS. RoHS, UL, CE, FCC certified. duly erected in provided U Rack with wiring connections, tagging and programming etc. complete as per specifications no. CCTV-NVR</p>	Each	95658
19-6-18 (New)	<p style="text-align: center;"><u>Surveillance Hard Disk Drive (CCTV-HDD)</u></p> <p>Supplying & erecting 1TB internal Surveillance HDD suitable for SATA Port of NVR, interface transfer rate 6GB/S, maximum sustained transfer rate 110MB/Sec to 180MB/S. Drive bay supported 08, Cameras supported up to 64, Cache (MB) 64, Work Load Rating per Year 180TB, MTBF 1000000 Hrs. HTTPS. RoHS, UL, CE certified, duly erected in position in provided NVR as per specification no. CCTV-HDD</p>	Each	4558

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-6-19 (New)	Supplying & erecting 2TB internal Surveillance HDD suitable for SATA Port of NVR, interface transfer rate 6 GB/S, maximum sustained transfer rate 145MB/Sec to 180MB/S. Drive bay supported 08, Cameras supported up to 64, Cache (MB) 64, Load/Unload Cycle -3000000, Work Load Rating per Year 180TB, MTBF 1000000 Hrs. HTTPS. RoHS, UL, CE certified, duly erected in position in provided NVR as per specification no. CCTV-HDD	Each	7737
19-6-20 (New)	Supplying & erecting 4 TB internal Surveillance HDD suitable for SATA Port of NVR, interface transfer rate 6 GB/S, Maximum sustained transfer rate 150MB/Sec to 180MB/S. Drive bay supported 08+, Cameras supported up to 64, Cache (MB) 64, Load/Unload Cycle -3000000, Work Load Rating per Year 180TB, MTBF 1000000 Hrs. HTTPS. RoHS, UL, CE certified, duly erected in position in provided NVR as per specification no. CCTV-HDD	Each	12340
19-6-21 (New)	Supplying & erecting 8 TB internal Surveillance HDD suitable for SATA Port of NVR, interface transfer rate 6 GB/S, maximum sustained transfer rate 210 MB/Sec to 213 MB/S. Drive bay supported 08+, Cameras supported up to 64, Cache (MB) 256, Load/Unload Cycle -3000000, Work Load Rating per Year 180TB, MTBF 1000000 Hrs. HTTPS. RoHS, UL, CE certified, duly erected in position in provided NVR as per specification no. CCTV-HDD	Each	23722
<u>LED Monitors (CCTV-MON)</u>			
19-6-22 (New)	Supplying & erecting 22"-24" professional LED Monitor with 1920*1080 (Full HD) Display, suitable for 8 channel NVR and following features Brightness: minimum 250 Cd/m ² Contrast Ratio: minimum 1000:1 Viewing angle: 178/178 deg. Response time: maximum 8 ms Inputs: HDMI, VGA, BNC, USB, Audio In, Built-in speakers maximum 2 W, Suitable to operate on 100-240 V 50 Hz AC supply and 24/7 Duty Cycle duly erected on wall or table top with standard accessories like wall mount stand and wiring connections etc complete as per specifications no. CCTV-MON	Each	12788
19-6-23 (New)	Supplying & erecting 32" professional LED Monitor with 1920*1080 (Full HD) Display, suitable for 16 channel NVR and following features Brightness: minimum 250 Cd/m ² Contrast Ratio: minimum 1000:1 Viewing angle: 178/178 deg. Response time: maximum 8 ms Inputs: HDMI, VGA, BNC, USB, Audio In, Built-in speakers maximum 2 W, Suitable to operate on 100-240 V 50 Hz AC supply and 24/7 Duty Cycle duly erected on wall or table top with standard accessories like wall mount stand and wiring connections etc. complete as per specifications no. CCTV-MON	Each	24069

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-6-24 (New)	Supplying & erecting 43" professional LED display with 1920*1080 (Full HD) Display, suitable for 16/32 channel NVR and following features Brightness: minimum 500 Cd/m2 Contrast Ratio: minimum 1000:1 Viewing angle: 178/178 deg. Response time: maximum 8 ms Inputs: HDMI, VGA, BNC,USB, Audio In, Built-in speakers maximum 10 W, Suitable to operate on 100-240 V 50 Hz AC supply and 24/7 Duty Cycle duly erected on wall or table top with standard accessories like wall mount stand and wiring connections etc. complete as per specifications no. CCTV-MON	Each	44133
19-6-25 (New)	Supplying & erecting 55" professional LED display with 1920 *1080 (Full HD) Display, suitable for 32/64 channel NVR and following features Brightness: minimum 500 Cd/m2 Contrast Ratio: minimum 1000:1 Viewing angle: 178/178 deg. Response time: maximum 8 ms Inputs: HDMI, VGA, BNC,USB, Audio In, Built-in speakers maximum 10 W, Suitable to operate on 100-240 V 50 Hz AC supply and 24/7 Duty Cycle duly erected on wall or table top with standard accessories like wall mount stand and wiring connections etc. complete as per specifications no. CCTV-MON	Each	66746
19-6-26 (New)	Supplying & erecting 65" professional LED display with 1920 *1080 (Full HD) Display, suitable for 64 channel NVR and following features Brightness: minimum 500 Cd/m2 Contrast Ratio: minimum 1000:1 Viewing angle: 178/178 deg. Response time: maximum 8 ms Inputs: HDMI, VGA, BNC,USB, Audio In, Built-in speakers maximum 10 W, Suitable to operate on 100-240 V 50 Hz AC supply and 24/7 Duty Cycle duly erected on wall or table top with standard accessories like wall mount stand and wiring connections etc. complete as per specifications no. CCTV-MON	Each	85575

- Note:**
- (New)** 1) CCTV camera and NVR shall be of same OEM.
 - (New)** 2) Item Nos 19-6-11 to 19-6-14 are suitable for 2 MP cameras only; these items shall not be used with higher resolution cameras.
 - (New)** 3) For varifocal and PTZ cameras, separate wire/cable shall be considered for audio in and audio out signals.
 - (New)** 4) Above rates includes manufacturer's warranty of 3 years.
 - (New)** 5) Appropriate capacity UPS shall be provided for complete CCTV system.

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
<u>19.7 Public Address Systems (PA)</u>			
19-7-1 (New)	Supplying, Installing, testing and commissioning of Supercardioid professional Wired Dynamic microphone with noiseless magnetic read switch, frequency Response : 50-18,000Hz, Sensitivity : 2.5mV/Pa, Impedance : 300Ω, with quick detachable holder with 3-pin professional XLR connector & 10m twin core shielded low noise cable on provided stand complete as per specification no. PA-WDM	Each	5497
19-7-2 (New)	Supplying & erecting Microphone table/floor stand with height 350-530 mm, base dia. min 150 mm, min. weight 1.8 kg with superior quality of chrome plating/powder coating (resistant to rust & corrosion) having sturdy mechanism for ensuring trouble free movement and positioning of microphone complete as per specification no. PA-MTS	Each	966
19-7-3 (New)	Supplying & erecting Microphone floor stand with Height 920-1500 mm, Base Dia- 230 mm, min. weight 3.6 kg with superior quality of chrome plating/powder coating (resistant to rust & corrosion) having sturdy mechanism for ensuring trouble free movement and positioning of microphone complete as per specification no. PA-MFS	Each	1403
19-7-4 (New)	Supplying, Installing, testing and commissioning of Dual channel UHF wireless microphone & receiver , including 2 handheld dynamic transmitters with operating range of minimum 30 mtr distance in line of sight between transmitter & receiver and with 2 x 1.5V batteries of suitable size and Current consumption <150mA, RF power output 10mW or higher suitable for frequency stability +/-0.005%, frequency response 50-15000Hz, channel frequency display & receiver with 220V-240V AC 50Hz AC Adaptor, distortion - /< 1% S/N ratio 100 dB suitable for same frequency as transmitter having controls like ON/OFF Switch, Volume control for both channels, LED indicators for RF & Audio Signal, channel frequency displays & operates on 12V DC through an AC adaptor complete as per specification no. PA-DPA-UHF	Each	6895
19-7-5 (New)	Supplying Installing, testing and commissioning of Single Channel UHF Wireless Microphone & Receiver , including 1 handheld dynamic transmitters with operating range of minimum 30 mtr distance in line of sight between transmitter & receiver and with 2x1.5V batteries of suitable size and Current consumption <150mA, RF power output 10mW (Max)suitable for frequency stability ± 0.005% ,frequency response 50-15000Hz, channel frequency display & receiver with distortion ≤ 1% S/N ratio 100 dB suitable for same frequency as transmitter having controls like ON/OFF Switch, Volume control for both channels, LED indicators for RF & Audio Signal, channel frequency displays & operates on 12V DC through an AC adaptor complete as per specification no. PA-UHF-SCWMR	Each	5101
19-7-6 (New)	Supplying Installing, testing and commissioning of PA Gooseneck Microphone with Base and frequency response 50-16000Hz, 150Ω to 200Ω impedance, sensitivity 3 to 5.5mV/PA with minimum length(excluding pedestal) of 585mm(23") long, felxible stem gooseneck condenser microphone & Heavy Duty Metal Base having on/off switch, LED indication and Suitable for 48V phantom supply as per specification no. PA-GM	Each	4687

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-7-7 (New)	Supplying, erecting, testing and commissioning Conference Systems Chairman Unit with adjustable gooseneck microphone having minimum length (excluding pedestal) of 18.5' (470 mm) long , 7.5 mV/Pa, current consumption <50mA max, mic auto switch off time 75 seconds, input - line, output - line, headphone, speaker - max input 300 mW, Controls - Priority switch, talk switch, speaker, volume control, headphone volume control and facilities like After pressing the Priority Switch mute all active delegate unit, with accessories such as foam windshield, 2.5m interconnecting cables complete as per specification no. PA-CSCU	Each	10644
19-7-8 (New)	Supplying, erecting, testing and commissioning Conference Systems Delegate Unit with adjustable gooseneck microphone having minimum length (excluding pedestal) of 18.5' (470 mm) 7.5 mV/Pa, current consumption <50mA max, mic auto switch off time 75 seconds, input - line, output - line, headphone, speaker - max input 300 mW, Controls - talk switch, speaker, volume control, headphone volume control, with accessories such as foam windshield, 2.5m interconnecting cables complete as per specification no. PA-CSDU	Each	9218
19-7-9 (New)	Supplying erecting, testing and commissioning Conference Controller Unit controls up to 50 discussion units with 50W PA Amplifier with robust metal case, Line o/p - 17.5V DC/3A Max.; -34dBV (20mV), minimum 2 or more inputs, Headphone output, 60-14000 Hz frequency response, S/N ratio >60dB, Speaker output 4Ω, 8Ω/(Low Impedence) and 70V & 100V/(High Impedence) Digital recorder with LED indication bar, can playback the pre-recorded messages, suitable for 230V AC & 24V DC, on provided 19" rack. Unit shall have the facility of feeding two independent groups of Delegate Units complete as per specification no. PA-CCU	Each	29053
19-7-10	Supplying, erecting, testing & commissioning Mixer Amplifier 120W RMS Power with Built-in MP3 player with remote control for USB, SD/MMC card reader , with min 5 Mic & 2 Aux Input, bluetooth facility, frequency response 50-15,000Hz ±3dB, Signal to noise ratio between 60dB to 65dB min 5 LED array for output level monitoring. It Shall have Line Output to connect a Booster Amplifier and Preamplifier Output. The Amplifier shall have Speaker Outputs - 4Ω, 8Ω, (Low Impedence) and 70V & 100V/(High Impedence), and can operate on 220-240V Power Supply & DC : 12V (facility to instant transfer to DC power if AC power fails) complete as per specification no. PA-MA	Each	14667
19-7-11 (New)	Supplying, erecting, testing & commissioning Mixer Amplifier 250W RMS Power with Built-in Digital Player, MP3 Player with USB/ SD/ MMC Card Reader, Bluetooth with remote and having min 6 Mic & 2 Aux Inputs with Box Speaker/Driver Unit selector switch. Frequency response 50-15,000Hz ±3dB. The unit shall have Preamplifier and Line Output for connecting to a Booster Amplifier and for recording the programme with Resettable circuit breaker for protection against overload and short circuit. The unit shall have speaker output range of 4Ω, 8Ω/(Low Impedence) and 70V & 100V/(High Impedence) & It can instant transfer to DC power if AC power fails. Signal to noise ratio between 60dB to 65dB complete as per specification no. PA-MA	Each	20117

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-7-12 (New)	Supplying, erecting, testing & commissioning Mixer Amplifier 500W RMS Power with Built-in Digital Player with remote and having 7 Mic & 3 Aux Inputs with Box Speaker/Driver Unit selector switch to each zone , stereo/mono switch, frequency response 50-15000Hz, output regulation <2dB, serprate control for USB level. The unit shall have Preamplifier and Line Output for connecting to a Booster Amplifier and for recording the programme with Resettable circuit breaker for protection against overload and short circuit. The unit shall have speaker output range of 2Ω, 4Ω/(Low Impedence) and 70V & 100V/(High Impedence) & It can instant transfer to DC power(36V) if AC power fails. Signal to noise ratio between 60dB to 80dB. Complete as per specification no. PA-MA	Each	27671
19-7-13 (New)	Supplying, installing, testing & Commissionming of Dual Channel Power Amplifier of 2000W (1000W+1000W) RMS Power at 2Ω Dual channel direct coupled power amplifier with Selectable HPF (120Hz / 80Hz / OFF), frequency response & power bandwidth 20-20000Hz, input sensivity - 0dBu (775mV) & 4dBu (1.23V) (Selectable), S/N ratio >95dB, damping factor 400:1, input connection- 2×XLR, Stereo Phone Jack 6.3mm, output connection- Speakon 4-Way and Heavy duty, Two selectable input sensitivities, indicators like Power ON, Signal, Clip, Temperature with Class H operation for optimum efficiency, with shortcircuit overload protection & Cooling arrangement with temperature Sensor complete as per specification no. PA-DCPA	Each	42840
19-7-14 (New)	Supplying,installing, testing & commissioning 2-Way flush mount Ceiling Speakers with input power 20W RMS power, with power taps on 20/10/5W, 100V & 70V line, frequency response 90-18000Hz, stylish metal mesh grill and plastic frame, operates on 100V line for excellent reproduction of both speech and music, wide frequency response and adjustable tweeter complete as per specification no. PA-FMCS	Each	2334
19-7-15 (New)	Supplying, installing, testing & commissioning 2-Way flush mount Ceiling Speakers with input power 30W RMS power, with power taps on 30/15/7.5W, 100V & 70V line, frequency response 90-18000Hz, stylish metal mesh grill and plastic frame, operates on 100V line for excellent reproduction of both speech and music, wide frequency response and adjustable tweeter complete as per specification no. PA-FMCS	Each	2682
19-7-16	Supplying, installing, testing and commissioning 15W PA Column Speakers with 15W RMS power in aluminium extruded cabinet, Moulded Plastic Covers & Metal mesh grill, frequency response 150-15,000Hz, operates on 100V line with power taps of 15/10/5/2.5W in black or white color,With Mounting clamps & Necessary hardware, as per decesion by Engineer-in charge complete as per specification no. PA-CS	Each	2824
19-7-17 (New)	Supplying, installing, testing and commissioning 30W PA Column Speakers with 30W RMS power in aluminium extruded cabinet, Moulded Plastic Covers & Metal mesh grill, 100V transformer with rotary switch for power tap selection, frequency response 150-10,000Hz, with power taps of 30/20/10/5 W in black or white color as per the decision of Engineer-in charge, complete with mounting clamps & necessary hardware complete as per specification no. PA-CS	Each	3882
19-7-18 (New)	Supplying & erecting 2-Way Compact PA Wall Speaker of 16W High Fidelity sound with rated voltage 100V, power taps of 16W, 8W, 4W, Power Taps can be selected through an easily accessible rotary switch, Low impedance 8Ω, frequency response 85-20000Hz. Weather Resistant speaker with movable mounting bracket with required screws complete as per specification no. PA-CPAWS	Each	3514

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-7-19 (New)	Supplying & erecting 2-Way Compact PA Wall Speaker of 32W High Fidelity sound with rated voltage 100V, power taps of 32W, 16W, 8W, Power Taps can be selected through an easily accessible rotary switch Low impedance 8Ω, frequency response 80-20000Hz. Weather Resistant speaker with movable mounting bracket with required screws, complete as per specification no. PA-CPAWS	Each	5335
19-7-20 (New)	Supplying & erecting 2-Way PA Cabinet Loudspeaker of 400W power rating, frequency response 50-20000Hz, impedance 8Ω, crossover frequency 6kHz, Max Rated SPL (Sound pressure level) 127dB, 2 nos. 15" low frequency speaker, acoustically treated, bass reflex cabinet which is designed for optimum low frequency reproduction with superb intelligibility of sound, sturdy metal grill for safety of speaker, stainless steel handle for lifting, etc. complete as per specification no. PA-CLS	Each	20012
19-7-21 (New)	Supplying, erecting, testing and commissioning PA Mixer 10 channel with MP3 Player with USB/SD card reader and Bluetooth facility, 48V Phantom Supply on 4 Channels, 8 MIC/LINE Balanced Mono input channels, 1 Stereo balanced input channel in 2 selectable sensitivities of -10dBu & +4dBu, Frequency Response : 25Hz - 20kHz, Impedance : 600Ω, Signal to noise ratio : >70dB, Operates on 240V 50Hz AC supply, built-in Digital Effects processor with Delay, Repeat and Level controls. Each input channel has a GAIN control, 3 band active Equalizer controls, a Pre-fader AUX1 control, a Post-fader AUX2 /EFX control & a PAN control, STEREO channel has a GAIN control, 2 band active Equalizer controls, AUX1 Pre fader control, AUX2/EFX Post fader control and a BALANCE control with Channel ON/OFF switch provided on each individual channel, complete as per specification no. PA-MXR	Each	18724
19-7-22 (New)	Supplying, erecting, testing and commissioning PA Mixer 14 channel With MP3 Player, USB/SD card reader and Bluetooth facility, 48V Phantom Supply on all Channels, Professional mixer with 24 Digital Effects, 2 Group Outputs, 12 MIC and 10 LINE Balanced mono inputs, 2 STEREO Balanced inputs, Mic input - impedance/ gain -2kΩ/65dB, Frequency response 25Hz- 20kHz, impedance-600Ω ,S/N ratio- >80dB, Operates on 240V 50Hz AC mains, LCD display for viewing the EFFECTS/USB settings, each input channel has a GAIN control, 4 band active Equalizer controls, AUX1, AUX2, AUX3/EFX, AUX4/FX and PAN control with Channel Mute Switch, with Easy and accurate monitoring of Left & Right output levels through individual 12 segment LED array, with 11 preset Equalizer settings & Headphone output with Level Control for output monitoring, complete as per specification no. PA-MXR	Each	24526
19-7-23	Supplying, erecting, testing and commissioning of multistrand annealed bare copper conductor, transparent PVC insulated 2C x 0.5 sqmm speaker wire in provided trunking/conduit etc.complete as per specification no. PA-TSPWR	m	24
19-7-24	Supplying, erecting, testing and commissioning of multistrand annealed bare copper conductor, transparent PVC insulated 2C x 0.75 sqmm speaker wire in provided trunking/conduit etc.complete as per specification no. PA-TSPWR	m	33
19-7-25	Supplying, erecting, testing and commissioning of multistrand annealed bare copper conductor, transparent PVC insulated 2C x 1 sqmm speaker wire in provided trunking/conduit etc.complete as per specification no. PA-TSPWR	m	41

Item No (1)	Short Description (2)	Unit (3)	Completed Rate (4)
19-7-26	Supplying, erecting, testing and commissioning of multistrand annealed bare copper conductor, transparent PVC insulated 2C x 1.5 sqmm speaker wire in provided trunking/conduit etc.complete as per specification no. PA-TSPWR	m	57
19-7-27 (New)	Supplying, erecting, testing and commissioning of multistrand annealed bare copper conductor, transparent PVC insulated 2C x 2.5 sqmm speaker wire in provided trunking/conduit etc.complete as per specification no. PA-TSPWR	m	87
19-7-28 (New)	Supplying, erecting, testing and commissioning of 2 core 2.5 sqmm copper conductor shielded microphone cable complete as per specification no. PA-SMC	m	133
19-7-29 (New)	Supplying & fixing XLR (External line return) 3 pole male / female cable connector with Nickel housing and silver contacts complete as per specification no. PA-XLRCC	Each	364
19-7-30 (New)	Supplying, erecting, testing and commissioning of 6mm (0.24in) dia PVC Installation Multi core Conference Cable (without connectors) complete as per specification no. PA-DCNCC	m	297
19-7-31 (New)	Supplying, erecting, testing and commissioning of 8 Pin M/F Connector for Conference system units for loop through complete as per specification no. PA-CCS	Each	198
<u>19.8 Dismantling (DM)</u>			
19-8-1	Dismantling the existing telephone / LAN / WAN / TV cables and wires of all sizes along with casing-capping / conduit complete as per specification no. WG-DM/PW	m	7
19-8-2 (New)	Dismantling unserviceable CCTV dome/bullet/PTZ camera from wall/ceiling/false ceiling/pole (mounting height not more than 5 meter) etc and remaking the site good as original.	Job	47
19-8-3 (New)	Dismantling unserviceable NVR up to 64 channel from U Rack etc.	Job	68
19-8-4 (New)	Dismantling unserviceable Surveillance Hard Disk Drive up to 8 TB.	Job	21
19-8-5 (New)	Dismantling unserviceable professional LED Monitor up to 65".	Job	47
Note:-	Dismantled material of telephone / LAN / WAN / TV wires / cables shall be retained by contractor.		

Chapter 20 : CREDIT FOR DISMANTLED MATERIAL

Item No.	Description	Unit	Completed Rate
		(3)	(4)
<u>20.1 Credit for Dismantled Material</u>			
20-1-1	PVC armoured/unarmoured cables and wires (Aluminium)	kg	23
20-1-2	PVC armoured/unarmoured cables and wires (Copper)	kg	88
20-1-3	Aluminum materials	kg	100
20-1-4	H.G. / M.S. / G.I. Materials / Poles etc.	kg	28
20-1-5	Copper / Brass materials	kg	460
20-1-6	Wooden materials	kg	5
20-1-7	PVC pipes/materials	kg	14
20-1-8	Paper cartoons/boxes.	kg	11
20-1-9	I.C. / M.C. switches / D.P. / D.B./ T.P. / feeder pillar etc.	kg	30
20-1-10	Meters (Ammeter / Voltmeter / Energy meter / All types of PCB etc..)	kg	30
20-1-11	O.C.B. (without oil)/ A.C.B / V.C.B	Each	2000
20-1-12	Ceiling/cabin/bracket/pedestal/table fan.	Each	208
20-1-13	Exhaust Fan 9" Sweep	Each	140
20-1-14	Exhaust Fan 12" Sweep	Each	190
20-1-15	Exhaust Fan 15" Sweep	Each	278
20-1-16	Exhaust Fan 18" Sweep	Each	450
20-1-17	Exhaust Fan 24" Sweep	Each	550
20-1-18	Air circulators	Each	750
20-1-19	Fluorescent fittings	Each	19
20-1-20	Street/flood light fittings.	Each	70
20-1-21	Geysers	Each	125
20-1-22	Accessories such as tube starter / bell / holder / ceiling rose / MCB / MCCB / Contactor / PT etc.	kg	21
20-1-23	Chokes / condenser / small coils / motor starter etc.	kg	51
20-1-24	Lift ropes / belts	kg	31
20-1-25	Hot water boilers	Each	400
20-1-26	Electric motors	HP	550
20-1-27	Water pump sets.	HP	550
20-1-28	A.C compressors / Inverter Compressor	TR	655
20-1-29	Window air conditioning unit.	TR	2100
20-1-30	Outdoor unit of split / Cassette air conditioner.	TR	2100
20-1-31	Indoor unit of split / Cassette air conditioner.	TR	800
20-1-32	Instant type water cooler	Each	800
20-1-33	Storage type Water cooler	Ltr	50
20-1-34	Refrigerator up to 165 Litre	Each	900
20-1-35	Refrigerator above 165 Litre	Each	1350
20-1-36	Air coolers without fan.	Each	650
20-1-37	Air coolers with fan.	Each	950
20-1-38	Transformer oil / OCB Oil	Ltr	19
20-1-39	Diesel Generating set	kVA	800
20-1-40	Transformer (Copper Winding)	kVA	150
20-1-41	Transformer (Alluminium Winding)	kVA	102
20-1-42	Telephone exchange (EPABX)	Each	1000
20-1-43	Telephone instrument	Each	40
20-1-44	Water Purifier	Each	100

20-1-45	Inverter / UPS	kVA	90
20-1-46	Voltage Stabilizer	kVA	105
20-1-47	Amplifier	Each	450
20-1-48	Mikes	Each	60
20-1-49	Storage type water purifier	Each	120
20-1-50	Tubular / SMF Battery	kg	72
20-1-51	All types of SS material	kg	80
20-1-52	All types of LED Tube and Fixtures	Each	5
20-1-53	FPC Solar Hot Water System 100 LPD	Each	1028
(New)			
20-1-54	FPC Solar Hot Water System 200 LPD	Each	1366
(New)			
20-1-55	FPC Solar Hot Water System 300 LPD	Each	1784
(New)			
20-1-56	FPC Solar Hot Water System 500 LPD	Each	2150
(New)			
20-1-57	ETC Solar Hot Water System 100 LPD	Each	568
(New)			
20-1-58	ETC Solar Hot Water System 200 LPD	Each	676
(New)			
20-1-59	ETC Solar Hot Water System 250 LPD	Each	810
(New)			
20-1-60	ETC Solar Hot Water System 300 LPD	Each	864
(New)			
20-1-61	ETC Solar Hot Water System 500 LPD	Each	1000
(New)			

Note :

1) Rates for items which are not covered in above list should be calculated on the basis of material / equipment considering it's site condition and prevailing market rates and approval should be taken from concerned Superintending Engineer (Electrical)

2) The Credit cost of dismantled material as per above mentioned rates shall be deducted from the estimate to the limit of Rs. 15000/- (Rs. Fifteen Thousand only). If the cost of dismantled material in the estimate exceeds Rs.15000/- (Rs. Fifteen Thousand only) such material shall be retained and taken in the Dismantled Material Register.

3) As per Ministry of Environment and Forests, New Delhi Notification on Dated 16th May 2001 and Government of India Ministry of Environment, Forest and Climate Change Notification, New Delhi on Dated 23 March 2016 all concerned notifications regarding disposal of material in non-hazardous/non-polluting manner shall be followed. Declaration from the contractor shall be taken and it will be responsibility of the tender calling authority.

Abbreviations

ADSL-Asymmetric Digital Subscriber Line.	LOP - Landing Operating Panel
AP - Access Points	LSZH - Low Smoke Zero Halogen
ARD-Automatic Rescue Device	MMC-Multi Media Card
AUX-Auxiliary	MP- Mega Pixel
AWG - American Wire Gauge	mps- meters per second
Cat-6 - Category-6 cable	MR- Machine Room
CCTV- Closed Circuit Television	MRL- Machine Room Less
CLI - Command Language Interpreter	MS- Mild Steel
COP -Car Operating Panel	mtrs- meters
COPO-Centre Opening Power Operated	NABL- National Accreditation Board for testing and calibration Laboratories
CPI- Car Position Indicator	NBC-National Building Code
CPVC - Chlorinated Polyvinyl Chloride pipe	NVR - Network Video Recorder
CRCA - Cold Rolled Closed Annealed	OM - Optical Mode
dB-decibel	OS - Optical Single mode.
dBV/dBu-Decibel units specifically for measuring voltage	OSG- Over speed Safety Governor
DLP- Defect Liability Period	OWD- Overload Warning Device
DVI - Digital Visual Interface	PC - Polyethylene Composite
EFX-Effects extension	PLC- Programmable Logic Control
EPABX - Electronic Private Automatic Branch Exchange	PMSM- Permanent Magnet Synchronous AC Machine
ERW- Electric resistance welding	PoE - Power over Ethernet
FCAMC- Fully Comprehensive Annual Maintenance Contract	PTZ- Pan Tilt and Zoom
FCC- Fire Command Centre	PVC- Polyvinyl Chloride
FHD- Full High Definition	PWM- Pulse wave modulation
FOV- Field of View	RCBO- Residual current operated circuit breaker with over current protection
FPI- Floor Position Indicator	RCCB- Residual current circuit breaker
FRLS - Flame Retardant Low Smoke	RF-Radio Frequency
FRLSH- Flame Retardant Low Smoke & Halogen	RG - Radio Grade.
GBIC - Gigabit Interface Converter.	RJ - Registered jack.
GI- Galvanised Iron	RMS-Root Means Square
HDD- Hard Disk Drive	RoHS - Restriction of Hazardous Substances.
HDMI - High Definition Multimedia Interface.	RoR- Rate of Rise
HDR- High Definition Recording	S/N Ratio-Signal/Noise ratio
HFBR- Halogen free Flame Retardant	SATA- Serial advanced technology attachment
HIPF-High Pass Filter	SD-Secured Digital
hr- hour	SF - Small Form-factor Pluggable.
IBMS- Intelligent Building Management System	SITC- Supplying, Installing, Testing and Commissioning
ID/OD - Inner Diameter / Outer Diameter.	SMF- Sealed Maintenance Free
IEC- International Electrotechnical Commission	SS- Stainless Steel
IGBT- Integrated Gate Bipolar Transistor	TOPO- Telescopic Opening Power Operated
IP - Ingress Protection.	UHF- Ultra High Frequency
IP- Internet Protocol	UP/DN -Up/Down
IP54- Ingress Protection i. e Protection from limited dust- ingress & Protection from water spray from any direction	USB-Universal Serial Bus
IS- Indian Standards	UTP- Unshielded twisted pair
ISI- Indian Standards Institute	VAS- Voice Annunciation System
Kg- Kilograms	VGA- Video Graphics Array
kW- Kilowatt	VRLA -Valve-Regulated Lead-Acid
LAN - Local Area Network.	VS- Variable Speed
LCD- Liquid Crystal Display	VVVF- Variable Voltage Variable Frequency
LED - Light Emitting Diode	WAN- Wide Area Network.
LIFT- Lift Installation	WDR- Wide Dynamic Range
LMR- Lift Machine Room	XLR-external Line Return/ Audio connector

References :-

Chapter 1 Items in the chapters are conforming to relevant IS as mentioned below.

IS 371 :1999 Ceiling Rose-Specification
IS 694 :2010 PVC insulated cables for voltage upto including 1100 V
IS 732 :2019 Code of practice for electrical wiring installations
IS 1293 : 2005 Plug and socket outlets of rated voltage upto and including 250 volt and rated upto and including 16 Amperes- Specification.
IS 3854 : 1997 Switches for Domestic and similar purposes -specification.
IS 4648 : 1968 Guide for electrical layout in residential building
IS 9537 (Part 1) : 1980 Conduits for electrical installations-Part1 General requirements.
Is 9537 (Part 2) :1980 Specification for conduits for electrical Installation Part-II Rigid Steel Conduit.
IS 9537(Part-3) :1980 Specification for conduits for electrical installations Rigid plain conduit of insulating material

IS 11037 :1984 Specification for electronic type Fan Regulator
IS 14772: 2000 General requirements for enclosures for accessories for household and similar fixed electrical installations-Specification.
IS 14927 :2001 Cable Trunking and ducting systems for electrical installations
IS 17048:2018 Halogen Free Flame Retardant (HFFR) Cables for Working Voltages up to and including 1100 Volts — Specification

Chapter 2 Items in the chapters are conforming to relevant IS as mentioned below.

IS 15885(Part2/Sec13) - Control gear for Led Modules
IS 16101 : 2012 - General Lighting - LEDs and LED modules – Terms and Definitions
IS 16102(Part 1) : 2012 - Self- Ballasted LED Lamps for General Lighting Services Part 1 Safety Requirements
IS 16102(Part 2) : 2012 - Self-Ballasted LED Lamps for General Lighting Services Part 2 Performance Requirements

IS 16103(Part 1) : 2012 - Led Modules for General Lighting Part 1 Safety Requirements
IS 16103(Part 2) : 2012 - Led Modules for General Lighting Part 2 Performance Requirements
IS 16104 : 2012 - d.c. or a.c.. Supplied Electronic Control Gear for LED Modules - Performance Requirements
IS 16105 : 2012 - Method of Measurement of Lumen Maintenance of Solid State Light (LED) Sources
IS 16106 : 2012 - Method of Electrical and Photometric Measurements of Solid-State Lighting (LED) Products
IS 16107 (Part 1):2012 - Luminaires Performance Part 1 General Requirements
IS 16108 : 2012 - Photo biological Safety of Lamps and Lamp Systems

Chapter 3 Items in the chapters are conforming to relevant IS as mentioned below.

Doc: ET 31(6128) Part 3 Method of Specifying the Performance and Test Requirements
IS 10500 (1991) Drinking water
IS 10555 (2002) Exfoliated Vermiculite (Thermal Insulation)
IS 10556 (1983) Code of Practice for Storage and Handling of Thermal Insulation Materials(Thermal Insulation)

IS 11338 (1985) Thermostats for Use in Refrigerators, Air Conditioners, Water Coolers and Beverage Coolers
IS 13369: Stationary lead acid batteries (with tubular positive plates) in monoblock containers
IS 1391 (Part 2) Room Air Conditioners- Specifications
IS 1391-1 (1992) Thermostats for Use in Refrigerators, Air Conditioners, Water Coolers and Beverage Coolers
IS 1391-2 (1992) Room air conditioners, Part 2: Split air conditioners
IS 1475-1(2001) Self-Contained Drinking Water Coolers, Part 1: Energy Consumption and Performance
IS 1476-1 (2000) Performance of Household Refrigerating Appliance - Refrigerators with or Without Low Temperature Compartment, Part 1: Energy Consumption and Performance
IS 15750 (2006) Household frost-free refrigerating appliances - Refrigerators cooled by internal forced air circulation -Characteristics and test methods
IS 16242 (Part 1) : 2014 PART 1 GENERAL AND SAFETY REQUIREMENTS FOR UPS
IS 1651 - 1991 - Stationary cells and batteries, lead-acid type (Tubular)
IS 16678 (part 2) Safety Conditions for units using A3 refrigerants ISO 5149(Part 2)
IS 2082:1993 Stationary Storage type Water heater
IS 302 (Part 1) Safety of household and similar electrical appliances.
IS 3412 (1994) Electric water boilers
IS 4578 (1997) Lubricating oils for refrigeration machinery
IS 4831 (1968) Recommendation on units and symbols for refrigeration (Refrigeration and air conditioning)
IS 5111 (1993) Testing of refrigerant compressors

References :-

IS 7613 (1975) Method of testing panel type air filters for air conditioning and ventilation purposes
IS 8978-1992 Specification of Instantaneous water Heater
Specifications of Inverter (As per MNRE Specifications)

Chapter 4 Items in the chapters are conforming to relevant IS as mentioned below.

BS EN 50618 : 2014 Electric cables for photovoltaic systems (BT(IE/NOT)258), mainly for DC Cables
IEC 60068- 2 /IEC 62093 (as applicable) : Environmental Testing of PV System – Power Conditioners and Inverters.
IEC 60255-27 : Measuring relays and protection equipment – Part 27: Product safety requirements
IEC 60269-6 : Low-voltage fuses
IEC 60529 : Resistance of enclosures of electric and electronic devices.
IEC 61215/ IS 14286 : Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV) Modules
IEC 61643- 11: 2011 Low-voltage surge protective devices
IEC 61701: Salt mist corrosion testing for PV modules
IEC 61730 : Photovoltaic (PV) Module Safety Qualification
IEC 61853- Part 1 /IS 16170 : Part 1 Photovoltaic (PV) module performance testing and energy rating
IEC 62109, IEC 62109-2 : Safety of power converters for use in photovoltaic power systems
IEC 62116/ UL1741/ IEEE 1547 : Utility-interconnected Photovoltaic Inverters - Test Procedure of Islanding Prevention Measures
IEC 62561-7 Requirement and tests for earthing enhancing compound producing low resistance.
IEC 62716 : Photovoltaic (PV) Modules
IEC/IS 61683 : Photovoltaic Systems – Power conditioners:
IS 12933-1 (2003): Solar flat plate collector, Part 1: requirements
IS 12933-2 (2003): Solar flat plate collector, Part 2: components
IS 12933-5 (2003): Solar flat plate collector, Part 5: Methods
IS 12976 (1990): Solar water heating systems - code of practice
IS 14286: Crystalline silicon terrestrial photovoltaic (PV) modules
IS 15450 (2004): Polyethylene/ aluminium / polyethylene composite pressure pipes for hot and cold water supplies

IS 2062 (1992): Mounting structure steel
IS 4759: Galvanization of mounting structure
IS:1239 Part-I (2004): Steel tubes, tubular and other wrought steel fittings
Note- Equivalent standards may be used for different system components of the plants.

Chapter 5 Items in the chapters are conforming to relevant IS as mentioned below.

IS/IEC .60947.1.2007: Low-voltage switchgear and control gear, Part 1: General rules
IEC 61439-1: General requirements.
IEC 61439-2: Power switchgear and control gear assemblies.
IEC 61439-3: Distribution boards.
IEC 61439-4: Assemblies for construction sites.
IEC 61439-5: Assemblies for power distribution.
IEC 61439-6: Busbar trunking systems.
IEC 62271-1: High Voltage Switchgear and Control gear common specifications
IS/IEC:60947.2.2003: Low-Voltage Switchgear and Control gear, Part 2: Circuit Breakers
IS/IEC:60947.3.1999: Low voltage switchgear and control gear, Part 3: Switches, disconnectors, switch-disconnectors and fuse combination units
IS/IEC:60947.4.1.2000: Low-Voltage Switchgear and Control gear, Part 4: Contractors and Motor-Starters, Section 1: Electromechanical Contactors and Motors-Starters
IS/IEC:60947.4.2.1999: Low-Voltage Switchgear and Control gear : Part 4 - Contractors and Motor-Starters, Section 2: AC Semiconductor Motor Controllers and Starters
IS/IEC:60947.4.3.1999: Low voltage switchgear and control gear, Part 4: AC semiconductor controllers and contactors for non-motor loads
IS/IEC:60947.5.1.2003: Low-Voltage Switchgear and Control gear, Part 5: Control Circuit Devices and Switching Elements, Section 1: Electromechanical Control Circuit Devices
IS/IEC:60947.5.2.2007 : Low-Voltage Switchgear and Control Gear, Part 5: Control Circuit Devices and Switching Elements, Section 2: Proximity Switches
IS:12640.2.2008, IEC 61009-1: Residual Current Operated Circuit - Breaking for Household and Similar Uses, Part 2: Circuit - Breakers with Integral Overcurrent Protection (RCVOs)

References :-

IS:12640:1.2008: Residual Current Operated Circuit - Breakers for Household and Similar Uses, Part 1: Circuit-Breakers Without Integral Overcurrent Protection (RCCBs)

IS:13703.1.1993: LV Fuses for voltages not exceeding 1000 V ac or 1500 V dc, Part 1: General requirements

IS:13703.2.1.1993: Low-voltage fuses for voltages not exceeding 1 000 V AC or 1 500 V DC, Part 2: Fuses for use by authorized persons, Section 1: Supplementary requirements

IS:13703.2.2.1993: Low-voltage fuses for voltages not exceeding 1 000 V AC or 1 500 V DC, Part 2: Fuses for use by authorized persons, Section 2: Examples of standardized fuses

IS:13703.4.1993: Low-Voltage Fuses for Voltages not Exceeding 1000 V AC or 1500 V DC, Part 4: Supplementary Requirements for Fuse Links for the Protection of Semiconductor Devices

IS:8623.1.1993: Low-Voltage Switchgear and Control gear Assemblies, Part 1: Requirements for Type-Tested and Partially Type-Tested Assemblies

IS:8623.2.1993: Low-voltage Switchgear and Control gear Assemblies, Part 2: Particular Requirements for Busbar Trunking Systems (Busway)

IS:8623.3.1993: Low-Voltage Switchgear and Control gear Assemblies, Part 3: Particular Requirements for Equipment Where Unskilled Persons have Access for Their Use

Chapter 6 Items in the chapters are conforming to relevant IS as mentioned below.

IS 2629:1985 for Galvanization process

IEC 61439-6 : Low-voltage switchgear and control gear assemblies - Part 6: Busbar trunking systems (busways)

IEC 61643- II - Low voltage surge protective devices part 32

IS / IEC:60947-1&3 Low-voltage switchgear and control gear - Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units

IS : 13585 (Part – I) :1994 - Shunt power capacitors of the non-self-healing type for ac systems having a rated voltage up to and including 1000V.

IS : 2551 :1982 - Danger notice plates.

IS 13779/1999: AC static Watt hour meters, class 1 and 2

IS 4237-1967: General requirements for switchgear and control gear for voltages not exceeding 1000 volts ac or 1200 volts DC

IS 720:2010 for Waterproof Plywood

Chapter 7 Items in the chapters are conforming to relevant IS as mentioned below.

IS 7098 – 1 : 1988 (Reaffirmed:2020): Specification For Cross Linked Polyethylene Insulated PVC Sheathed Cables, Part 1: For Working Voltages Up To And Including 1100 Volts

IS - 7093 :1973 : Straight through joint boxes and lead sleeves for paper insulated lead sheathed cables up to and including 11 kV.

IS 17048: 2018: Halogen Free Flame Retardant (HFFR) Cables For Working Voltages up to and Including 1100 Volts

IS 3916 - 6: 2016: Recommended Current Ratings for Cables Part 6 Cross-linked Polyethylene Insulated PVC Sheathed Cables

IS 7098 - 2: 1988 (Reaffirmed:2021): Specification For Cross Linked Polyethylene Insulated Thermoplastics Sheathed Cables, Part 2: For Working Voltages From 3.3 kV Up To And Including 1100 Volts

Chapter 8 Items in the chapters are conforming to relevant IS as mentioned below.

IS 2713-1 to 3 : 1980 -Tubular Steel Poles for Overhead Power Lines.

IS 13158 : 1991 - Prestressed concrete circular spun poles for overhead power, traction and telecommunication lines.

IS 1445 : 1977 - Porcelain insulators for overhead power lines with a nominal voltage up to and including 1000 V.

IS 2062 :2011 - Hot Rolled Medium and High Tensile Structural Steel.

IS 2486-1 : 1993 - Metal fittings of insulators for overhead power lines with nominal voltage greater than 1000 V, Part 1: General requirements and tests.

IS 2486-2 : 1989 - Insulator fittings for overhead power lines with nominal voltage greater than 1 000 V, Part 2: Dimensional requirements.

IS 2486-3 : 1974 - Insulator Fittings for Overhead Power Lines with a Nominal Voltage Greater than 1000 Volts, Part III: Locking Devices.

IS 2486-4 : 1981 -Insulator Fittings for Overhead Power Lines with a Nominal Voltage Greater than 1 000 V, Part IV: Tests for Locking Devices.

IS 2633 :1986 - Methods for testing uniformity of coating of zinc coated articles.

IS 2713-1 to 3 : 1980 - Tubular Steel Poles for Overhead Power Lines.

IS 398-1 (B) : 1996 - Aluminium Conductors for Overhead Transmission Purposes â€” Specification, Part 1: Aluminium Stranded Conductors.

IS 398-1 : 1996 - Aluminium conductors for overhead transmission purposes, Part 1: Aluminium stranded conductors.

References :-

IS 398-2 : 1996 - Aluminium conductors for overhead transmission purposes, Part 2: Aluminium conductors, galvanized steel reinforced.

IS 4759 : 1996 - Hot-dip zinc coatings on structural steel and other allied products.

IS 7321 : 1974 - Code of practice for selection, handling and erection of concrete poles for overhead power and telecommunication lines.

IS 785 : 1998 - Reinforced Concrete Poles for Overhead Power and Telecommunication Lines.

IS 808 : 1989 - Dimensions for Hot Rolled Steel Beam, Column, Channel and Angle Sections.

IS 875-3 : 1987 - Code of Practice for Design Loads (Other than Earthquake) for Buildings and Structures, Part 3: Wind Loads.

Chapter 9 Items in the chapters are conforming to relevant IS as mentioned below.

IS 3043-1987:-Earthing Indian Standard Code of practice of earthing.

Chapter 10 Items in the chapters are conforming to relevant IS as mentioned below.

IS 1180 (Part 1):- 2014 :-Outdoor type oil immersed distribution transformers up to and including 2500 KVA , 33 KV Specification, Part-1 Mineral Oil Immersed.

IS 10028 Part I 1985:Code of practice for selection installation and maintenance of transformers

IS 1180 (Part 2): 2016 :-Outdoor type three-phase distribution transformers up to and including 100 kVA 11 kV, Part 2: Sealed type

IS 1180 (Part 3):2021 :-Outdoor/ Indoor type liquid immersed distribution transformers up to and including 2500 KVA. 33KV - Specification, Part-3 Natural/Synthetic organic ester liquid Immersed.

IS 1180 part III 2021:Specification for outdoor type three phase distribution transformer

IS 16081:2013: Insulating Liquid - Specification for unused synthetic organic ester for electrical purposes.

IS 16099 :- Synthetic organic esters for electrical purposes - guide for maintenance of transformer ester in equipment.

IS 16659 :2017 : Fluid for electro technical application- unused natural ester for transformer and similar electrical equipment.

IS 2026 (Part 1): 2011 :-Power transformers, Part 1: General

IS 2026 (part 14): 2018 power transformer (part-14) Liquid immersed power transformer using high temperature insulation materials.

IS 2026 (Part 2): 2010 :- Power transformers, Part 2: Temperature-rise

IS 2026 (Part 3): 2009 :- Power Transformers Part - 3 Insulation Levels, Dielectric Tests and External Clearances in Air

IS 2026 (Part 4): 1977 :- Power transformers, Part 4: Terminal marking, tapings and connections

IS 2026 (Part 5): 2011 :- Power Transformers, Part 5: Ability to Withstand Short Circuit

IS 2026 (Part 7): 2009 :- Power Transformers, Part 7: Loading Guide for Oil-Immersed Power Transformers

IS 2026 (Part 8): 2009 :- Power Transformers, Part 8: Applications guide

IS 2026 part IV 1977:Specification for terminal marking tapping and connections

IS 335: 2018:New Insulating Oils

Chapter 11 Items in the chapters are conforming to relevant IS as mentioned below.

IS 4722 : 2001- Rotating electrical machines (second revision)

Central Pollution Control Board (CPCB) norms 2

Chapter 12 Items in the chapters are conforming to relevant IS as mentioned below.

IS 9079 : 2002 Electric Monoset Pumps for Clear, Cold Water for Agriculture and Water Supply Purposes.

IS 8034 : 2002 Submersible Pump set- Specification.

Chapter 13 Items in the chapters are conforming to relevant IS as mentioned below.

IS 1520:1980 Horizontal Centrifugal Pumps For Clear, Cold, Fresh Water

BS 5839 part I, EN54 - 12 : 2002 Optical beam detector

IS 10221:2008 Coating and wrapping of Underground pipes

IS 1239 :2004 Pipes

IS 13095 : 1981 Butterfly valve for general purposes

IS 3589:2001 Air cushion tank

IS 4038 : 1986 Foot valve for water work purpose

IS 446 :1987 Rubber hose pipe

IS 4927 :1992 Canvas hose pipe for fire fighting

IS 5290: 1993 Landing valve

IS 5312-I : 2004 Non return valve for water work purpose

IS 636 : 1988 RRL hose for fire fighting

IS 778 :1984 Gate valve for water work purpose

IS 8423, IS 903 :1994 CP hose for fire fighting

References :-

IS 884 :1985 First aid hose reel for fire fighting system

IS 903: 1993 Fire hose coupling, branch pipe, Nozzles and nozzle spanner

IS 907 : 1984 End line strainer

IS 909: 1992 Specification for Underground Fire Hydrant, Sluice Valve Type

Chapter 15 Items in the chapters are conforming to relevant IS as mentioned below.

Items of sub chapter 15.1 are conforming to IS 1941 (Part I) 1976.(Reaffirmed in 2002) - Functional requirements for electric motor sirens (second revision)

Chapter 16 Items in the chapters are conforming to relevant IS as mentioned below.

IS 1255 : 1984 Code of practice for installation and maintenance of power cables up to and including 33 kV rating.

IS 10028 : 2016 Code of practice for selection, installation and maintenance of transformers: Part 2 Installation.

IS 1239 Steel-I tubes, tubular and other wrought steel fittings specifications.

IS 1332 : 1986 - Precast reinforced concrete street lighting poles.

IS 318: Lead Tin Bronze Ingots and Castings (For valve)

IS 3589: Steel Pipes for Water and Sewage (168.3 to 2 540 mm Outside Diameter)

IS 4091 : Code of practice for design and construction of foundation for transmission line tower and poles.

IS:1200.19 : 1981 Method of Measurement of Building and Civil Engineering Works, Part XIX: Water Supply, Plumbing and Drains.

Chapter 17 Items in the chapters are conforming to relevant IS as mentioned below.

National Building Code 2016 - Part 8 Building Services Section 5 & 5A Installation of Lifts,

Lift ACT & Rules -The Maharashtra Lift, Escalators & Moving Walkway Act-2017 and Relevant Rules

IS 14665 (Part 1) :2000 -Electric Traction Lifts Part 1 Guidelines For Outline Dimensions of Passenger, Goods, Service and Hospital Lifts

IS 14665 (Part 2/Sec 1 & 2) : 2000 - Electric Traction Lifts Part 2 Code of Practice For Installation, Operation and Maintenance Section 1 Passenger and Goods Lifts Section 2 Service Lifts

IS 14665 (Part 3/Sec 1 & 2) : 2000- Electric Traction Part 3 Safety Rules Lifts Section 1 Passenger and Goods Lifts, Section 2 Service Lifts

IS 14665 (Part 4/Sec 1 to 9) : 2001 -Electric Traction Lifts Part 4 Components Section 1 Lift Buffers, Section 2 Lift Guide Rails and Guide Shoes, Section 3 Lift Car frame, Car, Counterweight and Suspension, Section 4 Lift Safety Gears and Governors, Section 5 Lift Retiring Cam, Section 6 Lift Doors and Locking Devices and Contacts, Section 7 Lift Machines and Brakes, Section 8 Lift Wire Ropes, Section 9 Controller and Operating Devices for Lifts

IS 14665 (Part 5) :1999 -Electric Traction Lifts — Specification

IS 15330: 2003 Code of Practice for Installation and Maintenance of Lifts for differently abled Persons

IS 15785 : 2007 Installation and Maintenance of Lift without conventional Machine Rooms Code of Practice

IS 8216:1976 Guide for Inspection of Wire Ropes

IS/IEC 60034-1:2004 Rotating Electrical Machines Part-1 Rating and Performance

Local Authority Rules : The Development Control Regulations of The local Authority

Part 5 Inspection Manual

Chapter 18 Items in the chapters are conforming to relevant IS as mentioned below.

IS 335 (1993): New insulating oils

Chapter 20 Items in the chapters are conforming to relevant IS as mentioned below.

IS 15596-5 : Sound system equipment, part 5: Loudspeakers [LITD 7 : Audio, Video and Multimedia Systems and Equipment]

IS 15572 (2005) : Audio, Video and Audiovisual Systems- Interconnections and Matching values of Analogue signals [LITD 7 : Audio, Video and Multimedia Systems and Equipment]

IS 13252 (Part 1) : 2010 IEC 60950-1 : 2005: Information Technology Equipment— Safety Part 1 General Requirements.