



सत्यमेव जयते

GOVERNMENT OF MAHARASHTRA

PUBLIC WORKS DEPARTMENT
(ELECTRICAL WING)



CURRENT SCHEDULE OF RATES
FOR YEAR
2018-19

SAVING
ENERGY



**GOVERNMENT OF MAHARASHTRA
PUBLIC WORKS DEPARTMENT
(ELECTRICAL WING)**

**CURRENT SCHEDULE OF RATES FOR THE YEAR
2018 - 2019**

This CSR comes into force from **12th September 2018**

*Current schedule of rates is approved by the Chief Engineer (Electrical),
Public Works Department, Mumbai vide letter No. CE(Elec)/Desk-
3/2365/, dated 12/09/2018.*

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

Index

<u>General Notes</u>	1	Chapter 4 Energy saving Devices (ESD)	
<i>Chapter 1 Wiring (WG)</i>		4.1 Solar Hot water system	83
1.1 Concealing of conduits	4	4.2 Pipes for Solar Hot Water System	84
1.2 PVC flexible/rigid conduits / casing-n-capping / under floor trunking/raceways and box trunking	4	4.3 Solar Lighting	85
1.3 Bunch of wires	6	4.4 Miscellaneous	87
1.4 Mains on GI bare wire	8	4.5 Rooftop Off grid solar systems	87
1.5 Mains in metal conduit	9	4.6 Rooftop On grid Solar systems	88
1.6 Mains in PVC conduit	11	4.7 Solar water pump systems	89
1.7 Wiring accessories	12	4.8 Dismantling	90
1.8 Modular switches and accessories	14	Chapter 5 Switchgear (SW)	
1.9 Point wiring	17	5.1 LT - IC/ MC switchgears, ATS	92
1.10 Telephone, Audio and Video Wiring	19	5.2 I/C, M/C distribution boards/mini feeder pillar/street light control panel	94
1.11 Telephone accessories	21	5.3 LT - MCB's/MCB change over switch	96
1.12 Computer cabling	23	5.4 LT -- MCBDB's	98
1.13 Networking components	25	5.5 LT -- MCCB's	100
1.14 Networking accessories	25	5.6 RCCB / RCBO	101
1.15 Dismantling	28	5.7 MCCB panel boards and accessories	102
Chapter 2 Fittings (FG)		5.8 LT – Air circuit breakers	105
2.1 Indoor Fittings	31	5.9 HT-SF6 Load Break Switch /VCB/RMU	106
2.2 Decorative indoor fittings	33	5.10 Accessories	108
2.3 General indoor fittings	34	5.11 Accessories for MCCB's	109
2.4 Accessories for indoor fittings	34	5.12 Dismantling	110
2.5 Outdoor fittings	35	Chapter 6 Control Panel (CP)	
2.6 Decorative outdoor fitting	38	6.1 Sheets	114
2.7 Highbay LED fittings	38	6.2 Bus-bars	115
2.8 Street/flood light fittings	38	6.3 Measuring instruments	116
2.9 Accessories for outdoor fittings	40	6.4 HT- Metering	119
2.10 Lamps and Tubes for Indoor & Outdoor	41	6.5 Accessories	120
2.11 Aviation light fitting	42	6.6 Surge protective devices	120
2.12 Fans	43	6.7 Energy devices (Harmonic filter, APFC panel)	121
2.13 Accessories for fan	44	Chapter 7 Cables (CB)	
2.14 Dismantling	45	7.1 LT cables (Aluminium)	126
Chapter 3 Appliances (AP)		7.2 LT cables (Copper)	130
3.1 Water-heaters	48	7.3 HT cables	134
3.2 Air-conditioners	49	7.4 Cable joints, end termination kit (LT Cables)	137
3.3 Water-coolers, Refrigerators	53	7.5 Cable joints, end termination kit (HT Cables)	137
3.4 Air coolers	54	7.6 Cable enclosures	139
3.5 Water purifiers	54	7.7 Cable glands	141
3.6 Inverters	54	7.8 Street light boxes and cable indicators	141
3.7 On line UPS	55	7.9 Cable lugs (Copper)	142
3.8 Batteries for inverters, UPS	55	7.10 Cable lugs (Aluminium)	142
3.9 Voltage Stabilizers	56	7.11 Cable tray	143
3.10 Accessories for AC & Water cooler	57	7.12 Dismantling	144
3.11 VRV/VRF Air conditioning	59		
3.12 Dismantling	81		

Chapter 8 Over head Systems (OH)	
8.1 Steel poles	147
8.2 PSC poles	148
8.3 Hot dipped galvanized poles and high mast	148
8.4 Brackets	151
8.5 Conductors	155
8.6 Insulators	156
8.7 Accessories	157
8.8 Dismantling	158
 Chapter 9 Earthing (EA)	
9.1 Plate, pipe type Earthing	161
9.2 Accessories	161
9.3 Lightning conductor and accessories	162
 Chapter 10 Sub Station (SS)	
10.1 Transformers	164
10.2 Accessories	187
10.3 Dismantling	190
 Chapter 11 Generators (GEN)	
11.1 Generators	193
11.2 Auto mains failure panels (AMF panels)	200
11.3 Servicing of DG Set	202
11.4 Dismantling	206
 Chapter 12 Water Pumps (WP)	
12.1 Centrifugal pumps	208
12.2 Submersible pumps for borewells	209
12.3 Submersible pumps for Open well	217
12.4 Accessories	218
12.5 Dewatering Pump	221
12.6 Pressure pump	222
12.7 Dismantling	222
 Chapter 13 Fire Fighting and Fire Alarm (FF)	
13.1 Main fire pumps (Single stage Centrifugal)	224
13.2 Main fire pumps (Multi stage centrifugal)	224
13.3 Jockey pumps (Centrifugal)	224
13.4 Booster pump	224
13.5 Pipes	225
13.6 Valves	225
13.7 Fire fighting accessories	227
13.8 Conventional Fire alarm system	229
13.9 P. A. system	230
13.10 Sprinkler	230

13.11 Fire Sealant System	230
13.12 Fire safety audit	231

Chapter 14 Temporary EI (TE)	
14.1 Temporary illumination	233
14.2 Hiring of generators	238

Chapter 15 Siren (SRN)	
15.1 Siren	241
15.2 Accessories for Siren	241
15.3 Dismantling	241

Chapter 16 Civil work (CW)	
16.1 Excavation	243
16.2 Masonry work	243
16.3 CC Foundation	243
16.4 Painting	245
16.5 Plumbing	246
16.6 Plumbing Accessories	247

Chapter 17 Lift	
17.1 New Installation	250
17.2 Lift Repair/Modernization	278
17.3 Dismantling	285

Chapter 18 Miscellaneous (MSC)	
18.1 Rewinding	290
18.2 Replacement	292
18.3 Accessories	292

Chapter 19 Credit for dismantled items	
19.1 Credit for dismantled items	296

General Notes

1. Detailed specifications of the items described in “Current Schedule of Rates for the year 2018 ” (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. Similarly 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, concerned Executive Engineer is empowered to resolve the same with ex-post facto approval of the Chief Engineer (Elect.).
2. 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 2011 (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) : 2007.
 - H. GRIHA rating system.
 - I. Technical specifications of Ministry of New and Renewable Energy.
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. Material used on government installations shall be tested from Central/State Government test laboratory / Regional test laboratories/ Government approved NABL accredited laboratory for confirmation of the relevant parameters.
5. Method of construction of the items in CSR shall be as per specification book and as per the relevant IS codes.
6. As per circular no. CEN/1091/CR/159/E2 dated 29.04.1991, concealed type of wiring shall be carried out if there is a specific provision in administrative approval or as per written requirement of user department.
7. Black coloured PVC conduit shall not be used for surface wiring on electrical installation works.
8. The items which are not covered in the CSR i.e. non CSR items shall be operated by the respective Executive Engineer after following the guidelines issued vide शासन परिपत्रक क्रमांक २०१७ ११ .क्र.प्र/ २०१७/०४/११ .दि ४००३२मंत्रालय मुंबई रिनियोजन / (amended upto date) .
9. Centage charges shall be levied as per Public Works Department GR no. सीएनसी १००३ १- अर्थ/ .क्र.प्र/ मंत्रालय ,मुंबई दिनांक २०२००.१०.३ and other relevant circulars issued time to time.
10. 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. F No.1/10(3)/2/2018 LS II dated 03.04.2018.

11. Work insurance shall be drawn as per GR no. विमास/1098प्रमुंबई, मंत्रालय, वित्त विभाग/शासनहमी/98/928.क्र. 19.दिऑगस्ट 1998 (amended upto date). If required insurance document is not submitted by the agency then amount worth to 1% of tender amount to be recovered from the 1st bill.
12. 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.
13. 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 jails, mental hospitals, Rajbhavan, 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 & डीविका-2015/प्र.क्र.42/का.1481-अ, 15 जून, 2018.

14. The rates of items pertaining to civil department shall be based on SSR of the Civil department.
15. Concerned Executive Engineer shall make provision of sub metering as per the prevailing guidelines in Energy Conservation Building Code (ECBC) 2007 and GRIHA v2015.
16. Oil cooled transformers and dry type transformer losses at 50% of full load and 100% of full load shall be as per table 8.2 and 8.1 respectively from Energy Conservation Building Code 2007(User guide).
17. 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 Deptt.
18. Repairs to the electrical machineries shall be proposed in relevance with the yellow book 1991.
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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.

GOVERNMENT OF MAHARASHTRA PUBLICATION

[Price Rs. 250.00]

Chapter: 1
Wiring (WG)

1.1	Concealing of conduits	(WG-MA/CC)
1.2	PVC flexible/rigid conduits / casing-n-capping / under floor trunking/raceways and box trunking	(WG-MA/CON)
1.3	Bunch of wires	(WG-MA/BW)
1.4	Mains on GI bare wire	(WG-MA/GB)
1.5	Mains in metal conduit	(WG-MA/MC)
1.6	Mains in PVC conduit	(WG-MA/PC)
1.7	Wiring accessories	
1.8	Modular switches and accessories	
1.9	Point wiring	(WG-PW)
1.10	Telephone, Audio and Video Wiring	(WG-TW/TW)
1.11	Telephone accessories	(WG-TW/TA)
1.12	Computer cabling	(WG-COC)
1.13	Networking components	(WG- NWC)
1.14	Networking accessories	(WG-NAS)
1.15	Dismantling	(WG-DM)

Chapter: 1 WIRING (WG)

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
<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	117	39	156
1-1-2	Supplying & laying rigid steel conduit 16 SWG - 20 mm. dia. with necessary accessories in RCC work/false ceiling/false flooring as per specification No: WG-MA/CC.	m	112	31	143
1-1-3	Supplying & erecting rigid steel conduit 16 SWG 25 mm dia. with necessary accessories in wall/floor with chiselling appropriately as per specification No: WG-MA/CC.	m	150	39	189
1-1-4	Supplying & laying rigid steel conduit 16 SWG 25 mm. dia. with necessary accessories in RCC work/false ceiling/false flooring as per specification No: WG-MA/CC.	m	145	31	176
1-1-5	Supplying & erecting rigid steel conduit 16 SWG 32 mm dia. with necessary accessories in wall/floor with chiselling appropriately as per specification No: WG-MA/CC.	m	210	52	262
1-1-6	Supplying & laying rigid steel conduit 16 SWG 32 mm. dia. with necessary accessories in RCC work/false ceiling/false flooring as per specification No: WG-MA/CC.	m	208	39	247
1-1-7	Supplying & erecting H.M.S. P.V.C. conduit 20 mm. dia. with necessary accessories in wall/floor with chiselling appropriately as per specification No: WG-MA/CC.	m	54	39	93
1-1-8	Supplying & laying HMS PVC conduit 20 mm dia. with necessary accessories in RCC work/false ceiling/false flooring as per specification No. WG-MA/CC.	m	49	31	80
1-1-9	Supplying & erecting HMS P.V.C. conduit 25 mm. dia. with necessary accessories in wall/floor with chiselling appropriately as per specification No: WG-MA/CC.	m	64	39	103
1-1-10	Supplying & laying HMS PVC conduit 25 mm dia with necessary accessories in RCC work/false ceiling/false flooring as per specification No. WG-MA/CC.	m	63	31	94
1-1-11	Supplying & erecting HMS P.V.C. conduit 32 mm. dia. with necessary accessories in wall/floor with chiselling appropriately as per specification No: WG-MA/CC.	m	92	47	139
1-1-12	Supplying & laying HMS PVC conduit mm dia. with necessary accessories in RCC work/false ceiling/false flooring as per specification No. WG-MA/CC.	m	86	34	120
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	18	39	57

Note:- Add Rs. 3/- per meter for erecting conduit on stone wall.

1.2 PVC Flexible/Rigid Conduits/Casing-n-Capping/ Under Floor Trunking/ Raceways and Box Trunking (WG-MA/CON)

1-2-1	Supplying and erecting UPVC reinforced flexible conduit 20 mm in dia. conforming to I.S. with required number of couplings, PVC bushes, check nuts etc. complete.	m	63	11	74
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<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
1-2-2	Supplying and erecting UPVC reinforced flexible conduit 25 mm in dia. conforming to I.S. with required number of couplings, PVC bushes, check nuts etc. complete.	m	73	11	84
1-2-3	Supplying and erecting UPVC reinforced flexible conduit 31/32 mm in dia. conforming to I.S. with required number of couplings, PVC bushes, check nuts etc. complete.	m	96	11	107
1-2-4	Supplying and erecting UPVC reinforced flexible conduit 38/40 mm in dia. conforming to I.S. with required number of couplings, PVC bushes, check nuts etc. complete.	m	120	23	143
1-2-5	Supplying and erecting UPVC reinforced flexible conduit 50 mm in dia. conforming to I.S. with required number of couplings, PVC bushes, check nuts etc. complete.	m	160	23	183
1-2-6	Supplying and erecting HMS PVC conduit 20 mm dia. with PVC accessories on wall / ceiling as per specification No: WG-MA/CON.	m	54	13	67
1-2-7	Supplying and erecting HMS PVC conduit 25 mm dia. with PVC accessories on wall / ceiling as per specification No: WG-MA/CON.	m	63	13	76
1-2-8	Supplying and erecting HMS PVC conduit 32 mm dia. with PVC accessories on wall / ceiling as per specification No: WG-MA/CON.	m	96	21	117
1-2-9	Supplying and erecting PVC trunking (PVC casing-n-capping) of size 20 mm with accessories on wall/ceiling as per specification No: WG-MA/CON.	m	23	10	33
1-2-10	Supplying and erecting PVC trunking (PVC casing-n-capping) of size 25 mm with accessories on wall/ceiling as per specification No: WG-MA/CON.	m	25	10	35
1-2-11	Supplying and erecting PVC trunking (PVC casing-n-capping) of size 32 mm with accessories on wall/ceiling as per specification No: WG-MA/CON.	m	29	13	42
1-2-12	Supplying and erecting PVC trunking (PVC casing-n-capping) of size 40 mm with accessories on wall/ceiling as per specification No: WG-MA/CON.	m	50	13	63
1-2-13	Supplying and erecting PVC box trunking of size 50x16/20 mm. with accessories on wall/ceiling as per specification No: WG-MA/BOX.	m	59	21	80
1-2-14	Supplying and erecting PVC box trunking of size 50x50 mm. with accessories on wall/ceiling as per specification No: WG-MA/BOX.	m	107	26	133
1-2-15	Supplying and erecting PVC box trunking of size 75x50 mm. with accessories on wall/ceiling as per specification No: WG-MA/BOX.	m	260	26	286
1-2-16	Supplying and erecting PVC box trunking of size 75x75 mm. with accessories on wall/ceiling as per specification No: WG-MA/BOX.	m	344	26	370
1-2-17	Supplying and erecting PVC box trunking of size 100x50 mm. with accessories on wall/ceiling as per specification No: WG-MA/BOX.	m	413	26	439
1-2-18	Supplying and erecting PVC slotted box trunking of size 25x25 mm. with accessories on wall/ceiling as per specification No: WG-MA/SLBOX.	m	42	13	55
1-2-19	Supplying and erecting PVC slotted box trunking of size 45x30 mm. with accessories on wall/ceiling as per specification No: WG-MA/SLBOX.	m	74	21	95

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
1-2-20	Supplying and erecting PVC slotted box trunking of size 60x45 mm. with accessories on wall/ceiling as per specification No: WG-MA/SLBOX.	m	114	21	135
1-2-21	Supplying and erecting PVC slotted box trunking of size 75x75 mm. with accessories on wall/ceiling as per specification No: WG-MA/SLBOX.	m	170	26	196
1-2-22	Supplying and erecting PVC slotted box trunking of size 100x100 mm. with accessories on wall/ceiling as per specification No: WG-MA/SLBOX.	m	345	26	371
1-2-23	Supplying & erecting UPVC gland/ adaptor suitable for 20 mm dia pvc pipe.	Each	8	6	14
1-2-24	Supplying & erecting UPVC gland/ adaptor suitable for 25 mm dia pvc pipe.	Each	12	6	18
1-2-25	Supplying & erecting UPVC gland/ adaptor suitable for 31/32 mm dia pvc pipe.	Each	19	6	25
1-2-26	Supplying & erecting UPVC gland/ adaptor suitable for 40/42 mm dia pvc pipe.	Each	21	6	27
1-2-27	Supplying & erecting UPVC gland/ adaptor suitable for 50 mm dia pvc pipe.	Each	24	6	30
1-2-28	Supplying & erecting GI flexible Conduit 25 mm dia. conforming to I.S. with required number of couplings, bushes, check nuts etc. complete	m	27	13	40
1-2-29	Supplying & erecting GI flexible Conduit 40 mm dia. conforming to I.S. with required number of couplings, bushes, check nuts etc. complete	m	44	13	57
1-2-30	Supplying & erecting GI flexible Conduit 50 mm dia. conforming to I.S. with required number of couplings, bushes, check nuts etc. complete	m	53	13	66

Note:- 1. Add Rs 3/- per meter for erecting conduit on stone wall.
2. Item No. 1-2-6 to 1-2-8 may be used for erection/laying below false flooring/above false ceiling/behind wall panelling.

1.3 Bunch of Wires (WG-MA/BW)

1-3-1	Supplying & erecting mains with 2x1.5 sq.mm F.R 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	25	10	35
1-3-2	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	27	10	37
1-3-3	Supplying & erecting mains with 2x2.5 sq.mm F.R 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	40	13	53
1-3-4	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	44	13	57
1-3-5	Supplying & erecting mains with 2x4 sq.mm F.R 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	60	13	73

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
1-3-6	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	65	13	78
1-3-7	Supplying & erecting mains with 2x6 sq.mm F.R 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	89	13	102
1-3-8	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	98	13	111
1-3-9	Supplying & erecting mains with 2x10 sq.mm F.R 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	154	16	170
1-3-10	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	176	16	192
1-3-11	Supplying & erecting mains with 3x2.5 Sq.mm F.R 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	61	13	74
1-3-12	Supplying & erecting mains with 3x2.5 sq.mm FRLHS 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	66	13	79
1-3-13	Supplying & erecting mains with 3x4 sq.mm FR 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	89	16	105
1-3-14	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	98	16	114
1-3-15	Supplying & erecting mains with 3x6 sq.mm F.R 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	134	16	150
1-3-16	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	146	16	162
1-3-17	Supplying & erecting mains with 3x10 sq.mm F.R 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	232	21	253
1-3-18	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	264	21	285
1-3-19	Supplying & erecting mains with 4x16 sq.mm F.R 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	483	31	514
1-3-20	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	531	31	562

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
1-3-21	Supplying & erecting mains with 4x25 sq.mm F.R 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	895	39	934
1-3-22	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	951	39	990
1-3-23	Supplying & erecting mains with 4x35 sq.mm F.R 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	1235	45	1280
1-3-24	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	1321	45	1366
1-3-25	Supplying & erecting mains with 4x50 sq.mm FR 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	1769	52	1821
1-3-26	Supplying and erecting PVC insulated PVC round sheathed 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	29	10	39
1-3-27	Supplying and erecting PVC insulated PVC round sheathed 1.5 sq.mm (30 no. x 0.25 mm dia.) 3 core flexible multi stranded copper Industrial cable for voltage grade up to 1.1 kV	m	43	10	53
1-3-28	Supplying and erecting PVC insulated PVC round sheathed 2.5 sq.mm (50 no. x 0.25 mm dia.) 3 core flexible multi stranded copper Industrial cable for voltage grade up to 1.1 kV	m	70	10	80
1-3-29	Supplying and erecting PVC insulated PVC round sheathed 4 sq.mm (56 no. x 0.30 mm dia.) 3 core flexible multi stranded copper Industrial cable for voltage grade up to 1.1 kV	m	109	10	119
Note:-	<p>1) Double the rate of two wire bunch for calculating rate of four wire bunch up to 10 sq. mm</p> <p>2) Continuous running earth wire should be provided of min. 1.5 sq. mm. up to phase wire of 2.5 sq. mm. and further earth wire of half of the size of phase wire is to be used only for light & power load .</p> <p>3) Rates for the earth wire shall be calculated as one half rate of mains of bunch of two wire. Earth wire should be of green colour.</p> <p>4) For all types of wiring stranded copper wires shall be invariably used.</p> <p>5) For FRLS wire subtract 2% from total rate of FRLSH wire.</p>				
	<u>1.4 Mains on GI Bare Wire (WG-MA/GB)</u>				
1-4-1	Supplying and erecting mains with ISI mark WP 2 x 2.5 sq. mm. 1100 V 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	33	26	59
1-4-2	Supplying and erecting mains with ISI mark WP 2 x 4 sq. mm. 1100 V 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	31	26	57

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
1-4-3	Supplying and erecting mains with ISI mark WP 2 x 6 sq. mm. 1100 V. 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	44	26	70
1-4-4	Supplying and erecting mains with ISI mark WP 3 x 4 sq. mm. 1100 V. 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	58	39	97
1-4-5	Supplying and erecting mains with ISI mark WP 3 x 6 sq. mm. 1100 V. 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	78	39	117
1-4-6	Supplying and erecting mains with ISI mark WP 4 x 4 sq. mm. 1100 V. 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	39	113
1-4-7	Supplying and erecting mains with ISI mark WP 4 x 6 sq. mm. 1100 V. 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	100	39	139
<u>1.5 Mains in Metal Conduit (WG-MA/MC)</u>					
1-5-1	Supplying & erecting mains with 2x1.5 sq.mm. F.R. copper wire, in 16 gauge 20 mm dia. Rigid Steel conduit with continuous GI earth wire of 2.5 sq.mm. as per specification No: WG-MA/MC.	m	147	39	186
1-5-2	Supplying & erecting mains with 2x1.5 sq.mm. FRLSH copper wire, in 16gauge 20 mm dia. Rigid Steel conduit with continuous GI earth wire of 2.5 sq.mm. as per specification No: WG-MA/MC.	m	153	39	192
1-5-3	Supplying & erecting mains with 2x2.5 sq.mm. F.R. copper wire, in 16gauge 20 mm dia. rigid steel conduit, with continuous GI earth wire of 2.5sq.mm. as per specification No: WG-MA/MC.	m	169	39	208
1-5-4	Supplying & erecting mains with 2x2.5 sq.mm. FRLSH copper wire, in 16gauge 20 mm dia. rigid steel conduits, with continuous GI earth wire of 2.5sq.mm. as per specification No: WG-MA/MC.	m	172	39	211
1-5-5	Supplying & erecting mains with 2x4 sq. mm. F.R copper wire, in 16gauge 20 mm dia. Rigid Steel conduit, with continuous GI earth wire of 2.5sq.mm.as per specification No: WG-MA/MC.	m	189	47	236
1-5-6	Supplying & erecting mains with 2x4 sq.mm. FRLSH copper wire, in 16gauge 20 mm dia. Rigid Steel conduit, with continuous GI earth wire of 2.5 sq.mm. as per specification No: WG-MA/MC.	m	194	47	241
1-5-7	Supplying & erecting mains with 2x6 sq.mm. F.R. copper wire, in 16gauge 20 mm dia. rigid steel conduit, with continuous GI earth wire of 4 sq.mm. as per specification No: WG-MA/MC.	m	226	47	273
1-5-8	Supplying & erecting mains with 2x6 sq.mm. FRLSH copper wire, in 16gauge 20 mm dia. Rigid Steel conduit, with continuous GI earth wire of 4 sq.mm. as per specification No: WG-MA/MC.	m	230	47	277

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
1-5-9	Supplying & erecting mains with 2x10 sq.mm. F.R copper wire, in 16gauge 20 mm dia. rigid steel conduit , with continuous GI earth wire of 6 sq.mm. as per specification No: WG-MA/MC.	m	301	52	353
1-5-10	Supplying & erecting mains with 2x10 sq.mm. FRLSH copper wire, in 16gauge 20 mm dia. rigid steel conduit , with continuous GI earth wire of 6sq.mm. as per specification No: WG-MA/MC.	m	314	52	366
1-5-11	Supplying & erecting mains with 3x4 sq.mm. F.R. copper wire, in 16gauge 20 mm dia. rigid steel conduit , with continuous GI earth wire of 2.5sq.mm. as per specification No: WG-MA/MC.	m	219	52	271
1-5-12	Supplying & erecting mains with 3x4 sq.mm. FRLSH copper wire, in 16gauge 20 mm dia. rigid steel conduit , with continuous GI earth wire of 2.5sq.mm. as per specification No: WG-MA/MC.	m	229	52	281
1-5-13	Supplying & erecting mains with 3x6 sq.mm. F.R. copper wire, in 16gauge 20 mm dia. rigid steel conduit , with continuous GI earth wire of 4sq.mm. as per specification No: WG-MA/MC.	m	273	52	325
1-5-14	Supplying & erecting mains with 3x6 sq.mm. FRLSH copper wire, in 16gauge 20 mm dia. rigid steel conduit , with continuous GI earth wire of 4sq.mm. as per specification No: WG-MA/MC.	m	287	52	339
1-5-15	Supplying & erecting mains with 3x10 sq.mm. F.R copper wire, in 16gauge 25 mm dia. rigid steel conduit , with continuous GI earth wire of 6sq.mm. as per specification No: WG-MA/MC.	m	425	52	477
1-5-16	Supplying & erecting mains with 3x10 sq.mm. FRLSH copper wire, in 16gauge 25 mm dia. rigid steel conduit , with continuous GI earth wire of 6sq.mm. as per specification No: WG-MA/MC.	m	455	52	507
1-5-17	Supplying & erecting mains with 4x4 sq.mm. F.R copper wire, in 16gauge 25 mm dia. rigid steel conduit , with continuous GI earth wire of 2.5sq.mm. as per specification No: WG-MA/MC.	m	288	58	346
1-5-18	Supplying & erecting mains with 4x4 sq.mm. FRLSH copper wire, in 16gauge 25 mm dia. Rigid Steel conduit , with continuous GI earth wire of 2.5 sq.mm as per specification No: WG-MA/MC.	m	300	58	358
1-5-19	Supplying & erecting mains with 4x6 sq.mm. F.R copper wire, in 16gauge 25 mm dia. rigid steel conduit , with continuous GI earth wire of 4sq.mm. as per specification No: WG-MA/MC.	m	357	58	415
1-5-20	Supplying & erecting mains with 4x6 sq.mm. FRLSH copper wire, in 16gauge 25 mm dia. rigid steel conduit , with continuous GI earth wire of 4sq.mm. as per specification No: WG-MA/MC.	m	376	58	434
1-5-21	Supplying & erecting mains with 4x10 sq.mm. F.R copper wire, in 16gauge 32 mm dia. rigid steel conduit , with continuous GI earth wire of 6sq.mm. as per specification No: WG-MA/MC.	m	534	58	592
1-5-22	Supplying & erecting mains with 4x10 sq.mm. FRLSH copper wire, in 16gauge 32 mm dia. rigid steel conduit , with continuous GI earth wire of 6sq.mm. as per specification No: WG-MA/MC.	m	593	58	651
1-5-23	Supplying & erecting mains with 6x6 sq.mm. F.R copper wire, in 16gauge 32 mm dia. rigid steel conduit , with continuous GI earth wire of 4sq.mm. as per specification No: WG-MA/MC.	m	447	63	510
1-5-24	Supplying & erecting mains with 6x6 sq.mm. FRLSH copper wire, in 16gauge 32 mm dia. rigid steel conduit , with continuous GI earth wire of 4sq.mm. as per specification No: WG-MA/MC.	m	505	63	568

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
Note:-	<p>1) Add Rs 3/- per meter for erecting conduit on stone wall</p> <p>2) In case of G.I. Earth wire, appropriate guage, equivalent to the sq. mm. size shall be used.</p> <p>3) For FRLS wire subtract 2% from overall rate of FRLSH Wire.</p> <p><u>1.6 Mains in PVC Conduit (WG-MA/PC)</u></p>				
1-6-1	Supplying & erecting mains 2x1.5 sq.mm. and earth wire 1.5 sq.mm FR PVC copper wire, ISI mark HMS PVC conduit min. 20mm dia , as per specification No: WG-MA/PC.	m	77	31	108
1-6-2	Supplying & erecting mains with 2x1.5 sq.mm. and earth wire 1.5 sq.mm FRLSH PVC copper wire, in HMS PVC conduit min. 20mm dia as per specification No: WG-MA/PC.	m	79	31	110
1-6-3	Supplying & erecting mains with 2x2.5 sq.mm. and earth wire 1.5 sq.mm FR PVC copper wire, in HMS PVC conduit min. 20mm dia , as per specification No: WG-MA/PC.	m	91	31	122
1-6-4	Supplying & erecting mains with 2x2.5 sq.mm. and earth wire 1.5 sq.mm FRLSH PVC copper wire in HMS PVC conduit min. 20mm dia . as per specification No: WG-MA/PC.	m	97	31	128
1-6-5	Supplying & erecting mains with 2x4 sq.mm. and earth wire 2.5 sq.mm FR PVC copper wire in HMS PVC conduit min. 20mm dia , as per specification No: WG-MA/PC.	m	111	37	148
1-6-6	Supplying & erecting mains with 2x4 sq.mm. and earth wire 2.5 sq.mm FRLSH PVC copper wire in HMS PVC conduit min. 20mm dia , as per specification No: WG-MA/PC.	m	118	37	155
1-6-7	Supplying & erecting mains with 2x6 sq.mm. and earth wire 4 sq.mm FR PVC copper wire, in HMS PVC conduit min. 20mm dia , as per specification No: WG-MA/PC.	m	150	37	187
1-6-8	Supplying & erecting mains with 2x6 sq.mm. and earth wire 4 sq.mm FRLSH PVC copper wire, in HMS PVC conduit min.20mm dia , as per specification No: WG-MA/PC.	m	159	37	196
1-6-9	Supplying & erecting mains with 2x10 sq.mm. and earth wire 6 sqmm FR PVC copper wire, in HMS PVC conduit min. 25 mm dia , as per specification No: WG-MA/PC.	m	235	42	277
1-6-10	Supplying & erecting mains with 2x10 sq.mm. and earth wire 6 sq.mm FRLSH PVC copper wire, in HMS PVC conduit min. 25mm dia , as per specification No: WG-MA/PC.	m	266	42	308
1-6-11	Supplying & erecting mains with 3x4 sq.mm. and earth wire 2.5 sq.mm FR PVC copper wire in HMS PVC conduit min.20mm dia , as per specification No: WG-MA/PC.	m	146	42	188
1-6-12	Supplying & erecting mains with 3x4 sq.mm. and earth wire 2.5 sq.mm FRLSH PVC copper wire, in HMS PVC conduit min.20mm dia , as per specification No: WG-MA/PC.	m	155	42	197
1-6-13	Supplying & erecting mains with 3x6 sq.mm. and earth wire 4 sq.mm FR PVC copper wire, in HMS PVC conduit min. 25mm dia , as per specification No: WG-MA/PC.	m	200	42	242
1-6-14	Supplying & erecting mains with 3x6 sq.mm. and earth wire 4 sq.mm FRLSH PVC copper wire, in HMS PVC conduit min. 25 mm dia , as per specification No: WG-MA/PC.	m	214	42	256
1-6-15	Supplying & erecting mains with 3x10 sq.mm. and earth wire 6 sq.mm FR PVC copper wire, in HMS PVC conduit min. 25mm dia . as per specification No: WG-MA/PC.	m	312	42	354
1-6-16	Supplying & erecting mains with 3x10 sq.mm. and earth wire 6 sq.mm FRLSH PVC copper wire, in HMS PVC conduit min. 25mm dia , as per specification No: WG-MA/PC.	m	383	42	425

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
1-6-17	Supplying & erecting mains with 4x4 sq.mm and earth wire 2.5 sq.mm FR PVC copper wire , in HMS PVC conduit min. 25mm dia , as per specification No: WG-MA/PC .	m	175	47	222
1-6-18	Supplying & erecting mains with 4x4 sq.mm. and earth wire 2.5 sq.mm FRLSH PVC copper wire , in HMS PVC conduit min. 25mm dia , as per specification No: WG-MA/PC .	m	188	47	235
1-6-19	Supplying & erecting mains with 4x6 sq.mm. and earth wire 4 sq.mm FR PVC copper wire , in HMS PVC conduit min. 25mm dia , as per specification No: WG-MA/PC .	m	245	47	292
1-6-20	Supplying & erecting mains with 4x6 sq.mm. and earth wire 4 sq.mm FRLSH PVC copper wire , in HMS PVC conduit min. 25mm dia , as per specification No: WG-MA/PC .	m	266	47	313
1-6-21	Supplying & erecting mains with 4x10 sq.mm. and earth wire 6 sq.mm FR PVC copper wire , in HMS PVC conduit min. 32mm dia , as per specification No: WG-MA/PC .	m	415	47	462
1-6-22	Supplying & erecting mains with 4x10 sq.mm. and earth wire 6 sq.mm FRLSH PVC copper wire , in HMS PVC conduit min. 32mm dia , as per specification No: WG-MA/PC .	m	473	47	520
1-6-23	Supplying & erecting mains with 6x6 sq.mm. and earth wire 4 sq.mm FR PVC copper wire , in HMS PVC conduit min. 32mm dia , as per specification No: WG-MA/PC .	m	359	52	411
1-6-24	Supplying & erecting mains with 6x6 sq.mm. and earth wire 4 sq.mm FRLSH PVC copper wire , in HMS PVC conduit min. 32mm dia , as per specification No: WG-MA/PC .	m	385	52	437

Note:- 1) Add Rs. 3/- per metre for erecting mains in PVC/HG conduit on stone wall.
2) For FRLS wire subtract 2% from overall rate of FRLSH wire.

1.7 Wiring Accessories

1-7-1	Supplying and erecting shockproof 6A ISI mark porcelain base T.Switch / bell push erected on filled polypropylene board or polished double wooden block / 3 mm thick hylam sheet / 4mm thick plywood pasted with 1.5 mm thick laminate with S M screws and duly connected.	Each	15	14	29
1-7-2	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/ 3 mm thick hylam sheet/ 4mm thick plywood pasted with 1.5 mm thick laminate with S M screws and duly connected.	Each	19	14	33
1-7-3	Supplying and erecting shockproof T. switch 16 A porcelain base surface mounting type / flush mounting 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 1.5 mm thick Laminate with S M screws and duly connected.	Each	54	14	68
1-7-4	Supplying and erecting shockproof piano type switch 250 V 16 A , erected on filled polypropylene board or polished double wooden/ folded or screwed board with top of either wooden/ 3 mm thick hylam sheet/ 4mm thick plywood pasted with 1.5 mm thick Laminate with S M screws and duly connected.	Each	48	14	62

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
1-7-5	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 / 3 mm thick hylam sheet/ 4mm thick plywood pasted with 1.5 mm thick Laminate with S M screws and duly connected.	Each	26	9	35
1-7-6	Supplying and erecting shockproof 3 pin plug socket 16A with porcelain base/ flush type erected on filled polypropylene ISI marked (IS:14772-2000) 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 1.5 mm thick Laminate with S M screws and duly connected.	Each	37	9	46
1-7-7	Supplying and erecting Ceiling rose / Batten holder / Slanting holder / hanging cord switch / hanging bell push / pendent holder bakelite base 6A. erected on filled polypropylene board or polished double wooden block/ PVC junction box.	Each	18	14	32
Note:-	Reduce rate by Rs.7.5/-for erecting accessories on provided board / junction box.				
1-7-8	Supplying and erecting adaptor for lamp holder 230 V.A.C. supply.	Each	16	14	30
1-7-9	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 3 mm thickness connected with earth terminals and leads duly concealed	Each	62	12	74
1-7-10	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	66	12	78
1-7-11	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	85	14	99
1-7-12	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 1.5 mm thick sunmica with S M screws and duly connected.	Each	113	15	128
1-7-13	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	138	29	167
1-7-14	Supplying and erecting shockproof bell push on filled polypropylene board or wooden block covered with sunmica with 2 core (TRS type) PVC insulated copper wire of size 0.5 sq mm 5 m length connected to the point.	Each	21	14	35
1-7-15	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	71	29	100
1-7-16	Supplying 6 amp. 3 pin plug Top bakelite type of 230 V. A.C. supply.	Each	33	0	33
1-7-17	Supplying 16 amp. 3 pin plug Top bakelite type of 230 V. A.C. supply.	Each	51	0	51
Note:-	1. If accessories erected on provided board Rs 8/- per accessories shall be deducted for board				

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
	2. The above wiring accessories shall be conforming to IS:14772-2000.				
	<u>1.8 Modular switches and Accessories</u>				
1-8-1	Supplying and erecting ISI mark modular type switch 6A / 10A duly erected on provided plate and box with wiring connections complete.	Each	50	15	65
1-8-2	Supplying and erecting ISI mark modular type switch 16A duly erected on provided plate and box with wiring connections complete.	Each	73	15	88
1-8-3	Supplying and erecting ISI mark modular type bell-push 6A / 10A duly erected on provided plate and box with wiring connections complete.	Each	80	15	95
1-8-4	Supplying and erecting ISI mark modular type bell-push with indicator 2 modules 6A / 10A , duly erected on provided plate and box with wiring connections complete.	Each	101	15	116
1-8-5	Supplying and erecting ISI mark modular type Two way switch 6A / 10A (2 Module) , duly erected on provided plate and box with wiring connections complete.	Each	81	15	96
1-8-6	Supplying and erecting ISI mark modular type switch 16 / 20 A with indicator , duly erected on provided plate and box with wiring connections complete.	Each	111	15	126
1-8-7	Supplying and erecting ISI mark modular type switch one way 16 / 20 A , duly erected on provided plate and box with wiring connections complete with neon indicator .	Each	81	15	96
1-8-8	Supplying and erecting ISI mark modular type D.P. switch 32A with indicator , duly erected on provided plate and box with wiring connections complete.	Each	158	15	173
1-8-9	Supplying and erecting ISI mark modular type 32A, DP key tag switch with KEY TAG , duly erected on provided plate and box with wiring connections complete.	Each	330	15	345
1-8-10	Supplying and erecting ISI mark modular type 3 pin 6A multi sockets with safety shutter , duly erected on provided plate and box with wiring connections complete.	Each	91	15	106
1-8-11	Supplying and erecting ISI mark modular type 3 pin 6 / 16A multi socket with safety shutter , duly erected on provided plate and box with wiring connections complete.	Each	142	15	157
1-8-12	Supplying and erecting ISI mark modular type indicator lamp , duly erected on provided plate and box with wiring connections complete.	Each	45	15	60
1-8-13	Supplying and erecting ISI mark modular type 6 / 16A fuse unit, duly erected on provided plate and box with wiring connections complete.	Each	74	15	89
1-8-14	Supplying and erecting ISI mark modular type T.V. socket single outlet , duly erected on provided plate and box with wiring connections complete.	Each	69	15	84
1-8-15	Supplying and erecting ISI marked modular type telephone socket one gang with safety shutter , duly erected on provided plate and box with wiring connections complete.	Each	69	15	84
1-8-16	Supplying and erecting ISI mark modular type telephone socket two gang with safety shutter , duly erected on provided plate and box with wiring connections complete.	Each	85	15	100
1-8-17	Supplying and erecting ISI mark modular type computer jack RJ 45 with safety shutter, duly erected on provided plate and box with wiring connections complete.	Each	88	15	103
1-8-18	Supplying and erecting ISI mark modular type bell indicator , duly erected on provided plate and box with wiring connections	Each	129	15	144

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
	complete.				
1-8-19	Supplying and erecting ISI mark modular type buzzer 220 / 250V, duly erected on provided plate and box with wiring connections complete.	Each	83	15	98
1-8-20	Supplying and erecting ISI mark modular type (one module) electronic dimmer 400 / 450W , duly erected on provided plate and box with wiring connections complete.	Each	207	18	225
1-8-21	Supplying and erecting ISI mark modular type (two modules) electronic dimmer 600/650W , duly erected on provided plate and box with wiring connections complete.	Each	280	18	298
1-8-22	Supplying and erecting ISI mark modular type (two modules) electronic dimmer 1000W , duly erected on provided plate and box with wiring connections complete.	Each	363	18	381
1-8-23	Supplying and erecting ISI mark modular type (two module) electronic step regulator for fan , duly erected on provided plate and box with wiring connections complete. Note: Add Rs 57/- for additional two module box with double mounting plate if required.	Each	330	18	348
1-8-24	Supplying and erecting ISI mark modular type blanking plate one module , duly erected on provided plate & box.	Each	15	3	18
1-8-25	Supplying and erecting ISI mark modular type blanking plate two module , duly erected on provided plate & box.	Each	20	3	23
1-8-26	Supplying and erecting PVC Surface modular switch box with double mounting plate for 1 module complete duly erected.	Each	93	22	115
1-8-27	Supplying and erecting PVC Surface modular switch box with double mounting plate for 2 modules duly erected.	Each	98	22	120
1-8-28	Supplying and erecting PVC Surface modular switch box with double mounting plate for 3 modules duly erected.	Each	119	22	141
1-8-29	Supplying and erecting PVC Surface modular switch box with double mounting plate for 4 modules duly erected.	Each	136	22	158
1-8-30	Supplying and erecting PVC Surface modular switch box with double mounting plate for 6 modules duly erected.	Each	189	22	211
1-8-31	Supplying and erecting PVC Surface modular switch box with double mounting & front plate for 8 modules complete duly connected.	Each	219	22	241
1-8-32	Supplying and erecting PVC Surface modular switch box with double mounting plate for 12 modules duly erected.	Each	278	32	310
1-8-33	Supplying and erecting PVC Surface modular switch box with double mounting plate for 16 / 18 module duly erected.	Each	312	32	344
1-8-34	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 1 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background..	Each	99	86	185
1-8-35	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 2 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	Each	100	86	186
1-8-36	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 3 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	Each	125	86	211

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
1-8-37	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 4 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	Each	144	86	230
1-8-38	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 6 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	Each	176	100	276
1-8-39	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 8 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	Each	247	100	347
1-8-40	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 12 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	Each	326	115	441
1-8-41	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 16 / 18 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	Each	384	115	499
1-8-42	Supplying and erecting White Footlight with 4 modules concealed modular box and LED lights with cover complete erected on wall / flush to wall with necessary chiselling in wall and finishing with cement and mortar / POP as per required and duly connected.	Each	321	86	407
1-8-43	Supplying and erecting 16 / 20 / 25 A starter (modular range) 2 module for AC unit on provided box complete & duly concealed with necessary material and connected.	Each	333	15	348
1-8-44	Supplying and erecting 6 to 32 A SPMCB suitable to fix in 1 module of modular switch in provided box complete & duly concealed with necessary material and connected.	Each	155	15	170
1-8-45	Supplying and erecting 16 to 32 A DPMCB suitable to fix in 2 module of modular switch in provided box complete & duly concealed with necessary material and connected.	Each	170	15	185
1-8-46	Supplying and erecting PVC Surface modular double mounting plate 1 module complete duly erected.	Each	54	14	68
1-8-47	Supplying and erecting PVC Surface modular double mounting plate 2 modules complete duly erected.	Each	56	14	70
1-8-48	Supplying and erecting PVC Surface modular double mounting plate 3 modules complete duly erected.	Each	63	14	77
1-8-49	Supplying and erecting PVC Surface modular double mounting plate 4 modules complete duly erected.	Each	69	14	83
1-8-50	Supplying and erecting PVC Surface modular double mounting plate 6 modules complete duly erected.	Each	114	14	128
1-8-51	Supplying and erecting PVC Surface modular double mounting plate 8 modules complete duly erected.	Each	137	14	151
1-8-52	Supplying and erecting PVC Surface modular double mounting plate 12 modules complete duly erected.	Each	177	15	192
1-8-53	Supplying and erecting PVC Surface modular double mounting plate 16/18 module complete duly erected.	Each	202	15	217
1-8-54	Supplying and erecting ISI mark modular type 5 pin socket with safety shutters 3 module socket 6A 240V AC supply, duly erected on provided plate and box with wiring connections complete duly erected.	Each	94	29	123

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
1-8-55	Supplying and erecting ISI mark modular safety power strip with one modular switch 16A and three sockets each 13A combination with overload and surge protection unit on double mounting plate, duly erected complete.	Each	1113	34	1147
1-8-56	Supplying and erecting ISI mark 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 duly erected.	Each	103	15	118
1-8-57	Supplying and erecting ISI mark modular type USB Charger socket of 1 Module with nominal output voltage of 5 VDC + 5/- 5% and nominal output current of 5 V - 750 mA , duly erected on provided plate and box with wiring connections complete.	Each	494	22	516
1-8-58 (New)	Supplying and erecting modular pop up Box 8 module erected with provided AV/ HDMI , RJ 45,6 A electrical sockets and switch on provided table .	Each	3697	43	3740
1-8-59	Supplying power strip with one switch 6A and 4 sockets each 6A, 230 V combination with surge and spike protection unit complete.	Each	376	0	376
<u>Point Wiring (PW)</u>					
<u>1.9 Point Wiring (WG-PW)</u>					
1-9-1	Point wiring for light/fan/bell in 20 mm metal conduit with 1.5 sq.mm (2+1E) FR grade copper wire, flush type switch, earthing and required accessories as per specification No: WG-PW/SW	Point	454	226	680
1-9-2	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	458	226	684
1-9-3	Point wiring for independent plug in 20 mm metal conduit with 1.5 sq.mm (2+1E) FR grade copper wire, flush type switch, earthing and required accessories as per specification No: WG-PW/SW	Point	494	253	747
1-9-4	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	500	253	753
1-9-5	Point wiring for light/fan/bell in 20 mm ISI marked HMS PVC conduit with 1.5 sq.mm (2+1E) FR grade copper wire, flush type switch, earthing and required accessories as per specification No: WG-PW/SW	Point	216	174	390
1-9-6	Point wiring for light/fan/bell in 20 mm ISI marked 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	224	174	398
1-9-7	Point wiring for independent plug in 20 mm ISI marked HMS PVC conduit with 1.5 sq.mm (2+1E) FR grade copper wire, flush type switch, earthing and required accessories as per specification No: WG-PW/SW	Point	240	200	440
1-9-8	Point wiring for independent plug in 20 mm ISI marked 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	251	200	451
1-9-9	Point wiring for light/fan/bell concealed type in min 20 mm ISI marked HMS PVC conduit with 1.5 sq.mm. (2+1E) FR grade copper wires, modular type switch, earthing and required accessories as per specification No: WG-PW/CW	Point	335	243	578

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
1-9-10	Supplying and drawing of 2x1.5 sq.mm. FR grade copper wires with 1.5 sq.mm earth wire in provided concealed pipes for concealed type light/fan/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	207	151	358
1-9-11	Point wiring for independent plug, concealed type in min 20 mm ISI marked HMS PVC conduit with 1.5 sq.mm (2+1E) FR grade copper wires, modular type switch and socket, earthing and required accessories as per specification No WG-PW/SW	Point	385	243	628
1-9-12	Supplying and drawing of 2x1.5 sq.mm. FR 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	273	151	424
1-9-13	Wiring for plug on board with Switch socket, copper wiring and earthing as per specification No: WG-PW/SW	Point	69	26	95
1-9-14	Wiring for plug on board with Switch socket concealed type, copper wiring and earthing and with modular accessories as per specification No: WG-PW/CW	Point	284	157	441
1-9-15	Point wiring for light/fan/bell hybrid type (Surface type under false ceiling and concealed type for drops & switch boards on walls) in min 20 mm PVC conduit / casing n capping with 1.5 sq.mm. (2+1E) FR grade copper wires, modular type switch, earthing and required accessories as per specification No: WG-PW/HW	Point	244	200	444
1-9-16	Point wiring in PVC trunking (casing-capping) with 1.5 sq.mm (2+1E) FR grade copper wire, flush type switch, earthing and required accessories as per specification No: WG-PW/SW	Point	197	87	284
1-9-17	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	205	87	292
1-9-18	Point wiring for independent plug in PVC trunking (casing-capping) with 1.5 sq.mm (2+1E) FR grade copper wire with flush type switch and required accessories as per specification No: WG-PW/SW	Point	224	113	337
1-9-19	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	234	113	347
1-9-20	Concealing of provided M.S./ PVC switch box in wall with finishing as per specification No: WG-PW/CW	Each	18	34	52
1-9-21	Refilling the holes for dismantled point wiring with cement mortar & finishing.	Point	18	11	29
1-9-22	Secondary point wiring for additional light/ bell point, concealed type in min 20 mm PVC conduit with 1.5 sq.mm. (2+1E) FR/FRLSH grade copper wires with required accessories as per specification No: WG-PW/CW	Point	110	52	162
1-9-23	Secondary point wiring for additional light/ bell point in PVC trunking (casing-capping) with 1.5 sq.mm (2+1E) FR / FRLSH grade copper wire with required accessories as per specification No: WG-PW/SW	Point	106	52	158
1-9-24	Secondary point wiring for additional light/ bell point in min 20 mm metal conduit with 1.5 sq.mm (2+1E) FR/FRLSH grade copper wire with required accessories as per specification No: WG-PW/SW	Point	226	52	278

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
1-9-25 (New)	Point wiring in PVC trunking (casing-capping) with 1.5 sq.mm (2+1E) FR grade copper wire, modular type switch, earthing and required accessories as per specification No: WG-PW/SW	Point	346	87	433
1-9-26 (New)	Point wiring 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	350	87	437
1-9-27 (New)	Point wiring for independent plug in PVC trunking (casing-capping) with 1.5 sq.mm (2+1E) FR grade copper wire, modular type switch, earthing and required accessories as per specification No: WG-PW/SW	Point	472	113	585
1-9-28 (New)	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	479	113	592
1-9-29 (New)	Point wiring in ISI mark HMS PVC conduit with 1.5 sq.mm (2+1E) FR grade copper wire, modular type switch, earthing and required accessories as per specification No: WG-PW/SW	Point	439	174	613
1-9-30 (New)	Point wiring in ISI mark HMS PVC conduit with 1.5 sq.mm (2+1E) FR grade copper wire, modular type switch, earthing and required accessories as per specification No: WG-PW/SW	Point	444	174	618
1-9-31 (New)	Point wiring for independent plug in ISI mark HMS PVC conduit with 1.5 sq.mm (2+1E)FR grade copper wire, modular type switch, earthing and required accessories as per specification No: WG-PW/SW	Point	583	200	783
1-9-32 (New)	Point wiring for independent plug in ISI mark HMS PVC conduit with 1.5 sq.mm (2+1E)FR LSH grade copper wire, modular type switch, earthing and required accessories as per specification No: WG-PW/SW	Point	595	200	795
Note:-	1) For point wiring above 6 meters of length, add 10 % of overall rate of point wiring for every additional 1 meter length or part thereof. 2)Point wiring starts from Main board/Intermediate switch board and suitable circuit mains are to be provided from D.B. to first board and between boards. 3) For point wiring in stair case with 2 way control point increase overall rate by 50 % of point wiring. 4) For wiring on stone wall add Rs 15.00 per point wiring. 5) For covering at wall entries acrylic sheet of appropriate size shall be provided. (Refer Item No. 6-1-9) 6) For concealed type wiring multistrand wires shall be used preferably. 7) Earth Wire of minimum 1.5 sq mm Shall be terminated in each point				
New	8) For point wiring in FRLS wire subtract 2% from overall rate of Point wiring with FRLSH Wire				
<u>1.10 Telephone, Audio and Video Wiring (WG-TW/TW)</u>					
1-10-1	Supplying & erecting telephone copper cable 2 pair with 0.5 mm dia. laid in provided PVC casing capping/ conduit as per specification No. WG-TW	m	12	9	21
1-10-2	Supplying & erecting telephone copper cable 3 pair with 0.5 mm dia. laid in provided PVC casing capping / conduit as per specification No. WG-TW	m	17	9	26

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
1-10-3	Supplying & erecting telephone copper cable 4 pair with 0.5 mm dia. laid in provided PVC casing capping / conduit as per specification No. WG-TW	m	22	10	32
1-10-4	Supplying & erecting telephone copper cable 5 pair with 0.5 mm dia. laid in provided PVC casing capping / conduit as per specification No. WG-TW	m	28	13	41
1-10-5	Supplying & erecting telephone copper cable 10 pair with 0.5 mm dia. laid in provided PVC casing capping / conduit as per specification No. WG-TW	m	56	13	69
1-10-6	Supplying & erecting telephone copper cable 20 pair with 0.5 mm dia. laid in provided PVC casing capping / conduit as per specification No. WG-TW	m	110	13	123
1-10-7	Supplying & erecting telephone copper cable 50 pair with 0.5 mm dia. laid in provided PVC casing capping / conduit as per specification No. WG-TW	m	273	26	299
1-10-8	Supplying & erecting telephone copper cable 100 pair with 0.5 mm dia. laid in provided PVC casing capping / conduit as per specification No. WG-TW	m	530	39	569
1-10-9	Supplying & erecting jelly filled unarmoured telephone copper cable 10 pair with 0.5 mm dia. laid in provided PVC casing capping / conduit as per specification No. WG-TW	m	75	26	101
1-10-10	Supplying & erecting jelly filled unarmoured telephone copper cable 20 pair with 0.5 mm dia. laid in provided PVC casing capping / conduit as per specification No. WG-TW	m	134	26	160
1-10-11	Supplying & erecting jelly filled unarmoured telephone copper cable 50 pair with 0.5 mm dia. laid in provided PVC casing capping / conduit as per specification No. WG-TW	m	316	39	355
1-10-12	Supplying & erecting jelly filled unarmoured telephone cable 100 pair with 0.5 mm dia. laid in provided PVC casing capping/ conduit as per specification No. WG-TW	m	400	39	439
1-10-13	Supplying & erecting jelly filled armoured telephone copper cable 10 pair with 0.5 mm dia. laid in provided trench as per specification No. WG-TW	m	106	26	132
1-10-14	Supplying & erecting jelly filled armoured telephone copper cable 20 pair with 0.5 mm dia. laid in provided trench as per specification No. WG-TW	m	152	26	178
1-10-15	Supplying & erecting jelly filled armoured telephone copper cable 50 pair with 0.5 mm dia. laid in provided trench as per specification No. WG-TW	m	342	39	381
1-10-16	Supplying & erecting jelly filled armoured telephone copper cable 100 pair with 0.5 mm dia. laid in provided trench as per specification No. WG-TW	m	608	39	647
1-10-17	Supplying & erecting copper jumper wire with 0.5 mm dia as per specification No. WG-TW	m	14	5	19
1-10-18	Supplying & installing co-axial copper cable low voltage grade RG-11 as per specification No. WG-TW	m	50	13	63
1-10-19 (New)	Supplying & installing co-axial copper cable low voltage grade RG-6 as per specification No. WG-TW	m	44	13	57
1-10-20 (New)	Supplying erecting VGA cable to be laid in Provided conduits and Terminating as per specifications having 15mtr cord length with male/female VGA connectors as per requirements complete.	Each	2226	112	2338

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
1-10-21 (New)	Supplying & installing HDMI cable low voltage grade as per specification as per specifications having 3 mtr cord length with male/female 19pin HDMI connectors as per requirements complete.	Each	1036	38	1074
1-10-22 (New)	Supplying & installing HDMI cable low voltage grade as per specification as per specifications having 5 mtr cord length with male/female 19pin HDMI connectors as per requirements complete.	Each	1719	212	1931
1-10-23 (New)	Supplying & installing HDMI cable low voltage grade as per specification as per specifications having 10 mtr cord length with male/female 19pin HDMI connectors as per requirements complete.	Each	3595	212	3807
1-10-24 (New)	Supplying & installing HDMI cable low voltage grade as per specification as per specifications having 15 mtr cord length with male/female 19pin HDMI connectors as per requirements complete.	Each	4240	424	4664
1-10-25 (New)	Supplying & installing HDMI cable low voltage grade as per specification as per specifications having 20 mtr cord length with male/female 19pin HDMI connectors as per requirements complete.	Each	5549	424	5973
1-10-26 (New)	Supplying & installing HDMI cable low voltage grade as per specification as per specifications having 25 mtr cord length with male/female 19pin HDMI connectors as per requirements complete.	Each	8383	424	8807
1-10-27 (New)	Supplying & installing Audio Video cable low voltage grade as per specification having 15mtr cord length with required connectors 3RCA X 3RCA CABLE complete.	Each	2991	106	3097
1-10-28 (New)	Supplying & erecting HDMI extender over RJ45 Ethernet Cable Cat5e/6/7 60M 200ft complete.	Each	4688	480	5168
1-10-29 (New)	Supply Installation Testing & commissioning of DVI to High-speed Category 2 HDMI Convertors 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. The Convertor should be RoHS compliant complete.	Each	5908	638	6546
1-10-30 (New)	Supply, installation, testing and commissioning of DC 12V power supply.	Each	934	38	972
1-10-31 (New)	Supply, installation, testing and commissioning of DC 24V power supply.	Each	3517	212	3729
Notes:- RG stands for Radio Grade. VGA stands for Video Graphics Array. HDMI stands for High Definition Multimedia Interface. RJ stands for Registered jack. DVI stands for Digital Visual Interface. RoHS stands for Restriction of Hazardous Substances.					
<u>1.11 Telephone Accessories (WG-TW/TA)</u>					
1-11-1	Supplying, erecting & commissioning Main Distribution Frame (MDF) Box 50x50 pairs as per specification No. WG-TW	Each	1896	39	1935

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
1-11-2	Supplying, erecting & commissioning MDF Box 60 x 60 pairs as per specification No. WG-TW	Each	2041	39	2080
1-11-3	Supplying, erecting & commissioning MDF Box 100 x 100 pairs as per specification No. WG-TW	Each	3124	39	3163
1-11-4	Supplying, erecting & commissioning MDF Box 150 x 150 pairs as per specification No. WG-TW	Each	4366	79	4445
1-11-5	Supplying, erecting & commissioning MDF Box 200 x 200 pairs as per specification No. WG-TW	Each	6407	79	6486
1-11-6	Supplying, erecting & commissioning MDF Box 250 x 250 pairs as per specification No. WG-TW	Each	8135	79	8214
1-11-7	Supplying, erecting & commissioning MDF Box 300 x 300 pairs as per specification No. WG-TW	Each	9241	131	9372
1-11-8	Supplying, erecting & commissioning MDF Box 400 x 400 pairs as per specification No. WG-TW	Each	12593	184	12777
1-11-9	Supplying, erecting & commissioning MDF Box 500 x 500 pairs as per specification No. WG-TW	Each	15147	236	15383
1-11-10	Supplying, erecting & commissioning MDF Box 600 x 600 pairs as per specification No. WG-TW	Each	18029	341	18370
1-11-11	Supplying, erecting & commissioning MDF Box 800 x 800 pairs as per specification No. WG-TW	Each	23153	472	23625
1-11-12	Supplying, erecting & commissioning junction box suitable for 10 pairs as per specification No. WG-TW	Each	572	45	617
1-11-13	Supplying, erecting & commissioning junction box suitable for 20 pairs as per specification No. WG-TW	Each	695	45	740
1-11-14	Supplying, erecting & commissioning junction box suitable for 30 pairs as per specification No. WG-TW	Each	940	45	985
1-11-15	Supplying, erecting & commissioning junction box suitable for 40 pairs as per specification No. WG-TW	Each	1028	45	1073
1-11-16	Supplying, erecting & commissioning junction box suitable for 50 pairs as per specification No. WG-TW	Each	1215	118	1333
1-11-17	Supplying, erecting & commissioning junction box suitable for 60 pairs as per specification No. WG-TW	Each	1294	118	1412
1-11-18	Supplying, erecting & commissioning junction box suitable for 100 pairs as per specification No. WG-TW	Each	1919	118	2037
1-11-19	Supplying, erecting & commissioning junction box suitable for 150 pairs as per specification No. WG-TW	Each	2421	118	2539
1-11-20	Supplying, erecting & commissioning 10 pair module for connection & disconnection of telephone cable as per specification No. WG-TW	Each	275	52	327
1-11-21	Supplying & erecting over voltage protection magazine suitable for 10 pair as per specification No. WG-TW	Each	302	39	341
1-11-22	Supplying & erecting rosette box RJ type Bakelite box on wall with LED indication duly connected as per specification No. WG-TW	Each	80	18	98
1-11-23	Supplying and erecting broadband splitter unit with 1 input & 2 output RJ 11 female connectors complete.	Each	202	45	247
1-11-24	Supplying, installing, testing & commissioning analogue type EPABX of 3 x 8 extensions complete.	Job	11432	2361	13793
1-11-25	Supplying, installing, testing & commissioning analogue type EPABX of 3 x 8 extensions complete with CLI and Voice DISA (Direct inward station access) as per specification No. WG-TW .	Job	12779	2361	15140
1-11-26	Supplying, installing, testing & commissioning digital (hybrid) type EPABX of 3 x 8 extensions complete.	Job	18185	2361	20546

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
1-11-27	Supplying, installing, testing & commissioning digital (hybrid) type EPABX of 6 x 16 extensions complete.	Job	36989	2361	39350
1-11-28	Supplying and installing, testing & commissioning of digital (hybrid) type EPABX of 6 x 24 extensions suitable upto 96 extensions complete.	Job	51059	2361	53420
1-11-29	Supplying, installing, testing & commissioning internet protocol digital type EPABX for 10 IP extensions complete.	Job	23081	2886	25967
1-11-30	Supplying, installing, testing & commissioning push button telephone instrument desk top/wall mount unit as per specification complete	Each	627	84	711
1-11-31	Supplying, installing, testing & commissioning push button telephone instrument desk top/wall mount with caller ID unit as per specification complete.	Each	819	84	903
1-11-32	Supplying, installing, testing & commissioning approved type Digital key telephone / IP telephone instrument as per specification complete.	Each	5763	521	6284
1-11-33 (New)	Supplying, Installation, Testing & Commissioning analogue type basic plan 1+1 twin instrument telephone set without display complete.	Each	3131	498	3629
1-11-34 (New)	Supplying, Installation, Testing & Commissioning plan analogue type plan 1+1 twin instrument telephone set with speaker phone and display complete.	Each	4342	498	4840
1-11-35 (New)	Supplying & installing 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	37150	636	37786
Note:- 1) Add Rs. 31576 /= for additional 16 extension card. 2) Add Rs. 17089/= for additional 8 extension card. 3) Add Rs. 18510/= for additional 8 trunks lines card. 4) Minimum one digital key telephone instrument is essential for commissioning digital type EPABX 5) EPABX stands for Electronic Private Automatic Branch Exchange.					
<u>1.12 Computer Cabling (WG-COC)</u>					
1-12-1	Supplying & installing UTP networking cat-6 cable suitable for LAN / WAN Computer net-working as per specification No. WG-COC/NC	m	30	12	42
1-12-2	Supplying and fixing cat-6 LSZH cable suitable for LAN / WAN as per specification complete	m	38	12	50
1-12-3	Supplying & installing UTP networking cat-6+ cable suitable for LAN / WAN Computer net-working as per specification no. WG-COC/NC complete.	m	55	12	67
1-12-4	Supplying and fixing cat-6A LSZH cable suitable for LAN / WAN as per specification complete.	m	59	12	71
1-12-5	Supplying and fixing cat-6 STP cable suitable for LAN / WAN as per specification complete.	m	75	12	87
1-12-6 (New)	Supplying & installing UTP networking cat-6 cable with rodent proof jacket suitable for LAN / WAN Computer net-working as per specification No. WG-COC/NC	m	113	26	139

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
1-12-7 (New)	Supplying & installing UTP networking cat-6 armoured cable suitable for LAN / WAN Computer net-working as per specification No. WG-COC/NC	m	90	24	114
1-12-8	Supplying and fixing 1 meter length, UTP patch cord of Cat 6 type in position as per specification No. WG-COC/PC	Each	193	19	212
1-12-9	Supplying and fixing 3 meter length, UTP patch cord of Cat 6 type in position as per specification No. WG-COC/PC	Each	275	19	294
1-12-10	Supplying and erecting FR grade, pvc armoured multimode armoured multimode optical fibre cable with 6 fibres , with core dia 50/125 μ m (OM3) suitable for 1 gbps ethernet distance at 850 nm of wavelength, on wall/ceiling or laid in provided pipe/trench as per specification No. WG-COC/OFC LSZH	m	127	62	189
1-12-11	Supplying and erecting LSZH armoured multimode optical fibre cable with 12 fibres , with core dia 50/125 μ m (OM3), suitable for 1 gbps ethernet distance at 850 nm of wavelength, on wall/ceiling or laid in provided pipe/trench as per specification No. WG-COC/OFC	m	216	62	278
1-12-12	Supplying and erecting LSZH armoured multimode optical fibre cable with 24 fibres , with core dia 50/125 μ m (OM3), suitable for 1 gbps ethernet distance at 850 nm of wavelength, on wall/ceiling or laid in provided pipe/trench as per specification No. WG-COC/OFC	m	349	62	411
1-12-13	Supplying and erecting LSZH armoured multimode optical fibre cable with 6 fibres , with core dia 50/125 μ m (OM4) suitable for 1 gbps ethernet distance at 850 nm of wavelength, on wall/ceiling or laid in provided pipe/trench as per specification No. WG-COC/OFC	m	994	62	1056
1-12-14	Supplying and erecting LSZH armoured multimode optical fibre cable with 12 fibres , with core dia 50/125 μ m (OM4) suitable for 1 gbps ethernet distance at 850 nm of wavelength, on wall/ceiling or laid in provided pipe/trench as per specification No. WG-COC/OFC	m	1692	62	1754
1-12-15	Supplying and erecting LSZH armoured multimode Optical Fibre Cable with 24 fibres , with core dia 50/125 μ m (OM4) suitable for 1 gbps ethernet distance at 850 nm of wavelength, on wall/ceiling or laid in provided pipe/trench as per specification No. WG-COC/OFC	m	2922	74	2996
1-12-16	Supplying and plugging FRLS duplex 3 meter length, Fibre Patch cord LC-SC MM (50) OM3 LSZH duplex complete as per specification No. WG-COC/FPC	Each	2233	81	2314
1-12-17	Supplying and plugging FRLS duplex 3 meter length, Fibre Patch cord LC-SC MM (50) OM4 LSZH duplex complete as per specification No. WG-COC/FPC	Each	2568	81	2649
1-12-18	Supplying and plugging FRLS duplex 3 meter length, fibre Patch cord LC-LC MM(50) OM3 LSZH duplex complete as per specification No. WG-COC/FPC	Each	2709	81	2790
1-12-19	Supplying and plugging FRLS duplex 3 meter length, fibre patch cord LC-LC MM(50) OM4 LSZH duplex complete as per specification No. WG-COC/FPC	Each	4029	81	4110
1-12-20	Supplying and fixing 2 meter length, UTP patch cord of cat 6 type in position as per specification No. WG-COC/PC	Each	233	19	252

Note:- **Cat-6** stands for Category-6 cable.
LSZH stands for Low Smoke Zero Halogen.

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
	<p>UTP stands for Unshielded twisted pair.</p> <p>FRLS stands for Flame Retardant Low Smoke.</p> <p>LAN stands for Local Area Network.</p> <p>WAN stands for Wide Area Network.</p> <p><u>1.13 Networking Components (WG- NWC)</u></p>				
1-13-1	Supplying, fixing, and configuring web smart power over ethernet switch of 24 ports on provided rack or as directed as per specification No. WG-NWC/ENS	Each	43708	1881	45589
1-13-2	Supplying, fixing, and configuring Managed L2 Power over Ethernet Switch of 20 Ports + 4G Combo Port as per specification complete.	Each	103632	4371	108003
1-13-3	Supplying, fixing, and configuring 589Watt redundant power Supply system as per specification complete.	Each	74991	2423	77414
1-13-4	Supplying, fixing, and configuring ethernet managed ethernet switch of 24 ports with 2 SFP + 2 combo port and web view/CLI on provided rack or as directed as per specification no. WG-NWC/GBS	Each	26301	2423	28724
1-13-5	Supplying, fixing, and configuring GB managed ethernet layer 2 switch of 20 Ports + 4 SFP combo and web View/CLI as per specification complete.	Each	51601	2423	54024
1-13-6	Supplying, fixing, and configuring 10G base -SR SFP plus MM transceiver as per specification complete.	Each	38993	2423	41416
1-13-7	Supplying, fixing, and configuring layer 3/ 20 10/100/1000 base-T ports + 4 combo 10/100/1000Base-T/SFP ports + 4 10GE SFP+ ports - SI Image as per specification complete.	Each	227581	10920	238501
1-13-8	Supplying, fixing, and configuring 10G Base -SR SFP plus MM transceiver as per specification complete.	Each	42265	4810	47075
1-13-9	Supplying, fixing, and configuring 1-port mini-GBIC SX mutli-mode fibre transceiver (up to 550m, support 3.3V power) as per specification complete.	Each	10555	149	10704
1-13-10	Supplying, fixing, and configuring broadband ADSL router with all accessories, on provided rack or as directed as per specification No. WG-NWC/ADSL	Each	3558	600	4158
1-13-11	Supplying, fixing, and configuring modularised multi-service router as per specification complete.	Each	143677	6933	150610
1-13-12	Supplying, fixing, and configuring dual-path serial card as per specification complete.	Each	31812	2620	34432
1-13-13	Supplying, fixing, and configuring DB-60 (male) to 2 x DB-34 (male) for V.35 DTE as per specification complete.	Each	3000	60	3060
Notes:-	<p>CLI stands for Command Language Interpreter.</p> <p>SFP stands for Small Form-factor Pluggable.</p> <p>GBIC stands for Gigabit Interface Converter.</p> <p>ADSL sands for Asymmetric digital subscriber line.</p> <p><u>1.14 Networking Accessories (WG-NAS)</u></p>				
1-14-1	Supplying, installing & testing UTP connector (RJ-45) as per specification No. WG-NAS/UTPC.	Each	34	48	82
1-14-2	Supplying and fixing tool-less Information Outlet (Ethernet) flush/surface type in provided modular box as per specification no. WG-NAS/IO	Each	360	60	420
1-14-3	Supplying and fixing tool-less shutter keystone jack (RJ-45) in provided Patch Panel complete as per specification no. WG-NAS/KJ	Each	47	48	95

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
1-14-4	Supplying and fixing 24 port patch panel with tool-less keystone jacks in provided U Rack complete as per specification no. WG-NAS/PP	Each	9168	809	9977
1-14-5	Supplying and fixing rack mounted type 12 Ports, light guide unloaded interconnect unit with adapter panel for termination of optical fibre cables on wall/ provided U rack complete as per specification no. WG-NAS/ LIU	Each	3092	781	3873
1-14-6	Supplying and fixing wall mount 12 Ports, light guide unloaded interconnect unit with adapter panel as per specification complete.	Each	3128	871	3999
1-14-7	Supplying and fixing 1 x 6 duplex adapter panel - SC as per specification complete.	Each	138	132	270
1-14-8	Supplying and fixing rack type 24 ports, light guide interconnect unit with adapter panel for termination of optical fibre cables on wall/ provided U rack complete as per specification no. WG-NAS/ LIU	Each	3207	915	4122
1-14-9	Supplying and fixing wall mount 24 ports, light guide interconnect unit with adapter panel as per specification complete	Each	3715	795	4510
1-14-10	Supplying and fixing 1 x 12 duplex adapter panel - SC as per specification complete	Each	213	83	296
1-14-11	Supplying and fixing SC/LC type multimode duplex adapter to couple two connectors between OFC & Fibre switch/Fibre module as per specification no. WG-NAS/MMA	Each	410	83	493
1-14-12	Supplying and fixing SC/LC type Multimode Duplex Adapter as per specification complete	Each	417	83	500
1-14-13	Supplying and fixing SC/LC type Multimode Pigtails (OM3) for LIU to terminate OFC in LIU as per specification No. WG-NAS/LIU2	Each	363	251	614
1-14-14	Supplying and fixing SC/LC type multimode pigtails (OM3) as per specification complete.	Each	436	265	701
1-14-15	Supplying and fixing SC/LC type multimode pigtails (OM4) as per specification complete.	Each	761	345	1106
1-14-16	Supplying and fixing power over ethernet adaptor to provide DC supply to Ethernet devices as per specification No. WG-NAS/PEA	Each	3623	144	3767
1-14-17	Supplying and fixing 36 U rack for networking with necessary arrangement for fixing required 16A/6A switches & plugs for LAN network as per specification No. WG-NAS/RAK	Each	4227	1067	5294
1-14-18	Supplying and fixing 6U wall mount rack (Dimension-DxWxH – 450x550x367 mm) as per specification No. WG-NAS/RAK	Each	5183	1067	6250
1-14-19	Supplying and fixing 9U wall mount rack (Dimension-DxWxH – 450x550x500 mm) as per specification No. WG-NAS/RAK	Each	6449	1067	7516
1-14-20	Supplying and fixing 12U wall mount rack (Dimension-DxWxH – 450x550x635 mm) as per specification No. WG-NAS/RAK	Each	7296	1067	8363
1-14-21	Supplying and fixing 15U wall mount rack (Dimension-DxWxH – 450x550x767 mm) as per specification No. WG-NAS/RAK	Each	8470	1067	9537
1-14-22 (New)	Supplying and fixing 17U floor mount rack (Dimension-DxWxH – 800x600x954mm) as per specification No. WG-NAS/RAK	Each	31151	1067	32218
1-14-23 (New)	Supplying and fixing 22 U floor mount rack (Dimension-DxW – 800x600x 1176mm) as per specification No. WG-NAS/RAK	Each	35040	1067	36107
1-14-24 (New)	Supplying and fixing 24 4 U floor mount rack (Dimension-DxW – 800x600x1265 mm) as per specification No. WG-NAS/RAK	Each	40850	1067	41917
1-14-25 (New)	Supplying and fixing 27 4 U floor mount rack (Dimension-DxW – 800X600x 1398mm) as per specification No. WG-NAS/RAK	Each	45255	1067	46322

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
1-14-26 (New)	Supplying and fixing 32 4U floor mount server Rack (Dimension-DxW - 800X1000 x1620mm) as per specification No. WG-NAS/RAK	Each	57223	1067	58290
1-14-27 (New)	Supplying and fixing 42 U floor mount server Rack (Dimension-DxW – 800x1000 x2070mm) as per specification No. WG-NAS/RAK	Each	73898	1067	74965
1-14-28 (New)	Supplying and fixing 6 U IP66 outdoor mount server rack with pole mount bracket (Dimension-DxW - 450X550 mm) as per specification No. WG-NAS/RAK	Each	24586	1016	25602
1-14-29 (New)	Supplying and fixing 9U IP66 outdoor mount server rack with pole mount bracket (Dimension- DxW - 450X550 mm) as per specification No. WG-NAS/RAK	Each	30036	1067	31103
1-14-30	Supplying and fixing 36U floor mount rack (Dimension-DxWxH – 800x600x1600 mm) as per specification No. WG-NAS/RAK	Each	46866	1067	47933
1-14-31	Supplying and fixing 42U floor mount rack (Dimension-DxWxH – 800x600x1866 mm) as per specification No. WG-NAS/RAK	Each	61432	1067	62499
1-14-32	Supplying and fixing wireless n 150 desktop adapter in provided computer as per specification No. WG-NAS/LANC2	Each	1139	83	1222
1-14-33	Supplying and fixing manageable wireless dual-band 802.11 n/ac unified wireless access point in WLAN network as per specification no. WG-NAS/LAP1	Each	18999	1325	20324
1-14-34	Supplying and fixing 11n 2.4 GHz single band PoE Standalone/Software based access point as per specification complete.	Each	21905	1325	23230
1-14-35	Supplying and fixing high performance manageable wireless ac unified concurrent dual-band access point w PoE in WLAN network as per specification no. WG-NAS/LAP2	Each	24736	1325	26061
1-14-36	Supplying and fixing 11AC dual-band PoE standalone/software based access point as per specification complete.	Each	29380	1325	30705
1-14-37	Supplying and fixing 4x10/100/1000 mbps RJ-45 ports +4x100/1000 mbps SFP combo ports controller as per specification complete.	Each	121702	10210	131912
1-14-38	Supplying, installing and activating physical license pack software for supporting 32 additional APs on DWS-2000 complete.	Each	32166	0	32166
1-14-39	Supplying, installing and activating physical license pack software for supporting 64 additional APs on DWS-2000 complete.	Each	46562	0	46562
1-14-40	Supplying, fixing, and configuring 8-ports 10/100/1000Mbps unmanaged gigabit PoE Switch complete.	Each	15359	187	15546
1-14-41	Supplying, fixing, and configuring 8-ports managed gigabit switches layer-2 , 10/100/1000 base-T PoE smart switch plus 2 SFP only complete.	Each	21861	187	22048
1-14-42	Supplying, fixing, and configuring 20 SFP ports + 4 Combo SFP/10/100/1000Base-T complete.	Each	178667	3959	182626
1-14-43	Supplying, fixing, and configuring 48 ports managed gigabit switches layer-2 48 10/100/1000Base-T ports L2+ Management Switch with 4 10GE SFP+ ports complete.	Each	171192	562	171754
1-14-44	Supplying, fixing, and configuring managed gigabit switches 48 Ports 10/100/1000Mbps + 4 SFP Ports complete.	Each	57855	566	58421
1-14-45	Supplying, fixing, and configuring media convertor 1000Base-T to 1000 base-SX SC multi-mode media converter (550m) complete.	Each	11588	566	12154

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
1-14-46	Supplying & installing UTP networking cat 7 cable , 4 pair 23 AWG cat6A LSZH LAN cable , standards like ANSI/TIA 568 C.2, EN50173, IEC 11801 2nd ED, 600Mhz Speed frequency tested upto 700Mhz with third party certificate etc complete.	m	114	12	126
1-14-47	Supplying & installing single mode OS1/OS2 - armoured - 6 core OS1/OS2 armoured single mode optical fibre of size 50/125µm. 10/40 gbps speed in provided underground HDPE pipe complete.	m	65	26	91
1-14-48	Supplying & installing single mode OS1/OS2 - armoured - 12 core OS1/OS2 armoured single mode optical fibre of size 50/125µm. 10/40 gbps speed in provided underground HDPE pipe complete.	m	78	26	104
1-14-49	Supplying & installing single mode fibre patch cord 3 m – duplex complete.	Each	2083	26	2109
1-14-50	Supplying & installing single mode fibre adapter with plate - 6 port complete.	Each	3803	26	3829
1-14-51	Supplying & installing single mode simplex pigtail complete.	Each	607	26	633
1-14-52 (New)	Supplying and fixing IP66 enclosure for fibre splicing as per specification complete.	Each	7094	606	7700

Note:- OM stands for Optical Mode.

IP stands for Ingress Protection.

PoE stands for Power over Ethernet.

APs stands for Access Points.

AWG stands for American Wire Gauge.

OS stands for Optical Singlemode.

1.15 Dismantling (WG-DM)

1-15-1	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	-2	9	7
1-15-2	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	-1	6	5
1-15-3	Dismantling the existing aluminium /copper mains, sub-mains wiring upto 10 sq.mm. along with accessories etc complete as per specification No: WG-DM/PW	m	-2	5	3

Note:- Dismantled material of point wiring / circuit mains/ sub-mains / telephone / LAN / WAN / TV wires / cables shall be retained by contractor.

Above items are conforming to relevant IS as mentioned below

IS 9537 (Part 1) :1980- Conduits for electrical installations-Part1 General requirements.

IS 9537 (Part 2) :1981 - Specification for conduits for electrical Installation Part-II Rigid Steel Conduit.

IS 9537 (Part-3) :1983- Specification for conduits for electrical installations Rigid plain conduit of insulating material

IS 14927 :2001 -Cable Trunking and ducting systems for electrical installations

IS 694 :2010 -PVC insulated cables for voltage upto including 1100 V

IS 3854 :1997 - Switches for Domestic and similar purposes - specification.

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
	IS 1293 :2005 - Plug and socket outlets of rated voltage upto and including 250 volt and rated upto and including 16 Amperes-Specification.				
	IS 371: 1999 - Ceiling Rose-Specification				
	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 732 :1989 - Code of practice for electrical wiring installations				
	IS 4648:1968 - Guide for electrical layout in residential building				
	IS 2532 :1965 -Hard-drawn copper wire for telegraph and telephone purposes.				

Chapter: 2

Fittings (FG)

2.1	Indoor Fittings	(FG-IDF/LED)
2.2	Decorative indoor fittings	(FG-IDF)
2.3	General indoor fittings	(FG-IDF)
2.4	Accessories for indoor fittings	(FG-AS)
2.5	Outdoor fittings	(FG-ODF/LED)
2.6	Decorative outdoor fitting	(FG-ODF)
2.7	Highbay LED fittings	(FG-ODF/LED)
2.8	Street/flood light fittings	(FG-ODF)
2.9	Accessories for outdoor fittings	(FG-AS)
2.10	Lamps and Tubes for Indoor & Outdoor	(FG-LP)
2.11	Aviation light fitting	
2.12	Fans	(FG-FN)
2.13	Accessories for fan	(FG-FN)
2.14	Dismantling	

Chapter: 2 Fittings (FG)

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
<u>2.1 Indoor Fittings (FG-IDF/LED)</u>					
2-1-1	Supplying & erecting decorative pre-wired box type fitting/batten suitable for 4 feet, T8 LED tube light (excluding tube light).	Each	223	39	262
2-1-2	Supplying and erecting LED square / circular 5 to 8W down lighter having pressure die-cast aluminium housing, opal translucent cover, mounting arrangement with board for surface type or spring loaded mounting clips for flush type complete.	Each	576	79	655
2-1-3	Supplying and erecting LED square / circular 9 to 12W down lighter having pressure die-cast aluminium housing, opal translucent cover, mounting arrangement with board for surface type or spring loaded mounting clips for flush type complete.	Each	660	79	739
2-1-4	Supplying and erecting LED square / circular 13 to 15W down lighter having pressure die-cast aluminum housing, opal translucent cover, mounting arrangement with board for surface type or spring loaded mounting clips for flush type complete.	Each	1106	79	1185
2-1-5	Supplying and erecting LED square / circular 16 to 20W down lighter having pressure die-cast aluminium housing, opal translucent cover, mounting arrangement with board for surface type or spring loaded mounting clips for flush type complete.	Each	1133	79	1212
2-1-6	Supplying and erecting square shaped CRCA /die-cast aluminium powder coated housing LED panel light (slim edge-lit) suitable for upto 8 W with provision for plane front frame with translucent cover fixed to the housing complete.	Each	457	66	523
2-1-7	Supplying and erecting square shaped CRCA /die-cast aluminium powder coated housing LED panel light (slim edge-lit) suitable for 9 W - 12 W with provision for plane front frame with translucent cover fixed to the housing complete.	Each	695	66	761
2-1-8	Supplying and erecting square / round shaped CRCA /die-cast aluminium powder coated housing LED panel (slim edge-lit) light suitable for 13W to18W with provision for plane front frame with translucent cover fixed to the housing complete.	Each	861	66	927
2-1-9	Supplying and erecting CRCA /die-cast aluminium powder coated housing LED panel light (slim edge-lit) square / round shape suitable for 19 to 24 W with provision for plane front frame with translucent cover fixed to the housing complete.	Each	1476	105	1581
2-1-10	Supplying and erecting square / rectangular shaped CRCA /die-cast aluminium powder coated housing LED panel (slim edge-lit) light suitable for 25 to 32W with provision for plane front frame with translucent cover fixed to the housing complete.	Each	2882	105	2987
2-1-11	Supplying and erecting square shaped CRCA /die-cast aluminium powder coated housing LED panel light (slim edge-lit) 600x600mm suitable for 36 W-40W with provision for plane front frame with translucent cover fixed to the housing complete.	Each	3447	105	3552
2-1-12	Supplying and erecting rectangular shaped CRCA /die-cast aluminium powder coated housing LED panel (slim edge-lit) 300x1200mm of suitable for 36 to 40 W with provision for plane front frame with translucent cover fixed to the housing complete.	Each	3285	105	3390
2-1-13	Supplying and erecting LED flexible strip light 5m length upto 25W conforming IP 65 of any colour with driver complete.	Each	1915	131	2046

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
2-1-14	Supplying and erecting LED flexible strip light 5m length upto 75W conforming IP 65 of any colour with driver complete.	Each	4250	131	4381
2-1-15	Supplying LED concealed type foot / step light with PVC body for indoor application suitable for upto 5 W LED including driver and erecting by making necessary arrangement/recess in wall to make it flush with surface	Each	379	131	510
2-1-16	Supplying LED concealed type foot / step light with aluminium body for indoor/outdoor application suitable for upto 4W-6W LED including driver and erecting by making necessary arrangement/recess in wall to make it flush with surface.	Each	1709	131	1840
2-1-17	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.	Each	13	52	65
2-1-18	Making suitable size of recess in any type of false ceiling for erection of flush type LED panel light 600mm x 600mm and finishing the background to match the original ceiling surface.	Each	20	92	112
2-1-19	Supplying and erecting corridor/passage light fitting (2 feet) including 9W LED lamp, comprises of extruded channel in plastic silver grey colour & with same plastic end cap on provided PVC block / wooden board.	Each	438	52	490
2-1-20	Supplying and erecting corridor/Passage light fitting (2 feet) including 18W LED lamp, comprises of extruded channel in plastic silver grey colour & with same plastic end cap on provided PVC block / wooden board.	Each	637	52	689
2-1-21	Supplying and erecting decorative oval bulk head edge-lit 10W LED luminaire comprising of high brightness LED Fitting on provided PVC block / wooden board.	Each	1299	52	1351
2-1-22	Supplying & erecting LED 18W tube light fitting (4 feet) with polycarbonate housing , heat sink, integrated HF electronic driver complete.	Each	531	39	570
2-1-23	Supplying & erecting LED 20W tube light fitting (4 feet) with aluminium housing , heat sink, integrated HF electronic driver complete.	Each	839	39	878
2-1-24 (New)	Supplying and erecting LED Mirror Light with integrated driver including 7W to 9W lamp with polycarbonate housing and opal diffuser to be fixed above mirror or as required on clamps complete.	Each	868	52	920
2-1-25 (New)	Supplying and erecting LED Mirror Light with integrated driver including 14W to 18W lamp with polycarbonate housing and opal diffuser to be fixed above mirror or as required on clamps complete.	Each	1153	66	1219
Note:-	1) System efficacy shall not be less than 90 lumens/watt, 2) CRI shall be more than 80. 3) Total harmonic distortion voltage and current shall be less than 10% 4) Operating voltage range shall be in range of 160V to 270V 5) Power Factor of Luminaire shall be more than 0.95 6) Luminaire shall conform to respective IS. 7) Luminaire shall withstand surge protection upto 2 kV 8) Luminaire shall carry minimum three years warrantee. 9) Correlated Colour Temperature (CCT) shall be required between 2700K-6500K.				

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
<u>2.2 Decorative Indoor Fittings (FG-IDF)</u>					
2-2-1	Supplying shock proof type Hand Lamp with lamp holder, guarded glass and 10 m of 3 core PVC flexible cord with hand shield type 3 pin 6 amp plug top.	Each	156	0	156
2-2-2 (New)	Supplying Integrated LED emergency type rechargeable table lamp of 4.5W with battery of 2000 mAh capacity with continues backup of 3hrs including with charging cord suitable for 230V AC power supply.	Each	1252	0	1252
2-2-3	Supplying and erecting plain pendent type bakelite lamp holder complete erected at position with necessary length of twin flexible wire.(upto 1m)	Each	23	13	36
2-2-4	Supplying and erecting plain pendent type brass lamp holder complete erected at position with 20 cms glass opal shade with necessary length of twin twisted flexible wire 24 / 0.20 mm. (upto 1m)	Each	79	13	92
2-2-5	Supplying and erecting bulkhead fitting suitable for upto LED upto 12W fixed on wall. As per specification no. FG-IDF/BHF	Each	195	26	221
2-2-6 (New)	Supplying and erecting moon type decorative wall/ceiling mounted fixture including LED upto 12W circular/square type with opaque diffuser and electronic driver including bracket complete.	Each	1612	39	1651
2-2-7	Supplying and erecting 1 light wall bracket Aluminium body & arm anodised / powder coated with decorative glass shade fixed on wall.	Each	236	31	267
2-2-8	Supplying and erecting 2 light wall bracket Aluminium body & arm anodised / powder coated complete with lamp holder and decorative glass shade suitably erected on polished wooden board / plywood pasted with laminate.	Each	326	31	357
2-2-9	Supplying and erecting 1 light fancy wall bracket with arm fabricated from brass duly lacquered with suitable holder and fancy glass shade duly wired erected on wall with suitable size of polished wooden / laminated board.	Each	404	31	435
2-2-10	Supplying and erecting 2 light fancy wall bracket with arm fabricated from brass duly lacquered with suitable holder and fancy glass shade duly wired erected on wall with suitable size of polished wooden / laminated board.	Each	670	31	701
2-2-11	Supplying & erecting suspension type decorative pendent fitting single light with anodized aluminium / powder coated MS rod up to 1 m length and canopy on top provided with decorative glass shed duly wired with two core flat wire suitable lamp holder complete.	Each	351	42	393
2-2-12	Supplying & erecting suspension type decorative fitting with rise /fall arrangement , 1 light inside semi-circular metallic reflector with counterweight with guide pulley / spring buffer with work shop type copper flexible wire complete with necessary hook, if required.	Each	1296	58	1354
2-2-13	Erection of departmentally supplied fitting on PVC block connected with necessary leads for 4 ft. 40 Watts fitting or 2 ft. 20 W fitting .	Each	14	39	53
2-2-14	Erection of departmentally supplied surface/recess type decorative fitting with LED on PVC block connected with necessary leads.	Each	13	39	52

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
<u>2.3 General Indoor Fitting (FG-IDF)</u>					
2-3-1	Supplying and erecting 2 x 36 / 40W FTL corrosion proof capsule type in non-corrosive polycarbonate housing and prismatic polycarbonate cover with individual high power electronic ballast saving Power factor >0.9 and working voltage range of 170 - 270V AC, IP 65 protection suitable for cold storage areas to be fixed in false ceiling or at ceiling or on wall complete.	Each	3293	39	3332
Note for 2.2 & 2.3	1) Reduce rate by Rs. 10/- if fitting is to be erected on existing boards/blocks. 2) In all fittings (excluding LED fittings) cost of lamps or tubes shall be added separately.				
<u>2.4 Accessories for Indoor Fittings (FG-AS)</u>					
2-4-1	Supplying and erecting low watt loss vaccum impregnated copper choke (VPIT) suitable for FTL upto 20 W as per specification No FG/AS1	Each	201	26	227
2-4-2	Supplying and erecting low watt loss vaccum impregnated copper choke (VPIT) suitable for FTL from 24 to 40 W as per specification No. FG/AS1	Each	193	26	219
2-4-3	Supplying and erecting electronic ballast , pf > 0.9 or transformer suitable for T5 lamp upto 28 W as per specification No. FG-FG/AS1	Each	198	26	224
2-4-4	Supplying and erecting electronic ballast , pf > 0.9 or transformer suitable for FTL upto 40 W as per specification No. FG-FG/AS1	Each	228	26	254
2-4-5	Supplying 18 / 20 / 36 / 40 W tube starter 230 V as per specification No. FG-FG/AS11	Each	10	3	13
2-4-6	Supplying and erecting double suspension heavy duty lacquered iron chain with hooks for erecting fluo. tube light fitting(for erecting various fixtures like FTL, LED, etc) with necessary shielded copper flexible wire three core of 1 sq mm for connecting leads. (for measurements half of the actual length used)	m	32	8	40
2-4-7	Supplying and erecting double suspension pipe rod of 16 gauge 20mm.dia H.G. conduit duly threaded and painted with two coats of enamel paint for erection of fluo. tube light fitting with necessary check nuts and shielded copper flexible wire three core of 1 sq mm for connecting leads (for measurements half of the actual length both pipes used)	m	165	18	183
2-4-8	Supplying and erecting ball suspension plate cast aluminium erected with spring on wooden block in position.	Each	26	8	34
2-4-9	Providing and erecting clamps for box type / industrial type fittings with provided suspension down rod of 20 mm dia. H.G. conduit, the clamp shall be made of 25 x 3 (mm) MS flat with cutting, bending, drilling erected properly with necessary nut bolt as per direction.	Each	63	13	76
2-4-10	Supplying and fixing wiremesh (Jali) cover suitable for fitting / fan or for any purpose, complete with necessary materials. The jali cover shall be made from good quality G.I. wire mesh size 25 x 25 (mm) and made up of 14 SWG G.I. wire with side / supporting MS strips of suitable size.	Each	378	39	417
2-4-11	Supplying and erecting bakelite call bell with 6 cm / buzzer with double coil suitable for 230V complete erected on PVC block.	Each	51	18	69
2-4-12	Supplying and erecting gong with double coil suitable for 230V complete erected on polished wooden block.	Each	85	18	103

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2-4-13	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	105	18	123
2-4-14	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	197	18	215
2-4-15	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	486	13	499
2-4-16	Supplying and erecting condenser 4 microfarad for fluo. Fitting as per specification no FG-FG/AS7.	Each	53	26	79
2-4-17	Supplying and erecting electronic type 600 W dimmer complete erected on provided switch board.	Each	138	13	151
2-4-18	Supplying and erecting electronic type 300/450 W dimmer complete erected on provided switch board.	Each	144	13	157
2-4-19 (New)	Supplying and erecting electronic type driver for indoor LED upto 9W fixtures suitable to operate on 230V A.C. 50 Hz. Having pf>0.95 and THD<10%.	Each	310	26	336
2-4-20 (New)	Supplying and erecting electronic type driver for indoor LED upto 10W-18W fixtures suitable to operate on 230V A.C. 50 Hz. Having pf>0.95 and THD<10%.	Each	403	26	429
2-4-21 (New)	Supplying and erecting electronic type driver for indoor LED upto 19W-24W fixtures suitable to operate on 230V A.C. 50 Hz. Having pf>0.95 and THD<10%.	Each	619	26	645
2-4-22 (New)	Supplying and erecting electronic type driver for indoor LED upto 25W-40W fixtures suitable to operate on 230V A.C. 50 Hz. Having pf>0.95 and THD<10%.	Each	633	26	659
Note:-	Use of electronic chokes, energy saving accessories shall be made preferably.				
<u>2.5 Outdoor Fittings (FG-ODF/LED)</u>					
2-5-1	Supplying and erecting LED street light fitting 12 to 18 W , with PF > 0.95 class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete as per specification No FG-ODF/FLS-2 .	Each	1472	143	1615
2-5-2	Supplying and erecting LED street light fitting suitable for 20 to 25W , with PF > 0.95 class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete as per specification No FG-ODF/FLS-2 .	Each	1755	143	1898
2-5-3	Supplying and erecting LED street light fitting suitable above 26W to 36W lamp , including lamp, with PF > 0.95 class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete as per specification No FG-ODF/FLS2 .	Each	2462	143	2605
2-5-4	Supplying and erecting LED Street light fitting suitable for above 40W to 48W lamp , including lamp, with PF > 0.95 class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete per specification No . FG-ODF/FLS2 .	Each	3314	143	3457

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2-5-5	Supplying and erecting LED street light fitting suitable for 60W lamp, including lamp , with PF > 0.95 class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete as per specification No FG-ODF/FLS-2 .	Each	5111	143	5254
2-5-6	Supplying and erecting LED street light fitting suitable for above 70W- 75 lamp , including lamp, with PF > 0.95 class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete per specification No FG-ODF/FLS2	Each	5679	143	5822
2-5-7	Supplying and erecting LED street light fitting suitable for above 75W - 90W lamp , including lamp, with PF > 0.95 class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete per specification No. FG-ODF/FLS2 .	Each	6972	143	7115
2-5-8	Supplying and erecting LED street light fitting 100W , including lamp, with PF > 0.95 class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete per specification No FG-ODF/FLS-2 .	Each	8060	167	8227
2-5-9	Supplying and erecting LED street light fitting 120 W , including lamp, with PF > 0.95 class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete per specification No FG-ODF/FLS-2 .	Each	9865	167	10032
2-5-10	Supplying and erecting LED street light fitting 150 W , including lamp, with PF > 0.95 class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete per specification No FG-ODF/FLS-2 .	Each	15202	167	15369
2-5-11	Supplying and erecting LED street light fitting suitable for 160 - 170 W , including lamp, with PF > 0.95 class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete per specification No FG-ODF/FLS-2	Each	17461	167	17628
2-5-12	Supplying and erecting LED Flood light fitting of 30-40W , including lamp, with PF > 0.95, class IP 65 and above class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete per specification No FG-ODF/FLS-2	Each	2361	207	2568
2-5-13	Supplying and erecting LED Flood light fitting of 50W , including lamp, with PF > 0.95, class IP 65 and above class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete per specification No FG-ODF/FLS-2	Each	3687	207	3894
2-5-14	Supplying and erecting LED Flood light fitting of 70- 80W , including lamp, with PF > 0.95, class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete per specification No FG-ODF/FLS-2	Each	6832	207	7039
2-5-15	Supplying and erecting LED Flood light fitting of 90-100W , including lamp, with PF > 0.95, class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete per specification No FG-ODF/FLS-2	Each	9297	207	9504
2-5-16	Supplying and erecting LED Flood light fitting of 120W , including lamp, with PF > 0.95, class IP 65 and above Housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete per specification No FG-ODF/FLS-2	Each	11585	207	11792

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2-5-17	Supplying and erecting LED Flood light fitting of 150W , including lamp, with PF > 0.95, class IP 65 and above Housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete per specification No FG-ODF/FLS-2	Each	14319	207	14526
2-5-18	Supplying and erecting LED Flood light fitting of 200W , including lamp, with PF > 0.95, class IP 65 and above Housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete per specification No FG-ODF/FLS-2	Each	21262	207	21469
2-5-19	Supplying and erecting Recess mounted 20W LED wall washers , tilted 70° outwards and swivels 360° to offer best illumination on the wall with any colour with driver complete. (Including Compatible Driver)	Each	3424	126	3550
2-5-20	Supplying and erecting Recess mounted 30W LED wall washers , tilted 70° outwards and swivels 360° to offer best illumination on the wall with any colour with driver complete. (Including Compatible Driver)	Each	4743	126	4869
2-5-21	Supplying & erecting 12W LED PAR (30 Lamp E-27 Base, SPOTO series) lights by making necessary arrangement/recess in wall to make it flush with surface.	Each	1343	48	1391
2-5-22	Supplying & erecting 20W LED PAR (30 Lamp E-27 Base, SPOTO series) lights by making necessary arrangement/recess in wall to make it flush with surface.	Each	2651	48	2699
2-5-23	Supplying & erecting 15W LED series PAR lights by making necessary arrangement/recess in wall to make it flush with surface.	Each	4729	48	4777
2-5-24	Supplying and erecting cylindrical shaped integral decorative with high power 12W-16W LED bollard upto 1000mm with opal acrylic diffuser and IP65 protection on provided foundation complete.	Each	3424	95	3519
2-5-25	Supplying and erecting mushroom shaped integral 12W-16W LED decorative bollard upto 680mm with IP65 protection on provided foundation complete.	Each	6127	95	6222
2-5-26	Supplying and erecting 40W LED post top made in cast aluminium spigot housing with decorative clear opal acrylic diffuser and IP65 protection on provided pole/ bracket.	Each	6098	95	6193
2-5-27	Erecting the departmentally supplied WP LED street light / flood light fitting upto 80W .	Each	14	66	80
2-5-28	Erecting departmentally supplied LED street light/ flood light Fitting upto 150W .	Each	14	103	117
2-5-29	Erecting departmentally supplied LED street light/ flood light Fitting upto 400W .	Each	14	128	142
Note:-	1) System efficacy shall not be less than 90 lumens/watt. 2) CRI shall be more than 70. 3) Total harmonic distortion voltage and current shall be less than 10% 4) Operating voltage range shall be in range of 160V to 270V 5) Power Factor of Luminaire shall be more than 0.95 6) Luminaire shall conform to respective IS. 7) Luminaire shall withstand surge protection upto 3 kV. 8) Luminaire shall carry minimum three years warrantee. 9) Correlated Color Temperature (CCT) shall be required between 2700K-6500K. 10) There shall be provision for termination of earth connection.				

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<u>2.6 Decorative Outdoor Fittings (FG-ODF)</u>					
2-6-1	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	382	85	467
2-6-2	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	931	85	1016
2-6-3	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	1829	85	1914
2-6-4	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	1617	85	1702
2-6-5	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 (NEW)	Each	1681	85	1766
<u>2.7 Highbay LED Fittings (FG-ODF/LED)</u>					
2-7-1	Supplying and erecting highbay LED fitting IP 65 with lamp 70W-80W , PF >0.95 duly connected complete with accessories as per specification no. FG-ODF/LED	Each	9708	166	9874
2-7-2	Supplying and erecting highbay LED fitting IP 65 with lamp 110W-120W , PF >0.95 duly connected complete with accessories as per specification no. FG-ODF/LED	Each	12246	166	12412
2-7-3	Supplying and erecting highbay LED fitting IP 65 with lamp 140W-150W , PF >0.95 duly connected complete with accessories as per specification no. FG-ODF/LED	Each	15169	166	15335
<u>2.8 Street/Flood Light Fittings (FG-ODF)</u>					
2-8-1	Supplying and erecting street light fitting suitable for 70W H.P.S.V. lamp with accessories complete on provided bracket as per specification no. FG-ODF/GSL	Each	2141	103	2244
2-8-2	Supplying and erecting street light fitting suitable for 150W H.P.S.V. lamp complete with accessories on provided bracket as per specification no. FG-ODF/GSL	Each	2684	103	2787
2-8-3	Supplying and erecting street light fitting suitable for 250W H.P.S.V. lamp complete with accessories on provided bracket as per specification no. FG-ODF/GSL	Each	3330	128	3458
2-8-4	Supplying and erecting street light fitting suitable for 400W H.P.S.V. lamp complete with accessories on provided bracket as per specification no. FG-ODF/GSL	Each	4528	128	4656
2-8-5	Supplying and erecting street light fitting suitable for 70W metal halide lamp complete with accessories on provided bracket as per specification no. FG-ODF/GSL	Each	2398	103	2501
2-8-6	Supplying and erecting street light fitting suitable for 150W metal halide lamp complete with accessories on provided bracket as per specification no. FG-ODF/GSL	Each	2880	103	2983
2-8-7	Supplying and erecting street light fitting suitable for 250W metal halide lamp complete with accessories on provided bracket as per specification no. FG-ODF/GSL	Each	3591	128	3719

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
2-8-8	Supplying and erecting street light fitting suitable for 400W metal halide lamp complete with accessories on provided bracket as per specification no. FG-ODF/GSL	Each	4528	128	4656
2-8-9	Supplying and erecting flood light luminaries suitable for 70WH.P.S.V. lamp complete with accessories on provided bracket as per specification no. FG-ODF/GSL	Each	3093	103	3196
2-8-10	Supplying and erecting flood light luminaries suitable for 150W H.P.S.V. lamp complete with accessories on provided bracket as per specification no. FG-ODF/GFL	Each	4724	103	4827
2-8-11	Supplying and erecting flood light luminaries suitable for 250W H.P.S.V. lamp complete with accessories on provided bracket as per specification no. FG-ODF/GFL	Each	5018	128	5146
2-8-12	Supplying and erecting flood light luminaries suitable for 400W H.P.S.V. lamp complete with accessories on provided bracket as per specification no. FG-ODF/GFL	Each	5670	128	5798
2-8-13	Supplying and erecting asymmetrical beam integral flood light luminaries suitable for 70W metal halide lamp complete with accessories on provided bracket as per specification no. FG-ODF/GFL	Each	2817	103	2920
2-8-14	Supplying and erecting asymmetrical beam integral flood light luminaries suitable for 150W metal halide lamp complete with accessories on provided bracket as per specification no. FG-ODF/GFL	Each	2803	103	2906
2-8-15	Supplying and erecting asymmetrical beam integral flood light accessories luminaries suitable for 250W metal halide lamp complete with accessories on provided bracket as per specification no. FG-ODF/GFL	Each	2506	103	2609
2-8-16	Supplying and erecting asymmetrical beam integral flood light luminaries suitable for 400W metal halide lamp complete with accessories on provided bracket as per specification no. FG-ODF/GFL	Each	4642	128	4770
2-8-17	Supplying & erecting non integral symmetrical flood light with wide beam reflector luminaries suitable for 1x250W HPSV/MH lamp on provided bracket as per specification no. FG-ODF/HML	Each	2278	103	2381
2-8-18	Supplying & erecting non integral symmetrical flood light with wide beam reflector luminaries suitable for 1x400W HPSV/MH lamp on provided bracket as per specification no. FG-ODF/HML	Each	2278	103	2381
2-8-19	Supplying & erecting non integral heavy duty flood light with symmetric circular narrow beam reflector luminaries suitable for 1x250W HPSV/MH lamp on provided bracket as per specification no. FG-ODF/HML	Each	3726	103	3829
2-8-20	Supplying & erecting non integral heavy duty flood light with symmetric circular narrow beam reflector luminaries suitable for 1x400W HPSV/MH lamp on provided bracket as per specification no. FG-ODF/HML	Each	3996	103	4099
2-8-21	Supplying & erecting non integral symmetric wide beam flood light luminaries suitable for 2x250W HPSV/MH lamp on provided brackets per specification no. FG-ODF/HML	Each	4531	128	4659
2-8-22	Supplying & erecting non integral symmetric wide beam flood light luminaries suitable for 2x400W HPSV/MH lamp on provided brackets per specification no. FG-ODF/HML	Each	3350	128	3478

Note:- Item No. 2-8-1 to 2-8-22 should be used only for replacement/maintenance purpose.

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
<u>2.9 Accessories for Outdoor Fittings (FG-AS)</u>					
2-9-1	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	409	118	527
2-9-2	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	473	118	591
2-9-3	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	445	92	537
2-9-4	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	575	92	667
2-9-5	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/BPC	Each	704	131	835
2-9-6	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/BPC	Each	1029	131	1160
2-9-7	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/BPC	Each	1185	157	1342
2-9-8	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/BPC	Each	1561	157	1718
2-9-9	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	372	79	451
2-9-10	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	283	79	362
2-9-11	Supplying and erecting Control gear 1x250W for HPSV/MH lamp with all accessories for NON Integral Flood light fittings suitable for complete	Each	3368	103	3471
2-9-12	Supplying and erecting Control gear for NON Integral Flood light fittings suitable for 1x400W HPSV/MH lamp with all accessories complete.	Each	4089	103	4192
2-9-13	Supplying and erecting Control gear for NON Integral Flood light fittings suitable for 2x250W HPSV/MH lamp with all accessories complete.	Each	7275	103	7378
2-9-14	Supplying and erecting Control gear for NON Integral Flood light fittings suitable for 2x400W HPSV/MH lamp with all accessories complete.	Each	9371	103	9474
2-9-15	Supplying and erecting condenser for MV/SV/MH lamp 150W, 230V as per specification no. FG-FG/AS7	Each	159	31	190
2-9-16	Supplying and erecting condenser for MV/SV/MH lamp 250W, 230V as specification no. FG-FG/AS7	Each	177	31	208
2-9-17	Supplying and erecting condenser for MV/SV/MH lamp 400W, 230V as specification no. FG-FG/AS7	Each	261	31	292

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2-9-18	Supplying and erecting ignitor suitable for 230V HPSV lamp 70/150/250/400W as specification no. FG-FG/AS6	Each	160	31	191
2-9-19	Supplying and erecting electronic ignitor suitable for 230V metal halide lamp 70/150/250/400W (integral or non-integral type luminaries as specification no. FG-FG/AS6	Each	220	31	251
2-9-20	Supplying and erecting VPIT heavy duty copper wound ballast 230V for 80-150W HPSV/MV/MH as per specification no. FG-FG/AS5.	Each	1093	39	1132
2-9-21	Supplying and erecting VPIT compound heavy duty copper wound ballast for 230V for 250W HPSV/MV/MH as per specification no. FG-FG/AS5.	Each	1915	45	1960
2-9-22	Supplying and erecting VPIT heavy duty copper wound ballast for 230V for 400W HPSV/MV/MH as per specification no. FG-FG/AS4.	Each	2780	45	2825
2-9-23 (New)	Supplying and erecting electronic type Driver for Outdoor LED fittings upto 25W suitable to operate on 230V A.C. 50 Hz. Having pf>0.95 and THD<10%.	Each	453	45	498
2-9-24 (New)	Supplying and erecting electronic type Driver for Outdoor LED fittings upto 26W-45W suitable to operate on 230V A.C. 50 Hz. having pf>0.95 and THD<10%.	Each	767	45	812
2-9-25 (New)	Supplying and erecting electronic type Driver for Outdoor LED fittings upto 46W-75W suitable to operate on 230V A.C. 50 Hz. having pf>0.95 and THD<10%.	Each	1099	45	1144
2-9-26 (New)	Supplying and erecting electronic type Driver for Outdoor LED fittings upto 76W-100W suitable to operate on 230V A.C. 50 Hz. having pf>0.95 and THD<10%.	Each	1749	45	1794
2-9-27 (New)	Supplying and erecting electronic type Driver for Outdoor LED fittings upto 101W-150W suitable to operate on 230V A.C. 50 Hz. having pf>0.95 and THD<10%.	Each	2138	45	2183
2-9-28 (New)	Supplying and erecting electronic type Driver for Outdoor LED fittings upto 151W-200W suitable to operate on 230V A.C. 50 Hz. having pf>0.95 and THD<10%.	Each	3161	45	3206
<u>2.10 Lamps and Tubes for Indoor & Outdoor (FG-LP)</u>					
2-10-1	Supplying and erecting T8 Fluorescent tube day light 600mm 18 W	Each	32	5	37
2-10-2	Supplying and erecting T8 Fluorescent tube day light 1200mm 36 W	Each	37	5	42
2-10-3	Supplying and erecting T8 Fluorescent tube tri phosphor /Turband phosphor 36 W.	Each	87	5	92
2-10-4	Supplying and erecting T5 14 W energy efficient fluorescent tube.	Each	87	5	92
2-10-5	Supplying and erecting T5 24 W Energy Efficient fluorescent tube.	Each	109	5	114
2-10-6	Supplying and erecting T5 28 W energy efficient fluorescent tube.	Each	91	5	96
2-10-7	Supplying & erecting 0.5W , 230V integral type LED Lamp suitable for B-22/E-27 base.	Each	55	5	60
2-10-8	Supplying and erecting Pigmy /candle lamp miniature type coloured/ white.	Each	21	5	26
2-10-9	Supplying & erecting 3W , 230V integral type LED Lamp suitable for B-22/E-27 base.	Each	114	5	119
2-10-10	Supplying & erecting 5W-7W , 230V integral type LED Lamp suitable for B-22/E-27 base.	Each	129	5	134

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
2-10-11	Supplying & erecting 10-12W , 230V integral type LED Lamp suitable for B-22/E-27 base.	Each	208	10	218
2-10-12	Supplying & erecting 14W , 230V integral type LED Lamp suitable for B-22/E-27 base.	Each	283	10	293
2-10-13	Supplying & erecting 18W , 230V integral type LED Lamp suitable for B-22/E-27 base.	Each	359	10	369
2-10-14	Supplying & erecting ready to use Retrofit T8 LED 18 / 20 tube light with polycarbonate body, heat sink, integrated HF electronic driver complete & compatible to T8 / T12 LED luminaire by disconnecting starter & ballast if necessary.	Each	568	26	594
Note:- 1)System efficacy shall not be less than 90 lumens/watt 2) LED Lamp /tube shall carry minimum two year warrantee.					
2-10-15	Supplying and erecting HPSV lamp 3 pin BC/Screwed cap head / pin type 230V, 70 W SON type .	Each	154	21	175
2-10-16	Supplying and erecting HPSV lamp 3 pin BC/Screwed cap head /pin type 230V, 150 W SON type .	Each	346	21	367
2-10-17	Supplying and erecting HPSV lamp 3 pin BC/Screwed cap head /pin type 230V, 250 W SON type .	Each	391	21	412
2-10-18	Supplying and erecting HPSV lamp 3 pin BC/Screwed cap head /pin type 230V, 400 W SON type .	Each	459	21	480
2-10-19	Supplying and erecting HPSV lamp 3 pin BC/Screwed cap head /pin type 230V, 70 W SON-T-type .	Each	179	21	200
2-10-20	Supplying and erecting HPSV lamp 3 pin BC/Screwed cap head /pin type 230V, 150 W SON-T-type .	Each	449	21	470
2-10-21	Supplying and erecting HPSV lamp 3 pin BC/Screwed cap head /pin type 230V, 250 W SON-T-type .	Each	504	21	525
2-10-22	Supplying and erecting HPSV lamp 3 pin BC/Screwed cap head /pin type 230V, 400 W SON-T-type .	Each	573	21	594
2-10-23	Supplying and erecting Metal Halide lamp double ended 230V, 70 W .	Each	466	21	487
2-10-24	Supplying and erecting Metal Halide lamp double ended 230V, 150 W .	Each	460	21	481
2-10-25	Supplying and erecting Metal Halide lamp double ended 230V, 250 W .	Each	626	21	647
2-10-26	Supplying and erecting Metal Halide lamp double ended 230V, 400 W .	Each	697	21	718
Note:- For Use of Single ended MH Lamps increase Material rates by 40% of the rate of double ended lamps					
<u>2.11 Aviation Light Fitting</u>					
2-11-1	Supplying & erecting aviation obstruction light consisting of yellow painted die-cast aluminium alloy housing with integral LED aviation light comprising of aluminium housing with polycarbonate enclosure complete.	Each	4451	85	4536
<u>2.12 Fans (FG-FN)</u>					
2-12-1	Supplying and erecting regular/ standard model ceiling fan of 600mm. sweep complete erected in position as per specification no. FG-FN/CF	Each	1588	79	1667
2-12-2	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	1717	79	1796
2-12-3	Supplying and erecting regular/ standard model ceiling fan of 1400mm. sweep complete erected in position as per specification no. FG-FN/CF	Each	1816	79	1895

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
2-12-4	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	1888	52	1940
2-12-5	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	4594	118	4712
2-12-6	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	5340	157	5497
2-12-7	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	1973	0	1973
2-12-8	Supplying pedestal type air circulator 450 mm. sweep oscillating type suitable to work on 230 Volts 50 cycles 1440 RPM with speed regulator, overhead 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	4509	0	4509
2-12-9	Supplying pedestal type air circulator 600 mm. sweep oscillating type suitable to work on 230 Volts 50 cycles 1440 RPM with speed regulator, overhead 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	7007	0	7007
2-12-10	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	1606	0	1606
2-12-11	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	1614	39	1653
2-12-12	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	1669	39	1708
2-12-13	Supplying and erecting fresh air cum exhaust fan of light duty 250 V A.C. 50 cycles 300mm. 1400 RPM rust proof body & blades, wire mesh, duly erected in an approved manner.	Each	1150	118	1268
2-12-14	Supplying and erecting fresh air cum exhaust fan of light duty 250 V A.C. 50 cycles 225mm. 1400 RPM rust proof body & blades, wire mesh, duly erected in an approved manner.	Each	1050	118	1168
2-12-15	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	1505	118	1623
2-12-16	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	3005	118	3123

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
2-12-17	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	3045	118	3163
2-12-18	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	4194	118	4312
2-12-19	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	3869	118	3987
2-12-20	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	3203	118	3321
2-12-21	Supplying and erecting five star rated energy saving Ceiling fan 230 V A.C. 50 cycles 1200 mm complete erected in position as per specification no. FG-FN/CF	Each	1858	79	1937
<u>2.13 Accessories for Fans (FG-FN)</u>					
2-13-1	Supplying and erecting condenser 2.5 micro farad for ceiling fan	Each	27	31	58
2-13-2	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	66	26	92
2-13-3	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	153	26	179
2-13-4	Supplying and erecting fan hook of 10 mm. M.S. round bar grouted in RCC slab with making the site as original.	Each	62	39	101
2-13-5	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	131	26	157
2-13-6	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	165	39	204
2-13-7	Erection of departmentally supplied ceiling fan with necessary materials complete.	Each	11	79	90
2-13-8	Erection of departmentally supplied exhaust fan with necessary materials complete.	Each	42	118	160
2-13-9	Supplying and erecting electronic type step regulator for ceiling fan 600/ 900/ 1200/ 1400 mm. sweep, complete erected on provided switch board.	Each	190	13	203
2-13-10	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	84	197	281
2-13-11	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	91	236	327
2-13-12	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	127	275	402

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
2-13-13	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	137	472	609
2-13-14	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	877	79	956
2-13-15	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	999	79	1078
2-13-16	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	942	79	1021
2-13-17	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	852	79	931
2-13-18	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	1148	58	1206
2-13-19	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	1206	58	1264

2.14 Dismantling

2-14-1	Dismantling of existing fluorescent fittings of any type & size.	Each	0	13	13
2-14-2	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	0	39	39
2-14-3	Dismantling the existing W.T. fluorescent fitting/ S.V./ M.V. / M.H. lamp /LED fitting from pole with brackets complete.	Each	0	92	92
2-14-4	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	0	31	31

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.

Above Items are conforming to relevant IS as mentioned below

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 1Safety Requirements.

IS 16103(Part 2) : 2012 - Led Modules for General Lighting, Part 2 Performance Requirements.

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	IS 15885(Part2/Sec13): 2012 - Safety of Lamp Control Gear Part 2 Particular Requirements Section 13 d.c. or a.c.; Supplied Electronic Control gear for Led Modules.				
	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 16107-1:2012 - Luminaires Performance Part 2 Particular Requirements Section 1 LED Luminaire.				
	IS 16108 : 2012 - Photobiological Safety of Lamps and Lamp Systems.				

Chapter: 3
Appliances (AP)

3.1	Water-heaters	(AP-WH)
3.2	Air-conditioners	(AP-AC)
3.3	Water-coolers, Refrigerators	(AP-WC)
3.4	Air coolers	(ACR)
3.5	Water purifiers	(WPF)
3.6	Inverters	(AP-INV)
3.7	On line UPS	(AP-UPS)
3.8	Batteries for inverters, UPS	
3.9	Voltage Stabilizers	
3.10	Accessories for AC & Water cooler	
3.11	HVAC system	
3.12	Dismantling	

Chapter 3: APPLIANCES (AP)

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
<u>3.1 Water Heaters (AP-WH)</u>					
3-1-1	Supplying and erecting storage type horizontal / vertical water heater 15 litres capacity with BEE 5 star rating high impact resistance engineering plastic body on wall / loft complete duly tested and marking sr. no. and date of erection. specification no. AP-WH/STWH	Each	7327	315	7642
3-1-2	Supplying and erecting storage / pressure type horizontal / vertical water heater 25 litres with BEE 5 star rating of mild steel body , on wall / loft complete duly tested and marking sr. no. and date of erection. specification no. AP-WH/STWH	Each	6582	315	6897
3-1-3	Supplying and erecting storage type horizontal / vertical water heater 25 litres capacity with BEE 5 star rating high impact resistance engineering plastic body on wall / loft complete duly tested and marking sr. no. and date of erection. specification no. AP-WH/STWH	Each	9066	315	9381
3-1-4	Supplying and erecting storage/ pressure type vertical / horizontal water heater 35 litres capacity with BEE 4 star rating of mild steel body on wall / loft complete duly tested and marking sr. no. and date of erection. specification no. AP-WH/STWH	Each	9765	356	10121
3-1-5	Supplying and erecting storage type horizontal / vertical water heater 35 litres capacity with BEE 5 star rating high impact resistance engineering plastic body on wall /loft duly tested and marking sr. no. and date of erection. specification no. AP-WH/STWH	Each	10954	356	11310
3-1-6	Supplying and erecting storage/ pressure type vertical / horizontal water heater 50 litres capacity of mild steel body on wall / loft complete duly tested and marking sr. no. and date of erection. specification no. APWH/ STWH	Each	11220	356	11576
3-1-7	Supplying and erecting storage type horizontal / vertical water heater 50 litres capacity with BEE 5 star rating high impact resistance engineering plastic body on wall / loft complete duly tested and marking sr. no. and date of erection. specification no. AP-WH/STWH	Each	12347	356	12703
3-1-8	Supplying and erecting ISI mark midget type 3.0 Ltr instant type water heater of ABS plastic body 3 kW , heating element 230/250 Volts 50 cycle AC supply with inlet and outlet, thermostatic control and thermal cutoff with 3 core PVC flexible wire leads complete duly tested and marking sr. no. and date of erection.	Each	3549	68	3617
3-1-9	Supplying and erecting chromium plated heavy duty brass stop cock for inlet pipe of water heater (15 mm. dia).	Each	167	34	201
3-1-10	Supplying & erecting 15 mm brass non return valve for inlet pipe of storage water heater.	Each	183	34	217
3-1-11	Supplying & erecting dead weight pressure releasing valve for storage water heater with necessary materials complete.	Each	298	68	366
3-1-12	Supplying & erecting vacuum relief valve for storage water heater with necessary materials complete.	Each	121	68	189
3-1-13	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 (1set of 2 nos) complete.	Each	123	34	157

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
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	105	315	420
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	140	356	496
3-1-16	Supplying and erecting ISI mark heating element 2 / 3 kW suitable for water heater/ midget of any make any capacity.	Each	727	157	884
3-1-17	Supplying and erecting ISI mark thermostat suitable for water heater / midget of any make, any capacity.	Each	285	45	330
3-1-18	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	0	344	344
3-1-19 (New)	Supplying and erecting storage type horizontal / vertical water heater 100 litres capacity with BEE 5 star rating high impact resistance engineering plastic body on wall / loft complete duly tested and marking sr. no. and date of erection. specification no. AP-WH/STWH	Each	20403	356	20759
<u>3.2 Air Conditioners (AP-AC)</u>					
3-2-1	Supplying, installing, testing and commissioning window model type room Air-conditioner having ISEER minimum 3.1 to maximum 3.29 suitable to operate on 230/250V, 50 cycles single phase A.C. supply 1 TR capacity with refrigerant R410A/R32 and copper condensor at position in provided recess with wooden frame complete. specification no. AP-AC/WAC	Each	24037	1259	25296
3-2-2	Supplying, installing, testing and commissioning window model mounted type room Air - conditioner having ISEER minimum 3.1 to maximum 3.29 suitable to operate on 230/250 V 50 cycles single phase A.C. supply 1.5 TR capacity with refrigerant R410A/R32 and copper condensor at position in provided recess with wooden frame complete. specification No. AP-AC/WAC	Each	25270	1259	26529
3-2-3	Supplying, installing, testing and commissioning window model type room Air - conditioner having ISEER minimum 3.30 suitable to operate on 230/250 V 50 cycles single phase A.C. supply 1.5 TR capacity with refrigerant R410A/R32 and copper condensor at position in provided recess with wooden frame complete. specification No. AP-AC/WAC	Each	32946	1259	34205
3-2-4	Supplying, installing, testing and commissioning window model type room Air-conditioner having ISEER minimum 3.1 to maximum 3.29 suitable to operate on 230/250 V 50 cycles single phase A.C. supply 2 TR capacity complete with refrigerant R410A/R32 and copper condensor at position in provided recess with wooden frame complete. specification No. AP-AC/WAC	Each	33255	1259	34514
3-2-5	Providing modifications to the existing window for erection of window room air conditioner in position with required teak wood/aluminium channel with filling the gaps to maintain air tightness complete.	Each	604	717	1321

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
3-2-6	Supplying, installing, testing and commissioning split type variable speed Inverter technology room Air conditioning unit 2 TR capacity having ISEER minimum 3.50 to maximum 3.99 suitable to operate on 250V, 50 cycles, A.C. supply having 1 no. of air handling unit hi-wall/ floor mounting type complete with Refrigerants R410 A/R32 and copper condenser at position. specification no. AP-AC/SAC	Each	56153	2048	58201
3-2-7	Supplying, installing, testing and commissioning split type variable speed inverter technology room Air conditioning unit 2 TR capacity having ISEER minimum 4.50 suitable to operate on 250V, 50 cycles, A.C. supply having 1 no. of air handling unit hi-wall/ floor mounting type complete with Refrigerants R410 A /R32 and copper condenser at position. specification no. APAC/ SAC	Each	60896	2048	62944
3-2-8	Supplying, installing, testing and commissioning split type variable speed Inverter technology room Air conditioning unit 1.5 TR Capacity having ISEER minimum 3.50 to maximum 3.99 suitable to operate on 250V, 50 cycles, A.C. supply having 1 no. of air handling unit hiwall / floor mounting type complete with refrigerant R410 A/R32 and copper condenser at position. specification no. APAC/ SAC	Each	45059	2048	47107
3-2-9	Supplying, installing, testing and commissioning split type variable speed Inverter technology room Air conditioning unit 1.5 TR capacity having ISEER minimum 4.50 suitable to operate on 250V, 50 cycles, A.C. supply having 1 no of air handling unit hiwall / floor mounting type complete with refrigerant R410 A/R32 and copper condensor at position. specification no. APAC/ SAC	Each	49628	2048	51676
3-2-10	Supplying, installing, testing and commissioning split type variable speed inverter technology room Air conditioning unit 1 TR capacity having ISEER minimum 3.50 to maximum 3.99 suitable to operate on 250V, 50 cycles, A.C. supply having 1 no. of air handling unit hi-wall mounting type complete with refrigerant R410A/R32 and copper condensor at position. specification no. APAC/ SAC	Each	37170	1654	38824
3-2-11	Supplying, installing, testing and commissioning split type variable speed inverter technology room Air conditioning unit 1 TR having ISEER minimum 4.50 suitable to operate on capacity 250V, 50 cycles, A.C. supply having 1 no. of air handling unit hi-wall / floor mounting type complete with refrigerant R410A/R32 and copper condenser at position. specification no. APAC/ SAC	Each	40491	1654	42145
3-2-12	Providing and pasting superior quality Sun control film on glass to achieve better cooling effect having 1.5 / 2 mm thickness, ultra violet transmittance less than 2% and solar heat rejection 78% in approved manner.	Sq.mm	1083	78	1161
3-2-13	Supplying, installing, testing and commissioning split type room Air conditioning unit with variable speed Inverter technology 2.5 TR capacity with R410A/R32 refrigerant & copper condenser suitable to operate on 230/415V, 50cycles, A.C. supply having 1 no. of air handling unit (Mega spilt) Hi-wall mounting type complete at position. specification no. AP-AC/SAC	Each	62721	2266	64987

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
3-2-14	Supplying, installing, testing and commissioning split type room Air conditioning unit 3TR capacity with R410A/R32 refrigerant , 415 V, 50 cycles, A.C. supply having 1 no. of air handling unit (Mega spilt) mounting type complete at position. Specification no. AP-AC/SAC	Each	64232	2737	66969
3-2-15	Supplying & erecting soft drawn copper pipe suitable for refrigeration system having 22 SWG thickness and inner dia / size 12 mm complete.	m	246	26	272
3-2-16	Supplying & erecting soft drawn copper pipe suitable for refrigeration system having 22 SWG thickness and inner dia / size 16 mm complete.	m	348	26	374
3-2-17	Supplying & erecting soft drawn copper pipe suitable for refrigeration system having 22 SWG thickness and inner dia / size 22 mm complete.	m	645	26	671
3-2-18	Supplying & erecting soft drawn copper pipe suitable for refrigeration system having 22 SWG thickness and inner dia / size 32 mm complete.	m	924	26	950
3-2-19	Supplying & erecting soft drawn copper pipe suitable for refrigeration system having 22 SWG thickness and inner dia / size 35 mm complete.	m	1061	26	1087
3-2-20	Supplying & erecting soft drawn copper pipe suitable for refrigeration system having 22 SWG thickness and inner dia / size 42 mm Complete.	m	1294	26	1320
3-2-21	Supplying, installing, testing and commissioning cassette type split room air conditioning unit 1.5 TR having ISEER minimum 4.50 suitable for capacity 230/250 V, 50 cycles, AC supply having 1 no. air handling unit false ceiling mounting type complete with refrigerant R32/R410A and copper condenser coil at position with provided copper piping and drainage pipe.	Each	73980	3299	77279
3-2-22	Supplying, installing, testing and commissioning cassette type variable speed inverter technology split room airconditioning unit 2 TR capacity having ISEER minimum 3.50 to maximum 3.99 suitable to operate on 230/250 V, 50 cycles, AC supply having 1 no. air handling unit false ceiling mounting type complete with refrigerant R32/R410A and copper condenser coil at position as per specification with provided copper piping and drainage pipe.	Each	89994	3299	93293
3-2-23	Supplying, installing, testing and commissioning cassette type variable speed inverter technology split room air conditioning unit 3 TR capacity having ISEER maximum 4.50, suitable to operate on 230V /415 V , 50 cycles, AC supply having 1 no. air handling unit false ceiling mounting type complete with refrigerant R32/R410A & copper condenser coil at position with provided copper piping and drainage pipe.	Each	135118	3299	138417
3-2-24	Supplying, installing, testing & commissioning cassette type split type variable speed inverter technology room airconditioning unit 3.5 TR capacity 230/250 V , 50 cycles, AC supply having 1 no. air handling unit false ceiling mounting type complete with refrigerant R32/R410A & copper condenser coil at position with provided copper piping and drainage pipe.	Each	136462	3299	139761
3-2-25	Supplying, installing, testing & commissioning cassette type variable speed inverter technology split room airconditioning unit 4 TR capacity 230V /415 V , 50 cycles, AC supply having 1 no. air handling unit false ceiling mounting type complete with refrigerant R32/R410A & copper condenser coil at position as with provided copper piping and drainage pipe.	Each	149692	3299	152991

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
3-2-26	Supplying, installing, testing and commissioning tower type room air conditioning unit of 2.5 TR capacity suitable to operate on 230/415V, 50 cycles ac supply having 1 no AHU and 1 no cabinet type floor mounting condensing unit with refrigerant R32/R410A & copper condenser coil with anti-corrosive fins, dust filters hydrophilic evaporator fins, powder coated outer body , with scroll /rotary compressor connected with provided refrigerant pipes, electric cables and drain pipe.	Each	73204	3299	76503
3-2-27	Supplying, installing, testing and commissioning tower type room air conditioning unit of 3.5TR capacity suitable to operate on 415 V, 50 cycles ac supply having 1 no. AHU and 1 no cabinet type floor mounting type condensing unit with refrigerant R32/R410A & copper condenser coil complete with anticorrosive fins, dust filters hydrophilic evaporator fins, powder coated outer body, with scroll / rotary compressor connected with provided refrigerant pipes, electric cables and drain pipe.	Each	82300	3299	85599
3-2-28	Supplying, installing, testing and commissioning tower type room air conditioning unit of 4.5 TR capacity suitable to operate on 415 V, 50 cycles ac supply having 1 no. air handling unit and 1 no. cabinet type floor mounting condensing unit with refrigerant R32/R410A & copper condenser coil with anti-corrosive fins, dust filters hydrophilic evaporator fins, powder coated outer body, with scroll / rotary compressor connected with provided refrigerant pipes, electric cables and drain pipe.	Each	108276	3299	111575
3-2-29 (New)	Supplying floor mounted de-humidifier of ABS engineering plastic body 320 W to 360 watt, 220-240V, 50 Hz of 16 to 22 litre/day (300C-80%-90%RH) capacity having rotary compressor consisting with R410A/R134A refrigerant, running temperature capacity 50C-350C, tank capacity 3 - 4.5 ltr, noise level below 40 db with digital display, programmable timer, humidity display, humidity setting arrangement, air flow 150 to 200 cu.mtr/hr and suitable for cover 70-100 cu. mtr area.	Each	29368	0	29368
3-2-30 (New)	Supplying floor mounted de-humidifier of ABS engineering plastic body 470 W to 530 watt, 220-240V, 50 Hz of 30 to 35 litre/day (300C-80%-90%RH) capacity having rotary compressor consisting with R410A/R134A refrigerant, running temperature capacity 50C-350C, tank capacity 3.7 - 6.5 ltr, noise level 45-49 db with digital display, programmable timer, humidity display, humidity setting arrangement, air flow 190 to 220 cu. mtr/hr and suitable for cover 101-115 cu.mtr area.	Each	46796	0	46796
3-2-31 (New)	Supplying floor mounted de-humidifier of ABS engineering plastic body 740 watt, 220-240V, 50 Hz of 50 litre/day (300C-80%RH) capacity having rotary compressor consisting with R410A/R134A refrigerant, running temperature capacity 50C-350C, tank capacity 8 ltr, noise level 47db with digital display, programmable timer, humidity display, humidity setting arrangement, air flow 310 cu.mtr/hr and suitable for cover 150 cu.mtr area.	Each	74915	0	74915
Notes:-	<p>1) For copper pipe nitrile rubber insulation refer to chapter 4.2.</p> <p>2) For drain piping refer rates of PVC pipes from chapter no. 1.</p> <p>3) If cost of any appliances for repair more than 50% then those shall be proposed for replacement.</p>				

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
<u>3.3 Water Coolers & Refrigerators (AP-WC)</u>					
3-3-1	Supplying single door refrigerator domestic type of approved make 165 to 205 litres storage capacity, 5 star suitable for operation on 230/250 V, 50 cycles complete with automatic temperature control, with one year guarantee shall be marked on unit for sealed unit in refrigeration system and marking sr. no. and date of erection.	Each	10599	0	10599
3-3-2	Supplying double door refrigerator domestic type of approved make 284 to 310 litres storage capacity, 5 star suitable for operation on 230/250 V, 50 cycles complete with automatic temperature control with one year guarantee for sealed unit and 10 years warranty for compressor in refrigeration system and marking sr. no. and date of erection.	Each	24294	0	24294
3-3-3	Supplying, erecting, testing and commissioning self-contained water cooler 230/250V 50 cycles nominal cooling capacity of 40 litres/hr and storage capacity 80 litres with partially stainless steel body complete. specification no. APWCR/ WC	Each	31737	381	32118
3-3-4	Supplying, erecting, testing and commissioning self-contained water cooler 230/250 V 50 cycles nominal cooling capacity of 80 litres/hr and storage capacity 120 litres with partially stainless steel body complete. specification no. AP-WCR/WC	Each	42774	393	43167
3-3-5	Supplying, erecting, testing and commissioning self contained water cooler 230/250 Volts 50 cycles nominal cooling capacity of 150 liters/hr and storage capacity 150 litres with partially stainless steel body complete. specification no. AP-WCR/WC	Each	47243	413	47656
3-3-6	Supplying and erecting, testing and commissioning solar cum natural water cooler suitable for hot and dry weather nominal cooling capacity of 20 litres along with solar panel, fan for cooling, copper storage tank and copper coils with water spraying arrangement complete. Specification no. APWCR/SOLAR WC	Each	64700	1446	66146
3-3-7	Supplying and erecting, testing and commissioning solar cum natural water cooler suitable for hot and dry weather nominal cooling capacity of 50 litres along with solar panel, fan for cooling, copper storage tank and copper coils with water spraying arrangement complete. specification no. APWCR/SOLAR WC	Each	78572	1446	80018
3-3-8	Supplying double door refrigerator domestic type of approved make 292 to 415 litres storage capacity, minimum 4 star suitable for operation on 230/250 V 50 cycles complete with inverter technology compressor automatic temperature control and one year guarantee for sealed unit, 10 years warranty for compressor and marking sr. no. and date of erection.	Each	35187	0	35187
3-3-9 (New)	Providing fully comprehensive annual maintenance service for 80/120/150 ltr. water cooler unit complete as per terms and conditions. Job includes 1) quarterly servicing 2) on call repair 3) replacement of all spares including minor electrical parts within 48 hours. 4) refrigerant charging if required. 5) if failed to rectify the fault within 48 hrs penalty shall be charged Rs.50/- per day. The job exclude sheet metal work and plastic material.	Job	2811	1889	4700
Note:-	Note : 1) If cost of any appliances for repair more than 50% then shall be proposed for replacement.				

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
<u>3.4 Air Coolers (ACR)</u>					
3-4-1	Supplying evaporative air cooler (desert cooler) with galvanised steel body 230/250 Volts, 50 cycles, normal cooling capacity of 50 cu.m per minute , with 12" exhaust, minimum 40 to 55 litre water capacity tank complete. specification no. AP-WCR/DAC	Each	8967	0	8967
3-4-2	Supplying evaporative air cooler (desert cooler) with galvanised steel body 230/250 Volts, 50 cycles, normal cooling capacity of 60 to 70 cu.m per minute with 15" exhaust fan, minimum 68 litre water capacity tank complete. specification no. AP-WCR/DAC	Each	7964	0	7964
3-4-3	Supplying evaporative air cooler (desert cooler) with galvanised steel body 230/250 Volts, 50 cycles, normal cooling capacity of 80 cu.m per minute with 18" exhaust fan, minimum 75 to 80 litre water capacity tank complete. specification no. APWCR/ DAC	Each	10849	0	10849
<u>3.5 Water Purifiers (WPF)</u>					
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 7 to 8 litre/min with activated carbon filter and softener operating on 230 V single phase A.C. supply.	Each	18323	157	18480
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 2 litre/min. with activated carbon filter and softener operating on 230 V single phase AC supply.	Each	8153	157	8310
<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	5957	625	6582
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	7222	625	7847
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	10848	625	11473
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	18710	625	19335

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
<u>3.7 Online Uninterruptible Power Supply (UPS) (AP-UPS)</u>					
3-7-1	Supplying & erecting on line UPS pure sine wave of 1 kVA capacity complete with standard features, along with necessary SMF batteries for 30 mins. battery backup, as per specification no. AP-UPS	Each	35758	79	35837
3-7-2	Supplying & erecting on line UPS pure sine wave of 2 kVA capacity complete with standard features, along with necessary SMF batteries for 30 mins battery backup, as per specification no. AP-UPS	Each	50999	79	51078
3-7-3	Supplying & erecting on line UPS pure sine wave of 3 kVA capacity complete with standard features, along with necessary SMF batteries for 30 mins battery backup, as per specification no. AP-UPS	Each	65955	79	66034
3-7-4	Supplying & erecting on line UPS pure sine wave of 5 kVA capacity complete with standard features, along with necessary SMF batteries for 30 mins battery backup, as per specification no. AP-UPS	Each	73973	79	74052
3-7-5	Supplying & erecting on line UPS pure sine wave of 6 kVA capacity complete with standard features, along with necessary SMF batteries for 30 mins battery backup, as per specification no. AP-UPS	Each	127008	79	127087
3-7-6	Supplying & erecting on line UPS pure sine wave of 8 kVA capacity complete with standard features,along with necessary SMF batteries for 30 mins battery backup, as per specification no. AP-UPS	Each	166596	79	166675
3-7-7	Supplying & erecting on line UPS pure sine wave of 10 kVA capacity complete with standard features, along with necessary SMF batteries for 30 mins battery backup, as per specification no. AP-UPS	Each	200321	79	200400
Note:-	<u>For additional battery backup:-</u> For the item no. 3.7.1 to 3.7.7, additional iron work of Rs.833/- shall be added for each additional battery backup . (The required capacity of batteries shall be added separately from item no.3.8.7 to 3.8.12 as per table 3.7/1 of specification book shall be referred for the same.)				
<u>3.8 Batteries for Inverter & UPS</u>					
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	8896	79	8975
3-8-2	Supplying and erecting 12 V/100Ah tubular battery with battery terminal wire, duly charged complete with 36 months warranty complete	Each	10740	79	10819
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	13748	79	13827
3-8-4	Supplying and erecting 12 V/150Ah tubular battery with battery terminal wire, duly charged complete with 36 months warranty complete	Each	16268	79	16347
3-8-5	Supplying and erecting 12 V/180Ah tubular battery with battery terminal wire, duly charged complete with 36 months warranty complete	Each	17119	79	17198
3-8-6	Supplying and erecting 12 V/200Ah tubular battery with battery terminal wire, duly charged complete with 36 months warranty complete	Each	20313	79	20392

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
3-8-7 (New)	Supplying and erecting 12 V/7Ah 7.5Ah SMF battery with battery terminal wire, duly charged complete with 24 months warranty complete	Each	764	79	843
3-8-8 (New)	Supplying and erecting 12 V/17Ah -18Ah SMF battery with battery terminal wire, duly charged complete with 24 months warranty complete	Each	2253	79	2332
3-8-9 (New)	Supplying and erecting 12 V/26Ah SMF battery with battery terminal wire, duly charged complete with 24 months warranty complete	Each	2804	79	2883
3-8-10 (New)	Supplying and erecting 12 V/42Ah SMF battery with battery terminal wire, duly charged complete with 24 months warranty complete	Each	4326	79	4405
3-8-11 (New)	Supplying and erecting 12 V/65Ah SMF battery with battery terminal wire, duly charged complete with 24 months warranty complete	Each	6081	79	6160
3-8-12 (New)	Supplying and erecting 12 V/100Ah SMF battery with battery terminal wire, duly charged complete with 24 months warranty complete.	Each	9054	79	9133
Note : Item No.3.8.7 to 3.8.12 use for UPS and Lift ARD (Auto Rescue Device) system. SMF stands for Sealed Maintenance Free.					
<u>3.9 Voltage Stabilizers</u>					
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 200 to 250 V 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 suitable for refrigerator for continuous operation.	Each	2279	0	2279
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 suitable for Water Cooler below 120 litre cooling capacity.	Each	2532	0	2532
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 200 to 250 V 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 suitable for Air Conditioner of 1 TR / Water Cooler of 120 liter cooling capacity and above.	Each	3018	0	3018
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 200 to 250 V 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 suitable for Air Conditioner of 1.5 TR.	Each	5135	0	5135
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 200 to 250 V 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 suitable for Air Conditioner of 2.0 TR.	Each	8607	0	8607
Note:- All the appliances shall be marked sr no and date of erection with enamel paint/permanent marker after Installation.					

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
<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	123	339	462
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 pastic material.	Year	4045	2185	6230
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	4754	2185	6939
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	6096	2185	8281
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 pastic material	Year	6917	2185	9102
3-10-6	Providing replacement of existing unservicable rotary/scroll compressor of air conditioner 1 TR by new one of same capacity with guarantee for one year with provided refrigerant complete.	Each	7591	1456	9047
3-10-7	Providing replacement of existing unservicable 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	8413	1456	9869
3-10-8	Providing replacement of existing unservicable rotary/scroll compressor of air conditioner 2 TR by new one of same capacity with guarantee for one year with provided refrigerant complete.	Each	9098	1456	10554
3-10-9	Providing replacement of existing unservicable 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	15759	1456	17215
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	545	157	702
3-10-11	Providing brazing pipes and checking leakages in the split/ window unit duly with dry nitrogen pressure in an approved manner.	Job	545	157	702
3-10-12	Providing replacement of unserviceable starting relay for AC unit.	Each	269	39	308
3-10-13	Providing replacement of unserviceable starting capacitor	Each	606	39	645

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
	for A/C unit.				
3-10-14	Providing replacement of unserviceable running capacitor for A/C unit.	Each	606	39	645
3-10-15	Providing replacement of unserviceable fan motor capacitor for A/C unit.	Each	170	39	209
3-10-16	Providing replacement of unserviceable PCB for A/C unit upto 3 TR capacity.	Each	5096	79	5175
3-10-17	Providing repair of of faulty PCB for air conditioning unit upto 3 TR capacity.	Each	910	79	989
3-10-18	Supplying and installing of new fan motor for condenser for air conditioning unit	Each	4849	157	5006
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	2717	79	2796
3-10-20	Supplying and installing new fan blade outdoor unit for air conditioning unit.	Each	1665	39	1704
3-10-21	Providing replacement of blower of indoor unit for air conditioning unit.	Each	1390	157	1547
3-10-22	Providing replacement of remote of indoor unit for air conditioning unit.	Each	3135	22	3157
3-10-23	Providing vaccumising the airconditioner system and charging with R-22 refrigerant for air conditioning unit.	KG	689	79	768
3-10-24	Providing vaccumising the airconditioner system to 200 micron and charging with R-410A/R32 refrigerant for air conditioning unit.	KG	977	79	1056
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	917	315	1232
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	1250	315	1565
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	1738	315	2053
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	2798	393	3191
3-10-29	Providing replacement of existing unserviceable compressor of 40 litre cooling capacity water cooler by new one of same capacity alongwith suitable refrigerent with guarantee for one year.	Job	6450	1151	7601
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	7302	1151	8453
3-10-31	Providing replacement of existing unserviceable compressor of 150 litre cooling capacity water cooler by new one of same capacity alongwith suitable refrigerent with guarantee for one year.	Job	8525	1151	9676
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 along with guarantee for one year with suitable refrigerant.	Job	5828	521	6349

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
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 along with guarantee for one year with suitable refrigerant.	Job	697	39	736
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	151	39	190
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	493	39	532
3-10-36	Supplying and erecting candle filter with filter pot for water cooler.	Job	900	315	1215
3-10-37	Supplying and erecting connector Pipe for candle filter of water cooler.	Job	554	79	633
3-10-38	Providing replacement of base tray of water cooler of any capacity. 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) dismantled material to be retained by contractor.	Job	1916	472	2388
<u>3.11 VRV/VRF Air conditioning (New)</u>					
3-11-1	Supplying, erecting, testing and commissioning of 6 HP, VRF / VRV air conditioning system, out door unit (ODU) complying type-IV OEM standards working on HFC free refrigerant R410A or other required/suitable green equivalent refrigerant, for cooling capacity delivering 100% at 47 deg. celcius and non stop cooling even at 56 deg. celcius and coefficient of performance (COP) 3.00 to 4.00, modular type horizontal/vertical hot air discharge suitable for total piping length upto 1000 metre operation in cooling mode with inverter based VRF/VRV technology microprocessor based control compressor starter/control panel complete with scroll compressor, air cooled anti corrosive copper condenser coil of suitable shape for increasing maximum heat transfer area, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V \pm 10%, 50 Hz, 3 phase power supply, internal copper refrigerant piping, internal wiring and first charge of refrigerant, etc. all housed in powder coated weather proof cabinet on provided angle iron frame or suitable foundation connected to the system in approved manner complete.	Each	103930	22840	126770

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
3-11-2	Supplying, erecting, testing and commissioning 7 HP to 8 HP, VRF / VRV air conditioning system, out door unit (ODU) complying type-IV OEM standards working on HFC free refrigerant R410A or other required/suitable green equivalent refrigerant, for cooling capacity delivering 100% at 47 deg. celcius and non stop cooling even at 56 deg. celsius and coefficient of performance (COP) 3.00 to 4.00, modular type horizontal/vertical hot air discharge suitable for total piping length upto 1000 metre operation in cooling mode with inverter based VRF/VRV technology microprocessor based control compressor starter/control panel complete with scroll compressor, air cooled anti corrosive copper condenser coil of suitable shape for increasing maximum heat transfer area, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V \pm 10%, 50 Hz, 3 phase power supply, internal copper refrigerant piping, internal wiring and first charge of refrigerant, etc. all housed in powder coated weather proof cabinet on provided angle iron frame or suitable foundation connected to the system in approved manner complete.	Each	264115	22840	286955
3-11-3	Supplying, erecting, testing and commissioning 10 HP, VRF / VRV air conditioning system, out door unit (ODU) complying type-IV OEM standards working on HFC free refrigerant R410A or other required/suitable green equivalent refrigerant, for cooling capacity delivering 100% at 47 deg. celcius and non stop cooling even at 56 deg. celsius and coefficient of performance (COP) 3.00 to 4.00, modular type horizontal/vertical hot air discharge suitable for total piping length upto 1000 metre operation in cooling mode with inverter based VRF/VRV technology microprocessor based control compressor starter/control panel complete with scroll compressor, air cooled anti corrosive copper condenser coil of suitable shape for increasing maximum heat transfer area, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V \pm 10%, 50 Hz, 3 phase power supply, internal copper refrigerant piping, internal wiring and first charge of refrigerant, etc. all housed in powder coated weather proof cabinet on provided angle iron frame or suitable foundation connected to the system in approved manner complete.	Each	277566	27509	305075

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
3-11-4	Supplying, erecting, testing and commissioning 12 HP, VRF / VRV air conditioning system, out door unit (ODU) complying type-IV OEM standards working on HFC free refrigerant R410A or other required/suitable green equivalent refrigerant, for cooling capacity delivering 100% at 47 deg. celcius and non stop cooling even at 56 deg. celsius and coefficient of performance (COP) 3.00 to 4.00, modular type horizontal/vertical hot air discharge suitable for total piping length upto 1000 metre operation in cooling mode with inverter based VRF/VRV technology microprocessor based control compressor starter/control panel complete with scroll compressor, air cooled anti corrosive copper condenser coil of suitable shape for increasing maximum heat transfer area, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V \pm 10%, 50 Hz, 3 phase power supply, internal copper refrigerant piping, internal wiring and first charge of refrigerant, etc. all housed in powder coated weather proof cabinet on provided angle iron frame or suitable foundation connected to the system in approved manner complete.	Each	294995	27509	322504
3-11-5	Supplying, erecting, testing and commissioning 14 HP, VRF / VRV air conditioning system, out door unit (ODU) complying type-IV OEM standards working on HFC free refrigerant R410A or other required/suitable green equivalent refrigerant, for cooling capacity delivering 100% at 47 deg. celcius and non stop cooling even at 56 deg. celsius and coefficient of performance (COP) 3.00 to 4.00, modular type horizontal/vertical hot air discharge suitable for total piping length upto 1000 metre operation in cooling mode with inverter based VRF/VRV technology microprocessor based control compressor starter/control panel complete with scroll compressor, air cooled anti corrosive copper condenser coil of suitable shape for increasing maximum heat transfer area, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V \pm 10%, 50 Hz, 3 phase power supply, internal copper refrigerant piping, internal wiring and first charge of refrigerant, etc. all housed in powder coated weather proof cabinet on provided angle iron frame or suitable foundation connected to the system in approved manner complete.	Each	384761	27509	412270
3-11-6	Supplying, erecting, testing and commissioning 16 HP, VRF / VRV air conditioning system, out door unit (ODU) complying type-IV OEM standards working on HFC free refrigerant R410A or other required/suitable green equivalent refrigerant, for cooling capacity delivering 100% at 47 deg. celcius and non stop cooling even at 56 deg. celsius and coefficient of performance (COP) 3.00 to 4.00, modular type horizontal/vertical hot air discharge suitable for total piping length upto 1000 metre operation in cooling mode with inverter based VRF/VRV technology microprocessor based control compressor starter/control panel complete with scroll compressor, air cooled anti corrosive copper condenser coil of suitable shape for increasing maximum heat transfer area, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V \pm 10%, 50 Hz, 3 phase power supply, internal copper refrigerant piping, internal wiring	Each	420361	27509	447870

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
3-11-7	<p>and first charge of refrigerant, etc. all housed in powder coated weather proof cabinet on provided angle iron frame or suitable foundation connected to the system in approved manner complete.</p> <p>Supplying, erecting, testing and commissioning 18 HP, VRF / VRV air conditioning system, out door unit (ODU) complying type-IV OEM standards working on HFC free refrigerant R410A or other required/suitable green equivalent refrigerant, for cooling capacity delivering 100% at 47 deg. celcius and non stop cooling even at 56 deg. celsius and coefficient of performance (COP) 3.00 to 4.00, modular type horizontal/vertical hot air discharge suitable for total piping length upto 1000 metre operation in cooling mode with inverter based VRF/VRV technology microprocessor based control compressor starter/control panel complete with scroll compressor, air cooled anti corrosive copper condenser coil of suitable shape for increasing maximum heat transfer area, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V \pm 10%, 50 Hz, 3 phase power supply, internal copper refrigerant piping, internal wiring and first charge of refrigerant, etc. all housed in powder coated weather proof cabinet on provided angle iron frame or suitable foundation connected to the system in approved manner complete.</p>	Each	437396	31814	469210
3-11-8	<p>Supplying, erecting, testing and commissioning 20 HP, VRF / VRV air conditioning system, out door unit (ODU) complying type-IV OEM standards working on HFC free refrigerant R410A or other required/suitable green equivalent refrigerant, for cooling capacity delivering 100% at 47 deg. celcius and non stop cooling even at 56 deg. celsius and coefficient of performance (COP) 3.00 to 4.00, modular type horizontal/vertical hot air discharge suitable for total piping length upto 1000 metre operation in cooling mode with inverter based VRF/VRV technology microprocessor based control compressor starter/control panel complete with scroll compressor, air cooled anti corrosive copper condenser coil of suitable shape for increasing maximum heat transfer area, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V \pm 10%, 50 Hz, 3 phase power supply, internal copper refrigerant piping, internal wiring and first charge of refrigerant, etc. all housed in powder coated weather proof cabinet on provided angle iron frame or suitable foundation connected to the system in approved manner complete.</p>	Each	465023	33232	498255

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
3-11-9	Supplying, erecting, testing and commissioning 22 HP, VRF / VRV air conditioning system, out door unit (ODU) complying type-IV OEM standards working on HFC free refrigerant R410A or other required/suitable green equivalent refrigerant, for cooling capacity delivering 100% at 47 deg. celcius and non stop cooling even at 56 deg. celsius and coefficient of performance (COP) 3.00 to 4.00, modular type horizontal/vertical hot air discharge suitable for total piping length upto 1000 metre operation in cooling mode with inverter based VRF/VRV technology microprocessor based control compressor starter/control panel complete with scroll compressor, air cooled anti corrosive copper condenser coil of suitable shape for increasing maximum heat transfer area, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V \pm 10%, 50 Hz, 3 phase power supply, internal copper refrigerant piping, internal wiring and first charge of refrigerant, etc. all housed in powder coated weather proof cabinet on provided angle iron frame or suitable foundation connected to the system in approved manner complete.	Each	481878	33232	515110
3-11-10	Supplying, erecting, testing and commissioning 24 HP, VRF / VRV air conditioning system, out door unit (ODU) complying type-IV OEM standards working on HFC free refrigerant R410A or other required/suitable green equivalent refrigerant, for cooling capacity delivering 100% at 47 deg. celcius and non stop cooling even at 56 deg. celsius and coefficient of performance (COP) 3.00 to 4.00, modular type horizontal/vertical hot air discharge suitable for total piping length upto 1000 metre operation in cooling mode with inverter based VRF/VRV technology microprocessor based control compressor starter/control panel complete with scroll compressor, air cooled anti corrosive copper condenser coil of suitable shape for increasing maximum heat transfer area, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V \pm 10%, 50 Hz, 3 phase power supply, internal copper refrigerant piping, internal wiring and first charge of refrigerant, etc. all housed in powder coated weather proof cabinet on provided angle iron frame or suitable foundation connected to the system in approved manner complete.	Each	500543	36482	537025

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
3-11-11	Supplying, erecting, testing and commissioning 26 HP, VRF / VRV air conditioning system, out door unit (ODU) complying type-IV OEM standards working on HFC free refrigerant R410A or other required/suitable green equivalent refrigerant, for cooling capacity delivering 100% at 47 deg. celcius and non stop cooling even at 56 deg. celsius and coefficient of performance (COP) 3.00 to 4.00, modular type horizontal/vertical hot air discharge suitable for total piping length upto 1000 metre operation in cooling mode with inverter based VRF/VRV technology microprocessor based control compressor starter/control panel complete with scroll compressor, air cooled anti corrosive copper condenser coil of suitable shape for increasing maximum heat transfer area, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V \pm 10%, 50 Hz, 3 phase power supply, internal copper refrigerant piping, internal wiring and first charge of refrigerant, etc. all housed in powder coated weather proof cabinet on provided angle iron frame or suitable foundation connected to the system in approved manner complete.	Each	532298	40787	573085
3-11-12	Supplying, erecting, testing and commissioning 28 HP, VRF / VRV air conditioning system, out door unit (ODU) complying type-IV OEM standards working on HFC free refrigerant R410A or other required/suitable green equivalent refrigerant, for cooling capacity delivering 100% at 47 deg. celcius and non stop cooling even at 56 deg. celsius and coefficient of performance (COP) 3.00 to 4.00, modular type horizontal/vertical hot air discharge suitable for total piping length upto 1000 metre operation in cooling mode with inverter based VRF/VRV technology microprocessor based control compressor starter/control panel complete with scroll compressor, air cooled anti corrosive copper condenser coil of suitable shape for increasing maximum heat transfer area, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V \pm 10%, 50 Hz, 3 phase power supply, internal copper refrigerant piping, internal wiring and first charge of refrigerant, etc. all housed in powder coated weather proof cabinet on provided angle iron frame or suitable foundation connected to the system in approved manner complete.	Each	580374	40787	621161
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	17990	925	18915

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
3-11-14	Supply, installation, testing and commissioning of VRF/VRV based Hi-wall type 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, 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	19255	925	20180
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 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	20980	925	21905
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 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	28570	925	29495
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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase, 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	27268	1421	28689

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
3-11-18	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 4 Way cassette indor unit (IDU) compact / standard size of nominal cooling capacity 1.0TR (441 cfm) / 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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase, 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	31754	1421	33175
3-11-19	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 4 Way cassette indor unit (IDU) compact / standard size of nominal cooling capacity 1.5TR (512 cfm) / 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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase, 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	34054	1421	35475
3-11-20	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 4 Way cassette indor unit (IDU) compact / standard size of nominal cooling capacity 2.0TR (618 cfm) / 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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase, 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	34399	1421	35820
3-11-21	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 4 Way cassette indor 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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase, 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	35204	1421	36625

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
3-11-22	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 4 Way cassette indor 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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase, 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	35779	1421	37200
3-11-23	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 4 Way cassette indor 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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase, 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	36354	1421	37775
3-11-24	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 4 Way cassette indor unit (IDU) compact / standard size of nominal cooling capacity 4.1TR (1218 cfm) to 5.0TR (1624 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase, 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	53569	1421	54990
3-11-25	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 2 way cassette indor 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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	46934	1421	48355

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
3-11-26	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 2 way cassette 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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	57284	1421	58705
3-11-27	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 2 way cassette 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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	58664	1421	60085
3-11-28	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 2 way cassette 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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	59814	1421	61235
3-11-29	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 2 way cassette 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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	67157	1421	68578

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
3-11-30	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 2 way cassette indor 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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	78215	1421	79636
3-11-31	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 2 way cassette indor 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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	91753	1421	93174
3-11-32	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 1 way cassette indor 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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	63236	1421	64657
3-11-33	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 1 way cassette indor 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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	46819	1421	48240

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
3-11-34	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 1 way cassette 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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	68669	1421	70090
3-11-35	Supply, installation, testing and commissioning of VRF/VRV based ceiling suspended 1 way cassette 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. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.	Each	75529	1421	76950
3-11-36	Supply, installation, testing and commissioning of VRF/VRV based concealed split ductable type, high static 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, condensate 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 coastal area, with necessary ceiling suspension arrangement having an electronic control console with providing any additional refrigerant and oil charge as per requirement during installation connected with the system complete.	Each	27739	1421	29160
3-11-37	Supply, installation, testing and commissioning of VRF/VRV based concealed split ductable type, high static 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, condensate 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 coastal area, with necessary ceiling suspension arrangement having an electronic control console with providing any additional refrigerant and oil charge as per requirement during installation connected with the system complete.	Each	28314	1421	29735

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
3-11-38	Supply, installation, testing and commissioning of VRF/VRF based concealed split ductable type, high static 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, condensate 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 coastal area, with necessary ceiling suspension arrangement having an electronic control console with providing any additional refrigerant and oil charge as per requirement during installation connected with the system complete.	Each	21579	1421	23000
3-11-39	Supply, installation, testing and commissioning of VRF/VRF based floor mounting / ceiling suspended dual mount type, 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, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU should have anti-corrosive coating suitable for coastal area, with necessary floor mounting or ceiling suspension arrangement having an electronic control console with providing any additional refrigerant and oil charge as per requirement during installation connected with the system complete.	Each	38079	1421	39500
3-11-40	Supply, installation, testing and commissioning of VRF/VRF based floor mounting / ceiling suspended dual mount type, 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, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU should have anti-corrosive coating suitable for coastal area, with necessary floor mounting or ceiling suspension arrangement having an electronic control console with providing any additional refrigerant and oil charge as per requirement during installation connected with the system complete.	Each	38679	1421	40100
3-11-41	Supply, installation, testing and commissioning of VRF/VRF based floor mounting / ceiling suspended dual mount type, 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, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU should have anti-corrosive coating suitable for coastal area, with necessary floor mounting or ceiling suspension arrangement having an electronic control console with providing any additional refrigerant and oil charge as per requirement during installation connected with the system complete.	Each	39114	1421	40535

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
3-11-42	Supply, installation, testing and commissioning of VRF/VRF based floor mounting / ceiling suspended dual mount type, 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, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU should have anti-corrosive coating suitable for coastal area, with necessary floor mounting or ceiling suspension arrangement having an electronic control console with providing any additional refrigerant and oil charge as per requirement during installation connected with the system complete.	Each	43369	1421	44790
3-11-43	Supply, installation, testing and commissioning of VRF/VRF based floor mounting / ceiling suspended dual mount type, indoor unit (IDU) having nominal cooling capacity of 3.2TR (1200 cfm) 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, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU should have anti-corrosive coating suitable for coastal area, with necessary floor mounting or ceiling suspension arrangement having an electronic control console with providing any additional refrigerant and oil charge as per requirement during installation connected with the system complete.	Each	46014	1421	47435
3-11-44	Supply, installation, testing and commissioning of VRV/VRF based floor mount type vertical, 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 coastal area , an electronic control console, with suitable floor mounting arrangement, additional refrigerant and oil charge as per requirement during installation connected with the system complete.	Each	36522	1213	37735
3-11-45	Supply, installation, testing and commissioning of VRV/VRF based floor mount type vertical, 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 coastal area , an electronic control console, with suitable floor mounting arrangement, additional refrigerant and oil charge as per requirement during installation connected with the system complete.	Each	41162	1213	42375

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
3-11-46	Supply, installation, testing and commissioning of VRV/VRF based floor mount type vertical, 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 coastal area , an electronic control console, with suitable floor mounting arrangement, additional refrigerant and oil charge as per requirement during installation connected with the system complete.	Each	47382	1213	48595
3-11-47	Supply, installation, testing and commissioning of VRV/VRF based floor mount type vertical, 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 coastal area , an electronic control console, with suitable floor mounting arrangement, additional refrigerant and oil charge as per requirement during installation connected with the system complete.	Each	72267	1213	73480
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, cordless / corded remote control with necessary controls and electrical terminal to receive power supply, etc having anti-corrosive coating suitable for coastal area, with suitable floor mounting arrangement, an electronic control console and any additional refrigerant and oil charge as per requirement during installation connected with the system complete.	Each	90232	1303	91535
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 10TR (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, cordless / corded remote control with necessary controls and electrical terminal to receive power supply, etc having anti-corrosive coating suitable for coastal area, with suitable floor mounting arrangement, an electronic control console and any additional refrigerant and oil charge as per requirement during installation connected with the system complete.	Each	99717	1303	101020

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
3-11-50	Supply, installation, testing and commissioning of VRV / VRF based ductable type, high static 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, 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	27795	1480	29275
3-11-51	Supply, installation, testing and commissioning of VRV / VRF based ductable type, high static 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, 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	28370	1480	29850
3-11-52	Supply, installation, testing and commissioning of VRV / VRF based ductable type, high static 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, 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	33948	1480	35428
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	42215	1480	43695

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
3-11-54	Supply, installation, testing and commissioning of VRV / VRF based ductable type, high static 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, 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	48023	1480	49503
3-11-55	Supply, installation, testing and commissioning of VRV / VRF based ductable type, high static 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, 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	53988	1552	55540
3-11-56	Supply, installation, testing and commissioning of VRV / VRF based ductable type, high static 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, 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	58965	1980	60945
3-11-57	Supply, installation, testing and commissioning of VRV / VRF based ceiling suspended 4.0TR Treated Fresh Air (TFA) (3310 cfm) indoor unit with evaporator fan with motor, copper tube, aluminium fin evaporator coil, washable air filter, insulated drain tray, expansion device, corded / 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 and an electronic control console with an additional refrigerant and oil charge as per requirement during installation connected with the system complete.	Each	48898	2157	51055
3-11-58	Supply, installation, testing and commissioning of VRV / VRF based ceiling suspended 6.5TR Treated Fresh Air (TFA) (5380 cfm) indoor unit with evaporator fan with motor, copper tube, aluminium fin evaporator coil, washable air filter, insulated drain tray, expansion device, corded / 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 and an electronic control console with an additional refrigerant and oil charge as per requirement during installation connected with the system	Each	68103	2157	70260

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	complete.				
3-11-59	Supply, installation, testing and commissioning of VRV / VRF based ceiling suspended 8.0TR (6600 cfm) to 10TR (8200 cfm) Treated Fresh Air (TFA) indoor unit with evaporator fan with motor, copper tube, aluminium fin evaporator coil, washable air filter, insulated drain tray, expansion device, corded / 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 and an electronic control console with an additional refrigerant and oil charge as per requirement during installation connected with the system complete.	Each	85712	2834	88546
3-11-60	Supplying, erecting, testing & commissioning fresh air intake system, ductable circular inline fresh air fan inlet unit having 300 cfm capacity with maintaining the static pressure minimum 20 mm of Hg complete suitable to operate on 1ph, 230 V, 50Hz, A.C. supply.	Each	4419	361	4780
3-11-61	Supplying, erecting, testing & commissioning fresh air intake system, ductable circular inline fresh air fan inlet unit having 1000 cfm capacity with maintaining the static pressure minimum 20 mm of Hg complete suitable to operate on 1ph, 230 V, 50Hz, A.C. supply.	Each	13968	361	14329
3-11-62	Supplying and erecting circular flexible / rigid PVC pipe duct of size 40 mm dia , 4 mm thickness with required couplers, reducers, T-joints, Y-joints, elbows and necessary supports etc with sealing complete with provided control/ air flow regulating valves / dampers, filters at position.	m	1882	225	2107
3-11-63	Supplying and erecting circular flexible / rigid PVC pipe duct of size 50 mm dia , 4 mm thickness with required couplers, reducers, T-joints, Y-joints elbows and necessary supports etc with sealing complete with provided control/ air flow regulating valves / dampers, filters at position.	m	2056	225	2281
3-11-64	Supplying and erecting circular flexible / rigid PVC pipe duct of size 80 mm dia , 4 mm thickness with required couplers, reducers, T-joints, Y-joints elbows and necessary supports etc with sealing complete with provided control/ air flow regulating valves / dampers, filters at position.	m	2231	225	2456
3-11-65	Supplying and erecting circular flexible / rigid PVC pipe duct of size 100 mm dia , 4 mm thickness with required couplers, reducers, T-joints, Y-joints elbows and necessary supports etc with sealing complete with provided control/ air flow regulating valves / dampers, filters at position.	m	2582	225	2807
3-11-66	Supplying and erecting circular flexible / rigid PVC pipe duct of size 150 mm dia , 4 mm thickness with required couplers, reducers, T-joints, Y-joints elbows and necessary supports etc with sealing complete with provided control/ air flow regulating valves / dampers, filters at position.	m	2931	225	3156
3-11-67	Supplying and erecting circular flexible / rigid PVC pipe duct of size 200 mm dia , 4 mm thickness with required couplers, reducers, T-joints, Y-joints elbows and necessary supports etc with sealing complete with provided control/ air flow regulating valves / dampers, filters at position.	m	3282	225	3507
3-11-68	Supplying and erecting an air flow regulating valves / dampers in provided flexible or rigid duct / pipe of 40 mm size with an alteration for existing flexible pvc pipe duct and necessary joints, sealing, couplings complete at position.	Each	4547	450	4997

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
3-11-69	Supplying and erecting an air flow regulating valves / dampers in provided flexible or rigid duct / pipe of 50 mm size with an alteration for existing flexible pvc pipe duct and necessary joints, sealing, couplings complete at position.	Each	4998	450	5448
3-11-70	Supplying and erecting an air flow regulating valves / dampers in provided flexible or rigid duct / pipe of 80 mm size with an alteration for existing flexible pvc pipe duct and necessary joints, sealing, couplings complete at position.	Each	5447	450	5897
3-11-71	Supplying and erecting an air flow regulating valves / dampers in provided flexible or rigid duct / pipe of 100 mm size with an alteration for existing flexible pvc pipe duct and necessary joints, sealing, couplings complete at position.	Each	5898	450	6348
3-11-72	Supplying and erecting an air flow regulating valves / dampers in provided flexible or rigid duct / pipe of 150 mm size with an alteration for existing flexible pvc pipe duct and necessary joints, sealing, couplings complete at position.	Each	6348	450	6798
3-11-73	Supplying and erecting an air flow regulating valves / dampers in provided flexible or rigid duct / pipe of 200 mm size with an alteration for existing flexible pvc pipe duct and necessary joints, sealing, couplings complete at position.	Each	7698	450	8148
3-11-74	Supply, installation, testing and commissioning air curtain of 3 feet width having air throw velocity of 12 to 14 m/sec , low noise level up to 38 to 46 dB suitable for door height upto 9 feet, working on 1ph, 230 V, 50Hz, A.C. supply.	Each	16342	586	16928
3-11-75	Supply, installation, testing and commissioning air curtain of 4 feet width having air throw velocity of 21 m/sec , low noise level up to 38 to 46 dB suitable for door height upto 9 feet, working on 1ph, 230 V, 50Hz, A.C. supply.	Each	17078	586	17664
3-11-76	Supply, installation, testing and commissioning air curtain of 6 feet width having air throw velocity of 21 m/sec , low noise level up to 38 to 46 dB suitable for door height upto 9 feet, working on 1ph, 230 V, 50Hz, A.C. supply.	Each	19951	586	20537
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	879	6621	7500
3-11-78	Supply, installation, testing and commissioning cordless remote control having colour LCD panel, real time clock, temperature limitation (16 to 30 degree Cent.), functions like filter clean reminder timer suitable to communicate with wired controller complete.	Each	1678	22	1700
3-11-79	Supplying, erecting, testing and commissioning centralised programmable remote control panel (HMI) touch manager controls minimum 16 system of minimum 64 ODU's can be controlled and up to 992 IDU's can be individually mounted and controlled indoor units having minimum 200 mm size colour LCD touch panel, yearly schedule, power proportional distribution function, temperature limitation, history function complete erected on wall with an arrangement to integrate with provided fire alarm system.	Each	41064	2136	43200

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
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 complete with operating mechanism, mounting arrangement, rubber refrigerant kits etc. complete.	Sq.m	5795	157	5952
3-11-81	Supply, installation, testing and commissioning of volume control box with collar for control damper of required sizes in GI construction complete with operating mechanism, mounting arrangement, rubber refrigerant kits etc. complete.	Each	5498	157	5655
3-11-82	Supply, fabrication, installation and testing of flexible canvass connections constructed between ductable unit / dampers / ducting of required size with fire resist flexible double canvas sleeve complete.	Each	2488	157	2645
3-11-83	Providing adhesive thermal insulation for supply / return air duct with 19 mm nitrile rubber insulation having R-value as per the prevailing provisions in ECBC-2007.	Sq.m	859	79	938
3-11-84	Providing and applying of acoustic insulation for air ducts with 25 mm thick, 48kg/cu.m fiber glass faced with RP tissue and covered with 26 SWG perforated aluminium sheets complete.	Sq.m	990	79	1069
3-11-85	Supplying & erecting tile type modular diffuser made from aluminium sheet complete with powder coated matching to the ceiling shade for provided supply and return air.	Each	10600	900	11500
3-11-86	Supplying and installation of high pressure grade required size copper connection Y or T- Joints / refnet for liquid and suction line 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	5093	391	5484
3-11-87	Supplying and installing of collar damper of galvanised iron material of upto 120 microns for anti corrosive resistance for supply air grill of required size	Sq.m	6276	32	6308
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 degree.	Sq.m	1211	22	1233
3-11-89	Supplying, laying / fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 41.3 mm dia (OD) for liquid line / suction line supply and return piping of suitable gauge (hard drawn copper pipe for liquid main line and 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 suitable for use with VRV / VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations complete with OEM standards of VRV / VRF air conditioning system.	m	2319	79	2398

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
3-11-90	Supplying, laying / fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 34.9 mm dia (OD) for liquid line / suction line supply and return piping of suitable gauge (hard drawn copper pipe for liquid main line and 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 suitable for use with VRV / VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations complete with OEM standards of VRV / VRF air conditioning system.	m	2165	79	2244
3-11-91	Supplying, laying / fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 28.6 mm dia (OD) for liquid line / suction line supply and return piping of suitable gauge (hard drawn copper pipe for liquid main line and 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 suitable for use with VRV / VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations complete with OEM standards of VRV / VRF air conditioning system.	m	2104	79	2183
3-11-92	Supplying, laying / fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 22.2 mm dia (OD) for liquid line / suction line supply and return piping of suitable gauge (hard drawn copper pipe for liquid main line and 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 suitable for use with VRV / VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations complete with OEM standards of VRV / VRF air conditioning system.	m	1389	79	1468
3-11-93	Supplying, laying / fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 19.1 mm dia (OD) for liquid line / suction line supply and return piping of suitable gauge (hard drawn copper pipe for liquid main line and 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 suitable for use with VRV / VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations complete with OEM standards of VRV / VRF air conditioning system.	m	1059	79	1138

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
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 drawn copper pipe for liquid main line and 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 suitable for use with VRV / VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations complete with OEM standards of VRV / VRF air conditioning system.	m	917	79	996
3-11-95	Supplying, laying / fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 12.7 mm dia (OD) for liquid line / suction line supply and return piping of suitable gauge (hard drawn copper pipe for liquid main line and 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 suitable for use with VRV / VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations complete with OEM standards of VRV / VRF air conditioning system.	m	658	79	737
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 drawn copper pipe for liquid main line and 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 suitable for use with VRV / VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations complete with OEM standards of VRV / VRF air conditioning system.	m	539	79	618
3-11-97	Supplying, laying / fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 6.4 mm dia (OD) for liquid line / suction line supply and return piping of suitable gauge (hard drawn copper pipe for liquid main line and 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 suitable for use with VRV / VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations complete with OEM standards of VRV / VRF air conditioning system.	m	397	79	476
Note:-	1).The rates of ODU's having COP ranging from 4.00 to 4.80, the material rate of item nos. 3-1-1 to 3-1-12 shall be increased by 25%. 2).Pipe insulation of heating system and cooling systems shall be as per the table 5.6 and 5.7 of Energy Conservation Building Code (ECBC)-2007 user guide. 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.				

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
<u>3.12 Dismantling</u>					
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	0	157	157
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	0	393	393
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	0	743	743
Note:-	The rates for item no 3.10.1 to 3.10.3 are inclusive of dismantling and handing over to section office inclusive of transportation upto 25 km between site and section office.				

IS Standards for Energy saving devices

IS 3412 (1994) Electric water boilers

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 11338 (1985) Thermostats for Use in Refrigerators, Air Conditioners, Water Coolers and Beverage Coolers

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 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 4578 (1997) Lubricating oils for refrigeration machinery

4831 (1968) Recommendation on units and symbols for refrigeration

(Refrigeration and air conditioning)

IS 5111 (1993) Testing of refrigerant compressors

IS 7613 (1975) Method of testing panel type air filters for air conditioning and ventilation purposes

Specifications of Inverter (As per MNRE Specifications)

IS 1651 - 1991 - Stationary cells and batteries, lead-acid type (Tubular)

IS 13369: Stationary lead acid batteries (with tubular positive plates) in monoblock containers

IS 16242 (Part 1) : 2014 PART 1 GENERAL AND SAFETY REQUIREMENTS FOR UPS

Doc: ET 31(6128) Part 3 Method of Specifying the Performance and Test Requirements

Chapter: 4

Energy saving Devices (ESD)

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|-----|----------------------------------|------------------|
| 4.1 | Solar Hot water system | (ESD-SHWS) |
| 4.2 | Pipes for Solar Hot Water System | (ESD-HWP) |
| 4.3 | Solar Lighting | (ESD-SOL) |
| 4.4 | Miscellaneous | |
| 4.5 | Rooftop OFF grid solar systems | (ESD-RT-OFG) |
| 4.6 | Rooftop ON grid Solar systems | (ESD-RT-
ONG) |
| 4.7 | Solar water pump systems | (ESD-SWPS) |
| 4.8 | Dismantling | |

Chapter 4 : ENERGY SAVING DEVICES (ESD)

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
<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 heat exchanger type of 100 LPD capacity complete. Specification no. ESD-SHWS-FPC	Each	20808	1746	22554
4-1-2	Supplying, installing, testing and commissioning of FPC solar water heating system without heat exchanger type of 200 LPD capacity complete. Specification no. ESD-SHWS-FPC	Each	36206	2251	38457
4-1-3	Supplying, installing, testing and commissioning of FPC solar water heating system without heat exchanger type of 300 LPD capacity complete. Specification no. ESD-SHWS-FPC	Each	49940	2701	52641
4-1-4	Supplying, installing, testing and commissioning of FPC solar water heating system without heat exchanger type of 500 LPD capacity a complete. Specification no. ESD-SHWS-FPC	Each	70748	4326	75074
4-1-5	Supplying, installing, testing and commissioning of ETC solar water heating system without heat exchanger type of 100 LPD capacity complete. Specification no. ESD-SHWS-ETC	Each	18394	1801	20195
4-1-6	Supplying, installing, testing and commissioning of ETC solar water heating system without heat exchanger type of 200 LPD capacity complete. Specification no. ESD-SHWS-ETC	Each	28986	2251	31237
4-1-7 (New)	Supplying, installing, testing and commissioning of ETC solar water heating system without heat exchanger type of 250 LPD capacity complete. Specification no. ESD-SHWS-ETC	Each	34004	2251	36255
4-1-8	Supplying, installing, testing and commissioning of ETC solar water heating system without heat exchanger type of 300 LPD capacity complete. Specification no. ESD-SHWS-ETC	Each	35883	2701	38584
4-1-9	Supplying, installing, testing and commissioning of ETC solar water heating system without heat exchanger type of 500 LPD capacity complete. Specification no. ESD-SHWS-ETC	Each	55314	4326	59640
Note	1. If the solar water heating system is to be provided with heat exchanger, increase overall rates by 15 %. 2. For all hostel buildings, rest houses, circuit houses, dormitories and residential quarters, solar water heating system shall be proposed for new installation and for replacement / renovation instead of electrical water heater.				
<u>4.2 Pipes for solar hot water system (ESD-HWP)</u>					
4-2-1	Supplying and erecting GI pipe 15 mm dia B class with resin bonded flap rock wool/glass wool insulation , with necessary material complete. Specification no. (ESD-HWP/TGP)	m	232	63	295
4-2-2	Supplying and erecting GI pipe 20 mm dia B class with resin bonded flap rock wool/glass wool insulation , with necessary material as per specification no. (ESD-HWP/TGP)	m	278	63	341
4-2-3	Supplying and erecting GI pipe 25 mm dia B class with resin bonded flap rock wool/glass wool insulation , with necessary material complete. Specification no. (ESD-HWP/TGP)	m	376	126	502
4-2-4	Supplying and erecting GI pipe 32 mm dia B class with resin bonded flap rock wool/glass wool insulation , with necessary material complete. Specification no. (ESD-HWP/TGP)	m	453	126	579
4-2-5	Supplying and erecting GI pipe 40 mm dia B class with resin bonded flap rock wool/glass wool insulation , with necessary material complete. Specification no. (ESD-HWP/TGP)	m	527	126	653

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
4-2-6	Supplying and erecting GI pipe 50 mm dia B class with resin bonded flap rock wool/glass wool insulation , with necessary material complete. Specification no. (ESD-HWP/TGP)	m	639	126	765
4-2-7	Supplying and erecting 12/16 mm (ID/OD) polyethylene composite pipe duly joined by compression/crimp fitted accessories, with internal as well as external end sealing arrangement for solar water heater system complete. Specification no. (ESD-HWP/PCP)	m	123	47	170
4-2-8	Supplying and erecting 16/20 mm (ID/OD) polyethylene composite pipe duly joined by compression/crimp fitted accessories, with internal as well as external end sealing arrangement for solar water heater system complete. Specification no. (ESD-HWP/PCP)	m	148	47	195
4-2-9	Supplying and erecting 20/25 mm (ID/OD) polyethylene composite pipe duly joined by compression/crimp fitted accessories, with internal as well as external end sealing arrangement for solar water heater system complete. Specification no. (ESD-HWP/PCP)	m	193	52	245
4-2-10	Supplying and erecting 25/32 mm (ID/OD) polyethylene composite pipe duly joined by compression/crimp fitted accessories, with internal as well as external end sealing arrangement for solar water heater system complete. Specification no. (ESD-HWP/PCP)	m	287	52	339
4-2-11	Supplying and erecting 32/40 mm (ID/OD) polyethylene composite pipe duly joined by compression/crimp fitted accessories, with internal as well as external end sealing arrangement for solar water heater system complete. Specification no. (ESD-HWP/PCP)	m	392	52	444
4-2-12	Supplying and erecting 40/50 mm (ID/OD) polyethylene composite pipe duly joined by compression/crimp fitted accessories, with internal as well as external end sealing arrangement for solar water heater system complete. Specification no. (ESD-HWP/PCP)	m	576	52	628
4-2-13	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for over coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 6 mm for solar water heater system.	m	45	6	51
4-2-14	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for over coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 9 mm for solar water heater system.	m	52	6	58
4-2-15	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for over coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 12 mm for solar water heater system.	m	57	6	63
4-2-16	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for over coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 16 mm for solar water heater system.	m	66	6	72
4-2-17	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for over coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 19 mm for solar water heater system.	m	77	6	83
4-2-18	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for over coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 22 mm for solar water heater system.	m	85	6	91

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
4-2-19	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for over coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 28 mm for solar water heater system.	m	97	6	103
4-2-20	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for over coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 32 mm for solar water heater system.	m	107	6	113
4-2-21	Supplying and erecting elastomeric nitrile rubber / foam tube type sleeves for over coating and insulating on provided PC / copper pipes having 9 mm thickness and inner diameter / sizes 42 mm for solar water heater system.	m	117	6	123
Note:	1) For polyethylene composite pipe additional insulation of maximum 6 mm thickness may be proposed where there is drastic fall in temperature due to atmospheric condition. 2) ID/OD stands for inner diameter / outer diameter.				
<u>4.3 Solar lighting (ESD-SOL)</u>					
4-3-1	Supplying, installing, testing and commissioning of solar home light system with 2 white LED luminaries , 2.5 W (max.) each, 12V, 12 AH C-20 lead acid battery / valve regulated lead acid battery, 12 Wp SPV Module with module mounting hardware, electronic control, connecting wires, switches, battery box and all accessories complete. Specification no. ESD-SOL/SHL	Each	-	-	2857
4-3-2 (New)	Supplying, installing, testing and commissioning of solar home light system with 2 white LED luminaries 2.5W (max.) each and 1 DC fan upto 10W, 12V-20 AH C-20 lead acid battery/ valve regulated lead acid battery, 24 Wp SPV Module with module mounting hardware, electronic control, connecting wires, switches, battery box and all accessories complete. Specification no. ESD-SOL/SHL	Each	-	-	5714
4-3-3	Supplying, installing, testing and commissioning of solar home light system with 4 white LED luminaires , 2.5W (max.) each, 12V, 20 AH C-20 lead acid battery / valve regulated lead acid battery , 24Wp SPV Module with module mounting hardware, electronic control, connecting wires, switches, battery box and all accessories complete. Specification no. ESD-SOL/SHL	Each	-	-	5714
4-3-4 (New)	Supplying, installing, testing and commissioning of solar home light system with 2 white LED luminaries 2.5W (max.) Each and 1 DC fan upto 20 W, 12V- 40AH C-20 lead acid battery/valve regulated lead acid battery, 40 Wp SPV module with module mounting hardware, electronic control, connecting wires, switches, battery box and all accessories complete. Specification no. ESD-SOL/SHL	Each	-	-	9524
4-3-5	Supplying, installing, testing and commissioning of solar panel comprising high efficiency poly-crystalline / multi crystalline photovoltaic cell 100Wp, 12V with necessary clamps and module frame on existing structure complete. Specification no. ESD-SOL/CELL	Each	4532	285	4817
4-3-6	Supplying, installing, testing and commissioning of solar panel comprising high efficiency poly-crystalline / multi crystalline photovoltaic cell 250Wp, 24V with necessary clamps and module frame on existing structure complete. Specification no. ESD-SOL/CELL	Each	9271	325	9596
4-3-7	Supplying, installing, testing and commissioning of solar panel comprising high efficiency poly-crystalline / multi crystalline photovoltaic cell 300Wp, 24V with necessary clamps and module frame on existing structure complete. Specification no. ESD-SOL/CELL	Each	10383	389	10772

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
4-3-8	Supplying, installing, testing and commissioning of battery with capacity of 12 V- 40 Ah with duty cycle 10-12 hrs suitable to charge on PV cell with necessary wiring connections erected in powder coated protection box with stand and nut bolts complete. Specification no. ESD-SOL/BAT	Each	6145	157	6302
4-3-9	Supplying, installing, testing and commissioning battery with capacity of 12 V- 75 Ah with duty cycle 10-12 hrs suitable to charge on PV cell with necessary wiring connections erected in powder coated protection box with stand and nut bolts complete. Specification no. ESD-SOL/BAT	Each	7734	197	7931
4-3-10	Supplying, installing, testing and commissioning battery with capacity of 12 V- 150 Ah with duty cycle 10-12 hrs suitable to charge on PV cell with necessary wiring connections erected in powder coated protection box with stand and nut bolts complete. Specification no. ESD-SOL/BAT	Each	13774	236	14010
4-3-11	Supplying, installing, testing and commissioning solar street light pole comprising of 9 W LED fitting, 12V 18Ah maintenance free lithium battery , min. 40 Wp SPV module, MS powder coated battery box weather proof, mounted on 75/80 mm dia. B-Grade GI pole of 6 m. height along with brackets, foundation, earthing and necessary accessories complete. Specification no. ESD-SOL-STL (with 5 years warrantee)	Each	18547	-	18547
4-3-12	Supplying, installing, testing and commissioning solar street light pole comprising of 14W LED fitting, 12V 36Ah maintenance free lithium battery , min. 75Wp SPV module, MS powder coated battery box weather proof, mounted on 75/80 mm dia. B-Grade GI pole of 6 m. height along with brackets, foundation, earthing and necessary accessories complete. Specification no. ESD-SOL-STL (with 5 years warrantee)	Each	38249	-	38249
4-3-13	Supplying, installing, testing and commissioning solar street light pole comprising of 12W x 2 nos. LED fittings, 12V min. 100Ah maintenance free lithium battery , min. 120Wp SPV module, MS powder coated battery box weather proof, mounted on 75/80 mm dia. B-Grade GI pole of 6 m. height along with brackets, foundation, earthing and necessary accessories complete. Specification no. ESD-SOL-STL	Each	54810	-	54810
4-3-14	Supplying, installing, testing and commissioning solar LED mini Hi – Mast 20 W x 5 nos. LED luminaries, 2 nos. x 150 AH 12 V lithium battery , min. 400 Wp SPV modules, mounted on GI octagonal pole with bottom of 130 mm A/F, top 70 mm A/F 6 mtr height along with brackets, foundation, earthing and necessary accessories, waterproof battery box, suitable solar inverter, timer setting arrangement, GI / powder coated module structure, with first 6 hr. full intensity light output and following 6 hr. with half intensity light output along with solar and local electrical power supply charging facility complete. (with 5 years warrantee)	Each	203995	-	203995
4-3-15 (New)	Supplying, installing, testing and commissioning solar street light pole comprising of 7W x 2 nos. LED fittings, 12V 36 Ah maintenance free lithium battery , min. 100 Wp SPV module, MS powder coated weather proof and anti-theft battery box. pole height 5 m. 16 Lux at 4 m. complete. Specification no. ESD-SOL-STL (with 5 years warrantee)	Each	50999	-	50999
Note:-	<p>1. For item no 4-3-5 to 4-3-7 for solar panel comprising of mono crystalline photovoltaic cell of the same capacity, increase overall rate by 10 % .</p> <p>2. For items 4-3-1 to 4-3-13 are considered with warrantee of 5 years.</p>				

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	<p>3. For item no. 4-3-1 to 4-3-4 and 4-3-13 to 4-3-15 rates are as per benchmark cost of Ministry of New and Renewable Energy (MNRE) which are inclusive of total system cost, it's installation, commissioning, transportation, insurance with 5 years AMC/CMC .</p> <p>4. Warrantee of the battery for item no. 4-3-1 to 4-3-4 should be for a period of 5 years and warrantee for PV modules will be for a minimum period of 25 years from the date of supply.</p>				
	<u>4.4 Miscellaneous</u>				
4-4-1	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	2303	63	2366
4-4-2	Supplying and erecting two pole power contactor 230 V, 12 A for time switch complete erected on provided wooden block/ box, with necessary materials.	Each	884	76	960
4-4-3	Supplying and erecting two pole power contactor 230 V, 32 A for time switch complete erected on provided wooden block/ box, with necessary materials.	Each	2273	76	2349
4-4-4	Supplying and erecting four pole power contactor 430 V, 16 A for time switch complete erected on provided wooden block/ box, with necessary materials.	Each	1213	76	1289
4-4-5	Supplying and erecting four pole power contactor 430 V, 40 A for time switch complete erected on provided wooden block/ box, with necessary materials.	Each	2512	76	2588
4-4-6	Supplying and erecting programmable digital almanac timer microcontroller based with real time clock to operate on derived switching "ON" & switching "OFF" street light as per daily sunset and sunrise respectively automatically having 4 digit LED continuous time display, relay output 230 V / 10A with 10 hrs battery backup and manual over drive facility capable to drive different capacity contactors timer erected in provided M.S. box in an approved manner.	Each	5929	76	6005
4-4-7	Providing and fixing high-density polyethylene (HDPE) 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	8	1	9
	<u>4.5 Rooftop OFF grid solar systems (ESD-RT-OFG)</u>				
4-5-1 (New)	Supplying, installing, testing and commissioning of 1 kWp off grid solar power pack with GI mounting structure and interconnecting wires / cables along with 24V/12V pure sine wave solar power inverter (THD<5%), 24V/12V charge controller and 24V/12V C-10 rated lead acid battery bank of required capacity and required SPV modules for battery backup of 3 hrs complete , with 5 years on site performance warrantee. Specification no. ESD-RT-OFG	Each	-	-	76190
4-5-2 (New)	Supplying, installing, testing and commissioning of 1 kWp off grid solar power pack with GI mounting structure and interconnecting wires / cables along with 24V/12V pure sine wave solar power inverter (THD<5%), 24V/12V charge controller and 24V/12V C-10 rated lead acid battery bank of required capacity and required SPV modules for battery backup of 6 hrs complete , with 5 years on site performance warrantee. Specification no. ESD-RT-OFG	Each	-	-	95238

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
4-5-3 (New)	Supplying, installing, testing and commissioning of 11 kWp off grid solar power pack with GI mounting structure and interconnecting wires / cables along with 24V/12V pure sine wave solar power inverter (THD<5%), 24V/12V charge controller and 24V/12V C-10 rated lead acid battery bank of required capacity and required SPV modules for battery backup of 3 hrs complete, with 5 years on site performance warrantee as per Specification no. ESD-RT-OFG	Each	-	-	754286
4-5-4 (New)	Supplying, installing, testing and commissioning of 11 kWp off grid solar power pack with GI mounting structure and interconnecting wires / cables along with 24V/12V pure sine wave solar power inverter (THD<5%), 24V/12V charge controller and 24V/12V C-10 rated lead acid battery bank of required capacity and required SPV modules for battery backup of 6 hrs complete, with 5 years on site performance warrantee as per Specification no. ESD-RT-OFG	Each	-	-	942857
Note:-	1. For item no. 4-5-1 add Rs. 76190/- per kWp for off grid solar power pack upto 10 kWp 2. For item no. 4-5-2 add Rs. 95240/- per kWp for off grid solar power pack upto 10 kWp 3. For item no. 4-5-3 add Rs. 68571/- per kWp for off grid solar power pack above 11 kWp upto 25 kWp 4. For item no. 4-5-4 add Rs. 85714/- per kWp for off grid solar power pack above 11 kWp upto 25 kWp 5. For item no. 4-5-1 to 4-5-4, rates are as per benchmark cost of Ministry of New and Renewable Energy (MNRE), inclusive of total system cost, it's installation, commissioning, transportation, insurance with 5 years AMC/CMC .				
	<u>4.6 Rooftop ON grid solar systems (ESD-RT-ONG)</u>				
4-6-1 (New)	Supplying, installing, testing and commissioning of 1 kWp capacity on grid solar power pack with GI mounting structure and inter connecting wires / cables without battery bank SPV modules and solar power conditioning unit of required capacity complete, with 5 years on site performance warrantee. Specification no. ESD-RT-ONG	Each	-	-	57143
4-6-2 (New)	Supplying, installing, testing and commissioning of 11 kWp capacity on grid solar power pack with GI mounting structure and inter connecting wires / cables without battery bank SPV modules and solar power conditioning unit of required capacity complete, with 5 years on site performance warrantee. Specification no. ESD-RT-ONG	Each	-	-	576191
4-6-3 (New)	Supplying, installing, testing and commissioning of 101 kWp capacity on grid solar power pack with GI mounting structure and inter connecting wires / cables without battery bank SPV modules and solar power conditioning unit of required capacity complete, with 5 years on site performance warrantee. Specification no. ESD-RT-ONG	Each	-	-	5098096
Note:-	1. For item no.4-6-1 add Rs. 57145/- per kWp for ON grid solar power pack upto 10 kWp . 2. For item no.4-6-2 add Rs. 52380/- per kWp for ON grid solar power pack above 11 kWp upto 100 kWp. 3. For item no.4-6-3 add Rs. 50480/- per kWp for ON grid solar power pack above 101 kWp upto 500 kWp. 4. For item no. 4-6-1 to 4-6-3, rates are as per benchmark cost of Ministry of New and Renewable Energy (MNRE), inclusive of total system cost, it's installation, commissioning, transportation, insurance with 5 years AMC/CMC.				

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
<i>4.7 Solar water pump systems (ESD-SWPS)</i>					
4-7-1 (New)	Supplying, installing, testing and commissioning of solar water pump of 1 HP capacity, DC surface type, 90000 LPD, total head 10m, comprising of 900 Wp PV array / submersible type (with controller) 42000 LPD, total head of 30m, comprising of 1200 Wp PV array mounted on GI structure with necessary hardware complete with 5 years on site performance warrantee. Specification no. ESD-SWPS	Each	-	-	80953
4-7-2 (New)	Supplying, installing, testing and commissioning of solar water pump of 2 HP capacity, DC surface type, 180000 LPD total head 10m, comprising of 1800 Wp PV array / submersible type (with controller) 63000 LPD, total head of 30m, comprising of 1800 Wp PV array respectively mounted on GI structure with necessary hardware with 5 years on site performance warrantee. Specification no. ESD-SWPS	Each	-	-	161905
4-7-3 (New)	Supplying, installing, testing and commissioning of solar water pump of 3 HP capacity, DC surface type, 135000 LPD, total head of 20m, comprising of 2700 Wp PV array / submersible type (with controller) 105000LPD/63000LPD/ 42000LPD total head of 30m/50m/70m, comprising of 3000Wp/ 3000Wp/3000Wp PV array respectively mounted on GI structure with necessary hardware with 5 years on site performance warrantee. Specification no. ESD-SWPS	Each	-	-	242858
4-7-4 (New)	Supplying, installing, testing and commissioning of solar water pump of 5 HP capacity, DC submersible type (with controller) 100800 LPD/ 67200LPD/ 45600LPD, total head of 50m/70m/ 100m, comprising of 4800Wp/ 4800Wp/ 4800Wp/ PV array respectively mounted on GI structure with necessary hardware with 5 years on site performance warrantee. Specification no. ESD-SWPS	Each	-	-	366667
4-7-5 (New)	Supplying, installing, testing and commissioning of solar water pump of 1 HP capacity, AC surface type, 81000 LPD total head of 10m, comprising of 900 Wp PV array / submersible type (with controller) 38400 LPD, total head of 45m, comprising of 1200Wp PV array respectively mounted on GI structure with necessary hardware and suitable inverter with 5 years on site performance warrantee. Specification no. ESD-SWPS	Each	-	-	76191
4-7-6 (New)	Supplying, installing, testing and commissioning of solar water pump of 2 HP capacity, AC surface type, 162000 LPD, total head of 10m, comprising of 1800 Wp PV array / submersible type (with controller) 57600 LPD, head of 30m, comprising of 1800Wp PV array respectively mounted on GI structure with necessary hardware and suitable inverter with 5 years on site performance warrantee. Specification no. ESD-SWPS	Each	-	-	152381
4-7-7 (New)	Supplying, installing, testing and commissioning of solar water pump of 3 HP capacity, AC surface type, 243000 LPD, total head of 10m, comprising of 2700Wp PV array / submersible type (with controller) 121500LPD/96000LPD/ 57000LPD/ 39000LPD, total head of 20m/30m/ 50m/70m, comprising of 2700Wp/3000Wp/ 3000Wp/ 3000Wp PV array respectively mounted on GI structure with necessary hardware and suitable inverter with 5 years on site performance warrantee. Specification no. ESD-SWPS	Each	-	-	228572
4-7-8 (New)	Supplying, installing, testing and commissioning of solar water pump of 5 HP capacity, AC surface type, 432000 LPD/ 2160000 LPD, total head of 10m/20m, comprising of 4800Wp/ 4800Wp PV array respectively / submersible type (with controller) of 91200LPD/ 62400LPD/ 40800LPD total head of 50m/70m/100m, comprising of 4800Wp/ 4800Wp/ 4800Wp PV array respectively mounted on GI structure with necessary hardware and suitable inverter with 5 years on site performance warrantee. Specification no. ESD-SWPS	Each	-	-	309524

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
4-7-9	Supplying, installing, testing and commissioning of 7.5 HP capacity AC/DC solar water pump (SPV pump), comprising of min. 7.5 KWp capacity multi crystalline SPV modules mounted on GI Structure with necessary hardware with controller, suitable size HDPE delivery water pipe line up to 60 mtr length inside or above water tank/borewell with necessary control valves and necessary power supply cable of appropriate size complete with 5 years on site performance warrantee. Specification no. ESD-SWPS	Each	595106	13229	608335
4-7-10	Supplying, installing, testing and commissioning of 10 HP capacity AC/DC Solar water pump (SPV pump), comprising of min. 10 KWp capacity multi crystalline SPV modules mounted on GI Structure with necessary hardware with controller, suitable size HDPE delivery water pipe line up to 60 mtr length inside or above water tank/ borewell with necessary control valves and necessary power supply cable of appropriate size complete with 5 years on site performance warrantee. Specification no. ESD-SWPS	Each	763478	17107	780585
Note:-	For item no. 4-7-1 to 4-7-8, rates are as per benchmark cost of Ministry of New and Renewable Energy (MNRE), inclusive of total system cost, it's installation, commissioning, transportation, insurance with 5 years AMC/CMC .				
	<u>4.8 Dismantling</u>				
4-8-1	Dismantling the existing solar water heating system upto 500 LPD capacity along with piping etc. from roof top and bringing down to ground.	Each	0	1801	1801
	Above items are conforming to relevant IS as mentioned below				
	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 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				
	IEC 61215: PV modules certificate				
	IEC 61730: Safety qualification testing for PV modules				
	IEC 61701: Salt mist corrosion testing for PV modules				
	MNRE Guidelines / Standards				
	MNRE STD 03: 2013: MNRE Standard : All glass (glass in glass) evacuated tubes solar water heating system				
	MNRE STD 01: 2013:MNRE Standard : All glass (glass in glass) evacuated solar collector tubes				
	MNRE guidelines to domestic users of solar water heaters on cost, selection and availability of systems (2012)				
	MNRE guidelines for installation of solar water heating systems in high rise buildings and multi-storeyed flats.				
	MNRE Technical specifications for solar photovoltaic lighting system & power packs (off-grid solar application scheme 2016-17)				
	MNRE JNNSM Solar photovoltaic water pumping systems				
	MNRE stands for Ministry of New and Renewable Energy				
	JNNSM stands for Jawaharlal Nehru National Solar Mission				

Chapter: 5
Switchgear (SW)

5.1	LT - IC/ MC switchgears, ATS	(SW-SWR)
5.2	I/C, M/C distribution boards/mini feeder pillar/street light control panel	(SW-DB)
5.3	LT - MCB's/MCB change over switch	(SW-MCB)
5.4	LT -- MCBDB's	(SW-MCBDB)
5.5	LT -- MCCB's	(SW-MCCB)
5.6	RCCB / RCBO	(SW-RCCB)
5.7	MCCB panel boards and accessories	(SW-SWR- MCCBPB)
5.8	LT – Air circuit breakers	(SW-ACB)
5.9	HT-SF6 Load Break Switch /VCB/RMU	(SW-HTS)
5.10	Accessories	(SW-AS)
5.11	Accessories for MCCB's	
5.12	Dismantling	

Chapter: 5 SWITCHGEARS (SW)

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
<u>5.1 LT - IC/MC Switchgears, ATS (SW-SWR)</u>					
5-1-1	Supplying and erecting double pole switch surface type/ flush type 240V, 32A with indicator lamp & fuse as per specification no. SW-SWR/BDP.	Each	102	60	162
5-1-2	Supplying and erecting double pole metal clad switch with fuse and neutral link 240V, 16A on iron / GI frame as per specification no. SW-SWR/MDP.	Each	378	61	439
5-1-3	Supplying and erecting double pole metal clad switch with HC type fuse and neutral link 240V, 32A on iron / GI frame as per specification no. SW-SWR/MDP.	Each	678	61	739
5-1-4	Supplying and erecting double pole metal clad switch with HC type fuse 240V, 63A on iron / GI frame as per specification no. SW-SWR/MDP.	Each	1674	61	1735
5-1-5	Supplying and erecting triple pole metal clad switch and HC type fuse 415V, 16A on iron / GI frame / board as per specification no. SW-SWR/MTP.	Each	918	61	979
5-1-6	Supplying and erecting triple pole metal clad switch and fuse 415V, 32A on iron / GI frame as per specification no. SW-SWR/MTP.	Each	1154	61	1215
5-1-7	Supplying and erecting triple pole metal clad switch and fuse 415V, 63A on angle iron / GI frame as per specification no. SW-SWR/MTP.	Each	2464	94	2558
5-1-8	Supplying and erecting triple pole metal clad switch and fuse 415V, 100A on angle iron / GI frame as per specification no. SW-SWR/MTP.	Each	5183	166	5349
5-1-9	Supplying and erecting triple pole metal clad rewirable fuse switch 415V, 200A on angle iron / GI frame as per specification no. SW-SWR / MTP.	Each	5979	166	6145
5-1-10	Supplying and erecting triple pole metal clad HC type rewirable fuse and switch 415V, 16A with neutral link on angle iron / GI frame as per specification no. SW-SWR/MTP.	Each	882	87	969
5-1-11	Supplying and erecting triple pole metal clad HC type rewirable fuse and switch 415, V 32A with neutral link on angle iron / GI frame as per specification no. SW-SWR/MTP.	Each	1166	87	1253
5-1-12	Supplying and erecting triple pole metal clad HC type rewirable fuse and switch 415V, 63A with neutral link on angle iron / GI frame as per specification no. SW-SWR/MTP.	Each	2437	113	2550
5-1-13	Supplying and erecting triple pole metal clad switch and fuse 415V, 100A with neutral link on angle iron / GI frame as per specification no. SW-SWR/MTP.	Each	4644	166	4810
5-1-14	Supplying and erecting triple pole metal clad switch rewirable fuse 415V, 200A with neutral link on angle iron / GI frame as per specification no. SW-SWR/MTP.	Each	7652	166	7818
5-1-15	Supplying and erecting triple pole metal clad HRC fuse switch 415V, 63A with neutral link with HRC fuses on angle iron / GI frame as per specification no. SW-SWR/TPHRC.	Each	3669	113	3782
5-1-16	Supplying and erecting triple pole metal clad HRC fuse switch 415V, 100 A. with neutral link with HRC fuses on angle iron / GI frame as per specification no. SW-SWR/TPHRC.	Each	5217	166	5383
5-1-17	Supplying and erecting triple pole metal clad HRC fuse switch 415V, 200A with neutral link with HRC fuses on angle iron / GI frame as per specification no. SW-SWR/TPHRC.	Each	7209	166	7375

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
5-1-18	Supplying and erecting triple pole metal clad HRC fuse switch 415V, 300-320 A with neutral link with HRC fuses, on angle iron / GI frame as per specification no. SW-SWR/TPHRC .	Each	9086	253	9339
5-1-19	Supplying and erecting triple pole metal clad HRC fuse switch 415V, 400A with neutral link with HRC fuses, on angle iron / GI frame as per specification no. SW-SWR/TPHRC .	Each	13473	371	13844
5-1-20	Supplying and erecting triple pole metal clad HRC fuse switch 415V, 500A with neutral link with HRC fuses, on angle iron / GI frame as per specification no. SW-SWR/TPHRC .	Each	18452	371	18823
5-1-21	Supplying and erecting triple pole metal clad HRC fuse switch 415V, 630A with neutral link with HRC fuses, on angle iron / GI frame. As per specification no. SW-SWR/TPHRC .	Each	19039	427	19466
5-1-22	Supplying and erecting triple pole metal clad HRC fuse switch 415V, 800A with neutral link with HRC fuses, on angle iron / GI frame as per specification no. SW-SWR/TPHRC .	Each	27584	483	28067
5-1-23	Supplying and erecting four pole metal clad ON LOAD change over switch 415V , 16A erected on angle iron / GI frame complete.	Each	1813	144	1957
5-1-24	Supplying and erecting four pole metal clad ON LOAD change over switch 415V, 40A erected on angle iron / GI frame complete.	Each	2467	144	2611
5-1-25	Supplying and erecting four pole metal clad ON LOAD change over switch 415V, 63A erected on angle iron / GI frame complete.	Each	3758	144	3902
5-1-26	Supplying and erecting four pole metal clad ON LOAD change over switch 415V,100A erected on angle iron /GI frame complete.	Each	6812	201	7013
5-1-27	Supplying and erecting four pole metal clad ON LOAD change over switch 415V, 200A erected on angle iron /GI frame approved make complete.	Each	7893	245	8138
5-1-28	Supplying and erecting four pole metal clad ON LOAD change over switch 415V,320A erected on angle iron /GI frame complete.	Each	11968	282	12250
5-1-29	Supplying and erecting four pole metal clad ON LOAD change over switch 415 V, 400A erected on angle iron / GI frame complete.	Each	17091	376	17467
5-1-30	Supplying and erecting two pole metal clad change over switch 240V, 16A erected on angle iron / GI frame approved make and duly connected with suitable wire leads complete.	Each	808	128	936
5-1-31	Supplying and erecting two pole metal clad change over switch 240V, 32A erected on angle iron / GI frame approved make and duly connected with suitable wire leads complete.	Each	1169	128	1297
5-1-32	Supplying and erecting ON LOAD four pole automatic transfer switch suitable for 415V, 100A, 50 Hz , capacity with enclosure, automatic/manual inbuilt time delay, high transfer speed, excellent breaking capacity, superior making capacity, compact & light weight, erected on provided angle iron /GI frame and connected with provided leads complete.	Each	31242	369	31611
5-1-33	Supplying and erecting ON LOAD four pole automatic transfer switch suitable for 415V, 160A, 50 Hz capacity with enclosure, automatic/manual inbuilt time delay, high transfer speed, excellent breaking capacity, superior making capacity, compact & light weight, erected on provided angle iron / GI frame and connected with provided leads complete.	Each	40816	369	41185
5-1-34	Supplying and erecting ON LOAD four pole automatic transfer switch suitable for 415V, 200A, 50 Hz capacity with enclosure, automatic/manual inbuilt time delay, high transfer speed, excellent breaking capacity, superior making capacity, compact & light weight, erected on provided angle iron / GI frame and connected with provided leads complete.	Each	51577	408	51985

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
5-1-35	Supplying and erecting -ON LOAD four pole automatic transfer switch suitable for 415V, 315/320A, 50 Hz capacity -with enclosure, automatic/manual inbuilt time delay, high transfer speed, excellent breaking capacity, superior making capacity, compact & light weight, erected on provided angle iron / GI frame and connected with provided leads complete.	Each	60404	477	60881
5-1-36	Supplying and erecting ON LOAD four pole automatic transfer switch suitable for 415V, 400A , 50 Hz capacity with enclosure, automatic/manual inbuilt time delay, high transfer speed, excellent breaking capacity, superior making capacity, compact & light weight, erected on provided angle iron / GI frame and connected with provided leads complete.	Each	70986	477	71463
New	Add 20% overall rate for the use of iron clad switchgears in place of sheet metal.				
<u>5.2 IC / MC Distribution Boards/ Mini Feeder Pillar/ Street Light Control Panel(SW-DB)</u>					
5-2-1	Supplying and erecting metal clad distribution board 240V, 2 way, 16A per way & neutral bar connector complete erected on iron / GI frame as per specification no. SW-SWR/MDB	Each	465	61	526
5-2-2	Supplying and erecting metal clad distribution board 240V, 3 way, 16A per way & neutral bar connector complete erected on iron / GI frame as per specification no. SW-SWR/MDB	Each	472	87	559
5-2-3	Supplying and erecting metal clad distribution board 240V, 4 way, 16A per way & neutral bar connector complete erected on iron / GI frame as per specification No. SW-SWR/MDB	Each	617	87	704
5-2-4	Supplying and erecting metal clad distribution board 240V, 6 way, 16A per way & neutral bar connector complete erected on iron / GI frame as per specification no. SW-SWR/MDB	Each	753	87	840
5-2-5	Supplying and erecting metal clad distribution board 240V, 8 way, 16A per way & neutral bar connector complete erected on iron / GI frame as per specification no. SW-SWR/MDB	Each	924	87	1011
5-2-6	Supplying and erecting metal clad distribution board 415V, 3way, 16A per way & neutral bar connector complete erected on iron / GI frame as per specification no. SW-SWR/MDB	Each	2190	113	2303
5-2-7	Supplying and erecting metal clad distribution board 415V, 4 way , 16A per way & neutral bar connector complete erected on iron / GI frame as per specification no. SW-SWR/MDB	Each	2413	113	2526
5-2-8	Supplying and erecting metal clad distribution board 415V, 6 way, 16A per way & neutral bar connector complete erected on iron / GI frame as per specification no. SW-SWR/MDB	Each	2820	113	2933
5-2-9	Supplying and erecting metal clad distribution board 415 V, , 8 way, 16 A per way & neutral bar connector complete erected on iron / GI frame as per specification no. SW-SWR/MDB	Each	3781	113	3894
5-2-10	Supplying and erecting metal clad distribution board 415V, 3 ways, 32A. per way & neutral bar connector complete erected on iron / GI frame as per specification no. SW-SWR/MDB	Each	2765	126	2891
5-2-11	Supplying and erecting metal clad distribution board 415V, 4 way, 32A. per way & neutral bar connector complete erected on iron / GI frame as per specification no. SW-SWR/MDB	Each	2937	126	3063
5-2-12	Supplying and erecting metal clad distribution board 415V, 6 way, 32A. per way & neutral bar connector complete erected on iron / GI frame as per specification no. SW-SWR/MDB	Each	3917	126	4043
5-2-13	Supplying and erecting metal clad distribution board 415 V, 8 way, 32A. per way & neutral bar connector complete erected on iron / GI frame as per specification no. SW-SWR/MDB	Each	4960	126	5086

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
5-2-14	Supplying and erecting mini feeder pillar triple pole with 200A FPMCCB as incomer and 2 outgoing circuits with HRC fuse base and cartridge of 100A consists of aluminium bus bar 500 V 200 A complete erected in 14 gauge CRCA sheet box with supporting angles, self-locks, gasket and slanting top to be erected on provided foundation as per specification no. SW-SWR/MFP	Each	29671	4057	33728
5-2-15	Supplying and erecting mini feeder pillar triple pole with 300A FPMCCB as incomer and 3 outgoing circuits with HRC fuse base and cartridge of 100A consists of aluminium bus bar 500V 300A complete erected in 14 gauge CRCA sheet box with supporting angles, self-locks, gasket and slanting top to be erected on provided foundation as per specification no. SW-SWR/MFP	Each	44210	4598	48808
5-2-16	Supplying & erecting street light control panel in powder coated CRCA 14/16 SWG sheet, outdoor type, single phase, 240 V consisted of suitable rating contactor, 24 hrs digital / astronomical time switch with minimum 5 years battery backup, SPN MCB 40 A , auto/manual selector switch, ON/OFF push buttons, indicator lamps, control wiring, metering device, etc for automatic operation & overcurrent, short circuit, earth fault protection of street lights upto the maximum load of 6 kW on provided iron frame/ CC foundation complete.	Each	15606	820	16426
5-2-17	Supplying & erecting street light control panel in powder coated CRCA 14/16 SWG sheet, outdoor type, single phase, 240 V consisted of suitable rating contactor, 24 hrs digital / astronomical time switch with minimum 5 years battery backup, SPN MCB 63 A auto/manual selector switch, ON/OFF push buttons, indicator lamps, control wiring, metering device, etc for automatic operation & overcurrent, short circuit, earth fault protection of street lights upto the max load of 12 Kw on provided iron frame / CC foundation complete.	Each	19897	820	20717
5-2-18	Supplying & erecting street light control panel in powder coated CRCA 14/16 SWG sheet, outdoor type, three phase, 415 V consisted of suitable rating contactor, 24 hrs digital / astronomical time switch with minimum 5 years battery backup, TPN MCB 40 A auto/manual selector switch, ON/OFF push buttons, indicator lamps, control wiring, metering device, etc for automatic operation & overcurrent, short circuit, earth fault protection of street lights upto the max load of 6 kW on provided iron frame / CC foundation complete.	Each	19646	820	20466
5-2-19	Supplying & erecting street light control panel in powder coated CRCA 14/16 SWG sheet, outdoor type, three phase, 415V consisted of suitable rating contactor, 24 hrs digital/ astronomical time switch with minimum 5 years battery backup, TPN MCB 63 A auto/manual selector switch, ON/OFF push buttons, indicator lamps, control wiring, metering device, etc for automatic operation & overcurrent, short circuit, earth fault protection of street lights upto the max load of 12 kW on provided iron frame / CC foundation complete.	Each	25902	820	26722
5-2-20	Supplying & erecting street light control panel in powder coated CRCA 14/16 SWG sheet, outdoor type, three phase, 415 V consisted of suitable rating contactor, 24 hrs digital/ astronomical time switch with minimum 5 years battery backup, TPN MCB 110 A auto/manual selector switch, ON/OFF push buttons, indicator lamps, control wiring, metering device, etc for automatic operation & overcurrent, short circuit, earth fault protection of street lights upto the max load of 12 kW on provided iron frame / CC foundation complete.	Each	44090	820	44910

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
5-2-21 (New)	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 backup , 2 pole contactor upto 60 A, 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 key pad in provided box complete.	Each	16941	820	17761
5-2-22 (New)	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 backup , 4 pole contactor upto 60 A, 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 key pad in provided box complete.	Each	30658	820	31478
Note:-	1) For erection of switchgear on existing/provided GI /angle iron frame reduce the overall rate by 5%.				
	2) In coastal area preference to iron clad switchgear shall be given.				
	3) For switchgear without enclosure for cubical panels the rates shall be decreased by 25 % of item no 5-1-16 to 5-1-23 proposed upto 5-1-28				
New	4) Item no 5-2-21, 5-2-22 shall be installed in existing panel with appropriate capacity protecting switchgears.				
<u>5.3 LT - MCBs/ MCB Change Over Switch (SW-MCB)</u>					
5-3-1	Supplying, erecting & marking SPMCB 0.5A to 5A in provided distribution board as per specification no. SW-SWR/MCB	Each	183	35	218
5-3-2	Supplying, erecting & marking SPMCB 6A to 32A, C-series (for motor/power) in provided distribution board as per specification no. SW-SWR/MCB	Each	118	35	153
5-3-3	Supplying, erecting & marking SPMCB 6A to 32A, B- series (for lighting) in provided distribution board as per specification no. SW-SWR/MCB	Each	129	35	164
5-3-4	Supplying, erecting & marking SPMCB 40A to 63A C- series (for motor/power) in provided distribution board as per specification no. SW-SWR/MCB	Each	269	35	304
5-3-5	Supplying, erecting & marking SPMCB 40A to 63A, B- series (for lighting) in provided distribution board as per specification no. SW-SWR/MCB	Each	269	35	304
5-3-6	Supplying, erecting & marking DPMCB 6A to 32A, C- series (for motor/power) in provided distribution board as per specification no. SW-SWR/MCB	Each	426	35	461
5-3-7	Supplying, erecting & marking DPMCB 6 A to 32 A B- series (for lighting) in provided distribution board as per specification no. SW-SWR/MCB	Each	399	35	434
5-3-8	Supplying, erecting & marking DPMCB 40A to 63A, C- series (for motor/power) in provided distribution board as per specification no. SW-SWR/MCB	Each	593	35	628
5-3-9	Supplying, erecting & marking DPMCB 40A to 63A, B- series (for lighting) in provided distribution board as per specification no. SW-SWR/MCB	Each	553	35	588
5-3-10	Supplying, erecting & marking SPN MCB 6A to 32A, C- series (for motor/power) in provided distribution board as per specification no. SW-SWR/MCB	Each	390	35	425

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
5-3-11	Supplying, erecting & marking SPN MCB 6A to 32A, B- series (for lighting) in provided distribution board as per specification no. SW-SWR/MCB	Each	347	35	382
5-3-12	Supplying, erecting & marking SPN MCB 40A, C-series (for motor/power) in provided distribution board as per specification no. SW-SWR/MCB	Each	551	35	586
5-3-13	Supplying, erecting & marking SPN MCB 40A, B-series (for lighting) in provided distribution board as per specification no. SW-SWR/MCB	Each	496	35	531
5-3-14	Supplying, erecting & marking TPMCB 6 A to 32A in provided distribution board as per specification no. SW-SWR/MCB	Each	605	48	653
5-3-15	Supplying, erecting & marking TPMCB 40A to 63A in provided distribution board as per specification no. SW-SWR/MCB	Each	878	48	926
5-3-16	Supplying, erecting & marking FPMCB 6A to 32A in provided distribution board as per specification no. SW-SWR/MCB	Each	857	48	905
5-3-17	Supplying, erecting & marking FPMCB 40A to 63A in provided distribution board as per specification no. SW-SWR/MCB	Each	1184	48	1232
5-3-18	Supplying, erecting & marking TPN MCB 6A to 32A, C- series in provided distribution board as per specification no. SW-SWR/MCB	Each	842	48	890
5-3-19	Supplying, erecting & marking TPN MCB 40A to 63A, C- series in provided distribution board as per specification no. SW-SWR/MCB	Each	1092	48	1140
5-3-20	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 complete.	Each	240	35	275
5-3-21	Supplying erecting and marking triple pole isolators only switch version of miniature circuit breaker of 40A with required wiring connections and lugs etc. in provided distribution board complete.	Each	470	48	518
5-3-22	Supplying erecting and marking triple pole isolators only switch version of miniature circuit breaker of 63A with required wiring connections and lugs etc. in provided distribution board complete.	Each	534	48	582
5-3-23	Supplying erecting and marking triple pole isolators only switch version of miniature circuit breaker of 100A with required wiring connections and lugs etc. in provided distribution board complete.	Each	613	48	661
5-3-24	Supplying erecting and marking four pole isolators only switch version of miniature circuit breakers of 40A in provided distribution board complete.	Each	543	48	591
5-3-25	Supplying erecting and marking four pole isolators only switch version of miniature circuit breakers of 63A in provided distribution board complete.	Each	573	48	621
5-3-26	Supplying erecting and marking four pole isolators only switch version of miniature circuit breakers of 80/100A in provided distribution board complete.	Each	728	48	776
5-3-27	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-SWR/MCBCOS	Each	907	35	942
5-3-28	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-SWR/MCBCOS	Each	1367	35	1402
5-3-29	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-SWR/MCBCOS	Each	1586	35	1621
5-3-30	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-SWR/MCBCOS	Each	1577	48	1625

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
5-3-31	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-SWR/MCBCOS	Each	2450	48	2498
5-3-32	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-SWR/MCBCOS	Each	2707	48	2755
Note:-	1) For lighting load 'B' series MCBs are to be provided and for motive/inductive power load 'C' series MCB s are to be provided 2) For heavy duty motors, welding transformers and machines having heavy surge current MCB of 'D' type series should be provided for which rates are to be taken by increasing 10% on the material cost of rates of 'C' series				
New	3) ROHS compliant MCB's, MCCB's, RCCB's, RCBO's and distribution boards shall be preferred.				
New	4) For use of MCB's with inbuilt short circuit indication on each pole add 10% in the cost of material component.				
	<u>5.4 LT - MCBDBs (SW-MCBDB)</u>				
5-4-1	Supplying and erecting triple pole and neutral distribution board (TPNDB) surface/ flush mounted suitable for SPMCB of 12 ways on iron / GI frame (horizontal busbar type) as per specification no. SW-SWR/MCBDB	Each	1402	261	1663
5-4-2	Supplying and erecting triple pole and neutral distribution board (TPNDB) surface/ flush mounted suitable for SPMCB of 24 ways on iron / GI frame (horizontal busbar type) as per specification no. SW-SWR/MCBDB	Each	2111	261	2372
5-4-3	Supplying and erecting triple pole and neutral distribution board (TPNDB) surface/ flush mounted suitable for SPMCB of 36 ways on iron /GI frame (horizontal busbar type) as per specification no. SW-SWR/MCBDB	Each	2618	261	2879
5-4-4	Supplying and erecting triple pole and neutral distribution board (TPNDB) surface/ flush mounted SP /TP MCBs of 12 ways on iron / GI frame (vertical busbar type) as per specification no. SW-SWR/MCBDB	Each	3575	261	3836
5-4-5	Supplying and erecting triple pole and neutral distribution board (TPNDB) surface/ flush mounted SP / TP of 24 ways on iron / GI frame (vertical busbar type) as per specification no. SW-SWR/MCBDB	Each	4700	261	4961
5-4-6	Supplying & erecting triple pole and neutral distribution board (TPNDB) surface/ flush mounted SP / TP MCB of 36 ways on iron / GI frame (vertical busbar type) as per specification no. SW-SWR/MCBDB	Each	5969	261	6230
5-4-7	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted SPMCB of 12 ways, on iron /GI frame (horizontal busbar type) as per specification no. SW-SWR/MCBDB	Each	1771	261	2032
5-4-8	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted SPMCB of 24 ways, on iron/ GI frame/wooden board.(horizontal busbar type) as per specification no. SW-SWR/MCBDB	Each	2658	261	2919
5-4-9	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted SPMCB of 12 ways/phase (36 poles) on iron/ GI frame (horizontal busbar type) as per specification no. SW-SWR/MCBDB	Each	3722	261	3983

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
5-4-10	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted SP / TP MCBs of 12 ways , on iron/ GI frame (vertical busbar type) as per specification no. SW-SWR/MCBDB	Each	4031	261	4292
5-4-11	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted SP / TP MCBs of 24 ways on iron/ GI frame (vertical busbar type) as per specification no. SW-SWR/MCBDB	Each	5421	261	5682
5-4-12	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted SP / TP MCBs of 36 ways on iron/ GI frame (vertical busbar type) as per specification no. SW-SWR/MCBDB	Each	7054	261	7315
5-4-13	Supplying, erecting and marking enclosure single pole and neutral distribution board (SPNDB) one way for SPMCB 1 no on iron/ GI frame as per specification no. SW-SWR/MCBDB	Each	196	48	244
5-4-14	Supplying and erecting single pole and neutral distribution board (SPNDB) surface/flush mounted with 2 ways for incoming and 2 ways for outgoing SPMCBs on iron/ GI frame as per specification no. SW-SWR/MCBDB	Each	595	126	721
5-4-15	Supplying and erecting single pole and neutral distribution board (SPNDB) surface/flush mounted with 2 ways for incoming and 6 ways for outgoing SP MCB's on iron/ GI frame as per specification no. SW-SWR/MCBDB	Each	617	126	743
5-4-16	Supplying and erecting single pole and neutral distribution board (SPNDB) surface/flush mounted with 2 ways for incoming and 10 ways for outgoing SP MCB's on iron/ GI frame as per specification no. SW-SWR/MCBDB	Each	824	126	950
5-4-17	Supplying and erecting single pole and neutral distribution board (SPNDB) with door surface/flush mounted with 2 ways for incoming and 2 ways for outgoing SP MCB's on iron/ GI frame as per specification no. SW-SWR/MCBDB	Each	769	126	895
5-4-18	Supplying and erecting single pole and neutral distribution board (SPNDB) with door surface/flush mounted with 2 ways for incoming and 6 ways for outgoing SP MCB's on iron/ GI frame as per specification no. SW-SWR/MCBDB	Each	930	126	1056
5-4-19	Supplying and erecting single pole and neutral distribution board (SPNDB) with door surface/flush mounted with 2 ways for incoming and 10 ways for outgoing SP MCB's on iron/ GI frame as per specification no. SW-SWR/MCBDB	Each	1144	126	1270
5-4-20	Supplying & erecting original 1.25 mm CRCA sheet metal enclosures with 20A. 2 pin plug & earth socket and 20A. 3 pin plug top with 20A/30A single pole MCB complete erected on angle iron/ GI frame.	Each	587	113	700
5-4-21	Supplying & erecting original 1.25 mm CRCA sheet metal enclosures with 30A, 3 pin plug & earth socket and 30 A 3 pin plug top with 30A triple pole MCB complete erected on angle iron/ GI frame.	Each	1430	113	1543
5-4-22	Supplying & erecting original 1.25 mm CRCA sheet metal enclosures with 10A. 2 pin plug and earth socket and 10A, 3 pin plug top with 10A single pole miniature circuit breakers erected on angle iron/ GI frame complete.	Each	604	113	717
5-4-23	Supplying & erecting CRCA sheet metal one way enclosures suitable for DP MCB /TP MCB /FP MCB erected on angle iron/GI frame complete.	Each	291	48	339

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
5-4-24	Supplying and erecting blanking plate of suitable size on MCB DB complete.	Each	11	1	12
5-4-25	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted suitable for 3 pole MCCB as incomer & outgoing SP MCB (12 poles) or TP MCB of 4 ways (12 poles) on iron/ GI frame. (vertical busbar type) as per specification no. SW-SWR/MCBDB1	Each	5185	384	5569
5-4-26	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted suitable for 3 pole MCCB as incomer & outgoing SP MCB (24 poles) or TP MCB of 8 ways (24 poles) , on iron/ GI frame. (vertical busbar type) as per specification no. SW-SWR/MCBDB1	Each	6225	384	6609
5-4-27	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted suitable for 3 pole MCCB as incomer & outgoing SP MCB (36 poles) or TP MCB of 12 ways (36 poles) on iron/ GI frame. (vertical busbar type) as per specification no. SW-SWR/MCBDB1	Each	8307	384	8691
Note:-	<p>1) All MCB's shall have breaking capacity not less than 10 kA.</p> <p>2) Above rates are applicable only to factory made enclosures.</p> <p>3) Reduce overall rates by 5% if angle iron frame is not required.</p> <p>4) MCB's (double pole, four pole or triple pole & neutral) & isolators for single phase circuits shall not be incorporated for outgoing circuits of three phase distribution board.</p> <p>5) For more than 2 kW load RCCB shall invariably be provided & erected preferably on the same distribution board. (RCCB+MCB) or (RCCB+MCCB etc.) separate box for RCCB/ELCB is not permissible.</p> <p>6) Above rates are for branded DB's with provision of same brand interior switchgears</p> <p>7) The MCBDB is exclusive of incoming MCB/MCCB and outgoing SP/TP MCB's and the same should be preferably of the same make</p>				
New	8) ROHS compliant MCB's, MCCB's, RCCB's, RCBO's and Distribution Boards shall be preferred.				
New	9) DB,s with IEC 61439 part 1 &3 and minimum IK 08 shall be preferred.				

5.5 LT - MCCBs (SW-MCCB)

5-5-1	Providing & erecting 3 Pole MCCB upto 100A , 415V, with short circuit rating 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 and MCCB should have phase barriers both sides, in provided enclosure on iron /GI frame as per specification no. SW-SWR/MCCB	Each	4161	346	4507
5-5-2	Providing & erecting 3 Pole MCCB of 200A , 415V capacity with short circuit rating 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 and MCCB should have phase barriers both sides, in provided enclosure on iron /GI frame as per specification no. SW-SWR/MCCB	Each	8663	346	9009
5-5-3	Providing & erecting 3 Pole MCCB of 250A , 415V capacity with short circuit rating 36 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 and MCCB should have phase barriers both sides, in provided enclosure on iron /GI frame as per specification no. SW-SWR/MCCB	Each	11761	503	12264

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
5-5-4	Providing & erecting 3 Pole MCCB of 315/400A , 415V capacity with short circuit rating 36 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 and MCCB should have phase barriers both sides, in provided enclosure on iron /GI frame as per specification no. SW-SWR/MCCB	Each	15690	566	16256
5-5-5	Providing & erecting 3 Pole MCCB of 600/630 A , 415V capacity with short circuit rating 36 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 and MCCB should have phase barriers both sides, in provided enclosure on iron /GI frame as per specification no. SW-SWR/MCCB	Each	21113	714	21827
5-5-6	Providing & erecting 3 Pole MCCB of 800A , 415V capacity with short circuit rating 50 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 and MCCB should have phase barriers both sides, in provided enclosure on iron /GI frame as per specification no. SW-SWR/MCCB	Each	30907	714	31621
Note:-	1) For use of 4pole MCCB in place of 3pole MCCB add 20% in overall rate of 3 pole MCCB.				
New	2) ROHS compliant MCB's, MCCB's, RCCB's, RCBO's and Distribution Boards shall be preferred.				
	<u>5.6 RCCB / RCBO (SW-RCCB)</u>				
5-6-1	Providing, erecting and commissioning 2 pole RCCB only of electromagnetic type with 30/100/300 mA sensitivity and having capacity of 16/ 25A complete as per specification no. SW-RCCB/RCCB	Each	1741	35	1776
5-6-2	Providing, erecting and commissioning 2 pole RCCB only of electromagnetic type with 30/100/300 mA sensitivity and having capacity of 40A complete as per specification no. SW-RCCB/RCCB	Each	1842	35	1877
5-6-3	Providing, erecting and commissioning 2 pole RCCB only of electromagnetic type with 30/100/300 mA sensitivity and having capacity of 63A complete as per specification no. SW-RCCB/RCCB	Each	2413	35	2448
5-6-4	Providing, erecting and commissioning 4 pole RCCB only of electromagnetic type with 30/100/300 mA sensitivity and having capacity of 16/25A complete as per specification no. SW-RCCB/RCCB	Each	2294	48	2342
5-6-5	Providing, erecting and commissioning 4 pole RCCB only of electromagnetic type with 30/100/300 mA sensitivity and having capacity of 40A complete as per specification no. SW-RCCB/RCCB	Each	2325	48	2373
5-6-6	Providing, erecting and commissioning 4 pole RCCB of electromagnetic type with 30/100/300 mA sensitivity and having capacity of 63A complete as per specification no. SW-RCCB/RCCB	Each	2606	48	2654
5-6-7	Providing, erecting and commissioning 4 pole RCCB of electromagnetic type with 30/100/300 mA sensitivity and having capacity of 80A. complete as per specification no. SW-RCCB/RCCB	Each	4196	48	4244
5-6-8	Providing, erecting & commissioning 4 pole RCCB of electromagnetic type with 30/100/300 mA sensitivity and having capacity of 100A, complete as per specification no. SW-RCCB/RCCB	Each	4576	48	4624
5-6-9	Supplying & fixing CRCA sheet Box with earthing terminals for housing 2 Pole RCCB on iron frame/laminated board complete.	Each	159	26	185
5-6-10	Supplying & fixing CRCA sheet Box with earthing terminals for housing 4 Pole RCCB on iron frame/laminated board complete.	Each	228	26	254

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
5-6-11	Supplying, fixing and commissioning 2 pole,RCBO (residual current breaker with overcurrent short circuit 10 kA and earth leakage protection) , with 30/100/300 mA sensitivity and having capacity of 6/10/16/20/25A , as per specification no SW-RCCB/RCBO	Each	2765	35	2800
5-6-12	Supplying, fixing and commissioning 2 pole RCBO (residual current breaker with overcurrent short circuit 10 kA and earth leakage protection) , with 30/100/300 mA sensitivity and having capacity of 32A/40A as per specification no SW-RCCB/RCBO	Each	2927	35	2962
5-6-13	Supplying, fixing and commissioning 2 pole RCBO (residual current breaker with overcurrent short circuit 10 kA and earth leakage protection) , with 30/100/300 mA sensitivity and having capacity of 63A , as per specification no SW-RCCB/RCBO	Each	3832	35	3867
5-6-14	Supplying, fixing and commissioning 4 pole RCBO ((residual current breaker with overcurrent short circuit 10 kA and earth leakage protection) , with 30/100/300 mA sensitivity and having capacity of 6A/10A/16A/20A/25/A as per specification no SW-RCCB/RCBO	Each	3448	48	3496
5-6-15	Supplying, fixing and commissioning 4 pole RCBO ((residual current breaker with overcurrent short circuit 10 kA and earth leakage protection) , with 30/100/300 mA sensitivity and having capacity of 32A/40A as per specification no SW-RCCB/RCBO	Each	3797	48	3845
5-6-16	Supplying, fixing and commissioning 4 pole RCBO ((residual current breaker with overcurrent short circuit 10 kA and earth leakage protection) , with 30/100/300 mA sensitivity and having capacity of 63A as per specification no SW-RCCB/RCBO	Each	4210	48	4258
5-6-17 (New)	Providing, erecting & commissioning 4 pole, 40A RCCB with added immunity which can avoid nuisance DC pulse tripping with 30/100/300 mA sensitivity complete as per specification no. SW-RCCB/RCCB	Each	4964	48	5012
5-6-18 (New)	Providing, erecting & commissioning 4 pole, 63A RCCB with added immunity which can avoid nuisance DC pulse tripping with 30/100/300 mA sensitivity complete as per specification no. SW-RCCB/RCCB	Each	5107	48	5155
5-6-19 (New)	Providing, erecting & commissioning 4 pole,100A RCCB with added immunity which can avoid nuisance DC pulse tripping with 30/100/300 mA sensitivity complete as per specification no. SW-RCCB/RCCB	Each	6756	48	6804
Note:-	1) For human safety RCCB with 30mA sensitivity shall be selected.				
New	2) ROHS compliant MCB's,MCCB's, RCCB's, RCBO's and Distribution Boards shall be preferred.				
New	3) Item no 5-6-23 to 5-6-25 shall be preferably used for lift applications to avoid nuisance tripping.				
New	4) For use of RCBO's with inbuilt short circuit indication on each pole and separate earth leakage tripping indication shall be preferably used.				
<u>5.7 MCCB Panel Boards and Accessories (SW- SWR-MCCBPB)</u>					
5-7-1	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for four pole incoming 250A, 2 ways four pole outgoing upto 100 A MCCB's on iron frame, as per specification no SW-SWR/MCCBPB .(Excluding MCCB'S)	Each	28900	655	29555

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
5-7-2	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for four pole incoming 250A, 4 ways four pole outgoing upto 100 A MCCB's on iron frame, as per specification no SW-SWR/MCCBPB . (Excluding MCCB'S)	Each	34739	655	35394
5-7-3	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for four pole incoming 250A, 6 ways four pole outgoing upto 100 A MCCB's on iron frame, as per specification no SW-SWR/MCCBPB . (Excluding MCCB'S)	Each	40356	837	41193
5-7-4	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for four pole incoming 250A, 8 ways Four pole outgoing upto 100 A MCCB's on iron frame, as per specification no SW-SWR/MCCBPB . (Excluding MCCB'S)	Each	44205	837	45042
5-7-5	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for four pole incoming 250A, 12 ways four pole outgoing upto 100 A MCCB's erected on –iron frame, as per specification no SW-SWR/MCCBPB . (Excluding MCCB'S)	Each	58436	949	59385
5-7-6	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for four pole incoming 400A, 2 ways four pole outgoing upto 100 A MCCB's on iron frame, as per specification no SW-SWR/MCCBPB . (Excluding MCCB'S)	Each	35127	655	35782
5-7-7	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for four pole incoming 400A, 4 ways four pole outgoing upto 100 A MCCB's on provided iron frame, as per specification no SW-SWR/MCCBPB . (Excluding MCCB'S)	Each	39508	655	40163
5-7-8	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for four pole incoming 400 A, 6 ways four pole outgoing upto 100 A MCCB's on iron frame, as per specification no SW-SWR/MCCBPB . (Excluding MCCB'S)	Each	45108	994	46102
5-7-9	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for four pole incoming 400A, 8 ways four pole outgoing upto 100 A MCCB's on iron frame, as per specification no SW-SWR/MCCBPB . (Excluding MCCB'S)	Each	48370	837	49207
5-7-10	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for four pole incoming 400A, 12 ways four pole outgoing upto 100 A MCCB's on iron frame, as per specification no SW-SWR/MCCBPB . (Excluding MCCB'S)	Each	68453	949	69402
5-7-11	Providing & erecting incoming and outgoing cable alleys suitable for MCCB panel board with door of 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 cable way and DB complete.	Set	13777	242	14019
5-7-12	Providing & erecting incoming and outgoing cable alleys suitable for MCCB panel board with door of 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	13156	242	13398
5-7-13	Providing & erecting incoming and outgoing cable alleys suitable for MCCB panel board with door of 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	13910	242	14152

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
5-7-14	Providing & erecting incoming and outgoing cable alleys suitable for MCCB panel board with door of 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	15642	242	15884
5-7-15	Providing & erecting incoming and outgoing cable alleys suitable for MCCB panel board with door of 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	18492	242	18734
5-7-16	Providing & erecting incoming and outgoing cable alleys suitable for MCCB panel board with door of 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	20956	242	21198
5-7-17	Providing & erecting prewired meter module suitable for MCCB panel board with CT's and emf's VIF meter complete.	Set	10707	251	10958
5-7-18 (New)	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for three pole incoming 250A, 4 ways three pole outgoing up to 100A MCCB on iron frame in compliance of IEC 61439, as per specification no SW-SWR/MCCBPB . (Excluding MCCB'S)	Each	33161	655	33816
5-7-19 (New)	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for three pole incoming 250A, 8 ways three pole outgoing up to 100A MCCB on iron frame in compliance of IEC 61439, as per specification no SW-SWR/MCCBPB . (Excluding MCCB'S)	Each	40815	837	41652
5-7-20 (New)	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for three pole incoming 250A, 12 ways three pole outgoing up to 100A MCCB on iron frame in compliance of IEC 61439, as per specification no SW-SWR/MCCBPB . (Excluding MCCB'S)	Each	47836	949	48785
5-7-21 (New)	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for three pole incoming 400A, 4 ways three pole outgoing up to 100A MCCB on iron frame in compliance of IEC 61439, as per specification no SW-SWR/MCCBPB . (Excluding MCCB'S)	Each	38902	655	39557
5-7-22 (New)	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for three pole incoming 400A, 8 ways three pole outgoing up to 100A MCCB on iron frame in compliance of IEC 61439, as per specification no SW-SWR/MCCBPB . (Excluding MCCB'S)	Each	43963	837	44800
5-7-23 (New)	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for three pole incoming 400A, 12 ways three pole outgoing up to 100A MCCB on iron frame in compliance of IEC 61439, as per specification no SW-SWR/MCCBPB . (Excluding MCCB'S)	Each	56173	949	57122
Note:-	<p>1) The MCCB panel board and cable alleys from above items are interconnected and should be of same make only and factory made only</p> <p>2) The MCCB panel board is exclusive of incoming and outgoing MCCB's and the same should be preferably of the same make</p>				

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
New	3) ROHS compliant MCB's, MCCB's, RCCB's, RCBO's and distribution boards shall be preferred.				
	<u>5.8 LT - Air Circuit Breakers (SW-ACB)</u>				
5-8-1	Supplying and erecting air circuit breaker manually operated non-drawout type of 630A rated at 50° C without deration , 500V, 3 pole having short circuit rating 50 kA (Ics=Icu=Icw for 1s), with standard accessories and thermal magnetic release on provided iron frame as per specification no. SW-SWR/ACB	Each	56346	1581	57927
5-8-2	Supplying and erecting air circuit breaker manually operated non-drawout type of 800A rated at 50° C without deration , 500V, 3 pole with having short circuit rating 50 kA (Ics=Icu=Icw for 1s), standard accessories and thermal magnetic release on provided iron frame as per specification no. SW-SWR/ACB	Each	58602	1581	60183
5-8-3	Supplying and erecting air circuit breaker manually operated non-drawout type of 1000A rated at 50° C without deration , 500V, 3 pole having short circuit rating 50 kA (Ics=Icu=Icw for 1s), with standard accessories and thermal magnetic release on provided iron frame as per specification no. SW-SWR/ACB	Each	62035	1732	63767
5-8-4	Supplying and erecting air circuit breaker manually operated non-drawout type of 1600A rated at 50° C without deration , 500V, 3 pole having short circuit rating 50 kA (Ics=Icu=Icw for 1s), with standard accessories and thermal magnetic release on provided iron frame as per specification no. SW-SWR/ACB	Each	87591	2663	90254
5-8-5	Supplying and erecting air circuit breaker manually operated drawout type of 800A rated at 50° C without deration , 500V, 3 pole having short circuit rating 50 kA (Ics=Icu=Icw for 1s), with standard accessories and thermal magnetic release on provided iron frame as per specification no. SW-SWR/ACB	Each	98342	1482	99824
5-8-6	Supplying and erecting air circuit breaker manually operated drawout type of 1000A rated at 50° C without deration , 500V, 3 pole having short circuit rating 50 kA (Ics=Icu=Icw for 1s), with standard accessories and thermal magnetic release on provided iron frame as per specification no. SW-SWR/ACB	Each	102606	2913	105519
5-8-7	Supplying and erecting air circuit breaker manually operated drawout type of 1600A rated at 50° C without deration , 500V, 3 pole having short circuit rating 50 kA (Ics=Icu=Icw for 1s), with standard accessories and thermal magnetic release on provided iron frame as per specification no. SW-SWR/ACB	Each	137424	2590	140014
5-8-8	Supplying and erecting air circuit breaker manually operated drawout type of 1250A rated at 50° C without deration , 500V, 3 pole having short circuit rating 50 kA (Ics=Icu=Icw for 1s), with standard accessories and thermal magnetic release on provided iron frame as per specification no. SW-SWR/ACB	Each	116187	2590	118777
5-8-9	Supplying and erecting air circuit breaker manually operated Non drawout type of 1250A rated at 50° C without deration , 500V, 3 pole having short circuit rating 50 kA (Ics=Icu=Icw for 1s), with standard accessories and thermal magnetic release on provided iron frame as per specification no. SW-SWR/ACB	Each	92160	2590	94750
5-8-10 (New)	Providing maintenance of ACB of all range with ACB maintenance kit by ACB manufacturer consisting of all the essential consumables like greases, cleaning spray, dusters, scrubbers and hardware required and carrying out necessary corrective maintenance of ACB complete. (excluding required spare prices)	Job	997	2881	3878
Note:-	1) For electrical drawout type ACB for item no from 5-8-6 to 5-8-9 increase overall rates by 20%.				

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
New	2) Rated capacity of ACB is observed at 50°C without derating.				
	<u>5.9 HT SF6 Load Break Switch /VCB/RMU (SW-HTS)</u>				
5-9-1	Supplying and erecting extendable / non-extendable indoor type 11 kV, 630A, load break switch with fuses of required rating on provided MS channels / trench / foundations per specification no SW-HTS / LBS	Each	106700	10940	117640
5-9-2	Supplying and erecting extendable / non-extendable indoor type 22 kV, 630A, load break switch with fuses of required rating on provided MS channels / trench / foundation as per specification no SW-HTS / LBS	Each	211279	10940	222219
5-9-3	Supplying and erecting extendable / non-extendable outdoor type 11 kV 630A, load break isolator switch on provided MS channels / trench / foundation as per specification no SW-HTS / LBS	Each	124026	10940	134966
5-9-4	Supplying and erecting extendable / non-extendable outdoor type 22 kV 630A, load break isolator switch on provided MS channels / trench / foundation as per specification no SW-HTS / LBS	Each	226923	10940	237863
5-9-5	Supplying and erecting 11 kV 400A, oil switch-fuse unit extendable/non-extendable on provided MS channels / trench / foundation as per specification no SW-HTS / LBS	Each	134927	10940	145867
5-9-6	Supplying & erecting 11 kV 630A, indoor type ring main unit with 1or 2 incoming & 2 or 1 outgoing with HRC fuses complete erected on provided cc foundation/MS channels/trench, etc, as per specification no SW-HTS / RMU	Each	281367	10940	292307
5-9-7	Supplying & erecting 22 kV 630A, indoor type ring main unit with 1or 2 incoming & 2 or 1 outgoing with HRC fuses complete erected on provided c c foundation/MS channels/trench, etc as per specification no SW-HTS / RMU	Each	489852	10940	500792
5-9-8	Supplying and erecting 11kV, 630A, vacuum circuit breaker of required rating, on provided MS channels / trench / foundation as per specification no SW-HTS / VCB	Each	498652	10940	509592
5-9-9	Supplying and erecting 22 kV, 630 A, vacuum circuit breaker of required rating on provided MS channels / trench / foundation as per specification no SW-HTS / VCB	Each	1006712	10940	1017652
5-9-10	Supplying and erecting 11kV HRC fuse 10A to 40 A for load break switch to be fitted with necessary nut bolts and commissioning complete.	Each	4054	71	4125
5-9-11	Supplying and erecting 11 kV HRC fuse 63A for load break switch to be fitted with necessary nut bolts and commissioning complete.	Each	4666	71	4737
5-9-12	Supplying and erecting 22 kV HRC fuse 10A to 40A for load break switch to be fitted with necessary nut bolts and commissioning complete.	Each	7252	71	7323
5-9-13	Supplying and erecting 22 kV HRC fuse 63A for load break switch to be fitted with necessary nut bolts and commissioning complete.	Each	9164	71	9235
5-9-14	Supplying , erecting, testing & commissioning 11kV, 630A, 21 kA / 3sec, 1 way outdoor, extensible motorised SCADA compatible RMU as per electric supply company specification consisting of 1 no. feeder with 1VCB as per specification no. SW-HTS / RMU SCADA	Each	274096	10940	285036

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
5-9-15	Supplying, erecting, testing & commissioning 11kV, 630A, 21 kA / 3sec, 1 way outdoor, extensible motorised SCADA compatible RMU as per electric supply company specification consisting of 1 no. feeder with 1LBS as per specification no. SW-HTS / RMU SCADA	Each	168987	10940	179927
5-9-16	Supplying , erecting, testing & commissioning 11kV, 630A, 21 kA / 3sec, 2 way outdoor, extensible motorised SCADA compatible RMU as per electric supply company specification consisting of 1 no. feeder with load break switch and 1 no. feeder with VCB as per specification no. SW-HTS / RMU SCADA (1LBS +1VCB)	Each	352603	10940	363543
5-9-17	Supplying , erecting, testing & commissioning 11kV, 630A, 21 kA / 3sec, 3 way outdoor, extensible motorised SCADA compatible RMU as per electric supply company specification consisting of 2 nos. feeder with load break switch and 1 no. feeder with VCB as per specification no. SW-HTS / RMU SCADA (2LBS +1VCB)	Each	428494	10940	439434
5-9-18	Supplying , erecting, testing & commissioning 11kV, 630A, 21kA/3sec, 4 way outdoor, extensible motorised SCADA compatible RMU as per electric supply company specification consisting of 2 nos. feeder with load break switch and 2 nos. feeder with VCB as per specification no. SW-HTS / RMU SCADA (2LBS +2VCB)	Each	642595	10940	653535
5-9-19	Supplying , erecting, testing & commissioning 11kV, 630A, 21kA/3sec, 5 way outdoor, extensible motorised SCADA compatible RMU as per electric supply company specification consisting of 2 nos. feeder with load break switch and 3 nos. feeder with VCB as per specification no. SW-HTS / RMU SCADA (2LBS +3VCB)	Each	748979	10940	759919
5-9-20	Supplying , erecting, testing & commissioning 11kV, 630A, 21kA/3sec, 6 way outdoor, extensible motorised SCADA compatible RMU as per electric supply company specification consisting of 2 nos. feeder with load break switch and 4 nos. feeder with VCB as per specification no. SW-HTS / RMU SCADA (2LBS +4VCB)	Each	1010700	10940	1021640
5-9-21	Supplying , erecting, testing & commissioning 11kV, 630A, 21kA/3sec, 3 way outdoor, extensible motorised SCADA compatible RMU as per electric supply company specification consisting of 1 no. feeder with load break switch and 2 nos. feeder with VCB as per specification no. SW-HTS / RMU SCADA (1LBS +2VCB)	Each	503132	10940	514072
5-9-22	Supplying , erecting, testing & commissioning SF 6 Insulated 22kV, 630A, 16kA/3sec, 1 way outdoor, extensible motorised SCADA compatible RMU as per electric supply company specification consisting of 1 no. feeder with VCB as per specification no. SW-HTS / RMU SCADA (1VCB)	Each	315026	10940	325966
5-9-23	Supplying , erecting, testing & commissioning SF 6 Insulated 22kV, 630A, 16kA/3sec, 1 way outdoor, extensible motorised SCADA compatible RMU as per electric supply company specification consisting of 1no. feeder with 1LBS as per specification no. SW-HTS / RMU SCADA	Each	218171	10940	229111
5-9-24	Supplying , erecting, testing & commissioning SF 6 Insulated 22kV, 630A, 16kA/3sec, 2 way outdoor, extensible motorised SCADA compatible RMU as per electric supply company specification consisting of 1 no. feeder with load break switch and 1 no. feeder with VCB as per specification no. SW-HTS / RMU SCADA (1LBS +1VCB)	Each	517909	10940	528849

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
5-9-25	Supplying , erecting, testing & commissioning SF 6 Insulated 22kV, 630A, 16kA/3sec, 3 way outdoor, extensible motorised SCADA compatible RMU as per electric supply company specification consisting of 2 nos. feeder with load break switch and 1 no. feeder with VCB as per specification no. SW-HTS / RMU SCADA (2LBS +1VCB)	Each	640873	10940	651813
5-9-26	Supplying , erecting, testing & commissioning SF 6 Insulated 22kV, 630A, 16kA/3sec, 4 way outdoor, extensible motorised SCADA compatible RMU as per electric supply company specification consisting of 2 nos. feeder with load break switch and 2 nos. feeder with VCB as per specification no. SW-HTS / RMU SCADA (2LBS +2VCB)	Each	886427	10940	897367
5-9-27	Supplying , erecting, testing & commissioning SF 6 Insulated 22kV, 630A, 16kA/3sec, 5 way outdoor, extensible motorised SCADA compatible RMU as per electric supply company specification consisting of 2 nos. feeder with load break switch and 3 nos. feeder with VCB . as per specification no. SW-HTS / RMU SCADA (2LBS +3VCB+M)	Each	1150587	10940	1161527
5-9-28	Supplying , erecting, testing & commissioning SF 6 Insulated 22kV, 630A, 16kA/3sec, 6 way outdoor, extensible motorised SCADA compatible RMU as per electric supply company specification consisting of 2 nos. feeder with load break switch and 4 nos. feeder with VCB as per specification no. SW-HTS / RMU SCADA (2LBS +4VCB)	Each	1486403	10940	1497343
5-9-29	Supplying , erecting, testing & commissioning SF 6 Insulated 22kV, 630A, 16kA/3sec, 3 way outdoor, extensible motorised SCADA compatible RMU as per electric supply company specification consisting of 1no. feeder with load break switch and 2 nos. feeder with VCB as per specification no. SW-HTS / RMU SCADA (1LBS +2VCB)	Each	759810	10940	770750
Note:-	1) The above items are for Indoor installation with IP 55 protection class. 2) For outdoor installations IP 65 protection class is to be proposed by increasing overall rates by 10%.				
New	3) Internal arc tested RMU (min equivalent to short circuit capacity) shall be preferred.				
New	4) LBS /RMU shall be IEC 62271 -100,200 and 102, compliance.				
<u>5.10 Accessories (SW-AS)</u>					
5-10-1	Supplying and erecting porcelain base iron clad cut out of HC type 415V 16A erected on polished wooden block complete.	Each	102	22	124
5-10-2	Supplying and erecting iron clad cut out HC type 415V 32A erected on polished wooden block complete.	Each	173	22	195
5-10-3	Supplying and erecting iron clad cut out HC type 415V 63A erected on polished wooden block complete.	Each	315	22	337
5-10-4	Supplying and erecting iron clad cut out HC type 415V 100A erected on polished wooden block complete.	Each	607	22	629
5-10-5	Supplying and erecting iron clad cut out HC type 415V 200A erected on polished wooden block complete.	Each	1049	22	1071
5-10-6	Supplying and erecting HC pattern porcelain fuse bridges with base & HC type fuse links 240V 16A erected on polished wooden block complete.	Each	52	22	74
5-10-7	Supplying and erecting HC pattern porcelain fuse bridges with base & HC type fuse links 240V 32A erected on polished wooden block complete.	Each	120	22	142

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
5-10-8	Supplying & erecting fuse bridge with base 16A erected on provided switch board in approved manner complete.	Each	64	22	86
5-10-9	Supplying & erecting fuse bridges with base HC type fuse links 240V 63A erected on polished wooden block complete.	Each	122	22	144
5-10-10	Supplying & erecting fuse bridges with base HC type fuse links 415V 100A erected on polished wooden block complete.	Each	545	22	567
5-10-11	Supplying & erecting fuse bridges with base HC type fuse links 415V 200A erected on polished wooden block complete.	Each	783	22	805
5-10-12	Supplying & erecting fuse bridges with base HC type fuse links 415V 300A erected on polished wooden block complete.	Each	987	22	1009
5-10-13	Supplying and erecting Bakelite fuse fitting suitable for HRC bolted type fuse up to 32A without fuse complete.	Each	58	22	80
5-10-14	Supplying and erecting Bakelite fuse fitting suitable for HRC bolted type fuse up to 63A without fuse complete.	Each	100	22	122
5-10-15	Supplying and erecting Bakelite fuse fitting suitable for HRC bolted type fuse up to 100A without fuse complete.	Each	228	22	250
5-10-16	Supplying & erecting HRC fuse cartridge 415V 32A complete.	Each	72	22	94
5-10-17	Supplying & erecting HRC fuse cartridge 415V 63A complete.	Each	88	22	110
5-10-18	Supplying & erecting HRC fuse cartridge 415V 100A complete.	Each	184	22	206
5-10-19	Supplying & erecting HRC fuse cartridge 415V 200A complete.	Each	250	22	272
5-10-20	Supplying & erecting HRC fuse cartridge 415V 300A complete.	Each	374	22	396
5-10-21	Supplying & erecting HRC fuse cartridge 415V 400A complete.	Each	623	22	645
5-10-22	Supplying & erecting 415V 16A porcelain base neutral link complete erected in provided MS box complete.	Each	45	22	67
5-10-23	Supplying & erecting 415V 32A porcelain base neutral link complete erected in provided MS box complete.	Each	50	22	72
5-10-24	Supplying & erecting 415V 63A porcelain base neutral link complete erected in provided MS box complete.	Each	88	22	110
5-10-25	Supplying & erecting 415V 100A porcelain base neutral link complete erected in provided MS box complete.	Each	171	22	193
5-10-26	Supplying & erecting porcelain/epoxy bus bar support complete erected in provided MS box for 100A complete.	Each	36	22	58
5-10-27	Supplying & erecting porcelain/epoxy bus bar support complete erected in provided MS box for 200/300A complete.	Each	60	22	82
5-10-28	Supplying & erecting porcelain/epoxy bus bar support complete erected in provided MS box for 400A complete.	Each	80	22	102
5-10-29	Supplying & erecting 415V 200A porcelain base neutral link complete erected in provided MS box complete.	Each	305	45	350

5.11 Accessories for MCCB's

5-11-1	Supplying and erecting terminal spreaders for use on MCCB incoming and outgoing terminals for 3 pole upto 100A MCCB complete. (set of 6).	Set	143	26	169
5-11-2	Supplying and erecting terminal spreaders for use on MCCB incoming and outgoing terminals for 3 pole upto 250A MCCB complete. (set of 6)	Set	773	26	799
5-11-3	Supplying and erecting terminal spreaders for use on MCCB incoming and outgoing terminals for 3 pole 300A- 400A MCCB complete. (set of 6)	Set	1384	26	1410
5-11-4	Supplying and erecting terminal spreaders for use on MCCB incoming and outgoing terminals for 3 pole 630A MCCB complete. (set of 6)	Set	1560	26	1586
5-11-5	Supplying and erecting terminal spreaders for use on MCCB incoming and outgoing terminals for 3 pole upto 800A MCCB complete. (set of 6)	Set	3255	26	3281

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
5-11-6	Supplying and erecting terminal spreaders for use on MCCB incoming and outgoing terminals for 4 pole upto 100A MCCB complete. (Set of 8)	Set	241	31	272
5-11-7	Supplying and erecting terminal spreaders for use on MCCB incoming and outgoing terminals for 4 pole above 100A upto 250A MCCB complete. (Set of 8)	Set	1005	31	1036
5-11-8	Supplying and erecting terminal spreaders for use on MCCB incoming and outgoing terminals for 4 pole above 250A upto 400A MCCB complete. (Set of 8)	Set	1989	31	2020
5-11-9	Supplying and erecting terminal spreaders for use on MCCB incoming and outgoing terminals for 4 pole above 400A upto 630A MCCB complete. (Set of 8)	Set	2333	31	2364
5-11-10	Supplying and erecting terminal spreaders for use on MCCB incoming and outgoing terminals for 4 pole above 630A upto 800A MCCB complete. (Set of 8)	Set	4109	31	4140
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 CT's complete.	Each	4670	26	4696
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 CT's complete.	Each	6305	26	6331
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 CT's complete.	Each	4684	26	4710
5-11-14	Supplying and erecting extended rotary handle for MCCB with adjustable telescopic rod suitable for upto 250A MCCB complete.	Each	1087	26	1113
5-11-15	Supplying and erecting extended rotary handle for MCCB with adjustable telescopic rod suitable for above 250A upto 630A MCCB complete.	Each	1560	26	1586
5-11-16	Supplying and erecting extended rotary handle for MCCB with adjustable telescopic rod suitable above 630A upto 800A MCCB complete.	Each	2359	26	2385
5-11-17	Supplying and erecting SS enclosure for MCCB suitable for upto 100A MCCB complete.	Each	810	26	836
5-11-18	Supplying and erecting SS enclosure for MCCB suitable for 125A to 200A MCCB complete.	Each	1356	26	1382
<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 complete.	Each	0	79	79
5-12-2	Making the site clear of dismantled DB and switch gears by refilling the holes with cement mortar & finishing in an approved manner complete.	Each	8	51	59
5-12-3	Dismantling existing OCB, ACB, LBS, VCB complete from existing panel board in an approved manner complete.	Each	0	1068	1068
Note:- 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.					
5-12-4	Dismantling any type of unserviceable feeder pillar, switch gear panel, capacitor panel, metering panel, bus-bar panel, electronic equipment panel, etc. and remaking the site good as original complete. (approx. size (upto 150 cm x 70 cm x 45 cm) - small cupboard)	Each	0	1068	1068

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
5-12-5	Dismantling any type of unserviceable feeder pillar, switch gear panel, capacitor panel, metering panel, bus-bar panel, electronic equipment panel, etc. and remaking the site good as original complete. (approx. size (upto 200cm. x 90 cm x 45 cm and above) - big cupboard)	Each	0	1602	1602
Note:-	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.				

Above items are confirming to relevant IS as mentioned below

IS/IEC .60947.1.2007: Low-voltage switchgear and control gear, Part 1: General rules

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:12640.1.2008: Residual Current Operated Circuit - Breakers for Household and Similar Uses, Part 1: Circuit-Breakers Without Integral Overcurrent Protection (RCCBs)

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)

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)

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	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				
	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				

Chapter:6
Control Panel (CP)

- 6.1 Sheets**
- 6.2 Busbars (CP-BB)**
- 6.3 Measuring Instruments**
- 6.4 H.T. Metering**
- 6.5 Accessories**
- 6.6 Surge Protective Devices (CP-SPD)**
- 6.7 Energy Devices (Harmonic Filter, APFC Panel) (CP-ED)**

Chapter : 6 CONTROL PANEL (CP)

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
<u>6.1 Sheets</u>					
6-1-1	Supplying and erecting metal work in CRCA sheet with fabrication of boxes, panel boards, etc. including cutting, bending, drilling, welding, riveting, treated with anti-rust treatment and duly powder coated or painted with one coat of red lead paint and 2 coats of enamel paint complete.	kg	178	48	226
Note:- Above rates are inclusive of angle iron work.					
6-1-2	Supplying and erecting GI sheet 1.6 mm (16 SWG) 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.	m ²	1746	371	2117
6-1-3	Supplying and erecting GI sheet 1.25 mm (18 SWG) 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.	m ²	1428	371	1799
6-1-4	Supplying and erecting GI sheet 1 mm (20 SWG) 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.	m ²	1271	371	1642
6-1-5	Supplying and erecting GI sheet 0.8 mm (22 SWG) 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.	m ²	818	371	1189
6-1-6	Supplying and erecting GI sheet 0.6 mm (24 SWG) 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.	m ²	772	371	1143
6-1-7	Supplying and erecting acrylic sheet 3 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.	m ²	929	192	1121
6-1-8	Supplying and erecting acrylic sheet 2 mm thick for covering wall entries including cutting, drilling and fixing with nut bolts / screws etc. complete.	m ²	784	192	976
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.	m ²	671	192	863
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.	m ²	1291	192	1483
6-1-11	Supplying and erecting 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.	m ²	262	133	395
6-1-12	Supplying and erecting 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.	m ²	527	133	660
6-1-13	Supplying and pasting sunmica / formica sheet 1 mm thick on provided plywood of required shade.	m ²	622	133	755
6-1-14	Supplying and erecting marine 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.	m ²	1130	133	1263

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
6-1-15	Supplying and erecting 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 installation.	Each	63	34	97
6-1-16	Supplying and erecting 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 installation.	Each	101	34	135
6-1-17	Supplying and erecting 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 installation with approved shade complete.	Each	43	34	77
6-1-18	Supplying and erecting cupboard for enclosing switchgears or for any other purpose made from selected marine 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)	m ²	1279	804	2083
6-1-19	Supplying and erecting iron, sheet metal work consisting of CRCA 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 authority.	kg	105	26	131
Note:-	Quantity of iron/sheet metal work shall be considered and worked out as per steel data table.				
6-1-20	Supplying and erecting self-locking arrangement with keys in duplicate, made of brass duly erected, flush with surface of panel / cupboard.	Each	202	38	240
6-1-21	Supplying and erecting 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.)	m ²	97	72	169
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 authority	kg	98	19	117
<u>6.2 Bus bars (CP-BB)</u>					
6-2-1	Supplying and erecting bus bar chamber triple pole with neutral with four aluminium bars , 500V, 100A complete as per specification no. CP-BB	m	4579	547	5126
6-2-2	Supplying and erecting bus bar chamber triple pole with neutral with four aluminium bars , 500V 200A complete as per specification no. CP-BB	m	4848	547	5395
6-2-3	Supplying and erecting bus bar chamber triple pole with neutral with four aluminium bars , 500V 300A complete as per specification no. CP-BB	m	5068	664	5732
6-2-4	Supplying and erecting bus bar chamber triple pole with neutral with four aluminium bars , 500V 400A complete as per specification no. CP-BB	m	7556	664	8220

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
6-2-5	Supplying and erecting bus bar chamber triple pole with neutral with four aluminium bars , 500V 630A complete as per specification no. CP-BB	m	8710	664	9374
6-2-6	Supplying and erecting bus bar chamber triple pole with neutral with four aluminium bars , 500V 800A complete as per specification no. CP-BB	m	9515	664	10179
6-2-7	Supplying and erecting bus bar chamber triple pole with neutral with four copper bars , 500V, 100A complete as per specification no. CP-BB	m	6786	547	7333
6-2-8	Supplying and erecting bus bar chamber triple pole with neutral with four copper bars , 500V 200A complete as per specification no. CP-BB	m	8083	547	8630
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 500 volt with require capacity with 99.9% copper purity with fixing arrangement (like lug or bottle type lug) to both the end with high grade polyolefin insulation sleeve complete as per specification no. BCP-BB	kg	1114	67	1181
Note:-	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 2) Measurement shall be done on actual weight basis after fabrication but before erection.				
6-2-10	Supplying and erecting of any size electrolyte copper patti or bar in bus bar chamber / in panel or any other purpose, 500 V with require capacity with 99.9% copper purity with fixing arrangement (like lug or bottle type lug) to both the end with high grade polyolefin insulation sleeve complete as per specification no. BCP-BB	kg	959	67	1026
6-2-11	Supplying and erecting of any size electrolyte aluminium patti or bar in bus bar chamber / in panel or any other purpose, 500 V with require capacity with 99.9% aluminium purity with fixing arrangement (like lug or bottle type lug) to both the end with high grade polyolefin insulation sleeve complete as per specification no. BCP-BB	kg	507	67	574
Note:-	Nut, bolts holding the lugs to bus bar shall be of bimetallic/ brass/ cadmium plated steel.				
<u>6.3 Measuring Instruments</u>					
6-3-1	Supplying and erecting static energy meter with 240V 50 Hz. AC supply 5 to 30 A , ISI mark, accuracy class 1.0 with backlit LCD display, (measuring and display kWh, V, I, kW six month history of energy and MD in kVA) with transparent hinge type box complete erected on polished teak wood board duly wired with required size of weather proof PVC wires duly tested by electric supply company.	Each	2044	174	2218
6-3-2	Supplying and erecting static energy meter with 240V 50 Hz. AC supply 10 to 60 A , ISI mark, accuracy class 1.0 with backlit LCD display, (measuring and display kWh, V, I, kW, six month history of energy and MD in kVA) with transparent hinge type box complete erected on polished teak wood board duly wired with required size of weather proof PVC wires duly tested by electric supply company.	Each	2190	174	2364

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
6-3-3	Supplying and erecting static energy meter with 3 x 240V 50 Hz. AC supply 10 to 60 A , ISI mark, accuracy class 1.0 with backlit LCD display, (measuring and display kWh only) with transparent hinge type box complete erected on polished teak wood board duly wired with required size of weather proof PVC wires duly tested by electric supply company.	Each	3718	234	3952
6-3-4	Supplying and erecting static energy meter 440 V 50 Hz. 100A ISI mark meter AC 3 phase 4 wires LCD/LED display complete erected on polished teak wood board duly wired with required size of weather proof PVC wires duly tested for class II accuracy by electric supply company.	Each	5401	237	5638
6-3-5	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	7265	468	7733
6-3-6	Supplying and erecting HT CT multifunction DLMS compliance of accuracy of class 0.5 , 3x63.5V,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	9930	468	10398
6-3-7	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 AC supply with necessary PVC wire leads and lugs and mounting hardware on provided panel complete with calibration certificate from manufacturer.	Each	1042	234	1276
6-3-8	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 AC supply with necessary PVC wire leads and lugs and mounting hardware on provided panel complete with calibration certificate from manufacturer.	Each	989	234	1223
6-3-9	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 mounting 96 x 96 mm, 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	6128	468	6596
6-3-10	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 I accuracy and wiring connections and mounting hardware on provided panels complete with calibration certificate from manufacturer.	Each	3053	468	3521

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6-3-11	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, kVAh, 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	19327	468	19795
6-3-12	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	3678	1640	5318
6-3-13	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 RJ 232 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	8050	1640	9690
6-3-14	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	10088	2813	12901
6-3-15	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	12397	5157	17554
6-3-16 (New)	Supplying and erecting single phase smart energy meter DLMS compliance with 240V 50 cycles AC supply 5-30 A , ISI mark, 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	9555	234	9789
6-3-17 (New)	Supplying and erecting Three phase smart energy meter DLMS compliance with 3x240V 50 cycles AC supply 10-60 A , ISI mark, accuracy class 1.0 with backlit LCD display, measuring & display V, I, kW, kWh, PF, kVA, kVAh, 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	16413	351	16764

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<p>Note:-</p> <p>1. Provision of CT's shall be made for meters for respective meters. All meters shall be with manufacturer's calibration certificate.</p> <p>2. Provision of smart energy meters i.e. item no. 6.3.16 and 6.3.17 shall be done according to provisions as per Energy Conservation Building Code (ECBC) : 2007.</p> <p>3. DLMS stands for Device Language Message Specification.</p>					
6.4 H. T. Metering					
6-4-1	Supplying, erecting, testing and commissioning 11 KV HT metering cubical (compact type) approved by MSEDCL/licensee fabricated with 2 mm (14 SWG) M.S. sheets with supporting angle and channel, painted with powder coating / epoxy paint of required shade copper bus bar size 25 x 6 mm electronic security lock and heavy duty mechanical lock, with counter meter for measuring no of times the opening of doors, top side cover (CT, PT cover) interlock with meter doors, epoxy coated 3 nos CT having required ratio between 5/5A to 50/5A , VA10,Class0.5S, 11000/V3/110/V3 VA 50, class 0.5 epoxy terminal block suitable for provided trivector meter, and provision for incoming and outgoing cables etc. complete duly tested by licensee with necessary test certificates and erected on provided plinth/ cc foundation	Each	100825	30432	131257
6-4-2	Supplying, erecting, testing, commissioning 11 KV HT metering cubical (compact type) approved by MSEDCL/licensee fabricated with 2 mm (14 SWG) M.S. sheets with supporting angle and channel, painted with powder coating / epoxy paint of required shade copper bus bar size 25x6 mm electronic security lock and heavy duty mechanical lock, with counter meter for measuring no of times the opening of doors, top side cover (CT,PT cover) interlock with meter doors, epoxy coated 3 nos CT having required ratio between 75/5 A to 100/5 A , VA10,class0.2S, 11000/V3/110/V3 VA 50, class 0.2 epoxy terminal block suitable for provided trivector meter, and provision for incoming and outgoing cables etc. complete duly tested by licensee with necessary test certificates and erected on provided plinth/ cc foundation	Each	106687	30432	137119
6-4-3	Supplying, erecting, testing, commissioning 22 KV HT metering cubical (compact type) approved by MSEDCL/licensee fabricated with 2 mm (14 SWG) MS sheets with supporting angle and channel, painted with powder coating / epoxy paint of required shade copper bus bar size 25x6 mm electronic security lock and heavy duty mechanical lock, with counter meter for measuring no of times the opening of doors, top side cover (CT,PT cover) interlock with meter doors, epoxy coated 3 nos CT having required ratio between 5/5 A to 25/5 A , VA10, class 0.5S, 22000/V3/110/V3 VA 50, class 0.5 epoxy terminal block suitable for provided trivector meter, and provision for incoming and outgoing cables etc. complete duly tested by licensee with necessary test certificates and erected on provided plinth/ cc foundation	Each	133652	30432	164084
6-4-4	Supplying, erecting, testing, commissioning 22 KV HT metering cubical (compact type) approved by MSEDCL/licensee fabricated with 2mm.(14 SWG) M.S. sheets with supporting angle and channel, painted with powder coating / epoxy paint of required shade copper bus bar size 25x6 mm electronic security lock and heavy duty mechanical lock, with counter meter for measuring no of times the opening of doors, top side cover (CT,PT cover) interlock with meter doors, epoxy coated 3 nos CT having required ratio between 50/5 A to 100/5 A , VA10, class 0.2S, 22000/V3/110/V3 VA 50, class 0.2 epoxy terminal block suitable for provided trivector meter, and provision for incoming and outgoing cables etc. complete duly tested by licensee with necessary test certificates and erected on provided plinth/ cc foundation	Each	140100	30432	170532

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<u>6.5 Accessories</u>					
6-5-1	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	259	43	302
6-5-2	Supplying and erecting 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	791	43	834
6-5-3	Supplying and erecting 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	350	43	393
6-5-4	Supplying and erecting 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 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	387	43	430
6-5-5	Supplying and erecting set of 3 pilot lamps all bakelite with colour glasses with miniature lamps 230 V/250V erected on provided CRCA box with panel type fuses and connected with PVC wires.	Each	521	43	564
6-5-6	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	129	43	172
6-5-7	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	186	43	229
<u>6.6 Surge Protective Devices (CP-SPD)</u>					
6-6-1	Supplying, installation & marking of surge arrester / 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 as per specification no. CP-SPD	Each	9067	48	9115
6-6-2	Supplying, installation & marking of surge arrester / 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 as per specification no. CP-SPD	Each	16624	48	16672
6-6-3	Supplying, installation & marking of surge arrester / 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 as per specification no. CP-SPD	Each	6299	48	6347
6-6-4	Supplying, installation & marking of surge arrester/ 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 as per specification no. CP-SPD	Each	12316	48	12364

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6-6-5	Supplying, installation & marking of surge arrester/ 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 as per specification no. CP-SPD	Each	3715	48	3763
6-6-6	Supplying, installation & marking of surge arrester/ 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 as per specification no. CP-SPD	Each	6806	48	6854
6-6-7	Supplying, installation & marking of surge arrester/ 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 as per specification no. CP-SPD	Each	4534	48	4582
6-6-8	Supplying, installation & marking of surge arrester/ 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 as per specification no. CP-SPD	Each	8917	48	8965
Note:-	<p>The above items shall be used only in installation where delicate/ sensitive instruments are used or for installations that are prone to surges.</p> <p><u>6.7 Energy Devices (Harmonic Filter, APFC Panel) (CP-ED)</u></p>				
6-7-1	Carrying out power quality analysis of the existing load at per point of supply / or as directed, with use of necessary day equipments and recording voltage, current, frequency, kW, kVA, kVAr, PF, THDv, THDi, load imbalance, preparation and submission of detailed analysis report with remedial measures, as per specification no CP-ED/PQA	per day	19216	3467	22683
Note:-	<p>1) Above job is to be carried out irrespective of measurements carried out at various electrical panels/load centers.</p> <p>2) For estimating, one day shall be considered of number of hours of one normal working day and it shall be actual time required for taking measurements on site.</p> <p>3)After carrying out detailed power quality analysis of existing load and on the basis of analysis active harmonic filter is to be provided, in addition to necessary capacitors / APFC with capacitors.</p>				
6-7-2	Supplying, erecting, testing, and commissioning of digital active 30 A harmonic filter cum power conditioner , with digital closed loop active filter with source current sensing, 32 bit digital signal processing with less than 1 milli second response time, high speed IGBTs in power circuit with necessary CTs to be mounted on existing cable/bus and shunted to supply along with digital display showing voltage, current, frequency, kW, kVA, kVAR, PF, VTHD, ITHD and waveform with alarm for 3 phase 4 wire system as per specification No. CP-ED/DAHF	Each	317092	4620	321712
6-7-3	Supplying, erecting, testing, and commissioning of digital active 60 A harmonic filter cum power conditioner , with digital closed loop active filter with source current sensing, 32 bit digital signal processing with less than 1 millisecond response time, high speed IGBTs in power circuit with necessary CTs to be mounted on existing cable/bus and shunted to supply along with digital display showing voltage, current, frequency, kW, kVA, kVAr, PF, VTHD, ITHD and waveform with alarm for 3 phase 4 wire system as per specification No. CP-ED/DAHF	Each	373493	4620	378113

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6-7-4	Supplying, erecting, testing, and commissioning of digital active 100 A harmonic filter cum power conditioner , with digital closed loop active filter with source current sensing, 32 bit digital signal processing with less than 1 milli second response time, high speed IGBTs in power circuit with necessary CTs to be mounted on existing cable/bus and shunted to supply along with digital display showing voltage, current, frequency, kW, kVA, kVA _r R, PF, VTHD, ITHD and waveform with alarm for 3 phase 4 wire system as per specification No. CP-ED/DAHF	Each	529373	7103	536476
6-7-5	Supplying, erecting, testing, and commissioning of digital active 150 A harmonic filter cum power conditioner , with digital closed loop active filter with source current sensing, 32 bit digital signal processing with less than 1 millisecond response time, high speed IGBTs in power circuit with necessary CTs to be mounted on existing cable/bus and shunted to supply along with digital display showing voltage, current, frequency, kW, kVA, kVA _r , PF, VTHD, ITHD and waveform with alarm for 3 phase 4 wire system as per specification No. CP-ED/DAHF	Each	698590	7103	705693
6-7-6	Supplying and erecting 30 kVA_r, 440 V 3 phase, 50 Hz., thyristor switched micro APFC passive filter panel , consisting of suitable steps of APP type capacitor units with harmonic filter reactors, as per specification no CP-ED/APFC	Each	107859	7103	114962
6-7-7	Supplying and erecting 40 kVA_r, 440 V 3 phase, 50 Hz., thyristor switched micro APFC passive filter panel , consisting of suitable steps of APP type capacitor units with harmonic filter reactors, as per specification no CP-ED/APFC	Each	131307	7103	138410
6-7-8	Supplying and erecting 50 kVA_r, 440 V 3 phase, 50 Hz., thyristor switched micro APFC passive filter panel , consisting of suitable steps of APP type capacitor units with harmonic filter reactors, as per specification no CP-ED/APFC	Each	140686	7103	147789
6-7-9	Supplying and erecting 75 kVA_r, 440 V 3 phase, 50 Hz., thyristor switched micro APFC passive filter panel , consisting of suitable steps of APP type capacitor units with harmonic filter reactors, as per specification no CP-ED/APFC	Each	173513	7103	180616
6-7-10	Supplying and erecting 100 kVA_r, 440 V 3 phase, 50 Hz., thyristor switched micro APFC passive filter panel , consisting of suitable steps of APP type capacitor units with harmonic filter reactors, as per specification no CP-ED/APFC	Each	218396	7103	225499
6-7-11	Supplying and erecting 125 kVA_r, 440 V three phase, 50 Hz., thyristor switched micro APFC passive filter panel , consisting of suitable steps of APP type capacitor units with harmonic filter reactors, as per specification no CP-ED/APFC	Each	266548	7103	273651
6-7-12	Supplying and erecting 150 kVA_r, 440 V 3 phase, 50 Hz., thyristor switched micro APFC passive filter panel , consisting of suitable steps of APP type capacitor units with harmonic filter reactors, as per specification no CP-ED/APFC	Each	331055	7103	338158
6-7-13	Supplying and erecting 175 kVA_r, 440 V 3 phase, 50 Hz., thyristor switched micro APFC passive filter panel , consisting of suitable steps of APP type capacitor units with harmonic filter reactors, as per specification no CP-ED/APFC	Each	385783	7103	392886
6-7-14	Supplying and erecting 200 kVA_r, 440 V 3 phase, 50 Hz., thyristor switched micro APFC passive filter panel , consisting of suitable steps of APP type capacitor units with harmonic filter reactors, as per specification no CP-ED/APFC	Each	434536	7103	441639

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6-7-15	Supplying and erecting 250 kVAr, 440 V three phase, 50 Hz., thyristor switched micro APFC passive filter panel , consisting of suitable steps of APP type capacitor units with harmonic filter reactors, as per specification no CP-ED/APFC	Each	542771	7103	549874
6-7-16	Supplying and erecting 35 kVAr, 3 phase, 50 Hz., capacitor duty contactor with de-latching mechanism microprocessor APFC controller 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 , consisting of suitable steps of MPP / APP type capacitor units with detuned aluminium filter 7% reactors with circuit breaker as main incomer and MCCB for each branch protection as per specification no CP-ED/APFC	Each	160072	6386	166458
6-7-17	Supplying and erecting 50 kVAr, 3 phase, 50 Hz., capacitor duty contactor with de-latching mechanism microprocessor APFC controller 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 , consisting of suitable steps of MPP / APP type capacitor units with detuned aluminium filter 7% reactors with circuit breaker as main incomer and MCCB for each branch protection, as per specification no CP-ED/APFC	Each	226680	6386	233066
6-7-18	Supplying and erecting 100 kVAr, 3 phase, 50 Hz., capacitor duty contactor with de-latching mechanism microprocessor APFC controller 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 , consisting of suitable steps of MPP / APP type capacitor units with detuned aluminium filter 7% reactors with circuit breaker as main incomer and MCCB for each branch protection, as per specification no CP-ED/APFC	Each	322621	7103	329724
6-7-19	Supplying and erecting 125 kVAr, 3 phase, 50 Hz., capacitor duty contactor with de-latching mechanism microprocessor APFC controller 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 , consisting of suitable steps of MPP /APP type capacitor units with detuned aluminium filter 7% reactors with circuit breaker as main incomer and MCCB for each branch protection, as per specification no CP-ED/APFC	Each	423753	7103	430856
6-7-20	Supplying and erecting 150 kVAr, 3 phase, 50 Hz., capacitor duty contactor with de-latching mechanism microprocessor APFC controller 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 , consisting of suitable steps of MPP/APP type capacitor units with detuned aluminium filter 7% reactors with circuit breaker as main incomer and MCCB for each branch protection, as per specification no CP-ED/APFC	Each	459347	7103	466450
6-7-21	Supplying and erecting 200 kVAr, 3 phase, 50 Hz., capacitor duty contactor with de-latching mechanism microprocessor APFC controller 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 , consisting of suitable steps of MPP /APP type capacitor units with detuned aluminium filter 7% reactors with circuit breaker as main incomer and MCCB for each branch protection, as per specification no CP-ED/APFC	Each	514488	7103	521591
6-7-22	Supplying and erecting 250 kVAr, 3 phase, 50 Hz., capacitor duty contactor with de-latching mechanism microprocessor APFC controller 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 , consisting of suitable steps of MPP / APP type capacitor units with detuned aluminium filter 7% reactors with circuit breaker as main incomer and MCCB for each branch protection, as per specification no CP-ED/APFC	Each	591190	7103	598293

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
Note:-	<p>1. After doing quality analysis, if it is observed that filters are required to compensate only reactive power and not harmonics then the above items shall be used with proper designing.</p> <p>2. After verification of nature of load, depending upon load survey and requirements of reactors and requirements capacitor duty contactor switching panels shall be used.</p> <p>3. While selecting the capacitor rated voltage, inrush current capacity, overcurrent capacity and life shall be checked from manufacturer as per specifications mentioned.</p>				
(New)	<p>4. Refer chapter no. 5 for dismantling items.</p> <p>5. IGBT stands for Insulated Gate Bipolar Transistor.</p> <p>Above items are conforming to relevant IS as mentioned below</p> <p>IS : 2551 :1982 - Danger notice plates.</p> <p>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.</p> <p>IEC 61643- II - Low voltage surge protective devices part 32</p>				

Chapter : 7
Cables (CB)

7.1	LT Cables (Aluminium)	(CB-LT/AL)
7.2	LT Cables (Copper)	(CB-LT/CU)
7.3	HT Cables	(CB-HT)
7.4	Cable Joints & End Termination Kits (LT Cables)	(CB-JT/LT)
7.5	Cable Joints & End Termination Kits (HT Cables)	(CB-JT/HT)
7.6	Cable Enclosures	(CB-CE)
7.7	Cable Glands	(CB-GL)
7.8	Street Light Boxes & Cable Indicators	(CB-SB/CB-CIP)
7.9	Cable Lugs (Copper)	(CB-CL/CU)
7.10	Cable Lugs (Aluminium)	(CB-CL/AL)
7.11	Cable Tray	(CB-CT)
7.12	Dismantling	

Chapter : 7 CABLES (CB)

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
<u>7.1 LT Cables (Aluminum) (CB-LT/AL)</u>					
7-1-1	Supplying, erecting & terminating XLPE armoured cable 1 core 70 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	158	33	191
7-1-2	Supplying, erecting & terminating XLPE armoured cable 1 core 95 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	177	33	210
7-1-3	Supplying, erecting & terminating XLPE armoured cable 1 core 120 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	205	41	246
7-1-4	Supplying, erecting & terminating XLPE armoured cable 2 core 4 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	78	17	95
7-1-5	Supplying, erecting & terminating XLPE armoured cable 2 core 6 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	90	17	107
7-1-6	Supplying, erecting & terminating XLPE armoured cable 2 core 10 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	104	17	121
7-1-7	Supplying, erecting & terminating XLPE armoured cable 3 core 2.5 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	81	17	98
7-1-8	Supplying, erecting & terminating XLPE armoured cable 3 core 4 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	86	17	103
7-1-9	Supplying, erecting & terminating XLPE armoured cable 3 core 6 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	99	17	116
7-1-10	Supplying, erecting & terminating XLPE armoured cable 3 core 10 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	120	17	137

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
7-1-11	Supplying, erecting & terminating XLPE armoured cable 3 core 16 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	132	23	155
7-1-12	Supplying, erecting & terminating XLPE armoured cable 3 core 25 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	159	23	182
7-1-13	Supplying, erecting & terminating XLPE armoured cable 3 core 35 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	199	28	227
7-1-14	Supplying, erecting & terminating XLPE armoured cable 3 core 50 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	248	28	276
7-1-15	Supplying, erecting & terminating XLPE armoured cable 3½ core 25 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	178	28	206
7-1-16	Supplying, erecting & terminating XLPE armoured cable 3½ core 35 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	221	28	249
7-1-17	Supplying, erecting & terminating XLPE armoured cable 3½ core 50 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	290	33	323
7-1-18	Supplying, erecting & terminating XLPE armoured cable 3½ core 70 sq. mm. aluminium conductor with continuous 8.35 sq. mm. (10 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	387	33	420
7-1-19	Supplying, erecting & terminating XLPE armoured cable 3½ core 95 sq. mm. aluminium conductor with continuous 8.35 sq. mm. (10 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	473	41	514
7-1-20	Supplying, erecting & terminating XLPE armoured cable 3½ core 120 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	591	49	640
7-1-21	Supplying, erecting & terminating XLPE armoured cable 3½ core 150 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	689	70	759

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
7-1-22	Supplying, erecting & terminating XLPE armoured cable 1100 V. 3½ core 185 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	859	70	929
7-1-23	Supplying, erecting & terminating XLPE armoured cable 3½core 240 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	1080	84	1164
7-1-24	Supplying, erecting & terminating XLPE armoured cable 3½ core 300 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	1293	97	1390
7-1-25	Supplying, erecting & terminating XLPE armoured cable 3½core 400 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	1638	97	1735
7-1-26	Supplying, erecting & terminating XLPE armoured cable 4 core 4 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	97	17	114
7-1-27	Supplying, erecting & terminating XLPE armoured cable 4 core 6 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	111	17	128
7-1-28	Supplying, erecting & terminating XLPE armoured cable 4 core 10 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	136	17	153
7-1-29	Supplying, erecting & terminating XPPE armoured cable 4 core 16 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	151	28	179
7-1-30	Supplying, erecting & terminating XLPE armoured cable 4 core 25 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	194	28	222
7-1-31	Supplying, erecting & terminating XLPE armoured cable 4 core 35 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	248	28	276
7-1-32	Supplying, erecting & terminating XLPE armoured cable 4 core 50 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	314	33	347

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
7-1-33	Supplying, erecting & terminating XLPE armoured cable 4 core 70 sq. mm. aluminium conductor with continuous 8.35 sq. mm. (10 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	424	33	457
7-1-34	Supplying, erecting & terminating XLPE armoured cable 4 core 95 sq. mm. aluminium conductor with continuous 8.35 sq. mm. (10 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	523	41	564
7-1-35 (New)	Supplying, erecting & terminating XLPE armoured cable 4 core 120 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	641	49	690
7-1-36 (New)	Supplying, erecting & terminating XLPE armoured cable 4 core 150 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	775	70	845
7-1-37 (New)	Supplying, erecting & terminating XLPE armoured cable 1100 V. 4 core 185 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	960	70	1030
7-1-38 (New)	Supplying, erecting & terminating XLPE armoured cable 4 core 240 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	1223	84	1307
7-1-39 (New)	Supplying, erecting & terminating XLPE armoured cable 4 core 300 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	1450	97	1547
7-1-40 (New)	Supplying, erecting & terminating XLPE armoured cable 4 core 400 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	1837	97	1934
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 in an approved manner.	m	26	17	43
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.	per job	0	6883	6883
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.	per job	0	6601	6601
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.	per job	0	6498	6498

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
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.	per job	0	6217	6217
Note:-	1) Add Rs. 5/- per meter 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. 5)Transportation charges of fault finding machine above 20 km Rs 12/- per km. 6) For round wire armouring increase material rates by 25%.				
	<u>7.2 LT Cables (Copper) (CB-LT/CU)</u>				
7-2-1	Supplying, erecting & terminating XLPE unarmoured cable 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	275	23	298
7-2-2	Supplying, erecting & terminating XLPE unarmoured cable 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	379	28	407
7-2-3	Supplying, erecting & terminating XLPE unarmoured cable 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	519	28	547
7-2-4	Supplying, erecting & terminating XLPE unarmoured cable 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	738	28	766
7-2-5	Supplying, erecting & terminating XLPE unarmoured cable 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	991	28	1019
7-2-6 (New)	Supplying, erecting & terminating XLPE unarmoured cable 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	1251	28	1279
7-2-7 (New)	Supplying, erecting & terminating XLPE unarmoured cable 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	1563	28	1591
7-2-8	Supplying, erecting & terminating XLPE armoured cable 2 core 2.5 sq. mm. copper conductor continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	117	17	134
7-2-9	Supplying, erecting & terminating XLPE armoured cable 2 core 4 sq mm copper conductor continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	148	17	165

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
7-2-10	Supplying, erecting & terminating XLPE armoured cable 2 core 6 sq. mm. copper conductor continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	191	17	208
7-2-11	Supplying, erecting & terminating XLPE armoured cable 2 core 10 sq. mm. copper conductor continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	292	17	309
7-2-12 (New)	Supplying, erecting & terminating XLPE armoured cable 2 core 16 sq. mm. copper conductor continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	410	17	427
7-2-13 (New)	Supplying, erecting & terminating XLPE armoured cable 2 core 25 sq. mm. copper conductor continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	620	17	637
7-2-14	Supplying, erecting & terminating XLPE armoured cable 3 core 2.5 sq. mm. copper conductor continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	145	17	162
7-2-15	Supplying, erecting & terminating XLPE armoured cable 3 core 4 sq. mm. copper conductor continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	188	17	205
7-2-16	Supplying, erecting & terminating XLPE armoured cable 3 core 6 sq. mm. copper conductor continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	250	17	267
7-2-17	Supplying, erecting & terminating XLPE armoured cable 3 core 10 sq. mm. copper conductor continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	387	17	404
7-2-18 (New)	Supplying, erecting & terminating XLPE armoured cable 3 core 16 sq. mm. copper conductor continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	542	23	565
7-2-19 (New)	Supplying, erecting & terminating XLPE armoured cable 3 core 25 sq. mm. copper conductor continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	883	23	906
7-2-20 (New)	Supplying, erecting & terminating XLPE armoured cable 3½ core 25 sq. mm. copper conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	1060	28	1088

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
7-2-21 (New)	Supplying, erecting & terminating XLPE armoured cable 3½ core 35 sq. mm. copper conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	1387	28	1415
7-2-22 (New)	Supplying, erecting & terminating XLPE armoured cable 3½ core 50 sq. mm. copper conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	1920	33	1953
7-2-23 (New)	Supplying, erecting & terminating XLPE armoured cable 3½ core 70 sq. mm. copper conductor with continuous 8.35 sq. mm. (10 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	2720	33	2753
7-2-24 (New)	Supplying, erecting & terminating XLPE armoured cable 3½ core 95 sq. mm. copper conductor with continuous 8.35 sq. mm. (10 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	3912	41	3953
7-2-25 (New)	Supplying, erecting & terminating XLPE armoured cable 3½ core 120 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	5014	49	5063
7-2-26 (New)	Supplying, erecting & terminating XLPE armoured cable 3½ core 150 sq. mm. copper conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	6052	70	6122
7-2-27 (New)	Supplying, erecting & terminating XLPE armoured cable 1100 V. 3½ core 185 sq. mm. copper conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	7563	70	7633
7-2-28 (New)	Supplying, erecting & terminating XLPE armoured cable 3½ core 240 sq. mm. copper conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	9707	84	9791
7-2-29 (New)	Supplying, erecting & terminating XLPE armoured cable 3½ core 300 sq. mm. copper conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	12075	97	12172
7-2-30 (New)	Supplying, erecting & terminating XLPE armoured cable 3½ core 400 sq. mm. copper conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	15730	97	15827
7-2-31	Supplying, erecting & terminating XLPE armoured cable 4 core 4 sq. mm. copper conductor continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	234	17	251

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
7-2-32	Supplying, erecting & terminating XLPE armoured cable 4 core 6 sq. mm. copper conductor continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	319	17	336
7-2-33	Supplying, erecting & terminating XLPE armoured cable 4 core 10 sq. mm. copper conductor continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	495	17	512
7-2-34	Supplying, erecting & terminating XLPE armoured cable 4 core 16 sq. mm. copper conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	706	28	734
7-2-35	Supplying, erecting & terminating XLPE armoured cable 4 core 25 sq. mm. copper conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	1147	28	1175
7-2-36	Supplying, erecting & terminating XLPE armoured cable 4 core 35 sq. mm. copper conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	1575	28	1603
7-2-37	Supplying, erecting & terminating XLPE armoured cable 4 core 50 sq. mm. copper conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	m	2159	33	2192
7-2-38 (New)	Supplying, erecting & terminating XLPE armoured cable 4 core 70 sq. mm. copper conductor with continuous 8.35 sq. mm. (10 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	3112	33	3145
7-2-39 (New)	Supplying, erecting & terminating XLPE armoured cable 4 core 95 sq. mm. copper conductor with continuous 8.35 sq. mm. (10 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	4473	41	4514
7-2-40 (New)	Supplying, erecting & terminating XLPE armoured cable 4 core 120 sq. mm. copper conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	5632	49	5681
7-2-41 (New)	Supplying, erecting & terminating XLPE armoured cable 4 core 150 sq. mm. copper conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	7019	70	7089
7-2-42 (New)	Supplying, erecting & terminating XLPE armoured cable 1100 V. 4 core 185 sq. mm. copper conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	8647	70	8717

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
7-2-43 (New)	Supplying, erecting & terminating XLPE armoured cable 4 core 240 sq. mm. copper conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	11138	84	11222
7-2-44 (New)	Supplying, erecting & terminating XLPE armoured cable 4 core 300 sq. mm. copper conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	13861	97	13958
7-2-45 (New)	Supplying, erecting & terminating XLPE armoured cable 4 core 400 sq. mm. copper conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	m	18204	97	18301
Note:-	1) Add Rs. 5/- per meter 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) For cable fault detection rates refer sub chapter 7.1 and notes below. 4) For round wire armouring increase material rates by 15%.				
	<u>7.3 HT Cables (CB-HT)</u>				
7-3-1	Supplying , erecting & terminating 3 x 70 sq. mm. aluminium 11 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	918	57	975
7-3-2	Supplying , erecting & terminating 3 x 95 sq. mm. aluminium 11 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	1087	57	1144
7-3-3	Supplying , erecting & terminating 3 x 120 sq. mm. aluminium 11 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	1249	57	1306
7-3-4	Supplying , erecting & terminating 3 x 150 sq. mm. aluminium 11 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	1396	71	1467
7-3-5	Supplying , erecting & terminating 3 x 185 sq. mm. aluminium 11 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	1629	71	1700
7-3-6	Supplying , erecting & terminating 3 x 240 sq. mm. aluminium 11 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	1951	71	2022
7-3-7	Supplying , erecting & terminating 3 x 300 sq. mm. aluminium 11 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	2257	84	2341
7-3-8	Supplying , erecting & terminating 3 x 400 sq. mm. aluminium 11 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	2819	84	2903

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
7-3-9 (New)	Supplying , erecting & terminating 3 x 95 sq. mm. aluminium 11 kV(UE), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	1391	57	1448
7-3-10 (New)	Supplying , erecting & terminating 3 x 120 sq. mm. aluminium 11 kV(UE), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	1599	57	1656
7-3-11 (New)	Supplying , erecting & terminating 3 x 150 sq. mm. aluminium 11 kV(UE), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	1773	71	1844
7-3-12 (New)	Supplying , erecting & terminating 3 x 185 sq. mm. aluminium 11 kV(UE), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	1992	71	2063
7-3-13 (New)	Supplying , erecting & terminating 3 x 240 sq. mm. aluminium 11 kV(UE), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	2336	71	2407
7-3-14 (New)	Supplying , erecting & terminating 3 x 300 sq. mm. aluminium 11 kV(UE), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	2680	84	2764
7-3-15 (New)	Supplying , erecting & terminating 3 x 400 sq. mm. aluminium 11 kV(UE), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	3163	84	3247
7-3-16	Supplying , erecting & terminating 3 x 70 sq. mm. aluminium 22 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	1178	57	1235
7-3-17	Supplying , erecting & terminating 3 x 95 sq. mm. aluminium 22 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	1448	57	1505
7-3-18	Supplying , erecting & terminating 3 x 120 sq. mm. aluminium 22 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	1646	57	1703
7-3-19	Supplying , erecting & terminating 3 x 150 sq. mm. aluminium 22 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	1819	71	1890
7-3-20	Supplying , erecting & terminating 3 x 185 sq. mm. aluminium 22 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	2039	71	2110
7-3-21	Supplying , erecting & terminating 3 x 240 sq. mm. aluminium 22 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	2388	71	2459

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
7-3-22	Supplying , erecting & terminating 3 x 300 sq. mm. aluminium 22 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	2735	84	2819
7-3-23	Supplying , erecting & terminating 3 x 70 sq. mm. aluminium 33 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	1396	57	1453
7-3-24	Supplying , erecting & terminating 3 x 95 sq. mm. aluminium 33 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	1932	57	1989
7-3-25	Supplying , erecting & terminating 3 x 120 sq. mm. aluminium 33 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	2173	57	2230
7-3-26	Supplying , erecting & terminating 3 x 150 sq. mm. aluminium 33 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	2332	71	2403
7-3-27	Supplying , erecting & terminating 3 x 185 sq. mm. aluminium 33 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	2577	71	2648
7-3-28	Supplying , erecting & terminating 3 x 240 sq. mm. aluminium 33 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	2942	71	3013
7-3-29	Supplying , erecting & terminating 3 x 300 sq. mm. aluminium 33 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	3300	84	3384
7-3-30 (New)	Supplying , erecting & terminating 3 x 150 sq. mm. aluminium 33 kV(UE), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	2331	71	2402
7-3-31 (New)	Supplying , erecting & terminating 3 x 185 sq. mm. aluminium 33 kV(UE), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	2575	71	2646
7-3-32 (New)	Supplying , erecting & terminating 3 x 240 sq. mm. aluminium 33 kV(UE), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	2933	71	3004
7-3-33 (New)	Supplying , erecting & terminating 3 x 300 sq. mm. aluminium 33 kV(UE), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT	m	3297	84	3381
Note:-	1) For cable fault detection rates refer sub chapter 7.1 and notes below. 2) For round wire armouring increase material rates For 11 kV (E) by 25% For 11 kV(UE), 22 kV, 33kV (E)/(UE) by 27.5%				

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
<u>7.4 Cable Joints & End Termination Kits (LT Cables)</u> <u>(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. cable, with necessary material as per specification no. CB-JT/LT	Each	1686	228	1914
7-4-2	Providing & erecting epoxy straight through joint outdoor/indoor for LT XLPE armoured cable 25 to 50 sq. mm. cable, with necessary material as per specification no. CB-JT/LT	Each	2032	228	2260
7-4-3	Providing & erecting epoxy straight through joint outdoor/indoor for LT XLPE armoured cable 70 to 95 sq. mm. cable, with necessary material as per specification no. CB-JT/LT	Each	2634	339	2973
7-4-4	Providing & erecting epoxy straight through joint outdoor/indoor for LT XLPE armoured cable 120 to 185 sq. mm. cable, with necessary material as per specification no. CB-JT/LT	Each	2614	471	3085
7-4-5	Providing & erecting epoxy straight through joint outdoor/indoor for LT XLPE armoured cable 240 sq. mm. cable, with necessary material as per specification no. CB-JT/LT	Each	4323	471	4794
7-4-6	Providing & erecting epoxy straight through joint outdoor/indoor for LT XLPE armoured cable 300 sq. mm. cable, with necessary material as per specification no. CB-JT/LT	Each	5332	581	5913
7-4-7	Providing & erecting epoxy straight through joint outdoor/indoor for LT XLPE armoured cable 400 sq. mm. cable, with necessary material as per specification no. CB-JT/LT	Each	5314	650	5964
7-4-8	Providing & erecting epoxy outdoor / indoor end termination kit for LT XLPE armoured cable 2.5 to 16 sq. mm. cable, with necessary material as per specification no. CB-JT/LT	Each	1616	228	1844
7-4-9	Providing & erecting epoxy outdoor / indoor end termination kit for LT XLPE armoured cable 25 to 50 sq. mm. cable, with necessary material as per specification no. CB-JT/LT	Each	1751	228	1979
7-4-10	Providing & erecting epoxy outdoor / indoor end termination kit for LT XLPE armoured cable 70 to 120 sq. mm. cable, with necessary material as per specification no. CB-JT/LT	Each	1824	339	2163
7-4-11	Providing & erecting epoxy outdoor / indoor end termination kit for LT XLPE armoured cable 150 to 185 sq. mm. cable, with necessary material as per specification no. CB-JT/LT	Each	1929	471	2400
7-4-12	Providing & erecting epoxy outdoor / indoor end termination kit for LT XLPE armoured cable 240 to 300 sq. mm. cable, with necessary material as per specification no. CB-JT/LT	Each	2555	471	3026
7-4-13	Providing & erecting epoxy outdoor / indoor end termination kit for LT XLPE armoured cable 400 sq. mm. cable, with necessary material as per specification no. CB-JT/LT	Each	3024	650	3674
Note	1) Above rates are for Aluminium lugs & ferrules. For Copper lugs & ferrules increase material rates by 15 %				
<u>7.5 Cable Joints & End Termination Kits (HT Cables)</u> <u>(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	6469	883	7352
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	7712	1182	8894

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
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	8396	1182	9578
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	8776	1182	9958
7-5-5	Providing and erecting Heat shrinkable out door 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	11517	1288	12805
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	9858	1288	11146
7-5-7	Providing and erecting Heat shrinkable out door 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	11118	1288	12406
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	11516	1288	12804
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	17593	1477	19070
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. CBJT/HT	Each	21143	1477	22620
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. CBJT/HT	Each	25768	1477	27245
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	8150	883	9033
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	10212	1182	11394
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	12454	1182	13636
7-5-15	Providing and erecting Heat shrinkable out door termination kit for 11 kV (UE)/ 22 kV (E) XLPE HT cable 3x up to 95 sq. mm. cable with necessary material as per specification no. CB-JT/HT	Each	12291	1288	13579
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	14487	1288	15775
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	19397	1288	20685
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. CBJT/HT	Each	31300	1477	32777
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. CBJT/HT	Each	34222	1477	35699
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. CBJT/HT	Each	42445	1477	43922

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
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. CBJT/HT	Each	48774	1477	50251
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	11810	1182	12992
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	12449	1182	13631
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	16780	1182	17962
7-5-25	Providing and erecting Heat shrinkable indoor termination kit for 33 kV (E)/33 kV (UE) XLPE HT cable 3x300 sqmm to 400 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	19978	1477	21455
7-5-26	Providing and erecting Heat shrinkable out door 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	15561	1288	16849
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	18032	1288	19320
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	23567	1288	24855
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	28470	1477	29947
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. CBJT/HT	Each	40957	1477	42434
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. CBJT/HT	Each	49317	1477	50794
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. CBJT/HT	Each	65127	1477	66604
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. CBJT/HT	Each	73251	1477	74728
Note	1) Above rates are for Aluminium Lugs & Ferrules for Copper Lugs & Ferrules increase material rates by 15 %				
	<u>7.6 Cable Enclosures (CB-CE)</u>				
7-6-1	Supplying & erecting G.I. pipe ‘A’ class 25 mm dia. erected for enclosing XLPE armoured cable on wall/pole as per specification no. CB-CE	m	158	26	184
7-6-2	Supplying & erecting G.I. pipe ‘A’ class 40 mm dia. erected for enclosing XLPE armoured cable on wall/pole as per specification no. CB-CE	m	247	39	286
7-6-3	Supplying & erecting G.I. pipe ‘A’ class 50 mm dia. erected for enclosing XLPE armoured cable on wall/pole as per specification no. CB-CE	m	325	52	377
7-6-4	Supplying & erecting G.I. pipe ‘A’ class 75 mm dia. erected for enclosing XLPE armoured cable on wall/pole as per specification no. CB-CE	m	505	66	571

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
7-6-5	Supplying & laying (including excavation) 15 cm dia RCC Hume pipe with coupling collar of standard thickness at required depth up to 90 cm below road / ground surface, for enclosing provided cable & necessary back filling with light ramming to make the road/ground surface as it was (Except bitumen carpet).	m	300	281	581
7-6-6	Supplying & laying (including excavation) 15 cm dia half round RCC Hume pipe of standard thickness at required depth up to 90 cms. below road / ground surface, for enclosing provided cable & necessary back filling with light ramming to make the road/ground surface as it was (Except bitumen carpet).	m	165	281	446
7-6-7	Supplying & laying (including excavation) 25 cm dia RCC Hume pipe of standard thickness at required depth up to 90 cms. below road / ground surface, for covering provided cable & necessary back filling with light ramming to make the road/ground surface as it was (Except bitumen carpet).	m	338	281	619
7-6-8	Supplying & laying (including excavation) 25 cm Dia half round RCC Hume pipe of standard thickness at required depth up to 90 cms. below road / ground surface, for enclosing provided cable & necessary back filling with light ramming to make the road/ground surface as it was (Except bitumen carpet).	m	200	281	481
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, to required depth complete.	m	71	108	179
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, to required depth complete.	m	97	108	205
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, to required depth complete.	m	157	144	301
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, to required depth complete.	m	212	144	356
7-6-13	Supplying and laying (including excavation of suitable width & depth up to 90 cm) 146 mm outside dia. double wall corrugated pipes (DWC) of HDPE for enclosing cable below ground/road surface, to required depth complete.	m	282	144	426
7-6-14	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, to required depth complete.	m	308	144	452
7-6-15	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, to required depth complete.	m	363	212	575
7-6-16	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, to required depth complete.	m	456	212	668
Note:-	1)For erection of G I pipe on stone wall add Rs.5/- per meter to the overall rate. 2)All the GI pipes and DWC pipes shall be ISI marked.				

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	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 Siemens 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. for XLPE armoured cable as per specification no. CB-GL	Each	31	20	51
7-7-2	Supplying & erecting Siemens type brass cable glands for 3 to 4 core 6 sq. mm. /2 to 4 core 10 sq. mm. for XLPE armoured cable as per specification No. CB-GL	Each	32	20	52
7-7-3	Supplying & erecting Siemens type brass cable glands for 3 to 4 core 16 sq. mm. /3 to 4 core 25 sq. mm. /3 core 35 sq. mm. for XLPE armoured cable as per specification no. CB-GL	Each	32	28	60
7-7-4	Supplying & erecting Siemens type brass cable glands for 4 core 35 sq. mm./3 core 50 sq. mm. for XLPE armoured cable as per specification no. CB-GL	Each	51	28	79
7-7-5	Supplying & erecting Siemens type brass cable glands for 4 core 50 sq. mm. for XLPE armoured cable as per specification no. CB-GL	Each	61	40	101
7-7-6	Supplying & erecting Siemens type brass cable glands for 3½ core 70 sq. mm. for XLPE armoured cable as per specification no. CB-GL	Each	61	40	101
7-7-7	Supplying & erecting Siemens type brass cable glands for 3½ core 95 sq. mm. for XLPE armoured cable as per specification no. CB-GL	Each	96	40	136
7-7-8	Supplying & erecting Siemens type brass cable glands for 3½ core 120 sq. mm. for XLPE armoured cable as per specification no. CB-GL	Each	113	40	153
7-7-9	Supplying & erecting Siemens type brass cable glands for 3½ core 150 sq. mm. for XLPE armoured cable as per specification no. CB-GL	Each	114	40	154
7-7-10	Supplying & erecting Siemens type brass cable glands for 3½ core 185 sq. mm. for XLPE armoured cable as per specification no. CB-GL	Each	128	45	173
7-7-11	Supplying & erecting Siemens type brass cable glands for 3½ core 240 sq. mm. for XLPE armoured cable as per specification no. CB-GL	Each	164	45	209
7-7-12	Supplying & erecting Siemens type brass cable glands for 3½ core 300 sq. mm. for XLPE armoured cable as per specification no. CB-GL	Each	175	51	226
7-7-13	Supplying & erecting Siemens type brass cable glands for 3½ core 400 sq. mm. for XLPE armoured cable as per specification no. CB-GL	Each	217	63	280
Note:-	1) For use of Flange type glands increase overall rate by 50%. 2) Glands are to be provided at time of joints/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	145	17	162
7-8-2	Supplying & erecting water tight 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	422	32	454
7-8-3	Supplying & erecting water tight 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	610	32	642

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
7-8-4	Supplying & erecting water tight 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	272	32	304
7-8-5	Supplying & erecting water tight terminal box of cast iron of size 200 x 150 x 150 mm complete on pole as per specification no. CB-SB	Each	535	32	567
7-8-6	Supplying & erecting water tight terminal box of cast iron of size 300 x 200 x 150 mm complete on pole as per specification no. CB-SB	Each	638	32	670
7-8-7	Supplying & erecting water tight terminal box of cast iron of size 150 x 100 x 100 mm complete on pole as per specification no. CB-SB	Each	450	32	482
7-8-8	Supplying & erecting FRP box of size 300 x 200 x 125 mm, 2.7 mm thick complete on pole/wall as per specification no. CB-SB	Each	540	32	572
7-8-9	Supplying & erecting FRP box of size 250 x 200 x 100 mm, 2.7 mm thick complete on pole/wall as per specification no. CB-SB	Each	480	32	512
7-8-10	Supplying & erecting FRP box of size 150 x 125 x 100 mm, 2.7 mm thick complete on pole/wall as per specification no. CB-SB	Each	413	32	445
<u>7.9 Cable Lugs (Copper) (CB-CL/CU)</u>					
7-9-1	Supplying & erecting crimping type copper lugs for cable up to 16 sq. mm. complete as per specification no. CB-CL/CU	Each	9	7	16
7-9-2	Supplying & erecting crimping type copper lugs for cable 25 sq. mm. complete as per specification no. CB-CL/CU	Each	16	7	23
7-9-3	Supplying & erecting crimping type copper lugs for cable 35 sq. mm. complete as per specification no. CB-CL/CU	Each	20	8	28
7-9-4	Supplying & erecting crimping type copper lugs for cable 50 sq. mm. complete as per specification no. CB-CL/CU	Each	30	8	38
7-9-5	Supplying & erecting crimping type copper lugs for cable 70 sq. mm. complete as per specification no. CB-CL/CU	Each	49	8	57
7-9-6	Supplying & erecting crimping type copper lugs for cable 95 sq. mm. complete as per specification no. CB-CL/CU	Each	67	9	76
7-9-7	Supplying & erecting crimping type copper lugs for cable 120 sq. mm. complete as per specification no. CB-CL/CU	Each	90	13	103
7-9-8	Supplying & erecting crimping type copper lugs for cable 150 sq. mm. complete as per specification no. CB-CL/CU	Each	126	21	147
7-9-9	Supplying & erecting crimping type copper lugs for cable 185 sq. mm. complete as per specification no. CB-CL/CU	Each	167	21	188
7-9-10	Supplying & erecting crimping type copper lugs for cable 240 sq. mm. complete as per specification no. CB-CL/CU	Each	236	21	257
7-9-11	Supplying & erecting crimping type copper lugs for cable 300 sq. mm. complete as per specification no. CB-CL/CU	Each	319	30	349
7-9-12	Supplying & erecting crimping type copper lugs for cable 400 sq. mm. complete as per specification no. CB-CL/CU	Each	473	31	504
<u>7.10 Cable Lugs (Aluminium) (CB-CL/AL)</u>					
7-10-1	Supplying & erecting crimping type aluminium lugs for cable up to 16 sq. mm. complete as per specification no. CB-CL/AL	Each	3	4	7
7-10-2	Supplying & erecting crimping type aluminium lugs for cable 25 sq. mm. complete as per specification no. CB-CL/AL	Each	4	4	8
7-10-3	Supplying & erecting crimping type aluminium lugs for cable 35 sq. mm. complete as per specification no. CB-CL/AL	Each	6	8	14
7-10-4	Supplying & erecting crimping type aluminium lugs for cable 50 sq. mm. complete as per specification no. CB-CL/AL	Each	9	8	17
7-10-5	Supplying & erecting crimping type aluminium lugs for cable 70 sq. mm. complete as per specification no. CB-CL/AL	Each	13	8	21

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
7-10-6	Supplying & erecting crimping type aluminium lugs for cable 95 sq. mm. complete as per specification no. CB-CL/AL	Each	14	8	22
7-10-7	Supplying & erecting crimping type aluminium lugs for cable 120 sq. mm. complete as per specification no. CB-CL/AL	Each	20	12	32
7-10-8	Supplying & erecting crimping type aluminium lugs for cable 150 sq. mm. complete as per specification no. CB-CL/AL	Each	26	14	40
7-10-9	Supplying & erecting crimping type aluminium lugs for cable 185 sq. mm. complete as per specification no. CB-CL/AL	Each	34	19	53
7-10-10	Supplying & erecting crimping type aluminium lugs for cable 240 sq. mm. complete as per specification no. CB-CL/AL	Each	56	19	75
7-10-11	Supplying & erecting crimping type aluminium lugs for cable 300 sq. mm. complete as per specification no. CB-CL/AL	Each	79	34	113
7-10-12	Supplying & erecting crimping type aluminium lugs for cable 400 sq. mm. complete as per specification no. CB-CL/AL	Each	114	34	148
<u>7.11 Cable Tray (CB-CT)</u>					
7-11-1	Providing & erecting Hot dipped galvanized ladder type cable tray manufactured from 16 swg (1.6 mm thick) GI sheet of 150 mm width & 100 mm height comprising all required standard accessories.	m	463	167	630
7-11-2	Providing & erecting Hot dipped galvanized ladder type cable tray manufactured from 16 swg (1.6 mm thick) GI sheet of 200 mm width & 100 mm height comprising all required standard accessories.	m	498	174	672
7-11-3	Providing & erecting Hot dipped galvanized ladder type cable tray manufactured from 16 swg (1.6 mm thick) GI sheet of 300 mm width & 100 mm height comprising all required standard accessories.	m	569	182	751
7-11-4	Providing & erecting Hot dipped galvanized ladder type cable tray manufactured from 16 swg (1.6 mm thick) GI sheet of 400 mm width & 100 mm height comprising all required standard accessories.	m	640	189	829
7-11-5	Providing & erecting Hot dipped galvanized ladder type cable tray manufactured from 16 swg (1.6 mm thick) GI sheet of 500 mm width & 100 mm height comprising all required standard accessories.	m	711	197	908
7-11-6	Providing & erecting Hot dipped galvanized perforated type cable tray manufactured from 16 swg (1.6 mm thick) GI sheet of 150 mm width & 75 mm height complete with necessary coupler plates & hardware in approved manner.	m	399	84	483
7-11-7	Providing & erecting Hot dipped galvanized perforated type cable tray manufactured from 16 swg (1.6 mm thick) GI sheet of 200 mm width & 75 mm height complete with necessary coupler plates & hardware in approved manner.	m	476	84	560
7-11-8	Providing & erecting Hot dipped galvanized perforated type cable tray manufactured from 16 swg (1.6 mm thick) GI sheet of 300 mm width & 75 mm height complete with necessary coupler plates & hardware in approved manner.	m	630	84	714
7-11-9	Providing & erecting Hot dipped galvanized perforated type cable tray manufactured from 16 swg (1.6 mm thick) GI sheet of 400 mm width & 75 mm height complete with necessary coupler plates & hardware in approved manner.	m	782	84	866
7-11-10	Providing & erecting Hot dipped galvanized perforated type cable tray manufactured from 16 swg (1.6 mm thick) GI sheet of 500 mm width & 75 mm height complete with necessary coupler plates & hardware in approved manner.	m	936	84	1020

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
7-11-11	Providing & erecting Hot dipped galvanized cover suitable for 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 in approved manner.	m	216	36	252
7-11-12	Providing & erecting Hot dipped galvanized cover suitable for perforated type cable tray manufactured from 18 swg (1.2 mm thick) GI sheet of 200 mm width & 20 mm height complete with necessary hardware in approved manner.	m	299	36	335
7-11-13	Providing & erecting Hot dipped galvanized cover suitable for perforated type cable tray manufactured from 18 swg (1.2 mm thick) GI sheet of 300 mm width & 20 mm height complete with necessary hardware in approved manner.	m	394	36	430
7-11-14	Providing & erecting Hot dipped galvanized cover suitable for perforated type cable tray manufactured from 18 swg (1.2 mm thick) GI sheet of 400 mm width & 20 mm height complete with necessary hardware in approved manner.	m	513	36	549
7-11-15	Providing & erecting Hot dipped galvanized cover suitable for perforated type cable tray manufactured from 18 swg (1.2 mm thick) GI sheet of 500 mm width & 20 mm height complete with necessary hardware in approved manner.	m	602	36	638

- Note:-**
- 1) Standard accessories shall typically include :
 - 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.
 - b) Anchor fastener & nut bolts of adequate size - 16 nos. (2 nos. per support)
 - 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 & bend, cross piece complete erected in approved manner.
 - 2) Provision for resting arrangement or support for perforated type cable tray shall be made separately as per iron work Item.
 - 3) Provision of cover for perforated type cable tray shall be made only where it is absolutely necessary and make sure for locking arrangement.
 - 4) Both type of cable trays shall be earthed properly.

7.12 Dismantling

7-12-1	Dismantling the existing cables of all types & size up to 10 sq. mm.	m	0	13	13
7-12-2	Dismantling the existing cables of all types & size above 10 sq mm up to 50 sq. mm.	m	0	19	19
7-12-3	Dismantling the existing cables of all types & size above 50 sq. mm.	m	0	25	25
7-12-4	Refilling the holes for dismantled cables with cement mortar & finishing in an approved manner etc. complete.	m	13	36	49
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	0	80	80

- Note:-**
- 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 up to 25 km, between site and section office.
 - 2) Item No 7.12.5 shall be used only when the cost of dismantled cable is more than the cost of excavation.

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	Above items are conforming to relevant IS as mentioned below				
	IS - 7098 - 1 :1988 : Cross-linked polyethylene insulated PVC sheathed cables, Part 1: For working voltage upto and including 1100 V.				
	IS - 7093 :1973 : Straight through joint boxes and lead sleeves for paper insulated lead sheathed cables up to and including 11 kV.				

Chapter: 8
Over Head Systems (OH)

8.1	Steel Poles	(OH-PL)
8.2	PSC Poles	(OH-PSC)
8.3	Hot Dipped Galvanized Poles & High Mast	(OH-HM)
8.4	Brackets	(OH-BKT)
8.5	Conductors	(OH-CON)
8.6	Insulators	(OH-INS)
8.7	Accessories	
8.8	Dismantling	

Chapter : 8 OVER HEAD SYSTEMS (OH)

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
<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 m long with pole cap, base plate in provided foundation.(weight 101 kg.) as per specification no. OH-PL/STP	Each	7542	536	8078
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	8187	536	8723
8-1-3	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	9942	716	10658
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 + 2.5 + 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	11151	716	11867
8-1-5	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	12298	808	13106
8-1-6	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 mtr) length total 12 m long with pole cap, base plate in provided foundation (weight 208 kg.) as per specification no. OH-PL/STP	Each	14467	1175	15642
8-1-7	Supplying and erecting steel tubular swan neck swaged type welded pole with upper portion hydraulically bent, 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	12593	747	13340
8-1-8	Supplying and erecting steel tubular swan neck swaged type welded pole with upper portion hydraulically bent, 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 11 m long with base plate in provided foundation.(weight 175 kg) as per specification no. OH-PL/STP	Each	13995	834	14829
8-1-9	Supplying and erecting rolled steel joist (girder) pole 150 x 80 mm/150 x75 mm (14.9 kg /m) with provided base plate in provided foundation as per specification no. OH-PL/RSJ	m	790	151	941
8-1-10	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	1359	151	1510
8-1-11	Supplying and erecting rolled steel joist (girder) pole 175 x 85 mm (19.6 kg/m) with provided base plate in provided foundation as per specification no. OH-PL/RSJ	m	1027	151	1178
8-1-12	Supplying and erecting rolled steel joist (girder) pole 100 x 116 mm (23 kg/m) with provided base plate in provided foundation as per specification no. OH-PL/RSJ	m	1210	151	1361

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
8-1-13	Supplying and erecting rolled steel joist (girder) pole 125 x 70 mm (13.3 kg/m) with provided base plate in provided foundation as per specification no. OH-PL/RSJ	m	708	151	859
8-1-14	Supplying and erecting rolled steel joist (girder) pole 152 x 152 mm (37.1 kg/m) with provided base plate in provided foundation as per specification no. OH-PL/RSJ	m	1933	151	2084
8-1-15	Supplying and erecting rail pole (29.76 kg/m) with provided base plate in provided foundation as per specification no. OH-PL/RLP	m	1530	151	1681
8-1-16	Supplying and erecting ISI mark G.I. pipe pole 'B' grade 80 mm dia 6 m long with pole cap, base plate in provided foundation as per specification no. OH-PL/GIP	Each	4291	277	4568
8-1-17	Supplying and erecting M.S. pipe pole 'B' grade 80 mm dia 6 m long with pole cap, base plate in provided foundation as per specification no. OH-PL/GIP	Each	3490	277	3767
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, also the base plate should be taken separately for item no 8.1.9 to 8.1.15 for each pole.				
<u>8.2 PSC Poles (OH-PSC)</u>					
8-2-1	Supplying and erecting pre-stressed cement concrete (PSC) rectangular pole of top 90 x 102 / 105 mm & bottom of 90 x 275 mm 8 m long (140 kg) complete erected in provided C. C. foundation & muffing (square / round) as per specification no. OH-PL/PSC	Each	1723	1061	2784
8-2-2	Supplying and erecting pre-stressed cement concrete (PSC) rectangular pole of top 105 x 115 mm & bottom of 105 x 315 mm 9 m long (200 kg) complete erected in provided C. C. foundation & muffing (square/round) as per specification no. OH-PL/PSC	Each	2339	1061	3400
<u>8.3 Hot Dipped Galvanized Poles & High Mast (OH-HM)</u>					
8-3-1	Supplying and erecting 12.5 m (clear height) High Mast (Top-150mm, Bottom- 360mm) with lowering and raising motorized unit, lantern carriage assembly suitable for max. 6 nos. luminaries and its control gear box, lightning finial arrangement for fixing aviation light and foundation bolts on provided foundation as per specification no. OH-PL/HM (excluding luminaries).	Set	170647	17541	188188
8-3-2	Supplying and erecting 16 m (clear height) High Mast (Top-150mm, Bottom- 360mm) with lowering and raising motorized unit, lantern carriage assembly suitable for max. 8 nos. luminaries and its control gear box, lightning finial arrangement for fixing aviation light and foundation bolts on provided foundation as per specification no. OH-PL/HM (excluding luminaries).	Set	197861	23393	221254
8-3-3	Supplying and erecting 16 m (clear height) High Mast (Top-150 mm, Bottom- 410mm) with lowering and raising motorized unit, lantern carriage assembly suitable for max. 12 nos. luminaries and its control gear box, lightning finial arrangement for fixing aviation light and foundation bolts on provided foundation as per specification no. OH-PL/HM (excluding luminaries).	Set	220794	23393	244187

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
8-3-4	Supplying and erecting 20 m (clear height) High Mast (Top-150mm, Bottom- 410mm) with lowering and raising motorized unit, lantern carriage assembly suitable for max. 8 nos. luminaries and its control gear box, lightning finial arrangement for fixing aviation light and foundation bolts on provided foundation as per specification no. OH-PL/HM (excluding luminaries).	Set	257692	26702	284394
8-3-5	Supplying and erecting 20 m (clear height) High Mast (Top-150mm, Bottom- 460mm) with lowering and raising motorized unit, lantern carriage assembly suitable for max. 12 nos. luminaries and its control gear box, lightning finial arrangement for fixing aviation light and foundation bolts on provided foundation as per specification no. OH-PL/HM (excluding luminaries)	Set	297243	26702	323945
8-3-6	Supplying and erecting 25 m (clear height) High Mast (Top-150mm, Bottom- 540mm) with lowering and raising motorized unit, lantern carriage assembly suitable for max. 12 nos. luminaries and its control gear box, lightning finial arrangement for fixing aviation light and foundation bolts on provided foundation as per specification No. OH-PL/HM (excluding luminaries).	Set	330659	31223	361882
8-3-7	Supplying and erecting 25 m (clear height) High Mast (Top-200mm, Bottom- 560 mm) with lowering and raising motorized unit, lantern carriage assembly suitable for max. 16 nos. luminaries and its control gear box, lightning finial arrangement for fixing aviation light and foundation bolts on provided foundation as per specification no. OH-PL/HM (excluding luminaries).	Set	386787	31223	418010
8-3-8	Supplying 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 floodlight fixtures on provided foundation as per specification no. OH-PL/OPL (excluding luminaries).	Set	24619	4647	29266
8-3-9	Supplying and erecting 12.5m (clear height) Fixed type High Mast (Top-110mm, Bottom- 242 mm) with hexagonal/round bracket and foundation bolts suitable for max. 6 nos floodlight fixtures on provided foundation as per specification no. OH-PL/OPL (excluding luminaries).	Set	40316	10830	51146
<i>Hot Dipped Galvanized Octagonal Poles</i>					
8-3-10	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	8677	914	9591
8-3-11	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	9706	914	10620
8-3-12	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	10671	914	11585
8-3-13	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	11989	914	12903
8-3-14	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	13733	1142	14875

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
8-3-15	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	15560	1371	16931
8-3-16	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	17452	1599	19051
8-3-17	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	19954	1599	21553
8-3-18	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	24534	1828	26362
8-3-19	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	28197	2056	30253
<u>Hot Dipped Galvanized Conical Poles</u>					
8-3-20	Providing & erecting 3 m high galvanised conical pole with foundation bolts having bottom dia. from 105 to 115 mm, top dia. from 65 to 75 mm on provided foundation as per specification no. OH-PL/CPL	Each	9709	914	10623
8-3-21	Providing & erecting 4 m high galvanised conical pole with foundation bolts having bottom dia. from 115 to 130 mm, top dia. from 65 to 75 mm on provided foundation as per specification no. OH-PL/CPL	Each	11841	914	12755
8-3-22	Providing & erecting 5 m high galvanised conical pole with foundation bolts having bottom dia. from 125 to 145 mm, top dia. from 65 to 75 mm on provided foundation as per specification no. OH-PL/CPL	Each	12956	914	13870
8-3-23	Providing & erecting 6 m high galvanised conical pole with foundation bolts having bottom dia. from 135 to 160 mm, top dia. from 65 to 75 mm on provided foundation as per specification no. OH-PL/CPL	Each	14625	914	15539
8-3-24	Providing & erecting 7 m high galvanised conical pole with foundation bolts having bottom dia. 145 to 175 mm, top dia. 65 to 75 mm on provided foundation as per specification no. OH-PL/CPL	Each	16536	1142	17678
8-3-25	Providing & erecting 8 m high galvanised conical pole with foundation bolts having bottom dia. from 155 to 190 mm, top dia. from 65 to 75 mm on provided foundation as per specification no. OH-PL/CPL	Each	18319	1371	19690
8-3-26	Providing & erecting 9 m high galvanised conical pole with foundation bolts having bottom dia. from 165 to 200 mm, top dia. from 65 to 75 mm on provided foundation as per specification no. OH-PL/CPL	Each	21293	1599	22892
8-3-27	Providing & erecting 10 m high galvanised conical pole with foundation bolts having bottom dia. from 175 to 200 mm, top dia. from 65 to 75 mm on provided foundation as per specification no. OH-PL/CPL	Each	24345	1599	25944

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8-3-28	Providing & erecting 11 m high galvanised conical pole with foundation bolts having bottom dia. from 195 to 245 mm, top dia. from 70 to 85 mm on provided foundation as per specification no. OH-PL/CPL	Each	29270	1828	31098
8-3-29	Providing & erecting 12 m high galvanised conical pole with foundation bolts having bottom dia. from 216 to 260 mm, top dia. from 80 to 96 mm on provided foundation as per specification no. OH-PL/CPL	Each	34400	2056	36456
8-3-30	Providing and erecting galvanised 1000mm single arm sword type bracket with FRP dome and ball as per specification no. OH-PL/PBKT	Each	2021	236	2257
8-3-31	Providing and erecting galvanised 1000mm double arm sword type bracket with FRP dome and ball as per specification no. OH-PL/PBKT	Each	3471	236	3707
Note:-	1) For bracket length of 1500 mm (Single/ double arm) increase overall rates by 20% 2) Above brackets are suitable for octagonal /conical poles from 3m to 12m length.				
	<u>Highmast Control Panels</u>				
8-3-32	Supplying and erecting outdoor stand mounted feeder pillar for highmast of the same manufacturer with 32A TPN MCB incomer , single dial timer switch, 25A TP contactor for automatic switching of luminaries, 2 nos 9A contactors and raise/lower push button, and provision for termination of adequate size of incoming and outgoing cables erected in min. 14 SWG CRCA sheet box with supporting angles, self-lock, gasket and slanting top erected with CC foundation complete.	Job	23358	1873	25231
8-3-33	Supplying and erecting Outdoor Stand Mounted Feeder Pillar for highmast of the same manufacturer with 63A TPN MCB incomer , single dial timer switch, 45A TP contactor for automatic switching of luminaries, 2 nos 9A contactors and raise/lower push button, and provision for termination of adequate size of incoming and outgoing cables erected in min. 14 SWG CRCA sheet box powder coated with supporting angles, self-lock, gasket and slanting top erected with CC foundation complete .	Job	26128	1873	28001
Note:-	For item no. 8-3-32 & 8-3-33 rates are inclusive of foundation.				
	<u>8.4 Brackets (OH-BKT)</u>				
8-4-1	Supplying & erecting MS pole bracket for guarding/LT OH Line , fabricated from angle iron 50x50x6 mm and 550 mm long for necessary nos. of provided insulators and erecting on pole with 50x6mm clamp complete as per specification no. OH -PL/BKT	Each	269	90	359
8-4-2	Supplying & erecting MS pole bracket for guarding/LT OH Line , fabricated from angle iron 50x50x6 mm 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	390	90	480
8-4-3	Supplying & erecting MS pole bracket for guarding/LT OH Line fabricated from ISM channel 75x40x6mm and 550 mm long for necessary nos. of provided insulators and erecting on pole with 50x6mm clamp complete as per specification no. OH-PL/BKT	Each	308	90	398
8-4-4	Supplying & erecting MS pole bracket for guarding/LT OH Line fabricated from ISM channel 75x40x6mm and 1100 mm long for necessary nos. of provided insulators and erecting on pole with 50x6mm clamp as per approved method of construction and complete as per specification no. OH-PL/BKT	Each	592	90	682

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8-4-5	Supplying & erecting MS pole bracket for LT OH conductor fabricated from 65x65x6 mm section, 550 mm long for necessary nos. of provided insulators and erecting on pole with 50x6 mm clamp as per approved method of construction and complete as per specification no. OH-PL/BKT	Each	312	90	402
8-4-6	Supplying & erecting MS pole bracket for LT OH conductor fabricated from 65x65x6 mm section, 1100 mm long for necessary nos. of provided insulators and erecting on pole with 50x6 mm clamp as per approved method of construction and complete as per specification no. OH-PL/BKT	Each	599	90	689
8-4-7	Supplying & erecting MS pole bracket, for OH conductor fabricated from ISM channel, 75x40x6mm 550mm long for 2 insulators and erecting on pole with 50x6 mm clamp as per approved method of construction and complete as per specification no. OH-PL/BKT	Each	276	90	366
8-4-8	Supplying & erecting MS pole bracket, for OH conductor fabricated from ISM channel, 75x40x6mm 1100mm long for 4 insulators and erecting on pole with 50x6 mm clamp as per approved method of construction and complete as per specification no. OH-PL/BKT	Each	592	90	682
8-4-9	Supplying & erecting MS pole bracket,for OH conductor fabricated from ISM channel, 75x40x6mm, 550 mm long for two insulators and welded with extension channel pieces of same size 300 mm in length and erecting on pole with 50x6 mm clamp as per approved method of construction and complete as per specification no. OH-PL/BKT	Each	410	90	500
8-4-10	Supplying & erecting MS pole bracket , fabricated from ISM channel, 75x40x6mm, 1100 mm long for 4 insulators and welded with extension channel pieces of same size 300 mm. in length and erecting on pole with 50x6 mm clamp as per approved method of construction and complete as per specification no. OH-PL/BKT	Each	607	90	697
8-4-11	Supplying & erecting 100 x 50x6 mm with 4.7 mm thick web and 7.5 mm thick flange channel iron cross arm of suitable length for 2.4m wide DP structure and erecting on DP with 50x6 mm clamp as per approved method of construction and complete as per specification no. OH-PL/BKT .	Each	1615	179	1794
Note:- For distance exceeding 2.4 m between two pole structure add Rs. 500/- per meter for extra channel length.					
8-4-12	Supplying and erecting vee cross arm with ISM channel of 75x40x6mm , for 11kV HTOH line with arrangement to fix insulator at 45mm from the end & horizontal distance between insulators 1220 mm bent at angle of 60 degree keeping base 305 mm 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	936	179	1115
8-4-13	Supplying and erecting vee cross arm with ISM channel of 100 x 50 x 6mm or 22/ 33kV HTOH line with arrangement to fix insulator at 45mm from the end & horizontal distance between insulators 1530 mm bent at angle of 60 degree keeping base 310 mm 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	1359	179	1538
8-4-14	Supplying and erecting 75x40x6 mm with 4.4 mm thick web and 7.3 mm thick flange channel (top pin) with clamp of suitable length so as to maintain vertical clearance of 1065 mm for 11 kV,1320 mm for 22 kV between insulators for erection of top pin insulators complete as per specification no. OH-PL/VCA	Each	382	90	472

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8-4-15	Supplying and erecting bracket for guarding of HT OH Line , made from channel iron 1600 mm in length and 75x40x6 mm . erected on pole complete as per specification no. OH-PL/VCA	Each	843	90	933
8-4-16	Supplying and erecting bracket for guarding of HT OH Line , made from channel iron 1600 mm in length and 65 x 65 x 6mm thick erected on pole as per specification no. OH-PL/VCA	Each	755	90	845
<u>D. P. Structure</u>					
8-4-17	Supplying & erecting single pole cut point channel set of for 11 kV HT OH line, two channel of size 100 x 50 x 6 mm 1.6 m long having stud angle of size 50 x 50 x 6 mm 1.5 m long long with necessary clamps, nut bolts etc. complete.	Each	3231	728	3959
8-4-18	Supplying & erecting inline 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 m 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 outgoing 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 x 40 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, vee cross arm, top clip, insulators etc. complete with caution board & barbed wire. D.P. structure shall be erected in c.c. foundation complete.	Each	84859	20062	104921
8-4-19	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 outgoing 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 mm x 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 x 40 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, vee cross arm, top clip, insulators etc. complete with caution board & barbed wire. D.P. structure shall be erected in c.c. foundation complete.	Each	96771	20062	116833
8-4-20	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 outgoing 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 x 40 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, vee cross arm, top clip, insulators etc. complete with caution board & barbed wire. D.P. structure shall be erected in c.c. foundation complete.	Each	108294	20062	128356

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8-4-21	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 outgoing 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 mm x 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. vee cross arm, top clip, insulators etc. complete with caution board & barbed wire. D.P. Structure shall be erected in c.c. foundation complete.	Each	90368	20062	110430
8-4-22	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 outgoing 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 mm x 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. Vee cross arm, top clip, insulators etc. complete with caution board & barbed wire. D.P. Structure shall be erected in c.c. foundation complete.	Each	101774	20062	121836
8-4-23	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 300 amps as incomer & 6 nos. 63 amps kitkat /MCCB for outgoing 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, vee cross arm, top clip, insulators etc. complete with caution board & barbed wire. D.P. Structure shall be erected in c.c. foundation complete.	Each	117954	20062	138016
8-4-24	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 outgoing 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 mm x 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, vee cross arm, top clip, insulators etc. complete with caution board & barbed wire. D.P. structure shall be erected in c.c. foundation complete.	Each	87194	20062	107256

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8-4-25	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 outgoing 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 mm x 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. vee cross arm, top clip, insulators etc. complete with caution board & barbed wire. D.P. Structure shall be erected in c.c. foundation complete.	Each	97155	20062	117217
8-4-26	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 300 Amps as incomer & 6 nos.100 amps kitkat/MCCB for outgoing 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, vee cross arm, top clip, insulators etc. complete with caution board & barbed wire. D.P. Structure shall be erected in c.c. foundation complete.	Each	113524	20062	133586
<u>8.5 Conductors (OH-CON)</u>					
8-5-1	Supplying and erecting all aluminium stranded conductors 7/1.96 mm complete. (Rose) (58 kg/km) as per specification no. OH-CON/AAC	km	12138	1298	13436
8-5-2	Supplying and erecting all aluminium stranded conductors 7/2.21 mm complete. (Gnat) (73.77kg/km) as per specification no. OH-CON/AAC	km	17932	1298	19230
8-5-3	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	19480	1298	20778
8-5-4	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	24561	1866	26427
8-5-5	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	30344	1866	32210
8-5-6	Supplying and erecting ACSR conductor of size 6/1-2.11 mm complete. (squirrel) (85kg/km) as per specification no. OH-CON/ACSR	km	15590	1298	16888
8-5-7	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	19762	1866	21628
8-5-8	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	31759	2029	33788
8-5-9	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	50225	2029	52254

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8-5-10	Supplying and erecting ACSR conductor of size - 6/1-4.09 mm (Raccon) complete. (318 kg/km) as per specification no. OH-CON/ACSR	km	63027	2029	65056
8-5-11	Supplying and erecting ACSR conductor of size - 6/1-4.72 mm (Dog) complete. (394 kg/km) as per specification no. OH-CON/ACSR	km	77602	2516	80118
<u>8.6 Insulators (OH-INS)</u>					
8-6-1	Supplying and erecting pin type LT medium insulator 100 mm x 62 mm dia. with suitable G.I. spindle, nut, bolts complete erected.	Each	49	16	65
8-6-2	Supplying and erecting porcelain shackle type LT medium insulator 75x115 mm dia. with G.I. (Shackle) strips, nuts and bolts, complete.	Each	36	16	52
8-6-3	Supplying and erecting porcelain shackle type LT medium insulator 50 x 89 mm dia. with G.I. (Shackle) strips, nuts and bolts, complete.	Each	33	16	49
8-6-4	Supplying and erecting aluminium bobbin with G.I. (shackle) strip, nuts complete.	Each	65	16	81
8-6-5	Providing and fixing G.I. earthing stud with necessary materials.	Each	43	7	50
8-6-6	Supplying and erecting porcelain disc type insulator with necessary hardware suitable for 11kV line, complete as per specification no. OH-INS/DI	Each	728	314	1042
8-6-7	Supplying and erecting porcelain disc type insulator with necessary hardware suitable for 22kV line, complete as per specification no. OH-INS/DI	Each	1020	314	1334
8-6-8	Supplying and erecting porcelain disc type insulator with necessary hardware suitable for 33 kV line complete as per specification no. OH-INS/DI	Each	1392	314	1706
8-6-9	Supplying and erecting porcelain pin type insulator with G.I. pin suitable for 11kV line, complete as per specification no. OH-INS/PN	Each	84	162	246
8-6-10	Supplying and erecting porcelain pin type insulator suitable for 22kV line with G.I. pin complete as per specification no. OH-INS/PN	Each	148	162	310
8-6-11	Supplying and erecting porcelain pin type insulator with G.I. pin suitable for 33kV line, complete as per specification no. OH-INS/PN	Each	419	220	639
8-6-12	Supplying and erecting porcelain post type insulator with nut bolts suitable for 11kV line , complete as per specification no. OH-INS/PST	Each	317	162	479
8-6-13	Supplying and erecting porcelain post type insulator with nut bolts suitable for 22kV line , complete as per specification no. OH-INS/PST	Each	410	162	572
8-6-14	Supplying and erecting porcelain post type insulator with nut bolts suitable for 33kV line complete as per specification no. OH-INS/PST	Each	504	263	767
8-6-15	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	662	314	976
8-6-16	Supplying and erecting distribution class, 22 kV thyrite type lightning arresters with nut bolts, on provided MS channel as per specification no. OH-INS/LA	Each	773	314	1087

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
8.7 Accessories					
8-7-1	Supplying and erecting G.I. stay set for poles , including loop insulators at inaccessible height complete with anchor plate 300 x 300 x 6 mm., straining screws, G.I. stay wire 7/10 SWG , G.I. stay rod 20 mm x 1.8 m length and pole clamps duly erected in provided cement concrete foundation.	Each	1066	222	1288
8-7-2	Supplying and erecting G.I. stay set for poles , including loop insulators at inaccessible height complete with anchor plate 300 x 300 x 6 mm., straining screws, G.I. stay wire 7/8 SWG , G.I. stay rod 20 mm x 1.8 m length and pole clamps duly erected in provided cement concrete foundation.	Each	1289	222	1511
8-7-3	Supplying and erecting G.I. fly stay set for pole including straining screw, G.I. stay wire, 7/10 SWG (for to 15mtr. long) with pole clamp, made of 50 x 6 mm MS flat, complete erected on provided RSJ pole. (Add. Rs. 25/- per m for extra length beyond 15 m)	Each	1502	334	1836
8-7-4	Supplying and erecting G.I. self stay set for pole , including anchor plate 300x 300 x 6 mm. straining screw, loop-insulator, G.I. stay wire 7/10 SWG , G.I. stay rod 20 mm x 1.8 m long, erected with pole clamps along with angle iron bracket of 50 x 50 x 6 mm and one meter long fixed to pole at suitable height with suitable MS clamps duly erected in provided C.C. foundations.	Each	1289	222	1511
8-7-5	Supplying and erecting G.I. wall hook , 10 to 15 mm dia and overall length 250 mm including grouting, cement plastering etc. complete.	Each	33	16	49
8-7-6	Supplying and erecting pipe post made from ISI mark G.I. pipe 40 mm dia 3 m overall length, with two bends, fixed to pipe at the top & bottom, round bended, complete erected with MS flat welded MS bolts 15 cm long duly grouted in wall with necessary clamps, nuts and bolts etc. duly painted with two coats of aluminium paint complete.	Each	1005	111	1116
8-7-7	Supplying and erecting pipe post made from ISI mark G.I. pipe 25 mm dia 3 m overall length, with two bends, fixed to pipe at the top & bottom, round bended, complete erected with MS flat welded MS bolts 15 cm long duly grouted in wall with necessary clamps, nuts and bolts etc. duly painted with two coats of aluminium paint complete.	Each	896	111	1007
8-7-8	Supplying and erecting guarding loop using G.I. wire no.8 SWG for L.T. overhead line of horizontal formation complete erected with 20 SWG GI wire as binding wire and 50 mm. section on each side, complete.	Each	26	19	45
8-7-9	Supplying and erecting fibre/ PVC spacers for LT overhead line 3 to 5 conductors complete erected.	Each	88	19	107
8-7-10	Supplying and erecting pole clamp made from 50 x 6 mm MS flat for pole or pipe, post complete erected with 15 mm bolts and nuts, complete duly painted with one coat of red oxide and two coats of aluminium paint.	Each	194	27	221
8-7-11	Supplying and erecting pole clamp made from 50 x 10 mm MS flat for pole or pipe, post complete erected with 15 mm bolts and nuts, complete duly painted with one coat of red oxide and two coats of aluminium paint.	Each	219	27	246
8-7-12	Supplying and erecting 'D' type pole clamps , fabricated from 50 x 6 mm MS flat with 15 mm dia. bolts and nut fixed to steel tubular pole duly painted with one coat of red oxide and two coats of aluminium paint.	Each	98	27	125
8-7-13	Supplying and erecting 'C' type (half) clamps for pole made from 50 x 6 mm flat for fixing cross arms by means of 15 mm dia. bolts and nuts painted with one coat of red oxide and two coats of aluminium paint.	Each	98	27	125

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
8-7-14	Supplying and erecting ' C' type (half) clamps for pole made from 50 x 10 mm flat for fixing cross arms by means of 15 mm dia. bolts and nuts painted with one coat of red oxide and two coats of aluminium paint.	Each	129	27	156
8-7-15	Supplying and fixing MS base plate 30x30x0.6 cm size fixed to the pole base either by welding or by set screws 12 mm. dia fixed at position.	Each	366	27	393
8-7-16	Supplying and fixing MS round base plate 25 cm dia meter and 10mm. thick fixed to pole by set screws or welded and fixed at position.	Each	368	27	395
8-7-17	Supplying and fixing MS pole cap fabricated from MS pipe or cast iron fixed to pole by means of set screws and 75 mm deep.	Each	76	27	103
8-7-18	Supplying and erecting guarding lace for H.T.O.H. line with 8 SWG G.I. wire to protect the H.T. overhead line with binding wire of 20 SWG G.I. wire for 75 mm section on either side.	Each	24	19	43
<u>8.8 Dismantling</u>					
8-8-1	Dismantling the existing pole up to 6 m height with brackets, clamps, insulators, stay from the cement concrete foundation and making the site clear by refilling the pits with excavated materials and bringing it to the ground level.	Each	6	429	435
8-8-2	Dismantling the existing pole above 6 m height with brackets, clamps, insulators, stay from the cement concrete foundation and making the site clear by refilling the pits with excavated materials and bringing it to the ground level.	Each	6	699	705
8-8-3	Dismantling the existing overhead line including G.I. wires of all sizes without damaging & making the coils in suitable sizes.	km	0	970	970
8-8-4	Dismantling existing lightning arrestor set, insulator complete from DP structure in an approved manner.	job	0	81	81

Above Items are conforming to relevant IS as mentioned below

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

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

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

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

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

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

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

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

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.

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	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 785 : 1998 - Reinforced Concrete Poles for Overhead Power and Telecommunication Lines.				
	IS 2713-1 to 3 : 1980 - Tubular Steel Poles for Overhead Power Lines.				
	IS 7321 : 1974 - Code of practice for selection, handling and erection of concrete poles for overhead power and telecommunication lines.				
	IS 398-1 : 1996 - Aluminium conductors for overhead transmission purposes, Part 1: Aluminium stranded conductors.				
	IS 398-1 (B) : 1996 - Aluminium Conductors for Overhead Transmission Purposes â “ Specification, Part 1: Aluminium Stranded Conductors.				
	IS 398-2 : 1996 - Aluminium conductors for overhead transmission purposes, Part 2: Aluminium conductors, galvanized steel reinforced.				
	IS 13158 : 1991 - Prestressed concrete circular spun poles for overhead power, traction and telecommunication lines.				

Chapter: 9
Earthing (EA)

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| 9.1 | Plate, Pipe type Earthing | (EA-EP) |
| 9.2 | Accessories | (EA-EP) |
| 9.3 | Lightning Conductor and Accessories | |

Chapter : 9 Earthing (EA)

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
<u>9.1 Plate, Pipe type Earthing (EA-EP)</u>					
9-1-1	Providing earthing with galvanized iron earth plate size 60 x 60 x 0.6 cm complete with all materials, testing & recording the results as per specification no. EA-EP	Each	2957	974	3931
9-1-2	Providing earthing with copper earth plate size 30 x 30 x 0.315 cm complete with all materials, testing & recording the results as per specification no. EA-EP	Each	4513	974	5487
9-1-3	Providing 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 materials, testing & recording the results as per specification no. EA-EP	Each	4136	974	5110
9-1-4	Providing pipe type earthing with 40mm. dia. G.I. pipe or 20 mm dia. G.I. Rod complete with all materials as per specification no. EA-EP	Each	860	389	1249
9-1-5	Supply, Installation, Testing and commissioning 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 25 kg Carbon based environment friendly back fill ground enhancing compound required to fill up the excavated earth with required quantity complete. Specification no. EA-MOBI	Each	11109	1064	12173
9-1-6	Providing 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 materials, testing & recording the results as per specification no ESE -LA	Each	12952	974	13926
Note:-	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. 2) Additional G.I. pipe required from earth pit & GI/Copper wire / strip more than 8 m in length from earth pit to installation to be provided separately. 3) Record entries for earthing work shall be maintained. 4) Requirement of no of bags shall be decided with respect to soil resistivity.				
<u>9.2 Accessories</u>					
9-2-1	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 painted with bituminous paint in an approved manner with joints required. As per specification no EA-EP .	Kg.	271	67	338
9-2-2	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 painted with bituminous paint in an approved manner with joints required. As per specification no. EA-EP .	Kg.	666	67	733
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.	124	67	191
9-2-4	Supplying and erecting Annealed bare copper wire of high purity of different sizes used for earthing on wall with necessary copper clamps fixed on wall/cable/conduit with screws in an approved manner.	Kg.	633	67	700

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
9-2-5	Supplying and erecting GI earth wire of high purity of different sizes used for earthing or any other purposes on wall with necessary G. I. Clamps fixed on wall/cable/ conduit with screws in an approved manner.	Kg.	69	67	136
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 in an approved manner with required joints. As per specification no. EA-EP.	Kg.	465	79	544
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 painted with insulating and non-corrosive bond in an approved manner with required joints As per specification no. EA-EP.	Kg.	887	79	966
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 in an approved manner with required joints As per specification no. EA-EP.	Kg.	323	79	402
<u>9.3 Lightning Conductor and Accessories</u>					
9-3-1	Supplying & erecting conventional spike type air termination suitable to carry lightning stroke made up of heavy gauge 40 mm dia copper pipe of standard length with 5 Nos. copper spikes fixed on copper ball as air terminals duly threaded in copper pipe erected on provided foundation in an approved manner.	Each	4260	384	4644
9-3-2	Providing and Back filling back filling ground enhancing compound 25 kg bag complete.	Each	985	157	1142

Above items are conforming to relevant IS as mentioned below

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

Chapter:10
Sub Stations (SS)

10.1	Transformers	SS-TR
10.2	Accessories	
10.3	Dismantling	

Chapter No.10 Sub Stations

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
<u>10.1 Transformers</u>					
10-1-1 (New)	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 25 kVA oil immersed and naturally cooled outdoor type, aluminium wound 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 in winding at full load rating, with standard accessories complete with test certificate with losses below 190 Watts at 50% load, 635 Watts at 100% load as per IS:1180 - 2014, energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	103610	5055	108665
10-1-2	Supplying, installing, testing & commissioning of 3 phase, 11/0.433 kV, 50 Hz., 63 kVA, oil immersed and naturally cooled outdoor type, copper wound 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 in winding at full load rating, with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, with standard accessories complete with test certificate with losses below 340 Watts at 50% load, 1140 Watts at 100% load as per IS:1180 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	241004	5926	246930
10-1-3	Supplying, installing, testing & commissioning of 3 phase, 11/0.433 kV, 50 Hz., 100 kVA, oil immersed and naturally cooled outdoor type, copper wound 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 in winding at full load rating, with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, with standard accessories complete with test certificate with losses below 475 Watts at 50% load, 1650 Watts at 100% load as per IS:1180 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	312710	6445	319155
10-1-4	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 160 kVA, oil immersed and naturally cooled outdoor type, copper wound 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 in winding at full load rating, with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, with standard accessories complete with test certificate with losses below 670 Watts at 50% load, 1950 Watts at 100% load as per IS:1180 - 2014 energy efficiency level II with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	414286	7199	421485
10-1-5	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 200 kVA, oil immersed and naturally cooled outdoor type, copper wound 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 in winding at full load rating, with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, with standard accessories complete with test certificate with losses below 780 Watts at 50% load, 2300 Watts at 100% load as per IS:1180 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	508480	8706	517186

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-6	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 250 kVA, oil immersed and naturally cooled outdoor type , copper wound 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 in winding at full load rating, with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, with standard accessories complete with test certificate with losses below 980 Watts at 50% load, 2930 Watts at 100% load as per IS:1180 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR .	Each	657496	9415	666911
10-1-7	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 315 kVA, oil immersed and naturally cooled outdoor type , copper wound 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 in winding at full load rating, with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, with standard accessories complete with test certificate with losses below 1025 Watts at 50% load, 3100 Watts at 100% load as per IS:1180 - 2014 energy efficiency level II with necessary permissions of Electrical Inspector, as per specification no SS- TR .	Each	703652	11174	714826
10-1-8	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 500 kVA, oil immersed and naturally cooled outdoor type , copper wound 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 in winding at full load rating, with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, with standard accessories complete with test certificate with losses below 1510 Watts at 50% load, 4300 Watts at 100% load as per IS:1180 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR .	Each	927794	13639	941433
10-1-9	Supplying, installing, testing & commissioning 3 phase, 11/0.433 kV, 50 Hz., 630 kVA, oil immersed and naturally cooled outdoor type , copper wound transformer, delta/star connected additional neutral brought out on load side, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance in winding at full load rating, with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, with standard accessories complete with test certificate with losses below 1860 Watts at 50% load, 5300 Watts at 100% load as per IS:1180 - 2014 energy efficiency level II with necessary permissions of Electrical Inspector, as per specification no SS- TR .	Each	1157924	13880	1171804
10-1-10	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 63 kVA, oil immersed and naturally cooled outdoor type , copper wound 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 in winding at full load rating, with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, with standard accessories complete with test certificate with losses below 357 Watts at 50% load, 1197 Watts at 100% load as per IS:1180 - 2014 energy efficiency level II with necessary permissions of Electrical Inspector, as per specification no SS- TR .	Each	281122	5959	287081

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-11	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 100 kVA, oil immersed and naturally cooled outdoor type , copper wound 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 in winding at full load rating, with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, with standard accessories complete with test certificate with losses below 499 Watts at 50% load, 1733 Watts at 100% load as per IS:1180 - 2014 energy efficiency level II with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	350604	6535	357139
10-1-12	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 160 kVA, oil immersed and naturally cooled outdoor type , copper wound 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 in winding at full load rating, with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, with standard accessories complete with test certificate with losses below 704 Watts at 50% load, 2048 Watts at 100% load as per IS:1180 - 2014 energy efficiency level II with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	445053	7199	452252
10-1-13	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 200 kVA, oil immersed and naturally cooled outdoor type , copper wound 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 in winding at full load rating, with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, with standard accessories complete with test certificate with losses below 819 Watts at 50% load, 2415 Watts at 100% load as per IS:1180 - 2014 energy efficiency level II with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	576537	9013	585550
10-1-14	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 250 kVA, oil immersed and naturally cooled outdoor type , copper wound 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 in winding at full load rating, with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, with standard accessories complete with test certificate with losses below 1029 Watts at 50% load, 3077 Watts at 100% load as per IS:1180 - 2014 energy efficiency level II with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	673734	9415	683149
10-1-15	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 315 kVA, oil immersed and naturally cooled outdoor type , copper wound 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 in winding at full load rating, with HV tapping (with off load tap changer) off Load +5 to -10 in steps of 2.5%, with standard accessories complete with test certificate with losses below 1077 Watts at 50% load, 3255 Watts at 100% load as per IS:1180 - 2014 energy efficiency level II with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	790850	11174	802024

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-16	Supplying, installing, testing & commissioning Watts 3 phase, 22/0.433 kV, 50 Hz., 500 kVA, oil immersed and naturally cooled outdoor type , copper wound 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 in winding at full load rating, with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, with standard accessories complete with test certificate with losses below 1586 Watts at 50% load, 4515 Watts at 100% load as per IS:1180 - 2014 energy efficiency level II with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	1001442	13639	1015081
10-1-17	Supplying, installing, testing & commissioning 3 phase, 22/0.433 kV, 50 Hz., 630 kVA, oil immersed and naturally cooled outdoor type , copper wound 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 in winding at full load rating, with HV tapping (with off load tap changer) off load +5 to -10 in steps of 2.5%, with standard accessories complete with test certificate with losses below 1953 Watts at 50% load, 5565 Watts at 100% load as per IS:1180 - 2014 energy efficiency level II with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	1353739	14493	1368232
Note :-	1) For indoor type transformer add Rs. 15000/- in overall rate of transformer. 2) For use of transformer with aluminium winding for 63/100/200 kVA capacity. (To be used only for Licensee Job), rates shall be reduced by 35 % from the material rates for Transformer with copper winding.) 3) For item No. 10-1-1 & 10-1-2 reduce the material rate by 5% for transformer without off Load Tap Changer.				
10-1-18	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	0	3552	3552
Note :-	When a transformer is required in lieu of faulty transformer, refer chapter no. 14 (14-Temporary Illumination). Transportation, erection, testing etc are to be considered separately.				
10-1-19	Supplying, installing, testing & commissioning single phase, 11 kV/ V3/ 250V, 15 kVA, oil cooled with CSP features outdoor type, aluminium wound transformer, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance 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 - 2014 energy efficieny level II with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	89297	2571	91868

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-20	Supplying, installing, testing & commissioning single phase, 11 kV/ V3/ 250V, 25 kVA, oil cooled with CSP Features outdoor type, aluminium wound transformer, temperature rise should not exceed 40°C by thermometer in oil and 45°C by the resistance 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 - 2014 energy efficiency level II with necessary permissions of Electrical Inspector, as per specification no SS- TR .	Each	108705	2669	111374
10-1-21	Supplying, installing, testing & commissioning compact substation with 3 phase, 11/ 0.433 kV, 50 Hz., 63 kVA, oil immersed copper wound transformer having indoor type transformer bushings, with HT side (incoming side) load break switch of appropriate capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity , with inbuilt metering cubical, standard accessories complete with test certificate, losses below 340 Watts at 50% load, 1140 Watts at 100% load for transformer, as per IS:1180 - 2014 energy efficiency level II with necessary permissions of Electrical Inspector, as per specification no SS- TR .	Each	749469	5581	755050
10-1-22	Supplying, installing, testing & commissioning compact substation with 3 phase, 11/ 0.433 kV, 50 Hz., 100 kVA, oil immersed copper wound transformer having indoor type transformer bushings, with HT side (incoming side) load break switch of appropriate capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity , with inbuilt metering cubical, standard accessories complete with test certificate with losses below 475 Watts at 50% load, 1650 Watts at 100% load for transformer, as per IS:1180 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector as per specification no SS- TR	Each	835885	5916	841801
10-1-23	Supplying, installing, testing & commissioning compact substation with 3 phase, 11/0.433 kV, 50 Hz., 160 kVA, oil immersed copper wound transformer having indoor type transformer bushings, with HT side (incoming side) load break switch of appropriate capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity , with inbuilt metering cubical, standard accessories complete with test certificate with losses below 670 Watts at 50% load, 1950 Watts at 100% load for transformer, as per IS:1180 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR .	Each	1002039	6586	1008625
10-1-24	Supplying, installing, testing & commissioning compact substation with 3 phase, 11/0.433 kV, 50 Hz., 200 kVA, oil immersed copper wound transformer having indoor type transformer bushings, with HT side (incoming side) load break switch of appropriate capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity , with inbuilt metering cubical, standard accessories complete with test certificate with losses below 780 Watts at 50% load, 2300 Watts at 100% load for transformer, as per IS:1180 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR .	Each	1155436	7256	1162692
10-1-25	Supplying, installing, testing & commissioning compact substation with 3 phase, 11/0.433 kV, 50 Hz., 250 kVA, oil immersed copper wound transformer having indoor type transformer bushings, with HT side (incoming side) load break switch of appropriate capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity , with inbuilt metering cubical, standard accessories complete with test certificate with losses below 980 Watts at 50% load, 2930 Watts at 100% load for transformer, as per IS:1180 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR .	Each	1219589	8261	1227850

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-26	Supplying, installing, testing & commissioning compact substation with 3 phase, 11/0.433 kV, 50 Hz., 315 kVA, oil immersed copper wound transformer having indoor type transformer bushings, with HT side (Incoming side) load break switch of appropriate capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity , with inbuilt metering cubical, standard accessories complete with test certificate with losses below 1025 Watts at 50% load, 3100 Watts at 100% load for transformer, as per IS:1180 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR .	Each	1424551	9935	1434486
10-1-27	Supplying, installing, testing & commissioning compact substation with 3 phase, 11/0.433 kV, 50 Hz., 500 kVA, Oil immersed copper wound transformer having indoor type transformer bushings, with HT side (incoming side) load break switch of appropriate capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity , with inbuilt metering cubical, 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 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspectors per specification no SS- TR .	Each	1886704	10605	1897309
10-1-28	Supplying, installing, testing & commissioning compact substation with 3 phase, 11/0.433, 50 Hz., 630 kVA, oil immersed copper wound transformer having indoor type transformer bushings, with HT side (incoming side) load break switch of appropriate capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity , with inbuilt metering cubical, 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 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspectors per specification no SS- TR .	Each	2128036	11610	2139646
10-1-29	Supplying, installing, testing & commissioning compact substation with 3 phase, 22/0.433 kV, 50 Hz., 63 kVA, Oil immersed copper wound transformer having indoor type transformer bushings, with HT side (incoming side) load break switch of appropriate capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity , with inbuilt metering cubical, standard accessories complete with test certificate with losses below 357 Watts at 50% load, 1197 Watts at 100% load for transformer, as per IS:1180 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR .	Each	844221	5581	849802
10-1-30	Supplying, installing, testing & commissioning compact substation with 3 phase, 22/0.433 kV, 50 Hz., 100 kVA, oil immersed copper wound transformer having indoor type transformer bushings, with HT side (incoming side) load break switch of appropriate capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity , with inbuilt metering cubical, standard accessories complete with test certificate with losses below 499 Watts at 50% load, 1733 Watts at 100% load for transformer, as per IS:1180 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR .	Each	958388	5916	964304

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-31	Supplying, installing, testing & commissioning compact substation with 3 phase, 22/0.433 kV, 50 Hz., 160 kVA, oil immersed copper wound transformer having indoor type transformer bushings, with HT side (incoming side) load break switch of appropriate capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity , with inbuilt metering cubical, standard accessories complete with test certificate with losses below 704 Watts at 50% load, 2048 Watts at 100% load for transformer, as per IS:1180 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	1116870	6586	1123456
10-1-32	Supplying, installing, testing & commissioning compact substation with ,3 phase, 22/0.433 kV, 50 Hz., 200 kVA oil immersed copper wound transformer having indoor type transformer bushings, with HT side (incoming side) load break switch of appropriate capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity , with inbuilt metering cubical, standard accessories complete with test certificate with losses below 819 Watts at 50% load, 2415 Watts at 100% load for transformer, as per IS:1180 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	1260476	7256	1267732
10-1-33	Supplying, installing, testing & commissioning compact substation with 3 phase, 22/0.433 kV, 50 Hz., 250 kVA, oil immersed copper wound transformer having indoor type transformer bushings, with HT side (incoming side) load break switch of appropriate capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity , with inbuilt metering cubical, standard accessories complete with test certificate with losses below 1029 Watts at 50% load, 3077 Watts at 100% load for transformer, as per IS:1180 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	1368206	8261	1376467
10-1-34	Supplying, installing, testing & commissioning compact substation with 3 phase, 22/0.433 kV, 50 Hz., 315 kVA, oil immersed copper wound transformer having indoor type transformer bushings, with HT side (incoming side) load break switch of appropriate capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity, with inbuilt metering cubical, standard accessories complete with test certificate with losses below 1077 Watts at 50% load, 3255 Watts at 100% load for transformer, as per IS:1180 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	1569211	9935	1579146
10-1-35	Supplying, installing, testing & commissioning compact substation with 3 phase, 22/0.433 kV, 50 Hz., 500 kVA, oil immersed copper wound transformer having indoor type transformer bushings, with HT side (incoming side) load break switch of appropriate capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity, with inbuilt metering cubical, 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 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	2102059	10605	2112664
10-1-36	Supplying, installing, testing & commissioning compact substation with 3 phase, 22/0.433 kV, 50 Hz., 630 kVA, oil immersed copper wound transformer having indoor type transformer bushings, with HT side (incoming side) load break switch of appropriate capacity and LT side (outgoing side) MCCBs (4 pole) of appropriate capacity, with inbuilt metering cubical, 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 - 2014 energy efficiency level II , with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	2370066	11610	2381676

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
Note :-	For compact substation without metering cubicle deduct Rs. 30000/- from material cost.				
10-1-37	Supplying, installation, testing and commissioning 3 phase, 11/0.433 kV, 50 Hz., 315 kVA, indoor type, vaccum cast coil (VCC) dry type cast resin transformer , copper wound , Dyn11 vector group, delta/star connection with additional neutral brought out on load side, for indoor use continuous duty, average temperature rise of winding (at principal tap) 115°C at ambient temp max 50°C and min - 50°C at full load rating, with tapping (off circuit tap links type tap changer), for off load +5 to - 5% @ 2.5% in +2/-2 steps, HV variation, class of insulation H/H, method of cooling AN, no load loss at rated voltage and frequency (+15% IS tol) 1 kW, full load loss at rated current 3.15 kW , with 98.70% efficiency at full load & 98.88 % at 1/2 full load, with 75 kV peak full wave lightning impulse withstand voltage with complete enclosure having IP 21 degree of protection, cable box arrangement at HV side and busduct at LV side, with rating and diagram plate, base channel, earthing terminals and WTI scanner with 3 PT-100 sensors, etc, standard accessories complete with test certificates (as per IS:11171 & IS 2026) with necessary permissions of Electrical Inspector as per specification no SS- TR.	Each	685844	11142	696986
10-1-38	Supplying, installation, testing and commissioning 3 phase, 11/0.433 kV, 50 Hz., 400 kVA, indoor type, vaccum cast coil (VCC) dry type cast resin transformer , copper wound , Dyn11 vector group, delta/star connection with additional neutral brought out on load side, for indoor use continuous duty, average temp rise of winding (at principal tap) 115°C at ambient temp max 50°C & min -5°C at full load rating, with tapping (with off circuit tap links type tap changer) for off load +5 to - 5% @ 2.5% in +2/-2 steps, HV variation, class of insulation H/H, method of cooling AN, no load loss at rated voltage & frequency (+15% IS Tol) 1.15 kW, full load loss at rated current 3.60 kW , with 98.83 % efficiency at full load & 98.99 % at 1/2 full load, with 75 kV peak full wave lightning impulse withstand voltage with complete enclosure having IP 21 degree of protection, cable box arrangement at HV side & bus duct at LV side ,with rating & diagram plate, base channel, earthing terminals & WTI scanner with 3 PT-100 sensors, etc. standard accessories complete with test certificate (as per IS:11171 & IS 2026) with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	764980	11812	776792
10-1-39	Supplying, installation, testing and commissioning 3 phase, 11/0.433 kV, 50 Hz., 400 kVA, indoor type, vaccum cast coil (VCC) dry type cast resin transformer , copper wound , Dyn11 vector group, delta/star connection with additional neutral brought out on load side, for indoor use continuous duty, average temp rise of winding (at principal tap) 115°C at ambient temp max 50°C & min -5°C at full load rating, with tapping (with off circuit tap links type tap changer) for off load +5 to - 5% @ 2.5% in +2/-2 steps, HV variation, class of Insulation H/H, method of cooling AN, no load loss at rated voltage & frequency (+15% IS Tol) 1.15 kW, full load loss at rated current 3.60 kW , with 98.83 % efficiency at full load & 98.99 % at 1/2 full load, with 75 KV peak full wave lightning impulse withstand voltage with complete enclosure having IP 21 degree of protection, cable box arrangement at HV side & bus duct at LV side ,with rating & diagram plate, base channel, earthing terminals & WTI scanner with 3 PT-100 sensors, etc. standard accessories complete with test certificate (as per IS:11171 & IS 2026) with necessary permissions of Electrical Inspector, as per specification no SS- TR.	Each	838840	12817	851657

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-40	Supplying, installation, testing and commissioning 3 phase, 11/0.433 kV, 50 Hz., 630 kVA, indoor type, vaccum cast coil (VCC) dry type cast resin transformer , copper wound , Dyn11 vector group, delta/star connection with additional neutral brought out on load side, for indoor use continuous duty, average temp rise of winding (at principal tap) 115°C at ambient temp max 50°C & min -5°C at full load rating, with Tapping (with off circuit tap links type tap changer) for off load +5 to - 5% @ 2.5% in +2/-2 steps, HV variation, class of insulation H/H, method of cooling AN, no load loss at rated voltage & frequency (+15% IS Tol) 1.60 kW, full load loss at rated current 5.00 kW , with 98.96 % efficiency at full load & 99.10 % at 1/2 full load, with 75 kV peak full wave lightning impulse withstand voltage with complete enclosure having IP 21 degree of protection, cable box arrangement at HV side & busduct at LV side ,with rating & diagram plate, base channel, earthing terminals & WTI scanner with 3 PT-100 sensors, etc. standard accessories complete with test certificate (as per IS:11171 & IS 2026) with necessary permissions of Electrical Inspector, as per specification no. SS- TR.	Each	976009	13822	989831
10-1-41	Supplying, installation, testing and commissioning 3 phase, 11/0.433 kV, 50 Hz., 750 kVA, indoor type, vaccum cast coil (VCC) dry type cast resin transformer , copper wound , Dyn11 vector group, with delta/star connection with additional neutral brought out on load side, for indoor use continuous duty, average temp rise of winding (at principal tap) 115°C at ambient temp max 50°C & Min - 5°C at full load rating, with Tapping (with off circuit tap links type tap changer) for off load +5 to - 5% @ 2.5% in +2/-2 steps, HV variation, class of insulation H/H, method of cooling AN, no load loss at rated voltage & frequency (+15% IS Tol) 1.90 kW, full load loss at rated current 6.75 kW , with 98.86 % efficiency at full load & 99.05 % at 1/2 full load, with 75 kV peak full wave lightning impulse withstand voltage with complete enclosure having IP 21 degree of protection, cable box arrangement at HV side & bus duct at LV side ,with rating & diagram plate, base channel, earthing terminals & WTI scanner with 3 PT-100 sensors, etc. standard accessories complete with necessary permissions of Electrical Inspector test certificate (as per IS:11171 & IS 2026) with necessary permissions of Electrical Inspectors per specification no. SS- TR.	Each	1028766	14826	1043592
10-1-42	Supplying, installation, testing and commissioning 3 phase, 11/0.433 kV, 50 Hz., 1000 kVA, indoor type, vaccum cast coil (VCC) dry type cast resin transformer , copper wound , Dyn11 vector group, delta/star connection with additional neutral brought out on load side, for indoor use continuous duty, average temp rise of winding (at Principal Tap) 115°C at ambient temp max 50°C & min -5°C at full load rating, with tapping (with off circuit tap links type tap changer) for off load +5 to - 5% @ 2.5% in +2/-2 steps, HV variation, class of insulation H/H, method of cooling AN, no load loss at rated voltage & frequency (+15% IS Tol) 2.20 KW, full load loss at rated current 9.25 kW , with 98.87 % efficiency at full load & 99.11 % at 1/2 full load, with 75 kV peak full wave lightning impulse withstand voltage with complete enclosure having IP 21 Degree of protection, cable box arrangement at HV side & bus duct at LV side ,with rating & diagram plate, base channel, earthing terminals & WTI scanner with 3 PT-100 sensors, etc. standard accessories complete with test certificate (as per IS:11171 & IS 2026) with necessary permissions of Electrical Inspector as per specification no. SS- TR.	Each	1239795	16501	1256296

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-43	Supplying, installation, testing and commissioning 3 phase, 22/0.433 kV, 50 Hz., 315 kVA, indoor type, vaccum cast coil (VCC) dry type cast resin Transformer , copper wound , Dyn11 vector group, delta/star connection with additional neutral brought out on load side, for indoor use continuous duty, average temp rise of winding (at Principal Tap) 115°C at ambient temp max 50°C & Min -5°C at full load rating, with Tapping (with off circuit bolted links type tap changer) for off load +5 to - 5% @ 2.5% in +2/-2 steps, HV variation, class of insulation H/H, method of cooling AN, no load loss at rated voltage & frequency (+15% IS Tol) 1.80 kW, full load loss at rated current 3.00 kW , with 98.50 % efficiency at full load & 98.41 % at 1/2 full load, with 125 kV peak full wave lightning impulse withstand voltage with complete enclosure having IP 23 degree of protection, cable box arrangement at HV side & busduct at LV side ,with rating & diagram plate, base channel, lifting lugs, earthing terminals & WTI scanner with 3 PT-100 sensors,etc. standard accessories complete with test certificate (as per IS:11171 & IEC 60076-11) with necessary permissions of Electrical Inspector, as per specification no. SS- TR.	Each	1292552	16501	1309053
10-1-44	Supplying, installation, testing and commissioning 3 phase, 22/0.433 kV, 50 Hz., 400 kVA, indoor type, vaccum cast coil (VCC) dry type cast resin Transformer , copper wound , Dyn11 vector group, delta/star connection with additional neutral brought out on load side, for indoor use continuous duty, average temp rise of winding (at principal tap) 115°C at ambient temp max 50°C & min -5°C at full load rating, with Tapping (with off circuit bolted links type tap changer) for off load +5 to - 5% @ 2.5% in +2/-2 steps, HV variation, class of insulation H/H, method of cooling AN, no load loss at rated voltage & frequency (+15% IS Tol) 2.00 kW, full load loss at rated current 3.60 kW , with 98.62 % efficiency at full load & 98.57 % at 1/2 full load, with 125 kV peak full wave lightning impulse withstand voltage with complete enclosure having IP 23 Degree of protection, cable box arrangement at HV side & bus duct at LV side ,with rating & diagram plate, base channel, lifting lugs, earthing terminals & WTI scanner with 3 PT-100 sensors, etc. standard accessories complete with test certificate (as per IS:11171 & IEC 60076-11) with necessary permissions of Electrical Inspector, as per specification no. SS- TR.	Each	1318931	16836	1335767
10-1-45	Supplying, installation, testing and commissioning 3 phase, 22/0.433 kV, 50 Hz., 500 kVA, indoor type, vaccum cast coil (VCC) dry type cast resin Transformer , copper wound , Dyn11 vector group, with delta/star connection with additional neutral brought out on load side, for indoor use continuous duty, average temp rise of winding (at Principal Tap) 115°C at ambient temp max 50°C & min - 5°C at full load rating, with tapping (with off circuit bolted links type tap changer) for off load +5 to - 5% @ 2.5% in +2/-2 steps, HV variation, class of insulation H/H, method of cooling AN, no load loss at rated voltage & frequency (+15% IS Tol) 2.20 kW, Full load loss at rated current 4.50 kW , with 98.68 % efficiency at full load & 98.69 % at 1/2 full load, with 125 kV peak full wave lightning impulse withstand voltage with complete enclosure having IP 23 degree of protection, cable box arrangement at HV side & bus duct at LV side ,with rating & diagram plate, base channel, lifting lugs, earthing terminals & WTI scanner with 3 PT-100 sensors, etc. standard accessories complete with test certificate (as per IS:11171 & IEC 60076-11) with necessary permissions of Electrical Inspector, as per specification no. SS- TR.	Each	1355861	17171	1373032

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-46	Supplying, installation, testing and commissioning 3 phase, 22/0.433 kV, 50 Hz., 630 kVA, indoor type, vaccum cast coil (VCC) dry type cast resin Transformer , copper wound , Dyn11 vector group, delta/star connection with additional neutral brought out on load side, for indoor use continuous duty, average temp rise of winding (at Principal Tap) 115°C at ambient temp max 50°C & Min -5°C at full load rating, with tapping(with off circuit bolted links type tap changer) for off load +5 to - 5% @ 2.5% in +2/-2 steps, HV variation, class of insulation H/H, method of cooling AN, no load loss at rated voltage & frequency (+15% IS Tol) 2.50 kW, full load loss at rated current 5.50 kW , with 98.75 % efficiency at full load & 98.78 % at 1/2 full load, with 125 kV peak full wave lightning impulse withstand voltage with complete enclosure having IP 23 Degree of protection, cable box arrangement at HV side & busduct at LV side ,with rating & diagram plate, base channel, lifting lugs, earthling terminals & WTI scanner with 3 PT-100 sensors,etc. standard accessories complete with test certificate (as per IS:11171 & IEC 60076-11) with necessary permissions of Electrical Inspector, as per specification no. SS- TR.	Each	1398066	17841	1415907
10-1-47	Supplying, installation, testing and commissioning 3 phase, 22/0.433 kV, 50 Hz., 750 kVA, indoor type, vaccum cast coil (VCC) dry type cast resin Transformer , copper wound , Dyn11 vector group, delta/star connection with additional neutral brought out on load side, for indoor use continuous duty, average temp rise of winding (at principal tap) 115°C at ambient temp max 50°C & min -5°C at full load rating, with tapping (with off circuit bolted links type tap changer) for off load +5 to - 5% @ 2.5% in +2/-2 steps, HV variation, class of insulation H/H, method of cooling AN, no load loss at rated voltage & frequency (+15% IS Tol) 2.60 kW, full load loss at rated current 7.00 kW , with 98.74 % efficiency at full load & 98.85 % at 1/2 full load, with 125 kV peak full wave lightning impulse withstand voltage with complete enclosure having IP 23 degree of protection, cable box arrangement at HV side & bus duct at LV side, with rating & diagram plate, base channel, lifting lugs, earthling terminals & WTI scanner with 3 PT-100 sensors, etc. standard accessories complete with test certificate (as per IS:11171 & IEC 60076-11) with necessary permissions of Electrical Inspector, as per specification no. SS- TR.	Each	1445548	18009	1463557
10-1-48	Supplying, installation, testing and commissioning 3 phase, 22/0.433 kV, 50 Hz., 1000 kVA, indoor type, vaccum cast coil (VCC) dry type cast resin transformer , copper wound , Dyn11 vector group, with delta connection on HV side & star connection on LV side with additional neutral brought out on load side, for indoor use continuous duty, average temp rise of winding (at principal tap) 115°C at ambient temp max 50°C & Min -5°C at full load rating, with tapping (with off circuit bolted links type tap changer) for off load +5 to - 5% @ 2.5% in +2/-2 Steps, HV variation, class of insulation H/H, method of cooling AN, no load loss at rated voltage & frequency (+15% IS Tol) 3.20 kW, full load loss at rated current 9.30 kW , with 98.77 % efficiency at full load & 98.91 % at 1/2 full load, with 125 KV peak full wave lightning impulse withstand voltage with complete enclosure having IP 23 degree of protection, cable box arrangement at HV side & bus duct at LV side ,with rating & diagram plate, base channel, lifting lugs, earthling terminals & WTI scanner with 3 PT-100 sensors, etc. standard accessories complete with test certificate (as per IS:11171 & IEC 60076-11) with necessary permissions of Electrical Inspector, as per specification no. SS- TR.	Each	1572165	19683	1591848

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-49	<p>Supplying and erecting compact substation with 100 kVA,3 phase, 50 Hz. ONAN type thermal class K10, 21kA for 3 Sec. SF6 insulated non-extensible compact switchgear (type DV-NE/ RT2-NE) consisting of one no direct cable module and cne no. fixed manual vacuum circuit breaker in SF6 insulated stainless steel enclosure, with series trip, self powered microprocessor based numerical over current relay (IDMTL + Inst.) protection. interconnection between HT switchgear and transformer shall be using 1Cx3x95 sq.mm aluminium unarmorured XLPE cable. copper wound transformer 100 kVA 11 kV/ 433V Dyn11 oil filled, indoor type transformer bushings, hermetically sealed transformer with corrugated wall, without conservator type of design & top normal porcelain bushings for HT & LT with Off load tap switch of rating +5% to -10% @2.5%. temp rise - oil/winding 40/45°C losses (subject to IS 1180 energy efficiency level 2) - max @ 50% loading : as per IS 1180 and max @ 100% loading : as per IS 1180 and impedance as per IS 1180 with LV panel-200 amps aluminium busbar (100% for phase and 50% for neutral, current density - 1 amp/sqmm) with outgoings 200 A 433V 4P 50Hz 35kA ICOG fixed manual type moulded case circuit breaker (MCCB) with microprocessor based release for overload , short circuit & earth fault protection., multifunctional meter with class 1.0 accuracy with RS 485 port, RYB, ON/OFF trip indications, outdoor enclosure having IP54 degree of protection for HT & LT switchgear compartment & IP23 degree of protection for transformer compartment, powder /colour coated enclosure, with interconnection between HT switchgear & transformer using 1Cx3x95Sq.mm XLPE aluminium single core cable. interconnection between transformer & LT switchgear using aluminium. busbars. internal earthing connections by using 50x6 mm GI strips including transformer neutral, with necessary permissions of Electrical Inspector complete as per specification no SS- TR/COMP</p>	Each	1487754	19349	1507103

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-50	<p>Supplying and Erecting approved make compact substation with 200 kVA, 3 phase, 50 Hz. ONAN type thermal class K10, 21kA for 3 Sec. SF6 insulated non-extensible compact switchgear (Type DV-NE) consisting of one no direct cable module and one no fixed manual vacuum circuit breaker in SF6 insulated stainless steel enclosure, with series trip, self powered microprocessor based numerical over current relay (IDMTL + inst.) protection. interconnection between HT switchgear and transformer shall be using 1Cx3x120 sq.mm aluminium unarmorured XLPE cable. copper wound transformer 200 kVA 11 kV/ 433V Dyn11 oil filled, indoor type transformer bushings, hermetically sealed transformer with corrugated wall, without conservator type of design & top normal porcelain bushings for HT & LT with off load tap switch of rating +5% to -10% @2.5%. temp rise - oil/winding 40/45°C losses (subject to IS 1180 energy efficiency level 2 - max @ 50% loading : as per IS 1180 and max @ 100% loading : as per IS 1180 and impedance as per IS 1180 with LV panel-315 amps aluminium busbar (100% for phase and 50% for neutral, current density - 1 amp/sqmm) with outgoings 315 A 433V 4P 50Hz 35 kA ICOG fixed manual type moulded case circuit breaker (MCCB) with microprocessor based release for overload , short circuit & earth fault protection., multifunctional meter with class 1.0 accuracy with RS 485 Port, RYB, ON/OFF trip indications, outdoor enclosure having IP54 IP54 degree of protection for HT & LT switchgear compartment & IP23 degree of protection for transformer compartment, powder /colour coated enclosure, with interconnection between HT switchgear & Transformer using 1Cx3x120 Sq.mm XLPE aluminium single core cable interconnection between transformer & LT switchgear using aluminium bus bars. internal earthling connections by using 50x6 mm GI strips including transformer neutral, complete with necessary permissions of Electrical Inspector as per specification no. SS-TR/COMP</p>	Each	1651301	21023	1672324

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-51	<p>Supplying and Erecting approved make compact substation with 315 kVA, 3 phase, 50 Hz., ONAN type, thermal class K10, 21kA for 3 Sec. SF6 insulated non-extensible compact switchgear (type DV-NE/ RT2-NE) consisting of one no direct cable module and one no fixed manual vacuum circuit breaker in SF6 insulated stainless steel enclosure, with series trip, self powered microprocessor based numerical over current relay (IDMTL + Inst.) protection. interconnection between HT switchgear and transformer shall be using 1Cx3x150 sq.mm aluminium unarmorured XLPE cable. copper wound transformer 315 kVA 11 kV/433V Dyn11 oil filled, indoor type transformer bushings, hermetically sealed transformer with corrugated wall, without conservator type of design & top normal porcelain bushings for HT & LT with off load tap switch of rating +5% to -10% @2.5%.temp rise - oil/winding 40/45°C losses (subject to IS 1180 energy efficiency level 2 - max @ 50% loading : as per IS 1180 and max @ 100% loading : as per IS 1180 and impedance as per IS 1180 with LV panel-500 amps aluminium busbar (100% for phase and 50% for neutral, current density - 1 amp/sqmm) with outgoings 500 A 433V 4P 50Hz 35 kA ICOG fixed manual type moulded case circuit breaker (MCCB) with microprocessor based release for overload , short circuit & earth fault protection., multifunctional meter with class 1.0 accuracy with RS 485 port, RYB, ON/OFF trip indications, outdoor enclosure having IP54 IP54 degree of protection for HT & LT switchgear compartment & IP23 degree of protection for transformer compartment, powder /colour coated enclosure, with interconnection between HT switchgear & transformer using 1Cx3x150 sq.mm XLPE aluminium single core cable. interconnection between transformer & LT switchgear using aluminium busbars. internal earthing connections by using 50x6 mm GI strips including transformer neutral, complete with necessary permissions of Electrical Inspector as per specification no. SS-TR/COMP</p>	Each	1746264	24373	1770637

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-52	<p>Supplying and Erecting approved make compact substation with 400 kVA, 3 phase, 50 Hz., ONAN type thermal class K10, 21kA for 3 sec. SF6 insulated non-extensible compact switchgear (type DV-NE/ RT2-NE) consisting of one no direct cable module and one no fixed manual vacuum circuit breaker in SF6 insulated stainless steel enclosure, with series trip, self powered microprocessor based numerical over current relay (IDMTL + Inst.) protection. interconnection between HT switchgear and transformer shall be using 1Cx3x150 sq.mm aluminium unarmoured XLPE cable. copper wound transformer 400 kVA 11 kV/433V DYn11 oil filled, indoor type transformer bushings, hermetically sealed transformer with corrugated wall, without conservator type of design & top normal porcelain bushings for HT & LT with off load tap switch of rating +5% to -10% @2.5%. temp rise - oil/winding 40/45°C losses (subject to IS 1180 energy efficiency level 2) - max @ 50% loading : as per IS 1180 and max @ 100% loading : as per IS 1180 and impedance as per IS 1180 with LV panel-630 amps aluminium busbar (100% for phase and 50% for neutral, current density - 1amp/sqmm) with outgoings 630 A 433V 4P 50Hz 35kA ICOG, fixed manual type air circuit breaker (ACB) with microprocessor based release for overload , short circuit & earth fault protection., multifunctional meter with class 1.0 accuracy with RS 485 Port, RYB, ON/OFF trip indications, outdoor enclosure having IP54 degree of protection for HT & LT switchgear compartment & IP23 degree of protection for transformer compartment, powder /colour coated enclosure, with interconnection between HT switchgear & transformer using 1Cx3x150 sq.mm XLPE aluminium single core cable. interconnection between transformer & LT switchgear using aluminium busbars. internal earthing connections by using 50x6 mm GI strips including transformer neutral, complete with necessary permissions of electrical inspector as per specification no. SS- TR/COMP</p>	Each	1862330	26048	1888378

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-53	<p>Supplying and Erecting approved make compact substation with 500 kVA, 3 phase, 50 Hz. ONAN type thermal class K10, 21 kA for 3 sec. SF6 insulated non-extensible compact switchgear (type DV-NE/ RT2-NE) consisting of one no direct cable module and one no fixed manual vacuum circuit breaker in SF6 insulated stainless steel enclosure, with series trip, self powered microprocessor based numerical over current relay (IDMTL + Inst.) protection. interconnection between HT switchgear and transformer shall be using 1Cx3x150 sq.mm aluminium XLPE cable. Copper wound transformer 500 kVA 11 kV/ 433V DYn11 oil filled, indoor type transformer bushings, hermetically sealed transformer with corrugated wall, without conservator type of design & top normal porcelain bushings for HT & LT with off load tap switch of rating +5% to -10% @2.5%. temp rise - oil/winding 40/45°C losses (subject to IS 1180 energy efficiency level 2) - max @ 50% loading : as per IS 1180 and max @ 100% loading : as per IS 1180 and impedance as per IS 1180 with LV panel-800 amps aluminium busbar (100% for phase and 50% for neutral, current density - 1amp/sqmm) with outgoings 800 A 433V 4P 50Hz 35 kA ICOG, fixed manual type air circuit breaker (ACB) with microprocessor based release for overload , short circuit & earth fault protection., multifunctional meter with class 1.0Accuracy with RS 485 Port, RYB, ON/OFF trip indications, outdoor enclosure having IP54 degree of protection for HT & LT switchgear compartment & IP23 degree of protection for transformer compartment, powder /colour coated enclosure, with interconnection between HT switchgear & transformer using 1Cx3x150 Sq.mm XLPE aluminium single core cable. interconnection between transformer & LT switchgear using aluminium busbars. internal earthing connections by using 50x6 mm GI strips including transformer neutral, complete with necessary permissions of Electrical Inspector as per specification no. SS- TR/COMP</p>	Each	1970482	27723	1998205

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-54	<p>Supplying and Erecting approved make Compact Substation with 630 kVA, 3 phase, 50 Hz., ONAN type thermal class 10, 21kA for 3 Sec. SF6 insulated non-extensible compact switchgear (type DV-NE/ RT2-NE) consisting of one no direct cable module and one no fixed manual vacuum circuit breaker in SF6 insulated stainless steel enclosure, with series trip, self powered microprocessor based numerical over current relay (IDMTL + Inst.) protection. Interconnection between HT switchgear and transformer shall be using 1Cx3x185 sq.mm aluminium unarmorured XLPE cable. copper wound transformer 630kVA 11kV/ 433V DYn11 oil filled, indoor type transformer bushings, hermetically sealed transformer with corrugated wall, without conservator type of design & top normal porcelain bushings for HT & LT with off load tap switch of rating +5% to -10% @2.5%. temp Rise - oil/winding 40/45°C losses (subject to IS 1180 Energy Efficiency level 2) - max @ 50% loading : as per IS 1180 and max @ 100% loading : as per IS 1180 and impedance as per IS 1180 with LV panel-1000 amps aluminium busbar (100% for phase and 50% for neutral, current density - 1 amp/sqmm) with outgoings 1000 A 433V 4P 50Hz 50 kA ICOG fixed manual type air circuit breaker (ACB) with microprocessor based release for overload , short circuit & earth fault protection, multifunctional meter with class 1.0 accuracy with RS 485 port, RYB, ON/OFF trip indications, outdoor enclosure having IP54 IP54 degree of protection for HT & LT switchgear compartment & IP23 degree of protection for transformer compartment, powder /colour coated enclosure, with interconnection between HT switchgear & transformer using 1Cx3x185 sq.mm XLPE aluminium single core cable. Interconnection between transformer & LT switchgear using aluminium busbars. internal earthing connections by using 50x6 mm GI strips including transformer neutral, complete with necessary permissions of Electrical Inspector as per specification no. SS- TR/COMP</p>	Each	2126116	29397	2155513

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-55	<p>Supplying and Erecting approved make compact substation with 1000 kVA, 3 phase, 50 Hz., ONAN type thermal class K10, 21kA for 3 Sec. SF6 insulated non-extensible compact switchgear (type DV-NE/ RT2-NE) consisting of one no direct cable module and cne no fixed manual vacuum circuit breaker in SF6 insulated stainless steel enclosure, with series trip, self powered microprocessor based numerical over current relay (IDMTL + Inst.) protection. Interconnection between HT switchgear and transformer shall be using 1Cx3x200 sq.mm aluminium unarmorured XLPE cable. copper wound transformer 1000 kVA 11 kV/ 433V Dyn11 oil filled, indoor type transformer bushings, hermetically sealed transformer with corrugated wall, without conservator type of design & top normal porcelain bushings for HT & LT with off load tap switch of rating +5% to -10% @2.5%. temp rise - oil/winding 40/45°C losses (subject to IS 1180 energy efficiency level 2) - max @ 50% loading : as per IS 1180 and max @ 100% loading : as per IS 1180 and impedance as per IS 1180 with LV panel-1600 amps aluminium busbar (100% for phase and 50% for neutral, current density - 1 amp/sq.mm.) with outgoings 1600 A 433V 4P 50Hz 50kA ICOG fixed manual type air circuit breaker (ACB) with microprocessor based release for overload , short circuit & earth Fault protection, multifunctional meter with class 1.0 accuracy with RS 485 port, RYB, ON/OFF trip indications, outdoor enclosure having IP54 degree of protection for HT & LT switchgear compartment & IP23 degree of protection for transformer compartment, powder /colour coated enclosure, with interconnection between HT switchgear & transformer using 1Cx3x200 sq.mm XLPE aluminium single core cable. interconnection between transformer & LT switchgear using aluminium bus bars. internal earthling connections by using 50x6 mm GI strips including transformer neutral, complete with necessary permissions of Electrical Inspector as per specification no. SS- TR/COMP</p>	Each	2352972	32747	2385719

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-56	<p>Supplying and Erecting approved make compact substation with 200 kVA, 3 phase, 50 Hz., ONAN type thermal class K10, 21 kA for 3 Sec. SF6 insulated non-extensible compact switchgear (type DV-NE/ RT2-NE) consisting of one no. direct cable module and one no. fixed manual vacuum circuit breaker in SF6 insulated stainless steel enclosure, with series trip, self powered microprocessor based numerical over current relay (IDMTL + Inst.) protection. Interconnection between HT switchgear and transformer shall be using 1Cx3x120 sq.mm aluminium unarmoured XLPE cable. copper wound transformer 200KVA 22 KV/433V Dyn11 oil filled, hermetically sealed transformer with corrugated wall, without conservator type of design & top normal porcelain bushings for HT & LT with off load tap switch of rating +5% to -10% @2.5%. temp rise - oil/winding 40/45°C losses (subject to IS 1180 energy efficiency level 2) - max @ 50% loading : as per IS 1180 and max @ 100% loading : as per IS 1180 and impedance as per IS 1180 with LV panel-315 A aluminium busbar (100% for phase and 50% for neutral, current density - 1amp/sqmm) with outgoings 315 A 433V 4P 50 Hz 35 kA ICOG fixed manual type moulded case circuit breaker (MCCB) with microprocessor based release for overload , short circuit & earth Fault protection., multifunctional meter with class 1.0 accuracy with RS 485 port, RYB, ON/OFF trip indications, outdoor enclosure having IP54 degree of protection for HT & LT switchgear compartment & IP23 degree of protection for transformer compartment, powder /colour coated enclosure, with interconnection between HT switchgear & transformer using 1Cx3x120Sq.mm XLPE aluminium single core cable. interconnection between transformer & LT switchgear using aluminium. busbars. internal earthing connections by using 50x6 mm GI Strips including transformer neutral, complete with necessary permissions of Electrical Inspector as per specification no. SS-TR/COMP</p>	Each	1709334	21023	1730357

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-57	<p>Supplying and Erecting approved make compact substation with 315 kVA, 3 phase, 50 Hz., ONAN type thermal class K10, 21 kA for 3 Sec. SF6 insulated non-extensible compact switchgear (type DV-NE/ RT2-NE) consisting of one no. direct cable module and one no. fixed manual vacuum circuit breaker in SF6 insulated stainless steel enclosure, with series trip, self powered microprocessor based numerical over current relay (IDMTL + Inst.) protection. Interconnection between HT switchgear and transformer shall be using 1Cx3x150 sq.mm aluminium unarmorured XLPE Cable. copper wound transformer 315 KVA 22 KV/433V Dyn11 oil filled, hermetically sealed transformer with corrugated wall, without conservator type of design & top normal porcelain bushings for HT & LT with off load tap switch of rating +5% to -10% @2.5%. temp rise - oil/winding 40/45°C losses (subject to IS 1180 energy efficiency level 2) - max @ 50% loading : as per IS 1180 and max @ 100% loading : as per IS 1180 and impedance as per IS 1180 with LV panel-500 amps aluminium busbar (100% for phase and 50% for neutral, current density - 1 amp/sqmm) with outgoings 500 A 433V 4P 50 Hz 35 kA ICOG fixed manual type moulded case circuit breaker (MCCB) with microprocessor based release for overload , short circuit & earth Fault protection, multifunctional meter with class 1.0 accuracy with RS 485 port, RYB, ON/OFF trip indications, outdoor enclosure having IP54 degree of protection for HT & LT switchgear compartment & IP23 degree of protection for transformer compartment, powder /colour coated enclosure, with interconnection between HT switchgear & transformer using 1Cx3x150 sq.mm XLPE aluminium single core cable. Interconnection between transformer & LT switchgear using aluminium busbars. Internal earthing connections by using 50x6 mm GI strips including transformer neutral, complete with necessary permissions of Electrical Inspector as per specification no. SS-TR/COMP</p>	Each	1886071	24373	1910444

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-58	<p>Supplying and Erecting approved make compact substation with 400 kVA, 3 phase, 50 Hz., ONAN type thermal class K10, 21kA for 3 Sec. SF6 insulated non-extensible compact switchgear (type DV-NE/ RT2-NE) consisting of one no. direct cable module and one no. fixed manual vacuum circuit breaker in SF6 insulated stainless steel enclosure, with series trip, self powered microprocessor based numerical over current relay (IDMTL + Inst.) protection. Interconnection between HT switchgear and transformer shall be using 1Cx3x150 sq.mm aluminium unarmorured XLPE cable. Copper wound transformer 400 kVA 22 kV/433V Dyn11 oil filled, hermetically sealed transformer with corrugated wall, without conservator type of design & top normal porcelain bushings for HT & LT with off load tap switch of rating +5% to -10% @2.5%. temp rise - oil/winding 40/45°C losses (subject to IS 1180 energy efficiency level 2) - max @ 50% loading : as per IS 1180 and max @ 100% loading : as per IS 1180 and impedance as per IS 1180 with LV panel;-630 A aluminium busbar (100% for phase and 50% for neutral, current density - 1 amp/sqmm) with outgoings 630 A 433V 4P 50 Hz 35kA ICOG, fixed manual Type air circuit breaker (ACB) with microprocessor based release for overload , short circuit & earth fault protection., multifunctional meter with class 1.0 accuracy with RS 485 port, RYB, ON/OFF trip indications, outdoor enclosure having IP54 degree of protection for HT & LT switchgear compartment & IP23 degree of protection for transformer compartment, powder /colour coated enclosure, with interconnection between HT switchgear & transformer using 1Cx3x150 sq.mm XLPE aluminium single core cable. Interconnection between transformer & LT switchgear using aluminium bus bars. internal earthing connections by using 50x6 mm GI strips including transformer neutral, complete with necessary permissions of Electrical Inspectors per specification no SS-TR/COMP</p>	Each	2020602	26048	2046650

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-59	<p>Supplying and Erecting compact substation with 500 kVA, 3 phase, 50 Hz., ONAN type thermal class K10, 21kA for 3 Sec. SF6 insulated non-extensible compact switchgear (type DV-NE/ RT2-NE) consisting of one no. direct cable module and one no. fixed manual vacuum circuit breaker in SF6 insulated stainless steel enclosure, with series trip, self powered microprocessor based numerical over current relay (IDMTL + Inst.) protection. Interconnection between HT switchgear and transformer shall be using 1Cx3x150 sq.mm aluminium unarmorured XLPE cable. Copper wound transformer 500 kVA 22 kV/433V Dyn11 oil filled, indoor type transformer bushings, hermetically sealed transformer with corrugated wall, without conservator type of design & top normal porcelain bushings for HT & LT with off load tap switch of rating +5% to -10% @2.5%. temp rise - oil/winding 40/45°C losses (subject to IS 1180 energy efficiency level 2) - max @ 50% loading : as per IS 1180 and max @ 100% loading : as per IS 1180 and impedance as per IS 1180 with LV panel;-800 A aluminium busbar (100% for phase and 50% for neutral, current density - 1 amp/sqmm) with Outgoings 800 A 433V 4P 50 Hz 35 kA ICOG, fixed manual type air circuit breaker (ACB) with microprocessor based release for overload , short circuit & earth fault protection., multifunctional meter with class 1.0 accuracy with RS 485 port, RYB, ON/OFF trip indications, outdoor enclosure having IP54 degree of protection for HT & LT switchgear compartment & IP23 degree of protection for Transformer compartment, powder /colour coated enclosure, with interconnection between HT switchgear & transformer using 1Cx3x150 sq.mm XLPE aluminium single core cable. Interconnection between transformer & LT switchgear using aluminium bus bars. internal earthling connections by using 50x6 mm GI strips including transformer neutral, complete with necessary permissions of Electrical Inspectors per specification no SS- TR/COMP</p>	Each	2128754	27723	2156477

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-60	<p>Supplying and Erecting approved make compact substation with 630 kVA, 3 phase, 50 Hz., ONAN type thermal class K10, 21 kA for 3 Sec. SF6 insulated non-extensible compact switchgear (type DV-NE/ RT2-NE) consisting of one no. direct cable module and one no. fixed manual vacuum circuit breaker in SF6 insulated stainless steel enclosure, with series trip, self powered microprocessor based numerical over current relay (IDMTL + Inst.) protection. Interconnection between HT switchgear and transformer shall be using 1Cx3x185 sq.mm aluminium unarmoured XLPE cable. Copper wound transformer 630kVA 22 kV/433V Dyn11 oil filled, indoor type transformer bushings, hermetically sealed transformer with corrugated wall, without conservator type of design & top normal porcelain bushings for HT & LT with off load tap switch of rating +5% to -10% @2.5%. temp rise - oil/winding 40/45°C losses (subject to IS 1180 energy efficiency level 2) - max @ 50% loading : as per IS 1180 and max @ 100% loading : as per IS 1180 and impedance as per IS 1180 with LV panel-1000 amps aluminium busbar (100% for phase and 50% for neutral, current density - 1 amp/sqmm) with outgoings 1000 A 433V 4P 50 Hz 50 kA, ICOG, fixed manual type air circuit breaker (ACB) with microprocessor based release for overload , short circuit & earth fault protection., multifunctional meter with class 1.0 accuracy with RS 485 port, RYB, ON/OFF trip indications, outdoor enclosure having IP54 degree of protection for HT & LT switchgear compartment & IP23 degree of protection for Transformer compartment, powder /colour coated enclosure, with interconnection between HT switchgear & transformer using 1Cx3x185 sq.mm XLPE aluminium single core cable. Interconnection between transformer & LT switchgear using aluminium bus bars. internal earthing connections by using 50x6 mm GI strips including transformer neutral, complete with necessary permissions of Electrical Inspectors per specification no SS- TR/COMP</p>	Each	2331869	29397	2361266

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-1-61	Supplying and Erecting approved make compact substation with 1000 kVA, 3 phase, 50 Hz. ONAN type thermal class K10, 21kA for 3 Sec. SF6 insulated non-extensible compact switchgear (type DV-NE/ RT2-NE) consisting of one no direct cable module and one no fixed manual vacuum circuit breaker in SF6 insulated stainless steel enclosure , with series trip, self powered microprocessor based numerical over current relay (IDMTL + Inst.) protection. Interconnection between HT switchgear and transformer shall be using 1Cx3x200 sq.mm aluminium unarmoured XLPE cable. copper wound transformer 1000KVA 22KV/433V Dyn11 oil filled, indoor type transformer bushings, hermetically sealed transformer with corrugated wall, without conservator type of design & top normal porcelain bushings for HT & LT with off load tap switch of rating +5% to -10% @2.5%. temp rise - oil/Winding 40/45°C losses (subject to IS 1180 energy efficiency level 2) - max @ 50% loading : as per IS 1180 and max @ 100% loading : as per IS 1180 and impedance as per IS 1180 with LV panel-1600amps aluminium busbar (100% for phase and 50% for neutral, current density - 1 amp/sqmm) with outgoings 1600 A 433V 4P 50 Hz 50 kA ICOG fixed manual type air circuit breaker (ACB) with microprocessor based release for overload , short circuit & earth Fault protection, multifunctional meter with class 1.0 accuracy with RS 485 port, RYB, ON/OFF trip indications, outdoor enclosure having IP54 IP54 degree of protection for HT & LT switchgear compartment & IP23 degree of protection for transformer compartment , powder /colour coated enclosure, with interconnection between HT switchgear & transformer using 1Cx3x240 sq.mm XLPE aluminium single core cable. Interconnection between transformer & LT switchgear using aluminium bus bars. internal earthing connections by using 50x6 mm GI strips including transformer neutral, complete with necessary permissions of Electrical Inspectors per specification no. SS- TR/COMP	Each	2585104	32747	2617851

10.2 Accessories

10-2-1	Supplying and erecting approved make 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	7667	900	8567
10-2-2	Supplying and erecting approved make 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	12349	900	13249
10-2-3	Supplying and erecting approved make 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	14655	900	15555

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
10-2-4	Supplying and erecting approved make 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	31257	1295	32552
10-2-5	Supplying and erecting approved make, 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	4383	900	5283
10-2-6	Supplying and erecting approved make, 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	7796	900	8696
10-2-7	Supplying and erecting approved make, 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	14069	900	14969
10-2-8	Supplying and erecting 11 kV fuse barrel with metal fittings complete.	Each	330	34	364
10-2-9	Supplying and erecting 22 kV fuse barrel with metal fittings complete.	Each	544	34	578
10-2-10	Supplying and erecting hard drawn copper solid wire no. 0 to 6 SWG complete erected for connections on H.T. sides.	kg	764	135	899
10-2-11	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	34	11	45
10-2-12	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	3534	0	3534
10-2-13	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	3904	0	3904
10-2-14	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	4604	0	4604
10-2-15	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	1529	34	1563
10-2-16	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	169	34	203
10-2-17	Supplying and erecting ant 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	124	34	158

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
10-2-18	Supplying and erecting fencing of section having size 2450 mm in height from ground level and 1200 mm width with angle iron frame work erected in CC foundation and painted complete as per specification no SS-AS/FSG	Each	5086	271	5357
	Note:- For section less than 1200 mm width, reduce rate by Rs 200/- per 100 mm or part thereof for reduction in width of 1200 mm.				
10-2-19	Supplying and erecting 50 x 50 x 6 mm angle iron as corner support 2m 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 aluminum paint complete.	Each	932	135	1067
10-2-20	Supplying and erecting double leaf hinged door each 1500 mm in width x 1850 mm in height using B class, GI pipe with 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	14842	518	15360
10-2-21	Supplying & 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	94	11	105
10-2-22	Providing printed instruction chart for treating persons suffering from electric shock, printed in English & Marathi and duly laminated complete.	Each	104	11	115
10-2-23	Providing pair of duly tested rubber hand gloves as per IS :47705 suitable for working upto 22 kV supply complete.	Each	560	0	560
10-2-24	Providing Round bottom fire bucket of 9 Litres capacity as per IS : 2546 made out of 24 gauge G.I. sheet with extra handle at bottom duly painted white inside and red outside with FIRE Mark, on provided stand/ wall hook complete.	Each	362	68	430
10-2-25	Providing Floor mounting stand for keeping 4 Nos. of FIRE buckets 1500mm in length, 900mm in height frame made out of 30x30x4 mm angle iron with cross supports for legs, welded with 4 hooks and duly painted with one coat of red lead and two coats of silver paint complete.	Each	3242	102	3344
10-2-26	Supplying and erecting wall hook 225mm projection for keeping fire buckets made out of 15 mm dia. M.S. Rod grouted in wall to a depth of minimum 15cms complete.	Each	67	11	78
10-2-27	Supplying 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, anti-septic solution, etc. (All above contents shall be of standard makes)	Each	696	0	696
10-2-28	Supplying and fixing PVC synthetic elastomer electrically insulating mat with class A insulation conforming to IS: 15652 – 2006 & CPRI tested having 2 mm thickness upto 3.3 kV	m ²	3876	406	4282
10-2-29	Supplying and fixing PVC synthetic elastomer electrically insulating mat with class B insulation conforming to IS: 15652 – 2006 & CPRI tested having 2.5 mm thickness upto 11 kV	m ²	4222	406	4628
10-2-30	Supplying and fixing PVC synthetic elastomer electrically insulating mat with class C insulation conforming to IS: 15652 – 2006 & CPRI tested having 3mm thickness upto 33 kV	m ²	5831	406	6237
10-2-31	Supplying shock proof leather safety shoes of electrical grade of standard size as IS :11226, 14544 duly tested, with necessary test certificate from manufacturer.	Per pair	1640	0	1640

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
10-2-32	Supplying and erecting D.C.P. type fire extinguisher 6 kg capacity cartridge type with gun metal cap 150 gram CO ₂ gas cartridge, powder and brackets conforming to IS 2171-1985/ IS 15683 and complete erected with necessary clamps made from 50x6 mm M.S. flat with nuts & bolts grouted in wall complete.	Each	3132	68	3200
10-2-33	Supplying and erecting D.C.P. type fire extinguisher 9 kg capacity cartridge type with Gun Metal cap 150 gram CO ₂ gas cartridge, powder and brackets conforming to IS 2171-1985 and complete erected with necessary clamps made from 50x6 mm M.S. flat with nuts & bolts grouted in wall complete.	Each	3570	68	3638
10-2-34	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 grouted in wall complete.	Each	8488	68	8556
10-2-35	Supplying and erecting ABC powder type fire extinguisher as per IS : 13849/15683 of 1 kg capacity with necessary clamp for erection on wall.	Each	2039	68	2107
10-2-36	Supplying and erecting ABC powder type fire extinguisher as per IS : 13849 /15683 of 6 kg capacity with necessary clamp for erection on wall.	Each	3291	68	3359
10-2-37	Supplying SMC chequered plates , 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	4273	135	4408
10-2-38	Supplying SMC chequered plates , 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	8511	135	8646
10-2-39 (New)	Refilling of fire extinguisher of DCP type by dismantling from site to workshop for refilling which includes removing of existing powder and cleaning the cylinder, delivery pipe, nozzle internally and refilling new powder complete with reinstalling properly at site with necessary certificate.	Kg	122	88	210
10-2-40 (New)	Refilling of fire extinguisher of ABC type by dismantling from site to workshop for refilling which includes removing of existing powder and cleaning the cylinder, delivery pipe, nozzle internally and refilling new powder complete with reinstalling properly at site with necessary certificate.	Kg	153	88	241
10-2-41 (New)	Refilling of fire extinguisher of CO₂ type by dismantling from site to workshop for refilling which includes removing of existing powder and cleaning the cylinder, delivery pipe, nozzle internally and refilling new powder complete with reinstalling properly at site with necessary certificate.	Kg	85	88	173
10-2-42	Transportation of 11/22 kV transformer upto 315 kVA without loading & unloading (for handing over to section store/ repair works only)	Per km	23	0	23
10-2-43	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	32	0	32
<u>10.3 Dismantling</u>					
10-3-1	Dismantling the existing distribution transformer of any capacity from the plinth / foundation safely without any damages.	kVA	0	27	27

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
10-3-2	Dismantling existing pole mounted distribution transformer safely without any damages.	kVA	0	38	38
10-3-3	Dismantling existing DO / AB switch set complete from D.P. structure in an approved manner.	set	0	315	315
Note:-	The rate for item no 10.3.3 are for dismantling and handing over to section office inclusive of transportation upto 25 km, between site and section office.				

Above Items are conforming to relevant IS as mentioned below

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

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

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, tapplings 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

Chapter : 11
Generators (GEN)

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|------|--|-----------|
| 11.1 | Generators | (GEN-GEN) |
| 11.2 | Auto Mains Failure Panels (AMF Panels) | (GEN-AMF) |
| 11.3 | Servicing of DG Set | |
| 11.4 | Dismantling | |

Chapter 11 : Generators (GEN)

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
<u>11.1 Generators (GEN-GEN)</u>					
11-1-1 (New)	Supplying, erecting and commissioning of diesel generating set with standard control Panel with alternator of 5 kVA output continuous rating, single phase, 230V , 50c/s 0.8 p. f. A.C 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 % .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 ¾ mm holes perforated sheet to restrict sound level upto 75 dB at 1.0 m. The engine with first filling of oil, diesel etc. as per specification no. GEN-DG	Each	139631	7380	147011
11-1-2 (New)	Supplying, erecting and commissioning of diesel generating set with standard control Panel with alternator of 10 kVA output continuous rating, single phase, 230V , 50c/s 0.8 p. f. A.C 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% .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 ¾ mm holes perforated sheet to restrict sound level upto 75 dB at 1.0 m. The engine with first filling of oil, diesel etc.as per specification no. GEN-DG	Each	281524	7380	288904
11-1-3	Supplying, erecting and commissioning of diesel generating set with alternator of 10 kVA output continuous rating, 3 phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. as per specification No. GEN-DG	Each	261764	10184	271948

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
11-1-4	Supplying, erecting and commissioning of diesel generating set with alternator of 15 kVA output continuous rating, 3 phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. as per specification no. GEN-DG	Each	292216	10184	302400
11-1-5	Supplying, erecting and commissioning of diesel generating set with alternator of 20 kVA output continuous rating, 3 Phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. as per specification no. GEN-DG	Each	334680	10184	344864
11-1-6	Supplying, erecting and commissioning of diesel generating set with alternator of 25 kVA output continuous rating, 3 Phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. as per specification no. GEN-DG	Each	352154	10184	362338

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
11-1-7	Supplying, erecting and commissioning of diesel generating set with alternator of 30 kVA output continuous rating, 3 phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. as per specification no. GEN-DG	Each	370004	10184	380188
11-1-8	Supplying, erecting and commissioning of diesel generating set with alternator of 40 kVA output continuous rating, 3 phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. as per specification no. GEN-DG	Each	472998	10184	483182
11-1-9	Supplying, erecting and commissioning of diesel generating set with alternator of 50 kVA output continuous rating, 3 phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. as per specification no. GEN-DG	Each	514911	10184	525095

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
11-1-10	Supplying, erecting and commissioning of diesel generating set with alternator of 62.5 kVA output continuous rating, 3 phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. as per specification no. GEN-DG	Each	534694	10184	544878
11-1-11	Supplying, erecting and commissioning of diesel generating set with alternator of 82.5 kVA output continuous rating, 3 Phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. as per specification no. GEN-DG	Each	638978	10596	649574
11-1-12	Supplying, erecting and commissioning of diesel generating set with alternator of 100 kVA output continuous rating, 3 Phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. as per specification no. GEN-DG	Each	757242	10596	767838

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
11-1-13	Supplying, erecting and commissioning of diesel generating set with alternator of 125 kVA output continuous rating, 3 phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. as per specification no. GEN-DG	Each	799594	10596	810190
11-1-14	Supplying, erecting and commissioning of diesel generating set with alternator of 140 kVA output continuous rating, 3 phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. as per specification no. GEN-DG	Each	1011884	12271	1024155
11-1-15	Supplying, erecting and commissioning of diesel generating set with alternator of 160 kVA output continuous rating, 3 Phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. as per specification no. GEN-DG	Each	1017863	12271	1030134

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
11-1-16	Supplying, erecting and commissioning of diesel generating set with alternator of 180 kVA output continuous rating, 3 Phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. as per specification no. GEN-DG	Each	1169013	12271	1181284
11-1-17	Supplying, erecting and commissioning of diesel generating set with alternator of 200 kVA output continuous rating, 3 Phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. as per specification no. GEN-DG	Each	1295894	12271	1308165
11-1-18	Supplying, erecting and commissioning of diesel generating set with alternator of 250 kVA output continuous rating, 3 Phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel, etc and obtaining necessary approval from Electrical Inspector as per specification no. GEN-DG	Each	1618943	13901	1632844

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
11-1-19	Supplying, erecting and commissioning of diesel generating set with alternator of 320 kVA output continuous rating, 3 phase, 415 V, 50c/s 0.8 p. f. A.C 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, alongwith 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. and obtaining necessary approval from Electrical Inspector as per specification no. GEN-DG	Each	2110289	13901	2124190
11-1-20 (New)	Supplying, erecting and commissioning of diesel generating set with alternator of 380/400 kVA output continuous rating, 3 Phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. and obtaining necessary approval from Electrical Inspector as per specification no. GEN-DG	Each	2425777	13901	2439678
11-1-21	Supplying, erecting and commissioning of diesel generating set with alternator of 500 kVA output continuous rating, 3 Phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. and obtaining necessary approval from Electrical Inspector as per specification no. GEN-DG	Each	2891289	14193	2905482

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
11-1-22 (New)	Supplying, erecting and commissioning of diesel generating set with alternator of 750 kVA output continuous rating, 3 phase, 415 V, 50c/s 0.8 p. f. A.C 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 %. 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 upto 75 dB at 1.0 m, provided with first filling of oil, diesel etc. and obtaining necessary approval from Electrical Inspector as per specification no. GEN-DG	Each	5438977	15309	5454286
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) In case of new DG set, if AMF/SYNC panel is to be used in lieu of standard panel, reduce rate by 10% of the cost of material of new AMF panel/SYNC panel. 3) 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)</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 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	41414	1729	43143
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 Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	43173	1729	44902
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 Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	45547	1729	47276
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 Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	49856	1729	51585
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 Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	60471	1729	62200

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
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 Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	69195	1729	70924
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 Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	73860	1729	75589
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 Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	77963	1729	79692
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 Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	94963	1729	96692
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 Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	100239	3276	103515
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 Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	105808	3276	109084
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 Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	126617	3276	129893
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 Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	149067	4128	153195
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 Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	162770	4128	166898
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 Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	186202	4128	190330
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 Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	269062	5063	274125

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
11-2-17 (New)	Supplying, erecting, testing and commissioning of Microprocessor based AMF panel suitable for diesel generating set of above 320 kVA upto 400 kVA capacity Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	289813	5063	294876
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 Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	360191	5063	365254
11-2-19 (New)	Supplying, erecting, testing and commissioning of Microprocessor based AMF panel suitable for diesel generating set of above 500 kVA upto 750 kVA capacity Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF .	Each	514383	5063	519446
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 Three phase, 415 Volts, 50Hz A.C. with all standard features and safeties etc as per specification no. GEN-SYNC .	Each	562744	5063	567807
11-2-21 (New)	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 Three phase, 415 Volts, 50Hz A.C. with all standard features and safeties etc as per specification no. GEN-SYNC .	Each	633087	5063	638150
11-2-22	Supplying, erecting, testing and commissioning of Microprocessor based generator control unit (synchronization panel) panel suitable for diesel generating set of above 400 kVA upto 500 kVA capacity Three phase, 415 Volts, 50Hz A.C. with all standard features and safeties etc as per specification no. GEN-SYNC .	Each	656534	5063	661597
11-2-23 (New)	Supplying, erecting, testing and commissioning of Microprocessor based generator control unit (synchronization panel) panel suitable for diesel generating set of above 500 kVA upto 750 kVA capacity Three phase, 415 Volts, 50Hz A.C. with all standard features and safeties etc as per specification no. GEN-SYNC .	Each	937906	5063	942969
<i>11.3 Servicing of DG Set</i>					
11-3-1	Carrying out servicing of DG set upto 50 kVA with/without AMF panel of any make to ensure smooth running of DG set for 30 mins on load. Checking for abnormal sound and leakages, carry out visual inspection of all moving parts, oil levels, oil filters, fuel filters, air filters and clean them properly, rectify the minor leakages if any. Inspect alternator, stator and rotor for normal speed & proper frequency, examine battery charging with monitoring system and recording voltages, checking battery cells gravity and topping up with distilled water, checking V belts with necessary adjustment, checking and retightening of nut bolts including coupling bolts of engine and alternator, checking & cleaning of radiator and leakage testing checking of radiator & fuel supply hose pipes, checking of AVR, excitation diodes, its connections confirming proper output voltage. checking & resetting of valve tappets, Cleaning of DG set internally using blower, cleaning radiator and Submit the servicing report to engineer in charge. (Non Comprehensive) as per specification no. GEN-SER-AMC	Job	0	2022	2022

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
11-3-2	Carrying out servicing of DG set from 62.5 kVA to 200 kVA with/without AMF panel of any make to ensure smooth running of DG set for 30 mins on load. Checking for abnormal sound and leakages, carry out visual inspection of all moving parts, oil levels, oil filters, fuel filters, air filters and clean them properly, rectify the minor leakages if any. Inspect alternator, stator and rotor for normal speed & proper frequency, examine battery charging with monitoring system and recording voltages, checking battery cells gravity and topping up with distilled water, checking V belts with necessary adjustment, checking and retightening of nut bolts including coupling bolts of engine and alternator, checking & cleaning of radiator and leakage testing checking of radiator & fuel supply hose pipes, checking of AVR, excitation diodes, its connections confirming proper output voltage. checking & resetting of valve tappets, Cleaning of DG set internally using blower, cleaning radiator and Submit the servicing report to engineer in charge. (Non Comprehensive) as per specification no. GEN-SER-AMC	Job	0	2580	2580
11-3-3	Carrying out servicing of DG set from 250 kVA to 500 kVA with/without AMF panel of any make to ensure smooth running of DG set for 30 mins on load. Checking for abnormal sound and leakages, carry out visual inspection of all moving parts, oil levels, oil filters, fuel filters, air filters and clean them properly, rectify the minor leakages if any. Inspect alternator, stator and rotor for normal speed & proper frequency, examine battery charging with monitoring system and recording voltages, checking battery cells gravity and topping up with distilled water, checking V belts with necessary adjustment, checking and retightening of nut bolts including coupling bolts of engine and alternator, checking & cleaning of radiator and leakage testing checking of radiator & fuel supply hose pipes, checking of AVR, excitation diodes, its connections confirming proper output voltage. checking & resetting of valve tappets, Cleaning of DG set internally using blower, cleaning radiator and Submit the servicing report to engineer in charge. (Non Comprehensive) as per specification no. GEN-SER-AMC	Job	0	3696	3696
11-3-4 (New)	Carrying out servicing of DG set from 500 kVA to 750 kVA with/without AMF panel of any make to ensure smooth running of DG set for 30 mins on load. Checking for abnormal sound and leakages, carry out visual inspection of all moving parts, oil levels, oil filters, fuel filters, air filters and clean them properly, rectify the minor leakages if any. Inspect alternator, stator and rotor for normal speed & proper frequency, examine battery charging with monitoring system and recording voltages, checking battery cells gravity and topping up with distilled water, checking V belts with necessary adjustment, checking and retightening of nut bolts including coupling bolts of engine and alternator, checking & cleaning of radiator and leakage testing checking of radiator & fuel supply hose pipes, checking of AVR, excitation diodes, its connections confirming proper output voltage. checking & resetting of valve tappets, Cleaning of DG set internally using blower, cleaning radiator and Submit the servicing report to engineer in charge. (Non Comprehensive) as per specification no. GEN-SER-AMC	Job	0	4255	4255
11-3-5	Topping up new lubricating oil 15W/40 grade of approved make as per IS 13656 : 2014	litre	363	45	408
11-3-6	Topping up new glycol based coolant 50/50 with operating range from 118°C to -37°C of approved make	litre	270	45	315
11-3-7	Supplying and erecting V-Belt of all types and lengths, adjust tension as per requirements from generator manufacturer suitable for DG set upto 100kVA	Each	1956	659	2615

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
11-3-8	Supplying and erecting V-Belt of all types and lengths, adjust tension as per requirements from generator manufacturer suitable for DG set from 125 kVA to 250 kVA	Each	4512	659	5171
11-3-9	Supplying and erecting V-Belt of all types and lengths, adjust tension as per requirements from generator manufacturer suitable for DG set from 320 kVA to 500 kVA	Each	12879	938	13817
11-3-10	Supplying and erecting lub oil filter element along with sealing rings, gasket etc complete suitable for DG Set upto 62.5 kVA.	Each	549	659	1208
11-3-11	Supplying and erecting lub oil filter element along with sealing rings, gasket etc complete suitable for DG Set from 82.5 kVA to 250 kVA.	Each	2565	659	3224
11-3-12	Supplying and erecting lub oil filter element along with sealing rings, gasket etc complete suitable for DG Set from 320 kVA to 500 kVA.	Each	5027	938	5965
11-3-13	Supplying and erecting fuel filter along with sealing rings, gasket, primary filter and water separator etc complete suitable for DG Set upto 50 kVA.	Each	413	659	1072
11-3-14	Supplying and erecting fuel filter along with sealing rings, gasket, primary filter and water separator etc complete suitable for DG Set from 62.5 kVA to 125 kVA.	Each	862	659	1521
11-3-15	Supplying and erecting fuel filter along with sealing rings, gasket, primary filter and water separator etc complete suitable for DG Set from 140 kVA to 200 kVA.	Each	3535	938	4473
11-3-16	Supplying and erecting fuel filter along with sealing rings, gasket, primary filter and water separator etc complete suitable for DG Set from 250 kVA to 500 kVA.	Each	7023	1218	8241
11-3-17	Supplying and erecting stop solenoid assembly 12V/24V single coil energized to run with or without primary etc complete suitable for DG set upto 125 kVA.	Each	4162	1334	5496
11-3-18	Supplying and erecting stop solenoid assembly 12V/24V single coil energized to run with or without primary etc complete suitable for DG set from 140 kVA to 200 kVA.	Each	11782	1334	13116
11-3-19	Supplying and erecting stop solenoid assembly 12V/24V single coil energized to run with or without primary etc complete suitable for DG set from 250 kVA to 500 kVA.	Each	23635	1893	25528
11-3-20	Supplying and erecting Air cleaner/Air filter element suitable for DG set upto 40 kVA	Each	2116	776	2892
11-3-21	Supplying and erecting Air cleaner/Air filter element suitable for DG set from 50 kVA to 125 kVA	Each	3594	1055	4649
11-3-22	Supplying and erecting Air cleaner/Air filter element suitable for DG set from 140 kVA to 200 kVA	Each	6738	1334	8072
11-3-23	Supplying and erecting Air cleaner/Air filter element suitable for DG set from 250 kVA to 500 kVA	Each	17808	1893	19701
11-3-24	Supplying, erecting and testing permanent magnet generator (PMG) excited Automatic Voltage Regulator (AVR) with sensing input voltage range: 190 V AC - 264 V AC 2/3 Phase, frequency range 50-60 Hz and output voltage max 120 V DC continuous current 3.7 A, transient current 6 A for 10 second with minimum resistance of 15 ohm, AVR response time of 10 ms etc. complete suitable for DG set as per Specification GEN-SER-AVR	Each	56450	3838	60288

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
11-3-25	Supplying, erecting and testing permanent magnet generator (PMG) excited Automatic Voltage Regulator (AVR) with sensing input voltage range: 190 V AC - 264 V AC 1 Phase 2 wire, frequency range 50-60 Hz and output voltage max 120 V DC continuous current 2.7 A, transient current 6 A for 10 second with minimum resistance of 15 ohm, AVR response time of 10 ms etc. complete suitable for DG set as per Specification GEN-SER-AVR	Each	50647	3838	54485
11-3-26	Supplying, erecting and testing main stator powered excited Automatic Voltage Regulator (AVR) with sensing input voltage range: 95 V - 132 V /190 V AC - 264 V AC 1 Phase 2 wire, frequency range 50-60 Hz and output voltage max 90 V DC continuous current 4 A, transient current 6 A for 10 second with minimum resistance of 15 ohm, AVR response time of 20 ms etc. complete suitable for DG set as per Specification GEN-SER-AVR	Each	16355	3838	20193
11-3-27	Supplying, erecting and testing main stator powered excited Automatic Voltage Regulator (AVR) with sensing input voltage range: 190 V AC - 264 V AC, frequency range 50-60 Hz and output voltage max 90 V DC continuous current 10 A, transient current 16 A for 10 second with minimum resistance of 10 ohm, AVR response time of 20 ms etc. complete suitable for DG set as per Specification GEN-SER-AVR	Each	23741	3838	27579
11-3-28	Supplying, erecting and testing main stator powered excited Automatic Voltage Regulator (AVR) with sensing input voltage range: 170 V AC - 280 V AC 1 phase/ 270 V - 520 V AC 3 phase, frequency range 50-60 Hz and output voltage max 63 V DC continuous current 6 A, transient current 7 A for 10 second with minimum resistance of 10 ohm, AVR response time of 20 ms etc. complete suitable for DG set as per Specification no GEN-SER-AVR	Each	21103	3838	24941
11-3-29	Supplying and erecting set of engine safety unit suitable for DG set upto 125 kVA as per specification no	Each	12662	3838	16500
11-3-30	Supplying and erecting set of engine safety unit suitable for DG set from 140 kVA to 250 kVA	Each	15475	3838	19313
11-3-31	Supplying and erecting set of engine safety unit suitable for DG set from 320 kVA to 500 kVA	Each	17351	4955	22306
11-3-32	Supplying and erecting SMPS based Battery Charger input voltage 230 V A.C. & output voltage 24 V DC, charging current 10A suitable to charge DG set Battery	Each	8806	322	9128
11-3-33	Supplying and erecting SMPS based Battery Charger input voltage 230 V A.C. & output voltage 24 V DC, charging current 20A suitable to charge DG set Battery	Each	16355	322	16677
11-3-34	Supplying and erecting SMPS Battery Charger input voltage 230 V A.C. & output voltage 12 V DC, charging current 10A suitable to charge DG set Battery	Each	2392	322	2714
11-3-35	Supplying, erecting, testing and commissioning 4 pole power contactor 32A with coil voltage of 220/240 V suitable to operate on AV voltage for DG set.	Each	1825	169	1994
11-3-36	Supplying, erecting, testing and commissioning 4 pole power contactor 63 A with coil voltage of 220/240 V suitable to operate on AV voltage for DG set.	Each	4363	169	4532
11-3-37	Supplying, erecting, testing and commissioning 4 pole power contactor 80-130A with coil voltage of 220/240 V suitable to operate on AV voltage for DG set.	Each	7879	169	8048

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
11-3-38	Supplying, erecting, testing and commissioning 4 pole power contactor 200A with coil voltage of 220/240 V suitable to operate on AV voltage for DG set.	Each	18687	169	18856
11-3-39	Supplying, erecting, testing and commissioning 4 pole power contactor 325A with coil voltage of 220/240 V suitable to operate on AV voltage for DG set.	Each	37906	169	38075
11-3-40	Supplying, erecting, testing and commissioning 4 pole power contactor 400A with coil voltage of 220/240 V suitable to operate on AV voltage for DG set.	Each	48589	169	48758
11-3-41	Supplying, erecting, testing and commissioning 4 pole power contactor 600A with coil voltage of 220/240 V suitable to operate on AV voltage for DG set.	Each	73343	169	73512
11-3-42	Supplying, erecting, testing and commissioning 4 pole power contactor 800A with coil voltage of 220/240 V suitable to operate on AV voltage for DG set.	Each	110964	169	111133
11-3-43	Supplying, erecting, testing and commissioning microcontroller based digital line voltage monitor 3 phase 4 wire 2 CO output relay suitable to operate on AC voltage for DG set.	Each	2048	169	2217
11-3-44	Supplying & erecting 12 V 80 Ah heavy duty plate type Battery with terminal wire duly charged complete suitable for DG set with warrantee for 3 years	Each	7619	79	7698
11-3-45	Supplying & erecting 12 V 88 Ah heavy duty plate type Battery with terminal wire duly charged complete suitable for DG set with warrantee for 3 years	Each	8052	79	8131
11-3-46	Supplying & erecting 12 V 100 Ah heavy duty plate type Battery with terminal wire duly charged complete suitable for DG set with warrantee for 3 years	Each	9643	79	9722
11-3-47	Supplying & erecting 12 V 150 Ah heavy duty plate type Battery with terminal wire duly charged complete suitable for DG set with warrantee for 3 years	Each	15215	79	15294
11-3-48	Supplying & erecting 12 V 180 Ah heavy duty plate type Battery with terminal wire duly charged complete suitable for DG set with warrantee for 3 years	Each	18642	79	18721
11-3-49	Supplying & erecting 12 V 200 Ah heavy duty plate type Battery with terminal wire duly charged complete suitable for DG set with warrantee for 3 years	Each	21244	79	21323
11-3-50	Topping up Distilled water for Battery	litre	18	6	24

Note:- 1) Item No 11-3-1 to 11-3-3 shall be used for periodical / one time servicing of Diesel Generating Sets. These Items shall not be used for Annual Maintenance Contract.

11.4 Dismantling

11-4-1	Dismantling unserviceable DG set upto 50 kVA capacity along with Switch gears & panel, etc. and remaking the site good as original.	Job	0	1377	1377
11-4-2	Dismantling unserviceable DG set above 50 kVA capacity along with Switch gears & panel, etc. and remaking the site good as original.	per kVA	0	28	28

Note:- 1) Above rate for dismantling does not include cost of transportation
2) Rate per kVA for 11-4-2 to be considered for capacity above 50 kVA.

Above Items are conforming to relevant IS & norms as mentioned below

IS 4722 : 2001- Rotating electrical machines (second revision)
Central Pollution Control Board (CPCB) norms II

Chapter: 12
Water Pumps (WP)

12.1	Centrifugal Pumps	(WP-CGP)
12.2	Submersible Pumps for Borewells	(WP-SMP)
12.3	Submersible Pumps for Open wells	(WP-OSP)
12.4	Accessories	
12.5	Dewatering Pump	(WP-DWP-SMP)
12.6	Pressure Pump	(WP-PP)
12.7	Dismantling	

CHAPTER 12: WATER PUMPS

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
12.1 Centrifugal pumps					
12-1-1	Supplying and erecting Centrifugal water pump (Monoblock), 230V, Single phase 50 cycles A.C. supply of 0.375 KW/0.5 HP with discharge 0.5/1.3 Litres per second (LPS) for head of 6/18 m & 25 mm suction/ 25 mm delivery pipe on provided C.C. foundation as per specification no. WP-CGP	Each	4748	521	5269
12-1-2	Supplying and erecting Centrifugal water pump (Monoblock), 230V, Single phase 50 cycles A.C. supply of 0.75 KW/1 HP with discharge 1.6/2.9 Litres per second (LPS) for head of 9/22 m & 40 mm suction/ 40 mm delivery pipe on provided C.C. foundation as per specification no. WP-CGP	Each	7380	521	7901
12-1-3	Supplying and erecting Centrifugal water pump (Monoblock), 230V, Single phase 50 cycles A.C. supply of 1.125 KW/1.5HP with discharge 4.45/2.26 Litres per second (LPS) for head of 6/27 m & 40 mm suction/ 32 mm delivery pipe on provided C.C. foundation as per specification no. WP-CGP	Each	9002	521	9523
12-1-4	Supplying and erecting Centrifugal water pump (Monoblock), 230V, Single phase 50 cycles A.C. supply of 1.5 KW/2 HP with discharge 7.16/4.16 Litres per second (LPS) for head of 12/21 m & 50 mm suction/ 50 mm delivery pipe on provided C.C. foundation as per specification no. WP-CGP	Each	11077	521	11598
12-1-5	Supplying and erecting Centrifugal water pump (Monoblock), 415V, three phase 50 cycles A.C. supply of 1.5 KW/2 HP with discharge 2.2/4.1 Litres per second (LPS) for head of 8/26 m and 50 mm suction/ 40 mm delivery pipe on provided C.C. foundation as per specification no. WP-CGP	Each	12572	521	13093
12-1-6	Supplying and erecting Centrifugal water pump (Monoblock), 415V, three phase 50 cycles A.C. supply of 2.25 KW/ 3 HP with discharge 2/4.9 Litres per second (LPS) for head of 14/36 m and 50 mm suction/ 40 mm delivery pipe on provided C.C. foundation as per specification no. WP-CGP	Each	15965	886	16851
12-1-7	Supplying and erecting Centrifugal water pump (Monoblock), 415V, three phase 50 cycles A.C. supply of 2.25KW/ 3 HP with discharge 4.9/9.2 Litres per second (LPS) for head of 10/26 m and 65 mm suction/ 50 mm delivery pipe on provided C.C. foundation as per specification no. WP-CGP	Each	15463	886	16349
12-1-8	Supplying and erecting Centrifugal water pump (Monoblock), 415V, three phase 50 cycles A.C. supply of 2.25 KW/3 HP with discharge 1.83/4.16 Litres per second (LPS) for head of 24/36 m and 50 mm suction/ 40 mm delivery pipe on provided C.C. foundation as per specification No. WP-CGP	Each	15841	1224	17065
12-1-9	Supplying and erecting Centrifugal water pump (Monoblock), 415 V, three phase 50 cycles A.C. supply of 3.75 KW/5 HP with discharge 2/4.1 Litres per second (LPS) for head of 36/52 m and 50 mm suction/ 40 mm delivery pipe on provided C.C. foundation as per specification no. WP-CGP	Each	19889	1224	21113
12-1-10	Supplying and erecting Centrifugal water pump (Monoblock), 415 V, three phase 50 cycles A.C. supply of 3.75 KW/5 HP with discharge 5.8/8.5 Litres per second (LPS) for head of 20/36 m and 65 mm suction/ 50 mm delivery pipe on provided C.C. foundation as per specification no. WP-CGP	Each	19824	1224	21048

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
12-1-11	Supplying and erecting Centrifugal water pump (Monoblock), 415 V, three phase 50 cycles A.C. supply of 5.625 KW/7.5 HP with discharge 4.5/8.6 Litres per second (LPS) for head of 32/52 m and 65 mm suction/ 50 mm delivery pipe of size or with discharge of 11.1/19.9 Litres per second (LPS) for head of 16/30 m and 80mm suction/ 65mm delivery pipe of size, on provided C.C. foundation as per specification no. WP-CGP	Each	26961	1358	28319
12-1-12	Supplying and erecting Centrifugal water pump (Monoblock), 415 V, three phase 50 cycles A.C. supply of 7.5 KW/10 HP with discharge 9.6/21.6 Litres per second (LPS) for head of 18/40 m and 80 mm suction/ 65 mm delivery pipe of size or with discharge of 4.3/7.8 Litres per second (LPS) for head of 40/64 m and 65mm suction/ 50mm delivery pipe of size, on provided C.C. foundation as per specification no. WP-CGP	Each	32777	1998	34775
12-1-13	Supplying and erecting Centrifugal water pump (Monoblock), 415 V, three phase 50 cycles A.C. supply of 9.375 KW/ 12.5 HP with discharge 7/19.6 Litres per second (LPS) for head of 20/48 m and 80 mm suction/ 65 mm delivery pipe of size or with discharge of 20/33.5 Litres per second (LPS) for head of 18/30 m and 100mm suction/ 100mm delivery pipe of size, on provided C.C. foundation as per specification no. WP-CGP	Each	39100	1998	41098
12-1-14	Supplying and erecting Centrifugal water pump (Monoblock), 415 V, three phase 50 cycles A.C. supply of 11.25 KW/ 15 HP with discharge 10.5/19.4 Litres per second (LPS) for head of 30/54 m and 80 mm suction/ 65 mm delivery pipe of size or with discharge of 17.5/36.8 Litres per second (LPS) for head of 18/36 m and 100mm suction/ 100mm delivery pipe of size, on provided C.C. foundation as per specification no. WP-CGP	Each	42534	2540	45074
12-1-15	Supplying and erecting Centrifugal water pump (Monoblock), 415 V, three phase 50 cycles A.C. supply of 15 KW/20 HP with discharge 14/33.8 Litres per second (LPS) for head of 18/52 m and 100mm suction/ 80mm delivery pipe of size, on provided C.C. foundation as per specification no. WP-CGP	Each	58154	2540	60694
12-1-16 (New)	Supplying and erecting Centrifugal water pump (Monoblock), 415 V, three phase 50 cycles A.C. supply of 18.75 KW/25 HP with discharge 13.3/258 Litres per second (LPS) for head of 48/60 m and 100mm suction/ 80mm delivery pipe of size, on provided C.C. foundation as per specification no. WP-CGP	Each	70983	2737	73720
12-1-17 (New)	Supplying and erecting Centrifugal water pump (Monoblock), 415 V, three phase 50 cycles A.C. supply of 22.5 KW/30 HP with discharge 6.66/28.33 Litres per second (LPS) for head of 48/69 m and 100mm suction/ 80mm delivery pipe of size, on provided C.C. foundation as per specification no. WP-CGP	Each	82510	2737	85247
Note	Energy Efficient water pumps should be used invariably.				
<u>12.2 Submersible pumps for Borewells (Wp-SMP)</u>					
12-2-1	Supplying and erecting submersible pumpset of 2.25 KW/3 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 20 to 80 LPM discharge at 55 to 25 m head and (max. efficiency at 41 m head & 50 lpm) discharge & delivery Pipe of Size- 50mm dia. with a necessary H type clamps as per specification no. WP-SMP	Each	23361	3658	27019

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
12-2-2	Supplying and erecting submersible pumpset of 2.25 KW/3 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 70 to 250 LPM discharge at 44 to 24 m head & (max. efficiency at 38 m head & 160 lpm) discharge & delivery Pipe of Size-50mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	24431	3658	28089
12-2-3	Supplying and erecting submersible pumpset of 2.25 KW/3 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell 3HP (2 stage) suitable for 200 to 500 LPM discharge at 21 to 11 m head & (max. efficiency at 19 m head & 300 lpm) discharge & delivery Pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	25594	3658	29252
12-2-4	Supplying and erecting submersible pumpset of 3.75 KW/5 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 20 to 80 LPM discharge at 91 to 42 m head & (max. efficiency at 68 m head & 50 lpm) discharge & delivery Pipe of Size-50mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	28398	3658	32056
12-2-5	Supplying and erecting submersible pumpset of 2.25 KW/3 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 100 to 250 LPM discharge at 45 to 24 m head & (max. efficiency at 38 m head & 250 lpm) discharge & delivery Pipe Size-50mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	25069	3658	28727
12-2-6	Supplying and erecting submersible pumpset of 3 KW/4 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 70 to 250 LPM discharge at 65 to 36 m head & (max. efficiency at 57 m head & 160 lpm) discharge & delivery Pipe of Size-50mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	26081	3658	29739
12-2-7	Supplying and erecting submersible pumpset of 3.75 KW/5 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 250 to 700 LPM discharge at 33 to 15 m head & (max. efficiency at 24 m head & 500 lpm) discharge & delivery Pipe of Size-65mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	27039	3658	30697
12-2-8	Supplying and erecting submersible pumpset of 3 KW/4 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 400 to 900 LPM discharge at 20 to 12 m head & (max. efficiency at 16 m head & 700 lpm) discharge & delivery Pipe of Size-75 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	27288	3658	30946
12-2-9	Supplying and erecting submersible pumpset of 5.625 KW/7.5 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 20 to 80 LPM discharge at 129 to 59 m head & (max. efficiency at 95 m head & 50 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	32772	4200	36972
12-2-10	Supplying and erecting submersible pumpset of 3.75KW/5 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 70 to 250 LPM discharge at 87 to 48 m head & (max. efficiency at 76 m head & 160 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	29207	4200	33407

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
12-2-11	Supplying and erecting submersible pumpset of 5.625 KW/7.5 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 60 to 175 LPM discharge at 97 to 56 m head & (max. efficiency at 79 m head & 125 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	30490	4200	34690
12-2-12	Supplying and erecting submersible pumpset of 3 KW/4 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 100 to 350 LPM discharge at 56 to 30 m head & (max. efficiency at 47 m head & 250 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	26606	4200	30806
12-2-13	Supplying and erecting submersible pumpset of 4.5 KW/6 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 200 to 500 LPM discharge at 42 to 22 m head & (max. efficiency at 34 m head & 350 lpm) discharge & delivery pipe of Size-65 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	27328	4200	31528
12-2-14	Supplying and erecting submersible pumpset of 3 KW/4 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 300 to 850 LPM discharge at 33 to 10 m head & (max. efficiency at 24 m head & 600 lpm) discharge & delivery pipe of Size-65 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	23929	4200	28129
12-2-15	Supplying and erecting submersible pumpset of 3.75 KW/5 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 300 to 850 LPM discharge at 33 to 10 m head & (max. efficiency at 33 m head & 600 lpm) discharge & delivery pipe of Size-75 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	30644	4200	34844
12-2-16	Supplying and erecting submersible pumpset of 3.75 KW/5 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 100 to 350 LPM discharge at 67 to 36 m head & (max. efficiency at 57 m head & 250 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	28166	4200	32366
12-2-17	Supplying and erecting submersible pumpset of 4.5 KW/6 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 60 to 175 LPM discharge at 113 to 66 m head & (max. efficiency at 92 m head & 125 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	32865	4200	37065
12-2-18	Supplying and erecting submersible pumpset of 3.75 KW/5 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 200 to 500 LPM discharge at 52 to 28 m head & (max. efficiency at 42 m head & 350 lpm) discharge & delivery pipe of Size-65 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	30905	4200	35105
12-2-19	Supplying and erecting submersible pumpset of 5.625 KW/7.5 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 250 to 700 LPM discharge at 44 to 20 m head & (max. efficiency at 32 m head & 500 lpm) discharge & delivery pipe of Size-65 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	29966	4200	34166

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
12-2-20	Supplying and erecting submersible pumpset of 4.5 KW/6 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 20 to 80 LPM discharge at 184 to 84 m head & (max. efficiency at 136 m head & 50 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	38143	4200	42343
12-2-21	Supplying and erecting submersible pumpset of 5.625 KW/7.5 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 300 to 850 LPM discharge at 44 to 14 m head & (max. efficiency at 32 m head & 600 lpm) discharge & delivery pipe of Size-65 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	32645	4200	36845
12-2-22	Supplying and erecting submersible pumpset of 5.625 KW/7.5 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 250 to 700 LPM discharge at 55 to 25 m head & (max. efficiency at 40 m head & 500 lpm) discharge & delivery pipe of Size-65 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	35954	4200	40154
12-2-23	Supplying and erecting submersible pumpset of 3.75 KW/5 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 60 to 175 LPM discharge at 130 to 75 m head & (max. efficiency at 106 m head & 125 lpm) discharge & delivery pipe of Size-65 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	36389	4200	40589
12-2-24	Supplying and erecting submersible pumpset of 3.75 KW/5 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 20 to 80 LPM discharge at 221 to 101 m head & (max. efficiency at 163 m head & 50 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	41316	4200	45516
12-2-25	Supplying and erecting submersible pumpset of 3.75 KW/5 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 20 to 80 LPM discharge at 258 to 118 m head & (max. efficiency at 190 m head & 50 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	46918	4200	51118
12-2-26	Supplying and erecting submersible pumpset of 5.625 KW/7.5 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 60 to 175 LPM discharge at 146 to 85 m head & (max. efficiency at 119 m head & 25 lpm) discharge & delivery pipe of Size-65 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	37983	4200	42183
12-2-27	Supplying and erecting submersible pumpset of 9.375 KW/12.5 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 300 to 850 LPM discharge at 55 to 17 m head & (max. efficiency at 40 m head & 600 lpm) discharge & delivery pipe of Size-75 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	37730	4200	41930
12-2-28	Supplying and erecting submersible pumpset of 7.5 KW/10 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 400 to 900 LPM discharge at 41 to 25 m head & (max. efficiency at 32 m head & 700 lpm) discharge & delivery pipe of Size-80 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	34151	4200	38351

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
12-2-29	Supplying and erecting submersible pumpset of 7.5 KW/10 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 70 to 250 LPM discharge at 153 to 84 m head & (max. efficiency at 133 m head & 160 lpm) discharge & delivery pipe of Size-80 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	42048	4200	46248
12-2-30	Supplying and erecting submersible pumpset of 4.5 KW/6 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 60 to 175 LPM discharge at 162 to 94 m head & (max. efficiency at 132 m head & 125 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	42074	4200	46274
12-2-31	Supplying and erecting submersible pumpset of 5.625 KW/7.5 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 20 to 80 LPM discharge at 294 to 134 m head & (max. efficiency at 218 m head & 50 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	52381	4200	56581
12-2-32	Supplying and erecting submersible pumpset of 2.25 KW/3 HP with 230 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 72 to 20 LPM discharge at 10 to 50 m head & (max. efficiency at 52 m head & 30 lpm) discharge & delivery pipe of Size-65 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	25787	3658	29445
12-2-33	Supplying and erecting submersible pumpset of 1.125 KW/1.5 HP with 230 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 84 to 40 LPM discharge at 30 to 90 m head & (max. efficiency at 69 m head & 60 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	23859	3658	27517
12-2-34	Supplying and erecting submersible pumpset of 2.25 KW/3 HP with 230 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 42 to 20 m head at 30 to 90LPM discharge & (max. efficiency at 34 m head & 60 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	19032	3658	22690
12-2-35	Supplying and erecting submersible pumpset of 1.5 KW/2 HP with 230 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 10 to 50 LPM discharge at 45 to 13 m head & (max. efficiency at 33 m head & 30 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	14515	3658	18173
12-2-36	Supplying and erecting submersible pumpset of 1.5 KW/2 HP with 230 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 10 to 50 LPM discharge at 54 to 15 m head & (max. efficiency at 39 m head & 30 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	15164	3658	18822
12-2-37	Supplying and erecting submersible pumpset of 2.25 KW/3 HP with 230 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 10 to 50 LPM discharge at 72 to 20 m head & (max. efficiency at 33 m head & 30 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	15389	3658	19047

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
12-2-38	Supplying and erecting submersible pumpset of 1.5 KW/2 HP with 230 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 85 to 170 LPM discharge at 32 to 12 m head & (max. efficiency at 24 m head & 130 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	14664	3658	18322
12-2-39	Supplying and erecting submersible pumpset of 2.25 KW/3 HP with 230 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 30 to 90 LPM discharge at 42 to 20 m head & (max. efficiency at 34 m head & 60 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	15642	3658	19300
12-2-40	Supplying and erecting submersible pumpset of 1.5 KW/2 HP with 230 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 30 to 90 LPM discharge at 51 to 25 m head & (max. efficiency at 42 m head & 60 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	15109	3658	18767
12-2-41	Supplying and erecting submersible pumpset of 2.25 KW/3 HP with 230 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 10 to 50 LPM discharge at 32 to 12 m head & (max. efficiency at 26 m head & 30 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	14293	3658	17951
12-2-42	Supplying and erecting submersible pumpset of 1.125 KW/1.5 HP with 230 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 10 to 50 LPM discharge at 109 to 30 m head & (max. efficiency at 78 m head & 30 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	17512	3658	21170
12-2-43	Supplying and erecting submersible pumpset of 1.5 KW/2 HP with 230 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 10 to 50 LPM discharge at 127 to 35 m head & (max. efficiency at 91 m head & 30 lpm) discharge & delivery pipe of Size-32 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	20733	3658	24391
12-2-44	Supplying and erecting submersible pumpset of 1.125 KW/1.5 HP with 230 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 30 to 90 LPM discharge at 84 to 40 m head & (max. efficiency at 69 m head & 60 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	20046	3658	23704
12-2-45	Supplying and erecting submersible pumpset of 1.5 KW/2 HP with 230 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 10 to 50 LPM discharge at 127 to 35 m head & (max. efficiency at 91 m head & 30 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	20491	3658	24149
12-2-46	Supplying and erecting submersible pumpset of 1.5 kw/2 HP with 230 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 10 to 50 LPM discharge at 144 to 40 m head & (max. efficiency at 104 m head & 30 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	23192	3658	26850

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
12-2-47	Supplying and erecting submersible pumpset of 2.25 KW/3 HP with 230 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 85 to 170 LPM discharge at 43 to 18 m head & (max. efficiency at 33 m head & 130 lpm) discharge & delivery pipe of Size-65 mm diameter with a necessary H type clamps as per specification No. WP-SMP	Each	19791	3658	23449
12-2-48	Supplying and erecting submersible pumpset of 1.5 KW/2 HP with 230 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 10 to 50 LPM discharge at 160 to 45 m head & (max. efficiency at 116 m head & 30 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	21991	3658	25649
12-2-49	Supplying and erecting submersible pumpset of 0.75 KW/1 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 10 to 50 LPM discharge at 45 to 13 m head & (max. efficiency at 33 m head & 30 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	14867	3658	18525
12-2-50	Supplying and erecting submersible pumpset of 0.75 KW/1 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 10 to 50 LPM discharge at 54 to 15 m head & (max. efficiency at 39 m head & 30 lpm) discharge & delivery pipe of Size-32 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	15726	3658	19384
12-2-51	Supplying and erecting submersible pumpset of 0.75 KW/1 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 10 to 50 LPM discharge at 72 to 20 m head & (max. efficiency at 52 m head & 30 lpm) discharge & delivery Pipe of Size-32 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	15903	3658	19561
12-2-52	Supplying and erecting submersible pumpset of 1.5 KW/2 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 85 to 170 LPM discharge at 32 to 12 m head & (max. efficiency at 24 m head & 130 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	19506	3658	23164
12-2-53	Supplying and erecting submersible pumpset of 1.5 KW/2 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 30 to 90 LPM discharge at 42 to 20 m head & (max. efficiency at 34 m head & 60 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	14383	3658	18041
12-2-54	Supplying and erecting submersible pumpset of 1.5 KW/2 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 30 to 90 LPM discharge at 51 to 25 m head & (max. efficiency at 42 m head & 60 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	16325	3658	19983
12-2-55	Supplying and erecting submersible pumpset of 0.75 KW/1 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 10 to 50 LPM discharge at 90 to 25 m head & (max. efficiency at 66 m head & 30 lpm) discharge & delivery pipe of Size-32 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	16857	3658	20515

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
12-2-56	Supplying and erecting submersible pumpset of 1.125 KW/1.5 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 10 to 50 LPM discharge at 109 to 30 m head & (max. efficiency at 78 m head & 30 lpm) discharge & delivery pipe of Size-32 mm diameter with a necessary H type clamps as per specification No. WP-SMP	Each	20043	3658	23701
12-2-57	Supplying and erecting submersible pumpset of 1.5 KW/2 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 30 to 90 LPM discharge at 63 to 30 m head & (max. efficiency at 51 m head & 60 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	19490	3658	23148
12-2-58	Supplying and erecting submersible pumpset of 1.5 KW/2 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 30 to 90 LPM discharge at 84 to 40 m head & (max. efficiency at 69 m head & 60 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification No. WP-SMP	Each	19684	3658	23342
12-2-59	Supplying and erecting submersible pumpset of 1.125 KW/1.5 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 10 to 50 LPM discharge at 127 to 35 m head & (max. efficiency at 91 m head & 30 lpm) discharge & delivery pipe of Size-32 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	21079	3658	24737
12-2-60	Supplying and erecting submersible pumpset of 1.125 KW/1.5 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 10 to 50 LPM discharge at 144 to 40 m head & (max. efficiency at 104 m head & 30 lpm) discharge & delivery pipe of Size-32 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	21676	3658	25334
12-2-61	Supplying and erecting submersible pumpset of 2.25 KW/3 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 85 to 170 LPM discharge at 43 to 18 m head & (max. efficiency at 91 m head & 130 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	16811	3658	20469
12-2-62	Supplying and erecting submersible pumpset of 1.5 KW/2 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 10 to 50 LPM discharge at 160 to 45 m head & (max. efficiency at 116 m head & 30 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	21998	3658	25656
12-2-63	Supplying and erecting submersible pumpset of 2.25 KW/3 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 85 to 170 LPM discharge at 54 to 21 m head & (max. efficiency at 11 m head & 130 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	19632	3658	23290
12-2-64	Supplying and erecting submersible pumpset of 1.5 KW/2 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 30 to 90 LPM discharge at 105 to 50 m head & (max. efficiency at 85 m head & 60 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	18938	3658	22596

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
12-2-65	Supplying and erecting submersible pumpset of 2.25 KW/3 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 30 to 90 LPM discharge at 126 to 60 m head & (max. efficiency at 102 m head & 60 lpm) discharge & delivery pipe of Size-32 mm diameter with a necessary H type clamps as per specification No. WP-SM	Each	27554	3658	31212
12-2-66	Supplying and erecting submersible pumpset of 2.25 KW/3HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 85 to 170 LPM discharge at 67 to 27 m head & (max. efficiency at 49 m head & 130 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification No. WP-SMP	Each	23084	3658	26742
12-2-67	Supplying and erecting submersible pumpset of 3.75 KW/5 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 30 to 90 LPM discharge at 147 to 70 m head & (max. efficiency at 119 m head & 60 lpm) discharge & delivery pipe of Size-40 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	25209	3658	28867
12-2-68	Supplying and erecting submersible pumpset of 3 KW/4 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 30 to 90 LPM discharge at 168 to 80 m head & (max. efficiency at 136 m head & 60 lpm) discharge & delivery pipe of Size-32 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	29256	3658	32914
12-2-69	Supplying and erecting submersible pumpset of 3 KW/4 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 85 to 170 LPM discharge at 88 to 36 m head & (max. efficiency at 68 m head & 130 lpm) discharge & delivery pipe of Size-50 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	25434	3658	29092
12-2-70	Supplying and erecting submersible pumpset of 3.75 KW/5 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 85 to 170 LPM discharge at 110 to 46 m head & (max. efficiency at 83 m head & 130 lpm) discharge & delivery pipe of Size-65 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	28780	3658	32438
12-2-71	Supplying and erecting submersible pumpset of 4.5 KW/6 HP with 415 V, 50 c/s AC supply suitable for 100 mm dia. borewell suitable for 85 to 170 LPM discharge at 133 to 55 m head & (max. efficiency at 100 m head & 130 lpm) discharge & delivery pipe of Size-65 mm diameter with a necessary H type clamps as per specification no. WP-SMP	Each	32283	3658	35941
Note	Energy Efficient water pumps should be used invariably.				
	<u>12.3 Submersible pumps for Openwell</u>				
12-3-1	Supplying and erecting submersible pump set suitable for erection on open well of 2.25 KW/3 HP with 415 V 50 c/s.A.C. supply, having delivery head from 21 to 7 m and discharge from 200 to 800 Itrs. per minute (Max efficiency at 16 m head & 500 Itr discharge) & pipe of Suction 50mm /Delivery 50 mm diameter erected with necessary H type clamps as per specification no. WP-OSP	Each	17084	2441	19525

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
12-3-2	Supplying and erecting submersible pump set suitable for erection on open well of 3.75 KW/5 HP with 415 V 50 c/s.A.C. supply, having delivery head from 24 to 13m. and discharge from 400 to 1000 Itrs. per minute (Max efficiency at 21m head & 680 Itr discharge) & pipe of Suction 50mm / Delivery 50 mm diameter erected with necessary H type clamps as per specification no. WP-OSP	Each	18979	2441	21420
12-3-3	Supplying and erecting submersible pump set suitable for erection on open well of 5.625 KW/7.5 HP with 415 V 50 c/s.A.C. supply, having delivery head from 20 to 10m and discharge from 450 to 1600 Itrs. per minute (Max efficiency at 17 m head & 1250 Itr discharge) & pipe of Suction 65 mm/Delivery 50 mm diameter erected with necessary H type clamps as per specification no. WP-OSP	Each	25227	2441	27668
12-3-4	Supplying and erecting submersible pump set suitable for erection on open well of 5.625 KW/7.5 HP with 415 V 50 c/s.A.C. supply, having delivery head from 36 to 18 m and discharge from 400 to 1000 Itrs. per minute (Max efficiency at 29 m head & 680 Itr discharge) & pipe of Suction 75 mm/Delivery 65 mmdiameter erected with necessary H type clamps as per specification no. WP-OSP	Each	27196	2441	29637
12-3-5	Supplying and erecting 1 phase, 230 V, 50 Hz, submersible pump set of 0.75 KW/1HP for erection on open well, pump having discharge 35 / 270L.P.M., head 30 / 15 m & pipe of Suction 32 mm/Delivery 25 mm diameter erected with with necessary H type clamps as per specification no. WP-OSP	Each	12571	2441	15012
12-3-6	Supplying and erecting 1 phase, 230 V, 50 Hz, submersible pump set of 1.5 KW/2HP suitable for erection on open well, pump having discharge 130 / 475 L.P.M., head 21 / 9 m & pipe of Suction 50 mm/Delivery 50 mm diameter erected with necessary H type clamps as per specification no. WP-OSP	Each	12792	2441	15233
Energy Efficient water pumps should be used					
<u>12.4 Accessories</u>					
12-4-1	Supplying and erecting D. O. L. Starter suitable for 250V. single phase , 50 cycles with overload element with necessary materials and connected to supply upto 3 H.P.	Each	749	207	956
12-4-2	Supplying and erecting D.O.L. Starter 400V. 3 phase, 50 cycles with no volt coil and overload element with necessary materials and connected to supply upto 7.5 H.P.	Each	1583	207	1790
12-4-3	Supplying and erecting D.O.L. Starter 400V. 3 phase, 50 cycles with no volt coil and overload element with necessary materials and connected to supply for 10 H.P.	Each	2211	207	2418
12-4-4	Supplying and erecting fully Automatic star/delta starter suitable for 12.5 H.P. to 15 H.P. for 3 phase squirrel cage motor totally enclosed with overload and no volt relay complete erected on provided angle iron frame.	Each	6076	285	6361
12-4-5	Supplying and erecting fully Automatic star/delta starter suitable for above 15 H.P. upto 25 H.P. squirrel cage motor totally enclosed with overload and no volt relay complete erected on provided angle iron frame.	Each	12167	285	12452

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
12-4-6	Supplying and erecting fully Automatic star / delta starter suitable for above 25 H. P. to 35 H. P. squirrel cage motor totally enclosed with overload and no volt relay complete erected on provided angle iron frame.	Each	19281	364	19645
12-4-7	Supplying and erecting pump protection relay comprising current sensing phase failure and UV+OV relay with dry run and overload protection suitable for 3 phase pumps.	Each	2222	364	2586
12-4-8	Supplying and erecting 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	93	26	119
12-4-9	Supplying and erecting flat flexible 3 core 4 sq mm PVC sheathed submersible type copper cable suitably clamped at fixed intervals with column pipe assembly complete.	m	138	26	164
12-4-10	Supplying and erecting flat flexible 3 core 6 sq mm PVC sheathed submersible type copper cable suitably clamped at fixed intervals with column pipe assembly complete.	m	202	26	228
12-4-11	Supplying and erecting 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	59	26	85
12-4-12	Supplying & erecting flat flexible 3 core 10 sq.mm PVC sheathed submersible type copper cable suitably clamped at fixed intervals with coloum pipe assembly complete.	m	340	26	366
12-4-13	Supplying & erecting flat flexible 3 core 16 sq.mm PVC sheathed submersible type copper cable suitably clamped at fixed intervals with coloum pipe assembly complete.	m	529	26	555
12-4-14	Supplying & erecting Water level controller 230/415 V AC., Two way for under ground tank operation only.	Each	970	285	1255
12-4-15	Supplying & erecting Water level controller 230/ 415V AC., Four way for under ground & Over head tank operation.	Each	1019	285	1304
12-4-16	Supplying & erecting PVC coated 5 mm dia Brass Sensor/ electrode duly wired with nut & bolts complete	Each	110	134	244
12-4-17	Supplying & erecting automatic control panel for 3 Ph, 415 volt, A.c. Submersible/centrifugal pump set upto 7.5 HP consisting of DOL starter having relay range 9-14 AMP,S.P.P., Combined ammeter/voltmeter, phase indicating lamp enclosed in CRCA powder coated Vibration proof enclosure with IP 54 protection. Control Panel should offer single phasing, phase reversal, phase imbalance etc	Each	4659	285	4944
12-4-18	Supplying & erecting automatic control panel for 3 Ph, 415 volt, a.c. Submersible/centrifugal pump set for 7.5 to 10 HP consisting of DOL starter having relay range 13-21 AMP,S.P.P., Combined ammeter/voltmeter, phase indicating lamp enclosed in CRCA powder coated Vibration proof enclosure with IP 54 protection. Control Panel should offer single phasing, phase reversal, phase imbalance etc	Each	5338	285	5623

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
12-4-19	Supplying & erecting automatic control panel for 3 Ph, 415 volt, a.c. Submersible/centrifugal pump set for 7.5 to 10 HP consisting of DOL starter having relay range 28-42 AMP,S.P.P., Combined ammeter/voltmeter, phase indicating lamp enclosed in CRCA powder coated Vibration proof enclosure with IP 54 protection. Control Panel should offer single phasing, phase reversal, phase imbalance etc.	Each	5797	285	6082
12-4-20	Supplying & erecting automatic control panel for 1 Ph, 230 volt, a.c.. Submersible/centrifugal pump set upto 2 HP consisting of DOL starter Of suitable relay range S.P.P., Combined ammeter/ voltmeter, phase indicating lamp enclosed in CRCA powder coated Vibration proof enclosure with IP 54 protection. Control Panel should offer single phasing, phase reversal, phase imbalance etc .	Each	4534	285	4819
12-4-21	Supplying & erecting automatic control panel for 3 Ph, 415 volt, a.c. Submersible/centrifugal pump set upto 20 HP consisting of Star Delta starter having relay range 13-21Amp,S.P.P., Combined ammeter/ voltmeter, phase indicating lamp enclosed in CRCA powder coated Vibration proof enclosure with IP 54 protection. Control Panel should offer single phasing, phase reversal, phase imbalance etc .	Each	11879	463	12342
12-4-22	Supplying & erecting automatic control panel for 3 Ph, 415 volt, a.c. Submersible/centrifugal pump set upto 20 HP consisting of Star Delta starter having relay range 28-42 Amp, S.P.P., Combined ammeter/ voltmeter, phase indicating lamp enclosed in CRCA powder coated Vibration proof enclosure with IP 54 protection. Control Panel should offer single phasing, phase reversal, phase imbalance etc	Each	14509	463	14972
12-4-23 (New)	Supplying & erecting automatic control panel for 3 Ph, 415 volt, a.c. Submersible/centrifugal pump set upto 30 HP consisting of Star Delta starter having relay range 30-50 Amp, S.P.P., Combined ammeter/ voltmeter, phase indicating lamp enclosed in CRCA powder coated Vibration proof enclosure with IP 54 protection. Control Panel should offer single phasing, phase reversal, phase imbalance etc.	Each	22990	463	23453
12-4-24 (New)	Supplying & erecting Soft Starters for 3 phase 415 volt, A.C. water pump upto 15 H.P. consisting of RS-485 Communication port, Compact size & range, internal by-pass 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	33756	827	34583

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
12-4-25 (New)	Supplying & erecting Soft Starters for 3 phase 415 volt, A.C. water pump 15 -30 H.P. consisting of RS-485 Communication port, Compact size & range, internal by-pass 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	39675	827	40502
12-4-26 (New)	Supplying & erecting automatic control panel for 3 Ph, 415 volt, A.c.Submersible/centrifugal pump set upto 10 HP consisting of Star Delta starter having relay range 6-10 Amp, S.P.P., Combined ammeter/ voltmeter, phase indicating lamp enclosed in CRCA powder coated Vibration proof enclosure with IP 54 protection. Control Panel should offer single phasing, phase reversal, phase imbalance etc.	Each	9601	463	10064
12-4-27 (New)	Supplying & erecting automatic control panel for 3 Ph, 415 volt, A.C. Submersible/centrifugal pump set upto 10 - 15 HP consisting of Star Delta starter having relay range 13-22 Amp, S.P.P., Combined ammeter/ voltmeter, phase indicating lamp enclosed in CRCA powder coated Vibration proof enclosure with IP 54 protection. Control Panel should offer single phasing, phase reversal, phase imbalance etc .	Each	9619	463	10082
12-4-28 (New)	Supplying & erecting Float sensor switch for water level controller working on 250V & rated current 8A, with 2 mtr. wire & High quality of wire & plastic body.	Each	331	95	426
12-4-29 (New)	Supplying & erecting directly operated Single phasing preventor complete erected and connected to supply to operate in case of single phasing with guarantee for minimum one year.	Each	689	121	810
<u>12.5 Dewatering Pump</u>					
12-5-1	Supplying & erecting Dewatering Submersible pump set 415V, 3 phase, 50C/s, A.C. supply of 1.5 KW/ 2 H.P. , of 2 to 17 m head with 600 to 100 LPM discharge, non-clogging minimised abrasive wear, large impeler clearance & maintenance free pump set with water proof 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	35241	2441	37682
12-5-2 (New)	Supplying & erecting Dewatering Submersible pump set 415V, 3 phase, 50C/s, A.C. supply of 3.73KW/ 5 H.P of 16 to 22 m head with 625 to 260 LPM discharge, non-clogging minimised abrasive wear, large impeler clearance & maintenance free pump set with water proof 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	50544	2441	52985

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
12-5-3 (New)	Supplying & erecting Dewatering Submersible pump set 415V, 3 phase, 50C/s, A.C. supply of 5.5KW/ 7.5 H.P. , of 6 to 22 m head with 1560 to 360 LPM discharge, non-clogging minimised abrasive wear, large impeller clearance & maintenance free pump set with water proof 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	70378	2441	72819
<u>12.6 Pressure Pump</u>					
12-6-1	Supplying & erecting Pressure Booster Pump, single phase, 50C/s, A.C. supply of 0.375 KW/ 0.5 H.P. , for Domestic Pressure boosting applications in bungalows, apartments, hotels etc for constant pressure for Bathrooms.	Each	17355	999	18354
12-6-2	Supplying & erecting Pressure Booster Pump, single phase, 50C/s, A.C. supply of 0.75 KW/ 1 H.P. , for Domestic Pressure boosting applications in bungalows, apartments, hotels etc for constant pressure for Bathrooms.	Each	19116	999	20115
12-6-3	Supplying & erecting Pressure Booster Pump, single phase, 50C/s, A.C. supply of 1.125 KW/1.5 H.P. , for Domestic Pressure boosting applications in bungalows, apartments, hotels etc for constant pressure for Bathrooms..	Each	22387	999	23386
<u>12.7 Dismantling Material</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	0	79	79
12-7-2	Dismantling the existing ejecto type water pump set without pipeline complete and making the site clear.	HP	0	79	79
12-7-3	Dismantling the existing ejecto pump with PVC pipeline .	Each	0	866	866
12-7-4	Dismantling the existing ejecto pump with GI pipeline upto 10 m depth.	Each	0	2231	2231
12-7-5	Dismantling the existing Submersible pump with PVC pipeline	Each	0	839	839
12-7-6	Dismantling the existing submersible pump with GI pipeline upto 10m depth. (For additional depth of each 3 m or part thereof add Rs.50/- per 3 m, in the rates)	Each	0	2231	2231
12-7-7	Attending breakdown of water pump and associated accessories for fault finding including minor repairs & put in working condition & submit the report of inspection to the engineer in-charge.	Each	0	839	839

Above Items are conforming to relevant IS as mentioned below

IS 9079 : 2002 - Electric Monoset Pumps for Clear, Cold Water for Agricultural and Water Supply Purposes

IS 8034 : 2002 - Submersible Pumpsets - Specification

Chapter: 13

Fire Fighting & Fire Alarm System (FF)

13.1	Main Fire Pumps (Single Stage Centrifugal)	(FF-MFP/SSC)
13.2	Main Fire Pumps (Multi Stage Centrifugal)	(FF-MFP/MSD)
13.3	Jockey Pumps (Centrifugal)	(FF-MFP/JP)
13.4	Booster Pump	(FF-MFP/BP)
13.5	Pipes	(FF-PP)
13.6	Valves	(FF-FV)
13.7	Fire Fighting Accessories	(FF-FFA)
13.8	Conventional Fire Alarm System	(FF-FAS)
13.9	P A System	(FF-PAS)
13.10	Sprinklers	(FF-SPR)
13.11	Fire Sealant System	(FF-FRM)
13.12	Fire Safety Audit	

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

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
<u>13.1 Main Fire Pumps (Single Stage Centrifugal) (FF-MFP/SSC)</u>					
13-1-1	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of fire service main single stage pump, of 1400 LPM at 56 m head centrifugal type, 30 HP (22 kW), 3 phase, 415 volt, 50Hz or of suitable HP complete, as per specification no. FF-MFP/SSC	Each	114501	6887	121388
13-1-2	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of fire service main single stage pump, of 1800 LPM at 76 m head centrifugal type, 50 HP (37 kW), 3 phase, 415 volt, 50Hz or of suitable HP complete as per specification no. FF-MFP/SSC	Each	176385	8003	184388
13-1-3	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of fire service main single stage pump, of 2400 LPM at 76 m head centrifugal type, 75 HP (55 kW) 3 phase, 415 volt, 50Hz or of suitable HP complete as per specification no. FF-MFP/SSC	Each	277532	9399	286931
<u>13.2 Main Fire Pumps (Multi Stage Centrifugal) (FF-MFP/MSC)</u>					
13-2-1	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of fire service main multi stage pump, of 2400 LPM at 88 m head centrifugal type, 75 HP (55 kW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/MSC	Each	231393	9399	240792
13-2-2	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of fire service main multi stage pump, of 2800 LPM at 76 m head centrifugal type, 75 HP (55 kW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/MSC	Each	321608	9399	331007
13-2-3	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of fire service main multi stage pump, of 2800 LPM at 105 m Head centrifugal type, 120 HP, (90 kW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/MSC	Each	464264	11911	476175
<u>13.3 Jockey Pumps (Centrifugal) (FF-MFP/JP)</u>					
13-3-1	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of jockey pump of 240 LPM at 56 m head, 15 HP (11 kW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/JP	Each	60038	3732	63770
13-3-2	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of jockey pump of 240 LPM at 105 m head 20 HP (15 kW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/JP	Each	111423	4603	116026
<u>13.4 Booster Pump (FF-MFP/BP)</u>					
13-4-1	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of booster pump of 180 LPM at 40 m Head, 5 HP (3.75 KW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/BP	Each	25851	2548	28399

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
13-4-2	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of booster pump of 450 LPM at 35 m head 7.5 HP (5.5 KW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/BP	Each	30599	4081	34680
13-4-3	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of booster pump of 460 LPM at 40m head 10 HP (7.5 KW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/BP	Each	37458	4220	41678
13-4-4	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of booster pump of 900 LPM at 40 m Head, 12.5 HP (10 KW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/BP	Each	49486	4323	53809

Note:- LPM stands for Litres Per Minutes.

13.5 Pipes (FF-PP)

13-5-1	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 20 mm dia with necessary fittings complete as per specification no. FF-PP	m	204	81	285
13-5-2	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 25 mm dia with necessary fittings complete as per specification no. FF-PP	m	293	81	374
13-5-3	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 50 mm dia with necessary fittings complete as per specification no. FF-PP	m	596	81	677
13-5-4 (New)	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 65 mm dia with necessary fittings complete as per specification no. FF-PP	m	759	130	889
13-5-5	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 75/80 mm dia with necessary fittings complete as per specification no. FF-PP	m	945	130	1075
13-5-6	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 100 mm dia with necessary fittings complete as per specification no. FF-PP	m	1343	130	1473
13-5-7	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 150 mm dia with necessary fittings complete as per specification no. FF-PP	m	2035	130	2165
13-5-8	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 200 mm dia with necessary fittings complete as per specification no. FF-PP	m	3235	156	3391
13-5-9	Providing coating of bitumen paint & 4mm thick wrapping for underground 100 mm ring main of fire fighting system.	m	128	207	335
13-5-10	Providing coating of bitumen paint & 4mm thick wrapping for underground 150 mm ring main of fire fighting system.	m	189	256	445
13-5-11	Providing coating of bitumen paint & 4mm thick wrapping for underground 200 mm ring main of fire fighting system.	m	234	364	598

Note:- Refer chapter no. 16 (Civil Works) for excavation charges for laying underground pipes.

ERW stands for Electrical Resistance Welded.

13.6 Valves (FF-FV)

13-6-1	Supplying and erecting cast iron foot valve ball type/flap type of size 80 mm dia with strainer for negative suction complete as per specification no. FF-VL/FV	Each	4148	331	4479
13-6-2	Supplying and erecting cast iron foot valve ball type/flap type of size 100 mm dia with strainer for negative suction complete as per specification no. FF-VL/FV	Each	6123	331	6454

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
13-6-3	Supplying and erecting cast iron foot valve ball type/flap type of size 150 mm dia with strainer for negative suction complete as per specification no. FF-VL/FV	Each	15499	615	16114
13-6-4	Supplying and erecting cast iron foot valve ball type/flap type of size 200 mm dia with strainer for negative suction complete as per specification no. FF-VL/FV	Each	27194	615	27809
	<u>End Line Strainer (positive suction) (ELS)</u>				
13-6-5	Supplying and erecting 75/80 mm dia end line strainer for positive suction complete as per specification no. FF-VL/ELS	Each	3667	331	3998
13-6-6	Supplying and erecting 100 mm dia end line strainer for positive suction complete as per specification no. FF-VL/ELS	Each	5348	331	5679
13-6-7	Supplying and erecting 150 mm dia end line strainer for positive suction complete as per specification no. FF-VL/ELS	Each	8430	615	9045
13-6-8	Supplying and erecting 200 mm dia end line strainer for positive suction complete as per specification no. FF-VL/ELS	Each	11724	615	12339
	<u>Sluice Valve</u>				
13-6-9	Supplying and erecting cast iron double flange sluice valve 75/80 mm dia. complete as per specification no. FF-VL/SV	Each	4806	331	5137
13-6-10	Supplying and erecting cast iron double flange sluice valve 100 mm dia. complete as per specification no. FF-VL/SV	Each	7238	331	7569
13-6-11	Supplying and erecting cast iron double flange sluice valve 160 mm dia. complete as per specification no. FF-VL/SV	Each	11155	615	11770
13-6-12	Supplying and erecting cast iron double flange sluice valve 200 mm dia. complete as per specification no. FF-VL/SV	Each	19483	615	20098
	<u>Butterfly Valves (BFV)</u>				
13-6-13 (New)	Supplying & erecting cast iron double flange butterfly valve of size 50 mm dia. complete as per specification no. FF-VL/BFV	Each	1812	331	2143
13-6-14 (New)	Supplying & erecting cast iron double flange butterfly valve of size 65 mm dia. complete as per specification no. FF-VL/BFV	Each	1978	331	2309
13-6-15	Supplying & erecting cast iron double flange butterfly valve of size 75/80 mm dia. complete as per specification no. FF-VL/BFV	Each	2415	331	2746
13-6-16	Supplying & erecting cast iron double flange butterfly valve of size 100 mm dia. complete as per specification no. FF-VL/BFV	Each	3228	331	3559
13-6-17	Supplying & erecting cast iron double flange butterfly valve of size 150 mm dia. complete as per specification no. FF-VL/BFV	Each	5038	615	5653
13-6-18	Supplying & erecting cast iron double flange butterfly valve of size 200 mm dia. complete as per specification no. FF-VL/BFV	Each	7835	615	8450
	<u>Non Return Valves (NRV)</u>				
13-6-19	Supplying and erecting cast iron double flange NRV of size 75/80 mm dia complete as per specification no. FF-VL/NRV	Each	4977	331	5308
13-6-20	Supplying and erecting cast iron double flange NRV of size 100 mm dia complete as per specification no. FF-VL/NRV	Each	6794	571	7365
13-6-21	Supplying and erecting cast iron double flange NRV of size 150 mm dia complete as per specification no. FF-VL/NRV	Each	11021	615	11636
13-6-22	Supplying and erecting cast iron double flange NRV of size 200 mm dia complete as per specification no. FF-VL/NRV	Each	17779	615	18394
13-6-23	Supplying and erecting cast iron double flange ball type NRV of size 75/80 mm dia complete as per specification no. FF-VL/NRV	Each	7143	571	7714
13-6-24 (New)	Supplying and erecting cast iron double flange ball type NRV of size 100 mm dia complete as per specification no. FF-VL/NRV	Each	9733	615	10348
13-6-25	Supplying and erecting cast iron double flange ball type NRV of size 150 mm dia complete as per specification no. FF-VL/NRV	Each	23703	694	24397
13-6-26	Supplying and erecting cast iron double flange ball type NRV of size 200 mm dia complete as per specification no. FF-VL/NRV	Each	39493	729	40222

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
<u>Gate / Wheel Valves (GV)</u>					
13-6-27	Supplying & erecting gun metal gate valve of size 20 mm dia complete as per specification no. FF-VL/GV	Each	677	187	864
13-6-28	Supplying & erecting gun metal gate valve of size 25 mm dia complete as per specification no. FF-VL/GV	Each	928	187	1115
13-6-29	Supplying & erecting gun metal gate valve of size 50 mm dia complete as per specification no. FF-VL/GV	Each	945	187	1132
<u>Hydrant Valves (HV)</u>					
13-6-30	Supplying and erecting gun metal single outlet hydrant valve fitted with necessary accessories complete as per specification no. FF-VL/HV	Each	7532	331	7863
13-6-31	Supplying and erecting stainless steel single outlet hydrant valve fitted with necessary accessories complete as per specification no. FF-VL/HV	Each	4679	331	5010
13-6-32	Supplying and erecting gun metal double outlet hydrant valve fitted with necessary accessories complete as per specification no. FF-VL/HV	Each	14924	331	15255
13-6-33	Supplying and erecting stainless steel double outlet hydrant valve fitted with necessary accessories complete as per specification no. FF-VL/HV	Each	10525	331	10856
<u>13.7 Fire Fighting Accessories (FF-FFA)</u>					
<u>Priming Tank</u>					
13-7-1	Supplying & installing one piece moulded HDPE / fibre water tank for negative suction only, having capacity 1000 litres fitted with necessary accessories complete as per specification no. FF-FFA/PT	Each	9668	212	9880
<u>Hose Reel with Drum (HR)</u>					
13-7-2	Supplying and installing wall mounting swinging Hose reel drum fitted with 19 mm dia. 30m long high pressure polypropylene (Polyhose) fitted with necessary accessories complete as per specification no. FF-FFA/HV	Each	5903	331	6234
<u>Hose Pipes</u>					
13-7-3	Supplying fire fighting controlled percolation (C.P.) Hose pipe, 63mm dia, 15m in length , fitted with necessary accessories complete as per specification no. FF-FFA/CPH	Each	3731	0	3731
13-7-4	Supplying fire fighting reinforced rubber lined (R.R.L.) hose pipe, 63mm dia, 15m in length , fitted with necessary accessories complete as per specification no. FF-FFA/RRL	Each	4622	0	4622
13-7-5	Supplying & erecting high pressure poly propylene hose pipe 19 mm dia complete as per specification no. FF-FFA/HOP	m	134	34	168
13-7-6	Supplying & erecting high pressure rubber hose pipe 19 mm dia complete as per specification no. FF-FFA/RHP	m	83	34	117
<u>Nozzles (NZ)</u>					
13-7-7	Supplying & 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	1662	34	1696
13-7-8	Supplying & 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	1694	34	1728
13-7-9	Supplying & erecting gun metal chrome plated nozzle, 19 mm dia complete as per specification no. FF-FFA/NZ	Each	824	34	858

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
<u>Fire Brigade Connection (FBC)</u>					
13-7-10	Supplying and erecting fire brigade header of 150 mm dia , for supplying water in fire tank complete as per specification no. FF-FA/FBC	Each	7796	339	8135
<u>Siamese Connection (SMC)</u>					
13-7-11	Supplying and erecting fire brigade header (Siamese connection) of 150 mm dia for supplying water to wet riser system complete as per specification no. FF-FFA/SMC	Each	9690	331	10021
<u>Air Cushion Tank (Air Vessel) (ACT)</u>					
13-7-12	Supplying and installing air vessel of 300 mm dia 1.5m in height M.S. tank installed inside pump house / on terrace complete as per specification no. FF-FFA/ACT	Each	10370	403	10773
<u>Air Release Valve (ARV)</u>					
13-7-13	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	627	89	716
<u>Pressure Gauge (PG)</u>					
13-7-14	Supplying and installing pressure gauge of 100 mm dia. , 0-300 PSI or 0-14 kg per cm square fitted with 12/15 mm dia. pad cock valve, and G.I. pipe, elbow etc. complete as per specification no. FF-FFA/PG	Each	568	89	657
<u>Pressure Switch (PS)</u>					
13-7-15	Supplying and installing pressure switch with 12/15 mm dia isolation valve , G.I. nipple, elbow, etc complete as per specification no. FF-FFA/PS	Each	1426	89	1515
<u>Orifice Plate (OP)</u>					
13-7-16	Supplying and erecting one no. brass orifice plate having 6 mm. thickness, 140 mm outer dia and required/proper diameter of inner hole at every single outlet hydrant valve as per specification no. FF-FFA/OP	Each	802	66	868
13-7-17	Supplying and erecting one no. brass orifice plate having 6 mm. thickness, 160 mm outer dia and required/proper diameter of inner hole at every double outlet hydrant valve as per specification no. FF-FFA/OP	Each	813	66	879
<u>MS / CRCA Boxes (BOX)</u>					
13-7-18	Supplying and erecting M.S./CRCA cabinet for housing single hydrant valve (size 400 x 400 x 400mm.) made from 16 SWG sheet and angle iron 25 mm. x 25 mm. 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.	Each	3974	630	4604
13-7-19	Supplying and erecting M.S./CRCA cabinet for housing Fire Brigade / SIEMESE 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 in post box red colour.	Each	6495	630	7125
13-7-20	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 in post box red colour.	Each	12796	936	13732

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
Note:-	<p>Specifications of the above items shall conform to respective Indian standards.</p> <p>MS stands for Mild Steel.</p> <p>CRCA stands for Cold Rolled Close Annealed.</p> <p><u>13.8 Conventional Fire Alarm System (FF-FAS)</u></p>				
13-8-1	Supplying, installing, testing and commissioning heat detector complete on box as per specification no. FF-FAS/HD	Each	1364	157	1521
13-8-2	Supplying, installing, testing and commissioning optical type smoke detector complete on box as per specification no. FF-FAS/SD	Each	1475	157	1632
13-8-3	Supplying, installing, testing and commissioning four wire conventionally single ended reflected type beam smoke detector with 8 " receiver . The range of smoke detector is max 164 feet .	Each	27566	3419	30985
13-8-4	Supplying, installing, testing and commissioning four wire conventionally single ended reflected type beam smoke detector with 8" receiver . The range of smoke detector is max 325 feet .	Each	48425	2195	50620
Note:-	<p>For large areas and passages beam detectors should be preferably used (Item no. 13-8-3 & 13-8-4)</p>				
13-8-5	Supplying, installing, testing and commissioning manual call point (Pill box) with break glass push button in metal enclosure complete as per specification no. FF-FAAS/MCP	Each	431	79	510
13-8-6	Supplying, installing, testing and commissioning hooters with CRCA enclosure complete as per specification no. FF-FAAS/HTR	Each	478	118	596
13-8-7	Supplying, installing, testing and commissioning remote response indicators complete as per specification no. FF-FAAS/RRI	Each	112	79	191
13-8-8	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	78	13	91
13-8-9	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	99	13	112
13-8-10	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	193	26	219
13-8-11	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	280	26	306
13-8-12	Supplying, installing, testing and commissioning of 2 Zones Microprocessor based conventional fire alarm control panel (FACP) with standard accessories complete as per specification no. FF-FAAS/FACP	Each	15524	1108	16632
Note:-	<p>1. Increase overall rate by 25 % for additional zone as per requirement.</p> <p>2. For item no 13-8-8 to 13-8-11 increase overall rate by 7.5% for FRLS.</p> <p>3. Above rates are for Non-Addressable type.</p>				
13-8-13	Supplying, installing, testing and commissioning 2 Zone, local signal control panel (LCP) with standard accessories complete as per specification no. FF-FAAS/LCP	Each	4468	554	5022

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
Note:- 1. Increase overall rate by 10 % for additional zone as per requirement. 2. Above items are for Non-Addressable type.					
<u>13.9 P A System (FF-PAS)</u>					
13-9-1	Supplying, erecting, testing and commissioning amplifier 120 W for public address system suitable to operate on 230 Volts A.C. / 12 Volts D.C. supply complete as per specification no. FF-PA/AFR	Each	16048	250	16298
13-9-2	Supplying, erecting, testing and commissioning sound column 15 Watts complete as per specification no. FF-PA/SOC	Each	2419	56	2475
13-9-3	Supplying, erecting, testing and commissioning microphone complete as per specification no. FF-PA/MIC	Each	4646	79	4725
13-9-4	Supplying, erecting, testing and commissioning stand for microphone complete.	Each	1618	56	1674
13-9-5	Supplying, erecting, testing and commissioning table stand for microphone complete.	Each	992	56	1048
13-9-6	Supplying, erecting, testing and commissioning of 2 core shielded microphone cable complete as per specification no. FF-PA/MCC	m	114	14	128
13-9-7 (New)	Supplying, erecting, testing and commissioning of 0.5 sq mm speaker wire complete.	m	18	14	32
13-9-8 (New)	Supplying, erecting, testing and commissioning of 0.75 sq mm speaker wire complete.	m	26	14	40
13-9-9 (New)	Supplying, erecting, testing and commissioning of 1 sq mm speaker wire complete.	m	32	14	46
13-9-10 (New)	Supplying, erecting, testing and commissioning of 1.5 sq mm speaker wire complete.	m	47	14	61
<u>13.10 Sprinklers (FF-SPR)</u>					
13-10-1	Supplying, erecting, testing and commissioning of 15 mm (½") dia. NBCM Body chrome finished quartzoid bulb sprinkler having 68° C fixed temperature rating with deflector disc of conventional construction complete as per specification no. FF-SPR	Each	239	157	396
13-10-2	Supplying, erecting, testing and commissioning vane type water flow detector suitable for detecting flow of water in wet sprinkler pipe of main line or branch lines of 75/80 mm dia having following features 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	Each	6203	157	6360
13-10-3	Supplying, erecting, testing and commissioning vane type water flow detector suitable for detecting flow of water in wet sprinkler pipe of main line or branch lines of 100 mm dia having following features 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	Each	7109	157	7266
<u>13.11 FIRE SEALANT SYSTEM (FF-FRM)</u>					
13-11-1	Supplying and erecting fire resistant mortar (20 kg) with fire resistance class S90 as per National Electrical Code (NEC) SP30-2011 suitable to seal the openings with all kinds of cables, pipes and cable support system in steel and aluminium and plastic profiles (Except hollow core conductors). The residual openings shall be closed with filler, as per specification no. FF-FRM	Job	8026	184	8210

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
Note:-	For estimating purpose consider one bag of 20kg to cover 300mm x 400mm area 150mm thick or 0.018 m3				
	<u>13.12 FIRE SAFETY AUDIT</u>				
13-12-1	Providing/conducting complete fire audit including submission of fire audit report for the whole premises.	Sq mtr	0	6	6
Note:-	Specification of the above all items conform to respective Indian Standards.				
	Above items are conforming to relevant IS as mentioned below:-				
	IS 1520:1980 Horizontal Centrifugal Pumps For Clear, Cold, Fresh Water				
	IS 1239 :2004 Pipes				
	IS 10221:2008 Coating and wrapping of Underground pipes				
	IS 4038 : 1986 Foot valve for water work purpose				
	IS 907 : 1984 End line strainer				
	IS 909: 1992 Specification for Underground Fire Hydrant, Sluice Valve Type				
	IS 13095 : 1981 Butterfly valve for general purposes				
	IS 5312-I : 2004 Non return valve for water work purpose				
	IS 778 :1984 Gate valve for water work purpose				
	IS 5290: 1993 Landing valve				
	IS 884 :1985 First aid hose reel for fire fighting system				
	IS 446 :1987 Rubber hose pipe				
	IS 8423, IS 903 :1994 CP hose for fire fighting				
	IS 636 : 1988 RRL hose for fire fighting				
	IS 4927 :1992 Canvas hose pipe for fire fighting				
	IS 903: 1993 Fire hose coupling, branch pipe, Nozzles and nozzle spanner				
	IS 3589:2001 Air cushion tank				
	BS 5839 part I, EN54 - 12 : 2002 Optical beam detector				
	IS 14851:2000 Maintenance of fire hose				
	IS 15105:2002 Design and installation of fixed automatic sprinkler fire extinguishing system				
	IS 15301:2003 Installation & maintenance of fire fighting pumps				
	IS 15908 : 2011 Selection, installation and maintenance of control and indicating equipment's for fire detection and alarm system				

Chapter: 14
Temporary Illumination (TE - IL)

- | | | |
|------|------------------------|---------|
| 14.1 | Temporary Illumination | (TE-IL) |
| 14.2 | Hiring of Generators | (TE-DG) |

Chapter 14 : TEMPORARY ILLUMINATION (TE - IL)

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
14.1 Temporary Illumination					
14-1-1	Providing temporary illumination consisting of tube light day light and colour 4' X 36/40 watts complete erected with tubes, mains and required switchgears with continuous earth wire erected and dismantled without using scaffolding upto three days.	Each	13	26	39
14-1-2	Providing temporary illumination consisting of tube light day light and colour 4' X 36/40 watts complete erected with tubes, mains and required switchgears with continuous earth wire erected and dismantled with using scaffolding upto three days.	Each	13	39	52
14-1-3	Providing temporary illumination consisting of flood light fitting 1000/500W complete halogen fitting with lamp, holders, mains and required switchgears with continuous earth wire erected and dismantled without using scaffolding upto three days.	Each	145	53	198
14-1-4	Providing temporary illumination consisting of flood light 1000/500W complete halogen fitting with lamp, holders, mains and required switchgears with continuous earth wire erected and dismantled with scaffolding upto three days.	Each	145	65	210
14-1-5	Providing temporary illumination consisting of metal halide flood light fitting 250 W complete with lamp, holders, mains and required switchgears with continuous earth wire erected and dismantled without using scaffolding upto three days.	Each	210	53	263
14-1-6	Providing temporary illumination consisting of metal halide flood light fitting 250 W complete with lamp, holders, mains and required switchgears with continuous earth wire erected and dismantled with using scaffolding upto three days.	Each	210	65	275
14-1-7	Providing temporary illumination consisting of metal halide flood light fitting 400 W complete with lamp, holders, mains and required switchgears with continuous earth wire erected and dismantled without using scaffolding upto three days.	Each	227	53	280
14-1-8	Providing temporary illumination consisting of metal halide flood light fitting 400 W complete with lamp, holders, mains and required switchgears with continuous earth wire erected and dismantled, with using scaffolding upto three days.	Each	227	65	292
14-1-9	Providing temporary illumination consisting of white/colour series lights 50 nos. with miniature lamps of 6.2 to 16V with required switchgears erected and dismantled with rotor effect as approved without scaffolding upto three days.	Per Thousand	617	315	932
14-1-10	Providing temporary illumination consisting of white/colour series lights 50 nos. with miniature lamps of 6.2 to 16V with required switchgears erected and dismantled with rotor effect as approved with scaffolding upto three days	Per Thousand	617	450	1067
14-1-11	Providing temporary illumination consisting of 2000W sungun or colour tran light fitting complete with stand cutter and strainer along with mains, required switchgears with continuous earth wire erected and dismantled without scaffolding upto three days.	Each	318	113	431
14-1-12	Providing and fixing temporary electronic rotating machine to give running effect to strips lights and miniature lights upto a load of 5000 W either mechanical cum electrical or electronics complete with mains and required switchgears with continuous earth wire and dismantling upto three days.	Each	286	113	399

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
14-1-13	Providing temporary illumination wrapping of coloured gelatin paper to 36/40 W, fluorescent tube light/500 W flood light fitting complete with rubber boards and dismantling upto three days.	Each	6	1	7
14-1-14	Providing temporary oscillating type pedestal air circulators 600/900 mm or air cooler connected with necessary mains, required switchgears with continuous earthing maintaining the same during the function and including dismantling upto three days.	Each	310	11	321
14-1-15	Providing temporary oscillating type pedestal fan 16" (400 mm) or ceiling fan connected with necessary mains, required switchgears with continuous earthing maintaining the same during the function and including dismantling upto three days.	Each	142	11	153
14-1-16	Providing temporary evaporator air cooler connected with necessary mains, required switchgears with continuous earthing maintaining the same during the function and including dismantling upto three days.	Each	345	34	379
14-1-17	Providing temporary heavy duty exhaust fan 18" or 24" connected with necessary mains, required switchgears with continuous earthing maintaining the same during the function and including dismantling for three days.	Each	287	56	343
14-1-18	Providing temporary plug point with 3 pin 6A/16A with necessary mains, required switchgears and continuous earth connection upto three days.	Each	17	13	30
14-1-19	Providing temporary 1.5 Ton capacity window air conditioning unit complete with temporary frame and fabrication work and required material to achieve cooling temperature connected along with necessary mains, required switchgears and continuous earthing maintaining the same during the function and including dismantling for three days.	Each	2673	603	3276
14-1-20	Providing temporary 280 litres capacity refrigerator complete with M.S. stand if necessary connected with mains, switchgear and continuous earthing maintaining the same during the function and including dismantling for three days.	Each	579	113	692
14-1-21	Providing temporary 120/150 liter capacity water cooler with water filter (candle type or UV tube) with M.S. stand complete with minor plumbing work if necessary connected with mains, required switchgears and continuous earthing maintaining the same during the function and including dismantling for three days.	Each	987	450	1437
14-1-22	Providing temporary 20"/24" colour television with multi channel tuner, connected with necessary mains, required switchgears with continuous earthing maintaining the same during the function and including dismantling for three days.	Each	288	73	361
14-1-23	Providing temporary 6V/10V with 20/40 Watt fluorescent emergency lamp connected with necessary mains, required switchgears and continuous earthing maintaining the same during the function and including dismantling for three days.	Each	144	5	149
14-1-24	Providing temporary digital projector with spring loaded white screen connected with necessary mains, required switchgears and maintaining the same during the function including dismantling.	Each	5005	101	5106

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
14-1-25	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 mains, required switchgears erected and dismantled without using scaffolding and maintaining the same upto 3 days	m	7	6	13
14-1-26	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 mains, required switchgears erected and dismantled with using scaffolding and maintaining the same upto 3 days	m	7	8	15
14-1-27	Providing and maintaining temporary 2 Ton capacity split type air conditioning unit complete with temporary stand and fabrication work and required material to achieve cooling temperature connected along with necessary mains, required switchgears and continuous earthing maintaining the same during the function and including dismantling for three days.	Each	4855	769	5624
14-1-28	Providing and maintaining temporary 2 Ton capacity window type air conditioning unit complete with temporary stand and fabrication work and required material to achieve cooling temperature connected along with necessary mains, switchgear and continuous earthing maintaining the same during the function and including dismantling for three days.	Each	3444	603	4047
14-1-29	Providing and maintaining temporary 1.5 Ton capacity split type air conditioning unit complete with temporary stand and fabrication work and required material to achieve cooling temperature connected along with necessary mains, required switchgears and continuous earthing maintaining the same during the function and including dismantling for three day.	Each	4066	769	4835
14-1-30	Providing and maintaining temporary 3.5 Ton capacity tower type air conditioning unit complete with temporary stand and fabrication work and required material to achieve cooling temperature connected along with necessary mains, required switchgears and continuous earthing maintaining the same during the function and including dismantling for three days.	Each	13089	936	14025
14-1-31	Providing and maintaining temporary 4.5 Ton capacity tower type air conditioning unit complete with temporary stand and fabrication work and required material to achieve cooling temperature connected along with necessary mains, required switchgears and continuous earthing, maintaining the same during the function and including dismantling for three days.	Each	14819	936	15755
14-1-32	Providing and maintaining temporary LCD/LED colour T.V. (32" to 42" size) and positioning at site with required cabling as per direction of authority, duly connecting and testing for three days.	Each	916	73	989
14-1-33	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.	Job	5634	1710	7344
14-1-34	Providing and maintaining temporary additional box type speaker of 100 Volt line (100 watts) for one day.	Each	260	56	316
14-1-35	Providing and maintaining temporary cordless (Hand type or lape type) super sensitive HUF microphone (1 no stand by) for one day.	Each	2406	24	2430

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
14-1-36	Providing, maintaining and operating temporary fingertip switcher of 8 ways to operate the public address system between dias and participants in the hall with necessary cabling, wiring etc for one day.	Each	433	1447	1880
14-1-37	Providing and maintaining temporary all in one desktop PC with following configuration Intel TM second generation core i3 G630, 2GB DDR3 RAM, 1TB HARD DISK, DVDR W optical drive 20" LED screen, web camera, wifi, bluetooth, keyboard and mouse, media card reader etc for three days.	Each	919	183	1102
14-1-38	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	257	58	315
14-1-39	Providing and maintaining temporary 1 KVA on line UPS pure sine wave suitable for 30 minutes battery backup to provided computer with necessary interconnecting cabling, wiring etc for three days.	Each	2169	62	2231
14-1-40	Providing and maintaining temporary 700 VA digital pure sine wave Inverter based on IGBT technology suitable for 120 minutes battery backup to electrical installation with necessary interconnecting cabling, wiring etc for one day.	Each	396	79	475
14-1-41	Providing and maintaining temporary 1400 VA to 1600 VA digital pure sine wave Inverter based on IGBT technology suitable for 120 minutes battery backup to electrical installation with necessary interconnecting cabling, wiring etc for one day.	Each	741	96	837
14-1-42	Providing and maintaining temporary 2500 VA digital pure sine wave Inverter based on IGBT technology on hire basis suitable for 120 minutes battery backup to electrical installation with necessary interconnecting cabling, wiring etc for one day.	Each	1571	113	1684
14-1-43	Providing temporary illumination Consisting of LED flood light fitting 100w to 115w Metal Halide Flood light fitting 250watt complete erected with lamp, holders, mains, switchgears with continuous earth wire erected and dismantled without using scaffolding upto three days	Each	864	53	917
14-1-44	Providing temporary illumination Consisting of LED flood light fitting 100w to 115w Metal Halide flood light fitting 250watt complete erected with lamp, holders, mains, switchgears with continuous earth wire erected and dismantled with using scaffolding upto three days	Each	864	65	929
14-1-45	Providing temporary plug point with 3 phase industrial socket having CRCA sheet metal enclosure with 30A, 3 pin plug and earth socket and 30A, 3 pin, plug top with 30A, triple pole MCB, mains, switchgears with continuous earth wire upto three days	Each	97	13	110
14-1-46	Providing temporary 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 upto three days	m	3	16	19
14-1-47	Providing temporary 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 upto three days	m	7	18	25
14-1-48	Providing temporary 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 upto three days	m	9	30	39
14-1-49	Providing temporary 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 upto three days	m	18	36	54
14-1-50	Providing temporary 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 upto three days	m	21	42	63

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
14-1-51	Providing temporary 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 upto three days	m	27	42	69
14-1-52	Providing temporary illumination consisting of water proof LED Par Light, 54 pieces with RGBW controller complete erected with mains, switchgears with continuous earth wire erected and dismantled without using scaffolding upto three days	Each	1114	53	1167
14-1-53	Providing temporary illumination consisting of water proof LED Par Light, 54 pieces with RGBW controller complete erected with mains, switchgears with continuous earth wire erected and dismantled with using scaffolding upto three days	Each	2288	65	2353
14-1-54	Providing temporary illumination consisting of water proof HMI Par Light, 4000 watts complete erected with mains, switchgears with continuous earth wire erected and dismantled without using scaffolding upto three days	Each	4243	113	4356
14-1-55	Providing temporary illumination consisting of water proof HMI Par Light, 4000 watts complete erected with mains, switchgears with continuous earth wire erected and dismantled with using scaffolding upto three days	Each	4412	181	4593
14-1-56	Providing, commissioning and maintaining temporary CCTV system with 8 channel NVR , IP video/audio input - 1 no, IP based 2.0 MP, Full HD, IR IP dome camera - 2 nos, IP based 2.0 MP, Full HD, IR IP PTZ camera - 2 nos, 2TB Hard Disk - 2 no, 32" Full H D professional Display - 1 no, 8 port PoE Switch - 1 no, Power supply unit to camera - 1 no, On Line UPS UPS - 1 no with necessary mains, switchgears on hire basis for one day	Job	8461	2251	10712
14-1-57	Providing, commissioning and maintaining additional IP based 2.0 MP, full HD, IR IP dome camera in existing CCTV system with necessary mains, switchgears on hire basis for one day.	Each	711	181	892
14-1-58	Providing, commissioning and maintaining additional IP based 2.0 MP, Full HD, IR IP PTZ camera in existing CCTV system with necessary mains, switchgears on hire basis for one day.	Each	2098	361	2459
14-1-59	Providing temporary illumination consisting of LED rope Light having 2 to 5 W capacity per meter and consisting suitable power adaptor with mains, switchgears erected and dismantled without using scaffolding and maintaining the same upto 3 days	m	10	6	16
14-1-60	Providing temporary illumination consisting of LED rope light having 2 to 5 W capacity per meter and consisting suitable power adaptor with mains, switchgears erected and dismantled with using scaffolding and maintaining the same upto 3 days	m	10	12	22
14-1-61 (New)	Providing temporary line matching transformer (40-XT) for speakers having distance more than 60 Mtrs from Amplifiers and maintaining the same upto 1 day.	Each	179	12	191
14-1-62 (New)	Providing temporary illumination consisting of flood light fitting 200 W complete LED fitting with lamp , complete required switchgear erected and dismantled without using scaffolding upto three days.	Each	1117	53	1170
14-1-63 (New)	Providing temporary illumination consisting of flood light fitting 200 W complete LED fitting with lamp , complete required switchgear erected and dismantled with using scaffolding upto three days.	Each	1786	65	1851
14-1-64 (New)	Providing temporary illumination consisting of flood light fitting 300 W complete LED fitting with lamp , complete required switchgear erected and dismantled without using scaffolding upto three days.	Each	2256	53	2309

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
14-1-65 (New)	Providing temporary illumination consisting of flood light fitting 300 W complete LED fitting with lamp , complete required switchgear erected and dismantled with using scaffolding upto three days.	Each	2256	65	2321
14-1-66 (New)	Providing and maintaining distribution transformer 11kV / 22 kV on HV side 415 V on LV side up to 63 to 200 kVA Capacity for ten days on hired basis.	Each	18059	0	18059
14-1-67 (New)	Providing and maintaining distribution transformer 11kV / 22 kV on HV side 415 V on LV side up to 250 to 500 kVA Capacity for ten days on hired basis.	Each	26574	0	26574
14-1-68 (New)	Providing and maintaining distribution transformer 11/ 22 kV on HV side 415 V on LV side upto 500 kVA capacity on hired basis subsequent to first ten days after commissioning.	Each	138	0	138
14-1-69 (New)	Erecting 11kV / 22 kV on HV side 415 V on LV side up to 500 kVA capacity hired/provided transformer on existing plinth / DP structure, making connections on HV & LV side in approved manner, carrying out necessary tests before and after charging upto full load to satisfaction.	Each	0	7612	7612

Note:-

- 1) For item no.14.1.1 to 14.1.23 and 14.1.25 to 14.1.26 and 14-1-62 to 14-65 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.
- 2) For each additional day after 3 days but not exceeding 15 days, add 25% per day.
- 3) For additional (ie after for 3+15) days, add 5% per day but total rental charges shall be limited to 80% of full rate of completed item.
- 4) For item no. 14.1.24 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.
- 5) Cartridge refilling is not added in the cost of Item no.14-1-38. Rs300/- shall be added for each cartridge refilling.
- 6) Rate for Item no 14-1-32 to 14-1-36, 14-1-40 to 14-1-42, 14-1-56 to 14-1-58, 14-1-61(new) is for one day only . For next five days the rate shall be reduced by 10% of the first day . From 7th to 15th Days rate shall be reduced by 50% of first day. From 16th to 30th day rates shall be reduced by 75 % of first day

14.2 Hiring of Generators (TE-DG)

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	1627	873	2500
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	3872	1028	4900
14-2-3	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 11 to 25 kVA (excluding 25 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	6406	1184	7590
14-2-4	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 25 to 40 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	7063	1339	8402

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
14-2-5	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 50/62.5 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	9686	1339	11025
14-2-6	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 75 to 100 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	12334	1339	13673
14-2-7	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 125 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	17760	1339	19099
14-2-8	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 250 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	33551	1437	34988
14-2-9	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 320 kVA capacity with necessary fuel, mains, switchgears and accessories complete with continuous running on load/no load as per requirements with necessary certificate from Electrical Inspector.	Per Day	43085	1437	44522
14-2-10	Hiring charges for supplying and maintaining temporary 415V, 50 cycles AC generating set 500 kVA capacity with necessary fuel, mains, switchgears and accessories complete with continuous running on load/no load as per requirements with necessary certificate from Electrical Inspector.	Per Day	59498	1437	60935
Note:-	<p>1) Above rates are applicable for first day. For subsequent five days, the above rate shall be reduced by 10%</p> <p>2) The above rates are inclusive of transportation.</p> <p>3) The above note does not include preparatory and testing period, and no additional amount shall be paid for that.</p> <p>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.</p> <p>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 D G Set. (Fuel payment shall be made on the basis of actual consumption and invoice produced by Contractor.</p>				

Chapter: 15
Siren (SRN)

- 15.1 Siren** **SRN-SRN**
- 15.2 Accessories for Siren**
- 15.3 Dismantling**

Chapter 15 : SIREN (SRN)

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
<u>15.1 Siren</u>					
15-1-1	SITC of 220/250 Volts, single phase, 50 Hz Siren of 3.25 km range, Horizontal double mounting type of 1/2 HP 6000 RPM on C. C. foundation complete as per specification no. SRN-AS/SM	Each	11074	858	11932
15-1-2	SITC of 415 Volts, 3 phase, 50 Hz Siren of 8 km range, horizontal double mounting type of 5 H.P. 2800 RPM on C.C. foundation complete as per specification no. SRN-AS/SM	Each	61514	1115	62629
15-1-3	Re-erecting the siren motor duly lifting at site and connected with assembly of existing siren by proper alignment, testing and giving test trial as per the required standard.	Each	0	558	558
Note :- Functional requirements for electric motor sirens (second revision)					
<u>15.2 Accessories for Siren</u>					
15-2-1	Scrapping the existing paint of outer surface of weather shade for siren, cleaning the surface and applying two coats of anticorrosive epoxy air dry paint of approved colour mixed in special type thinner complete as per specification no. SRN-AS/PTG	Each	802	256	1058
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.	Each	401	300	701
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	1027	300	1327
15-2-4	Supplying and fixing superior quality metal elastic anti vibration rubber mounting pad to siren.	Each	606	37	643
15-2-5	Replacing the existing unserviceable worn-out bearing for heavy duty siren motor.	Each	626	150	776
<u>15.3 Dismantling</u>					
15-3-1	Transportation of siren motor from site to workshop and back to the site. (For Municipal Corporation Area Only)	Per Km	0	48	48
15-3-2	Dismantling the existing Siren motor from the existing location, lowering from terrace to ground, loading and unloading.	Each	0	580	580

Above items are conforming to relevant IS as mentioned below:-

IS 1941 (Part I) : 1976 - Functional requirements for electric motor sirens, Part 1: ac 3 phase 50 hz, 415 volts type

Chapter: 16
Civil Work (CW)

16.1	Excavation	(CW-EXN)
16.2	Masonry Work	
16.3	CC Foundation	
16.4	Painting	(CW-PTG)
16.5	Plumbing	(CW-PLB)
16.6	Plumbing Accessories	

Chapter 16 : CIVIL WORKS

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
<u>16.1 Excavation (CW-EXN)</u>					
16-1-1	Making trench of suitable width and depth in soft soil for laying provided LT cable up to and including 16 sq.mm complete as per specification no. CW-EXN-CTR	m	41	97	138
16-1-2	Making trench of suitable width and depth in hard murum / tar road for laying provided LT cable up to and including 16 sq. mm complete as per specification no. CW-EXN-CTR	m	41	129	170
16-1-3	Making trench of suitable width and depth in hard murum / tar road for laying provided LT cable of 16 sq. mm & above and covered with half round hume pipe complete as per specification no. CW-EXN-CTR	m	121	129	250
16-1-4	Making trench of suitable width and depth in soft soil for laying provided LT cable of 16 sq. mm & above and covered with half round hume pipe complete as per specification no. CW-EXNCTR	m	121	97	218
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.	m ³	0	903	903
16-1-6	Excavating hard murum / 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.	m ³	0	226	226
16-1-7	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.	m ³	0	193	193
Note:-	1) For laying additional cable in same trench add Rs. 45/- 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. Total rate shall be increased by Rs. 48/- per meter.				
<u>16.2 Masonry Work</u>					
16-2-1	Making burnt brick masonry with 1:6 ratio cement concrete duly plastered including watering, streaking joint on exposed faces, rocking at joint on exposed faces and watering complete.	m ³	3630	1094	4724
16-2-2	Supplying & arranging burnt cured bricks properly for various purposes (size 9"x4.25"x3") at work for 100 bricks complete.	Job	510	64	574
16-2-3	Supplying and spreading stone metal 25 mm size for 100 mm depth above the ground level complete.	m ²	75	16	91
16-2-4 (New)	Supplying and erecting RCC chamber cover with frame 60cmx 45cm medium duty 100kg with lifting arrangement including laying of angle iron frame of angle size as 50 x 50 x6 mm to be fixed / embedded on top of chamber complete.	Each	2345	149	2494
<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 150 mm. thick M- 10 PCC at the bottom and top and 250 mm. thick, burnt brick wall constructed at periphery and remaining hollow portion shall be filled with 40mm hard broken aggregate. External surface duly plastered by 12 mm thick including watering etc complete.	Each	7996	4987	12983
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. 820/- for every 100 mm.				

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
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 / 45 cm dia. x 45 cm height plinth duly plastered, with necessary curing and finishing complete. (for 6 m pole)	Each	947	215	1162
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 / 45 cm dia. x 45 cm height plinth duly plastered, with necessary curing and finishing complete. (above 6 m to 9 m poles)	Each	1610	215	1825
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, 45 cm x 45 cm x 45 cm / 45 cm dia. x 45 cm. height plinth duly plastered, with necessary curing and finishing complete. (for above 9 m poles)	Each	1742	215	1957
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).	m ³	3698	787	4485
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	1193	322	1515
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).	m ³	2309	749	3058
16-3-8	Making M- 20 grade reinforced cement concrete foundation by considering the safe soil bearing capacity as 10 T/sq.m at 1.5 m 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	2144	583	2727
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 1.5 m 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	2384	885	3269
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 1.5 m 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	3180	1172	4352
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 1.5 m 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	4308	1770	6078
16-3-12	Making M- 20 cement concrete foundation by considering the safe soil bearing capacity at site as 10 T/sq. m at 2 m depth including excavation and fixing provided nut bolts with the help of template, duly plastered as per design complete (for 12.5 m raising lowering high mast).	Each	11118	10994	22112
16-3-13	Making M- 20 cement concrete foundation by considering the safe soil bearing capacity at site as 10 T/sq. m at 2 m depth including excavation and fixing provided nut bolts with the help of template, duly plastered as per design complete (for 16 m raising lowering high mast).	Each	14596	12143	26739

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
16-3-14	Making M- 20 cement concrete foundation by considering the safe soil bearing capacity at site as 10 T/sq. m at 2 m depth including excavation and fixing provided nut bolts with the help of template, duly plastered as per design complete (for 20 m raising lowering high mast) .	Each	18729	14043	32772
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 2 m depth including excavation and fixing provided nut bolts with the help of template, duly plastered as per design complete (for 25 m high mast) .	Each	21354	16717	38071
<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. Specification no. CW-PTG/PTF .	Each	57	64	121
16-4-2	Painting of pipe pole upto 6 m length along with street light / pole brackets / clamps etc by scrapping the existing paint complete. Specification no CW -PTG/PTP .	m	21	32	53
16-4-3	Painting of steel tubular / rail / RSJ pole above 6.0 m length along with street light pole brackets, clamps etc by scrapping the existing paint complete. Specification no CW -PTG/PTP .	m	24	48	72
16-4-4	Spray painting of fluorescent fitting with flat reflector for 1x4' FTL by scrapping existing paint complete. Specification no. CWPTG/ PFT .	Each	25	48	73
16-4-5	Spray painting of fluorescent fitting with flat reflector for 2x4' FTL by scrapping existing paint complete. Specification no. CWPTG/ PFT .	Each	33	48	81
16-4-6	Spray painting of panel type lift doors of MS complete. Specification no. CW-PTG/PLD1 .	Each	389	412	801
16-4-7	Painting lift door of collapsible type complete. Specification no. CW-PTG/PLD2 .	Each	306	343	649
16-4-8	Spray painting of distribution transformer upto 200 kVA capacity complete. Specification no. CW-PTG/PDT .	Job	1249	961	2210
16-4-9	Spray painting of distribution transformer above 200 kVA capacity complete. Specification no. CW-PTG/PDT .	Job	1967	1099	3066
16-4-10	Painting fencing of transformer substation including all supports, iron work and doors from both sides by scrapping existing paint, with one coat of red oxide & two coats of aluminium paint complete.	m ²	68	32	100
16-4-11	Painting of feeder pillar / switchgears and frame of panel board with single coat of red oxide & two coats of approved quality enamel paint by scrapping existing paint painting the same complete. (while calculating square meter area, area of angle iron frame on which the switchgears are erected shall be considered if required)	m ²	156	69	225
16-4-12	Powder coating of approved colour shade on both sides of provided iron work / MS / CRCA sheet steel work complete including anti-rust treatment in an approved manner.	m ²	205	137	342
16-4-13	Epoxy painting on both side of approved colour shade of provided iron work / MS / CRCA sheet steel work complete along with anti-rust treatment in an approved manner.	m ²	388	92	480
16-4-14	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	1	6	7
16-4-15	Scrapping existing paint & spray painting of industrial type fluorescent fitting with flat reflector for 2x4' FTL completely as per specification no. CW-PTG/PFT .	Each	50	43	93

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
Note:-	For item no. 16-4-10, 16-4-11 if painting is to be done from both sides, double the rate per sq.m for both sides of painting.				
	<u>16.5 Plumbing (CW-PLB)</u>				
16-5-1	Supplying and erecting ISI mark GI pipe 15 mm dia. 'B' class at position with accessories complete. Specification no. CW-PLB/GP.	m	159	37	196
16-5-2	Supplying and erecting ISI mark GI pipe 20 mm dia. 'B' class at position with accessories complete. Specification no. CW-PLB/GP.	m	198	37	235
16-5-3	Supplying and erecting ISI mark GI pipe 25 mm. dia. 'B' class at position with accessories complete. Specification no. CW-PLB/GP.	m	286	50	336
16-5-4	Supplying and erecting ISI mark GI pipe 32 mm dia. 'B' class at position with accessories complete. Specification no. CW-PLB/GP.	m	352	50	402
16-5-5	Supplying and erecting ISI mark GI pipe 40 mm. dia. 'B' class at position with accessories complete. Specification no. CW-PLB/GP.	m	414	62	476
16-5-6	Supplying and erecting ISI mark GI pipe 50 mm dia. 'B' class at position with accessories complete. Specification no. CW-PLB/GP.	m	572	62	634
16-5-7	Supplying and erecting ISI mark GI pipe 65 mm. dia. 'B' class at position with accessories complete. Specification no. CW-PLB/GP.	m	725	80	805
16-5-8	Supplying and erecting ISI mark GI pipe 75/80 mm dia. 'B' class at position with accessories complete. Specification no. CW-PLB/GP.	m	931	100	1031
16-5-9	Supplying and erecting ISI mark GI pipe 100 mm dia. 'B' class at position with accessories complete. Specification no. CW-PLB/GP.	m	1328	112	1440
16-5-10	Supplying and erecting ISI mark GI pipe 32 mm. dia 'C' class at position with accessories complete. Specification no. CW-PLB/GP.	m	428	50	478
16-5-11	Supplying and erecting ISI mark GI pipe 40 mm. dia 'C' class at position with accessories complete. Specification no. CW-PLB/GP.	m	494	62	556
16-5-12	Supplying and erecting ISI mark GI pipe 50 mm. dia 'C' class position with accessories complete. Specification no. CW-PLB/GP.	m	685	62	747
16-5-13	Supplying and erecting ISI mark GI pipe 65 mm. dia 'C' class position with accessories complete. Specification no. CW-PLB/GP.	m	863	80	943
16-5-14	Supplying and erecting ISI mark GI pipe 75/80 mm dia 'C' class position with accessories complete. Specification no. CW-PLB/GP.	m	1078	100	1178
16-5-15	Supplying and erecting ISI mark GI pipe 100 mm dia 'C' class position with accessories complete. Specification no. CW-PLB/GP.	m	1547	112	1659
16-5-16	Supplying and erecting high density polythene pipe ISI mark 32 mm dia. suitable for pressure of 6 kg/cm2 connected to jet/submersible pump with required material complete.	m	42	25	67
16-5-17	Supplying and erecting high density polythene pipe ISI mark 40 mm dia. suitable for pressure of 6 kg/cm2 connected to jet/submersible pump with required material complete.	m	76	25	101

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
16-5-18	Supplying and erecting high density polythene pipe ISI mark 50 mm. dia. suitable for pressure of 6 kg. / cm2 connected to jet/submersible pump with required material complete.	m	101	25	126
<u>16.6 Plumbing Accessories</u>					
16-6-1	Supplying and erecting 25 mm dia. gun metal foot valve position with necessary materials complete.	Each	317	75	392
16-6-2	Supplying and erecting 40 mm dia. gun metal foot valve at position with necessary materials complete.	Each	680	75	755
16-6-3	Supplying and erecting 50 mm dia. gun metal foot valve at position with necessary materials complete.	Each	886	100	986
16-6-4	Supplying and erecting 65 mm dia. gun metal foot valve at position with necessary materials complete.	Each	1712	100	1812
16-6-5	Supplying and erecting 75/80 mm dia. gun metal foot valve at position with necessary materials complete.	Each	2257	125	2382
16-6-6	Supplying and erecting 100 mm dia. gun metal foot valve at position with necessary materials complete.	Each	3532	125	3657
16-6-7	Supplying and erecting 25 mm dia. cast iron foot valve at position with necessary materials complete.	Each	203	75	278
16-6-8	Supplying and erecting 40 mm dia. cast iron foot valve at position with necessary materials complete.	Each	381	75	456
16-6-9	Supplying and erecting 50 mm dia. cast iron foot valve at position with necessary materials complete.	Each	470	100	570
16-6-10	Supplying and erecting 65 mm dia. cast iron foot valve at position with necessary materials complete.	Each	819	100	919
16-6-11	Supplying and erecting 75/80 mm dia. cast iron foot valve at position with necessary materials complete.	Each	1221	125	1346
16-6-12	Supplying and erecting 100 mm dia. cast iron foot valve at position with necessary materials complete.	Each	2668	125	2793
16-6-13	Supplying and erecting 25 mm dia. gun metal sluice valve at position with necessary materials complete.	Each	711	75	786
16-6-14	Supplying and erecting 40 mm. dia. gun metal sluice valve at position with necessary materials complete.	Each	1436	75	1511
16-6-15	Supplying and erecting 50 mm dia. gun metal sluice valve at position with necessary materials complete.	Each	2066	100	2166
16-6-16	Supplying and erecting 65 mm dia. gun metal sluice valve at position with necessary materials complete.	Each	3933	100	4033
16-6-17	Supplying and erecting 75/80 mm dia. gun metal sluice valve at position with necessary materials complete.	Each	5559	125	5684
16-6-18	Supplying and erecting 100 mm dia. gun metal sluice valve at position with necessary materials complete.	Each	10910	125	11035
16-6-19	Supplying and erecting non return valve 25 mm dia in position made of gun metal complete.	Each	424	75	499
16-6-20	Supplying and erecting non return valve 40 mm dia in position made of gun metal complete.	Each	859	87	946
16-6-21	Supplying and erecting non return valve 50 mm dia in position made of gun metal complete.	Each	1282	100	1382
16-6-22	Supplying and erecting non return valve 65 mm dia in position made of gun metal complete.	Each	3018	100	3118
16-6-23	Supplying and erecting non return valve 75/80 mm dia in position made of gun metal complete.	Each	3925	125	4050
16-6-24	Supplying and erecting non return valve 100 mm dia in position made of gun metal complete.	Each	7490	125	7615
16-6-25	Supplying and erecting CI flange 25 mm dia with necessary nuts bolts and washers with rubber seal in position complete.	Each	117	25	142

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
16-6-26	Supplying and erecting CI flange 40 mm dia with necessary nuts bolts and washers with rubber seal in position complete.	Each	126	25	151
16-6-27	Supplying and erecting CI flange 50 mm. dia with necessary nuts bolts and washers with rubber seal in position complete.	Each	143	37	180
16-6-28	Supplying and erecting CI flange 65 mm. dia with necessary nuts bolts and washers with rubber seal in position complete.	Each	190	37	227
16-6-29	Supplying and erecting CI flange 75/80 mm. dia with necessary nuts bolts and washers with rubber seal in position complete.	Each	343	42	385
16-6-30	Supplying and erecting CI flange 100 mm. dia with necessary nuts bolts and washers with rubber seal in position complete.	Each	362	42	404
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	607	61	668
16-6-32	Supplying and erecting 40 mm dia. ball type foot valve having CI body lined with FRP from inside and synthetic rubber coated reinforced, nitrile rubber ball, leaded fin bronze, FRP sheet, carbon steel fasteners, CI./MS strainer complete.	Each	1007	100	1107
16-6-33	Supplying and erecting 50 mm dia. ball type foot valve having CI body lined with FRP from inside and synthetic rubber coated reinforced, nitrile rubber ball, leaded fin bronze, FRP sheet, carbon steel fasteners, CI/MS strainer complete.	Each	1468	100	1568
16-6-34	Supplying and erecting 65 mm dia. ball type foot valve having CI body lined with FRP from inside and synthetic rubber coated reinforced, nitrile rubber ball, leaded fin bronze, FRP sheet, carbon steel fasteners, CI/MS strainer complete.	Each	2166	100	2266

Note:- For ball type foot valve above 65 mm refer chapter 13-7

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

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

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

National Electric Code (NEC)

Chapter: 17

Lift

- 17.1 New Installation**
- 17.2 Lift Repair/Modernization**
- 17.3 Dismantling**

Chapter No : 17 LIFTS (LFT)

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
17-1 New Installation					
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 Doors type :- COPO/TOPO Doors with frame having clear opening of 700/800 mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. 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 Clear Car size ofmm wide xmm deep xmm high 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 Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. Lift Machine of Gearless PMSM of suitable kW 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, 	Job	955497	169127	1124624

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT.				
	<ul style="list-style-type: none"> Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. 				
17-1-2	<p>SITC of Electric Traction Passenger Lift with</p> <ul style="list-style-type: none"> 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 Doors type :- COPO/TOPO Doors with frame having clear opening of 800 mm wide x 2000mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. 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 Clear Car size ofmm wide xmm deep xmm high 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 Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. Lift Machine of Gearless PMSM of suitable kW 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 	Job	979384	173164	1152548

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	<ul style="list-style-type: none"> Minor civil work for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm overhead. 				
17-1-3	<p>SITC of Electric Traction Passenger Lift with</p> <ul style="list-style-type: none"> 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 Doors type :- COPO/TOPO Doors with frame having clear opening of 800 mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. 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 Clear Car size ofmm wide xmm deep xmm high 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 Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. Lift Machine of Gearless PMSM of suitable kW 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 	Job	1068647	177713	1246360

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
	support arrangement, MS pit ladder etc. erected with necessary steel work				
	<ul style="list-style-type: none"> Minor civil work for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. Lift shaft available having clear size ofmm wide xmm deep.mm Pit depth,mm Overhead. 				
17-1-4	<p>SITC of Electric Traction Passenger Lift with</p> <ul style="list-style-type: none"> 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 Doors type :- COPO/TOPO Doors with frame having clear opening of 800 mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. 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 Clear Car size ofmm wide xmm deep xmm high 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 Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. Lift Machine of Gearless PMSM of suitable kW 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 	Job	1271313	219603	1490916

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	<p>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</p> <ul style="list-style-type: none"> Minor civil work for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. Lift shaft available having clear size ofmm wide xmm deep ,mm Pit depth ,mm Overhead. 				
17-1-5	<p>SITC of Electric Traction Passenger Lift with</p> <ul style="list-style-type: none"> 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 Doors type :- COPO/TOPO Doors with frame having clear opening of 900/1000 mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/ frames Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. 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 Clear Car size ofmm wide xmm deep xmm high 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 Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. Lift Machine of Gearless PMSM of suitable kW with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls 	Job	1363343	228414	1591757

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
	complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength				
	<ul style="list-style-type: none"> 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. 				
17-1-6	<p>SITC of Electric Traction Passenger Lift with</p> <ul style="list-style-type: none"> 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 Doors type :- COPO/TOPO Doors with frame having clear opening of 900 mm wide x 2000mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. 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 Clear Car size ofmm wide xmm deep xmm high 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 Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. Lift Machine of Gearless PMSM of suitable kW with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted 	Job	1496614	260402	1757016

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
	<p>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</p> <ul style="list-style-type: none"> 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. 				
17-1-7	<p>SITC of Electric Traction Passenger cum Stretcher/Hospital Lift with</p> <ul style="list-style-type: none"> 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 Doors type :- COPO/TOPO Doors with frame having clear opening of 800/900/1000 mm wide x 2000mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves /frames Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. 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 Clear Car size ofmm wide xmm deep xmm high 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 Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 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 	Job	1595934	269981	1865915

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
	<p>with NVR kept in LMR/FCC with HDR data backup for 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.</p> <ul style="list-style-type: none"> Lift Machine of Gearless PMSM of suitable kW 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. 				
17-1-8	<p>SITC of Electric Traction Passenger Lift with</p> <ul style="list-style-type: none"> 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 Doors type :- COPO/TOPO Doors with frame having clear opening of 1000mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. 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 Clear Car size ofmm wide xmm deep xmm high 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 Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 Fireman controller having fireman switch at fire Landing, CCTV surveillance system comprises of 2nos minimum 2.0MP 	Job	1639938	272496	1912434

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	<p>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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.</p> <ul style="list-style-type: none"> Lift Machine of Gearless PMSM of suitable kW 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT.. Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. 				
17-1-9	<p>SITC of Electric Traction Passenger Lift with</p> <ul style="list-style-type: none"> 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 Doors type :- COPO/TOPO Doors with frame having clear opening of 1100 mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. 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 Clear Car size ofmm wide xmm deep xmm high 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 Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 	Job	1744291	276687	2020978

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
	<ul style="list-style-type: none"> 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. Lift Machine of Gearless PMSM of suitable kW 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. Lift shaft available having clear size ofmm wide xmm deep, mm Pit depth,mm Overhead. 				
17-1-10	<p>SITC of Electric Traction Passenger cum Stretcher/Hospital Lift with</p> <ul style="list-style-type: none"> 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 Doors type :- COPO/TOPO Doors with frame having clear opening of 1100/1200 mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. 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 Clear Car size ofmm wide xmm deep xmm high 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 Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 	Job	1939163	285911	2225074

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	<p>panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class</p> <ul style="list-style-type: none"> • ARD complete with necessary SMF VRLA batteries • 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. • Lift Machine of Gearless PMSM of suitable kW 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. • Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. 				
17-1-11	<p>SITC of Electric Traction Passenger Lift with</p> <ul style="list-style-type: none"> • Rated capacity :- 22 Passenger/1496Kg • Floors :- G+1 floor (2Stops/2 Landings) • Travel :- 3 to 4.2 mtrs • Location of Lift Machine:- MR/MRL • Rated speed :- 1.0mps VS • Doors type :- COPO/TOPO Doors with frame having clear opening of 1100 mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames • Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. • 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 • Clear Car size ofmm wide xmm deep xmm high • 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 • Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, control panel duly wired with proper size & 	Job	1992974	289623	2282597

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	<p>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</p> <ul style="list-style-type: none"> • ARD complete with necessary SMF VRLA batteries • 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. • Lift Machine of Gearless PMSM of suitable kW 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. • Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. 				
17-1-12	<p>SITC of Electric Traction Stretcher/Hospital Lift with</p> <ul style="list-style-type: none"> • Rated capacity :- 23 Passenger/1564Kg • Floors :- G+1 floor (2Stops/2 Landings) • Travel :- 3 to 4.2 mtrs • Location of Lift Machine:- MRL • Rated speed :- 1.0mps VS • Doors type :- COPO/TOPO Doors with frame having clear opening of 1300 mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames • Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. • 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 • Clear Car size ofmm wide xmm deep xmm high • 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 • Lift controller based on microprocessor/ PLC with VVVF Drive 	Job	2052317	290700	2343017

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	<p>having closed loop control system, with IBMS compatible having necessary port, 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</p> <ul style="list-style-type: none"> • ARD complete with necessary SMF VRLA batteries • 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. • Lift Machine of Gearless PMSM of suitable kW 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. • Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. 				
17-1-13	<p>SITC of Electric Traction Passenger cum Stretcher/Hospital Lift with</p> <ul style="list-style-type: none"> • Rated capacity :- 26 Passenger/1768Kg • Floors :- G+1 floor (2Stops/2 Landings) • Travel :- 3 to 4.2 mtrs • Location of Lift Machine:- MR/MRL [applicable for Passenger Lift with MR & MRL & Stretcher/Hospital Lift with MR only] • Rated speed :- 1.0mps VS • Doors type :- COPO/TOPO Doors with frame having clear opening of 1100/1200 mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames • Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. • 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 • Clear Car size ofmm wide xmm deep xmm high • LOP with SS face plate having recess/surface push button box 	Job	2131522	303517	2435039

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
	<p>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</p> <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, 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 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. Lift Machine of Gearless PMSM of suitable kW 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. 				
17-1-14	<p>SITC of Electric Traction Passenger cum Stretcher/Hospital Lift with</p> <ul style="list-style-type: none"> Rated capacity :- 29 Passenger/1972Kg Floors :- G+1 floor (2Stops/2 Landings) Travel :- 3 to 4.2 mtrs Location of Lift Machine:- MR/MRL Rated speed :- 1.0mps VS Doors type :- COPO/TOPO Doors with frame having clear opening of 1200/1300/1400 mm wide x 2000mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. 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 	Job	2269820	310284	2580104

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
	<ul style="list-style-type: none"> Clear Car size ofmm wide xmm deep xmm high 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 Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. Lift Machine of Gearless PMSM of suitable kW 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. 				
17-1-15	SITC of Electric Traction Stretcher/Hospital Lift with <ul style="list-style-type: none"> Rated capacity :- 36 Passenger/2448Kg Floors :- G+1 floor (2Stops/2 Landings) Travel :- 3 to 4.2 mtrs Location of Lift Machine:- MR Rated speed :- 1.0mps VS Doors type :- COPPO/TOPO Doors with frame having clear opening of 1400mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. 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 	Job	2570928	320945	2891873

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
	<p>with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor</p> <ul style="list-style-type: none"> • Clear Car size ofmm wide xmm deep xmm high • 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 • Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 • 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. • Lift Machine of Gearless PMSM of suitable kW 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. • Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. 				
17-1-16	<p>SITC of Electric Traction Goods Lift with</p> <ul style="list-style-type: none"> • Rated capacity :- 3000Kg Goods/44 Passengers • Floors :- G+1 floor (2Stops/2 Landings) • Travel :- 3 to 4.2 mtrs • Location of Lift Machine:- MR • Rated speed :- 0.6 to 1.0mps VS • Doors type :- COPO/TOPO Doors with frame having clear opening of 1700 mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames • Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. • COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling 	Job	2624614	331367	2955981

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
	<p>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</p> <ul style="list-style-type: none"> • Clear Car size ofmm wide xmm deep xmm high • 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 • Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 • 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. • Lift Machine of Gearless PMSM of suitable kW 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. • Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. 				
17-1-17	<p>SITC of Electric Traction Goods Lift with</p> <ul style="list-style-type: none"> • Rated capacity :- 4000Kg Goods /59 Passengers • Floors :- G+1 floor (2Stops/2 Landings) • Travel :- 3 to 4.2 mtrs • Location of Lift Machine:- MR • Rated speed :- 0.6 to 1.0mps VS • Doors type :- COPO/TOPO Doors with frame having clear opening of 2100 mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames • Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. 	Job	2931740	341729	3273469

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
	<ul style="list-style-type: none"> 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 Clear Car size ofmm wide xmm deep xmm high 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 Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. Lift Machine of Gearless PMSM of suitable kW 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. 				
17-1-18	SITC of Electric Traction Goods Lift with <ul style="list-style-type: none"> Rated capacity :- 5000Kg Goods/73 Passengers. Floors :- G+1 floor (2Stops/2 Landings) Travel :- 3 to 4.2 mtrs Location of Lift Machine:- MR Rated speed :- 0.6 to 1.0mps VS Doors type :- COPO/TOPO Doors with frame having clear opening of 2100 mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames Lift car enclosure made from SS 304 grade 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 adequate LED lights, 	Job	3138573	347176	3485749

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
	<p>blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc.</p> <ul style="list-style-type: none"> 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 Clear Car size ofmm wide xmm deep xmm high 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 Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. Lift Machine of Gearless PMSM of suitable kW 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. 				
17-1-19	<p>SITC of Electric Traction Goods Lift with</p> <ul style="list-style-type: none"> Rated capacity :- 3000Kg Goods/44 Passengers Floors :- G+1 floor (2Stops/2 Landings) Travel :- 3 to 4.2 mtrs Location of Lift Machine:- MRL Rated speed :- 1.0mps VS Doors type :- COPO/TOPO Doors with frame having clear opening of 1800mm wide x 2000mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames Lift car enclosure made from SS 304 grade sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of 	Job	2654791	369198	3023989

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
	<p>adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc.</p> <ul style="list-style-type: none"> 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 Clear Car size ofmm wide xmm deep xmm high 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 Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. Lift Machine of Gearless PMSM of suitable kW 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. 				
17-1-20	<p>SITC of Electric Traction Goods Lift with</p> <ul style="list-style-type: none"> Rated capacity :- 4000Kg Goods/59 Passengers. Floors :- G+1 floor (2Stops/2 Landings) Travel :- 3 to 4.2 mtrs Location of Lift Machine:- MRL Rated speed :- 1.0mps VS Doors type :- COPO/TOPO Doors with frame having clear opening of .1800mm wide x 2000mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames 	Job	2944207	376563	3320770

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
	<ul style="list-style-type: none"> Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. 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 Clear Car size ofmm wide xmm deep xmm high 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 Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. Lift Machine of Gearless PMSM of suitable kW 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead. 				
17-1-21	SITC of Electric Traction Goods Lift with <ul style="list-style-type: none"> Rated capacity :- 5000Kg Goods/73 Passengers. Floors :- G+1 floor (2Stops/2 Landings) Travel :- 3 to 4.2 mtrs Location of Lift Machine:- MRL Rated speed :- 1.0mps VS Doors type :- COPO/TOPO Doors with frame having clear opening of 2200 mm wide x 2000 mm high made from SS 	Job	3176294	385603	3561897

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	<p>304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames</p> <ul style="list-style-type: none"> Lift car enclosure made from SS 304 grade 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 adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. 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 Clear Car size ofmm wide xmm deep xmm high 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 Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, 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 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 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge. Lift Machine of Gearless PMSM of suitable kW 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 for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. Lift shaft available having clear size ofmm wide xmm deep, mm Pit depth,mm Overhead. 				
A	Add On For Lift travelling up to six floors 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 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,	Floor	139292	14417	153709

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	travelling cables, main hoisting ropes/belts, & OSG rope landing doors with all accessories etc. necessary for the normal safe functioning of lift installation complete				
2	For Lift having 800mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade 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	143547	14774	158321
3	For Lift having 900mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade 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	148496	15368	163864
4	For Lift having 1000mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade 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	152817	15963	168780
5	For Lift having 1100mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade 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	156702	17152	173854
6	For Lift having 1200mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade 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	161588	18341	179929
7	For Lift having 1300mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Two/four 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	165937	19530	185467
8	For Lift having 1400mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Two/four 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	170387	20719	191106
9	For Lift having 1500mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Four 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	178747	21907	200654
10	For Lift having 1700mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Four panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows-	Floor	186212	24285	210497

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	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				
11	For Lift having 1800mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Four 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	195681	25475	221156
12	For Lift having 2100mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Six 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	211942	29041	240983
13	For Lift having 2200mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Six 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	217912	31420	249332
A1	For Lift travelling above six floors & up to fifteen floors 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 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	145771	14851	160622
2	For Lift having 800mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade 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	150245	15219	165464
3	For Lift having 900mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade 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	155429	15825	171254
4	For Lift having 1000mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade 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	159916	16456	176372
5	For Lift having 1100mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade 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	163991	17670	181661

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	functioning of lift installation complete				
6	For Lift having 1200mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade 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	169138	18894	188032
7	For Lift having 1300mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Two/four 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	173550	20119	193669
8	For Lift having 1400mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Two/four 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	178173	21343	199516
9	For Lift having 1500mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Four 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	186896	22568	209464
10	For Lift having 1700mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Four 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	194908	25017	219925
11	For Lift having 1800mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Four 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	204715	26241	230956
12	For Lift having 2100mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Six 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	221785	29879	251664
13	For Lift having 2200mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Six 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	228141	32377	260518
A2	For Lift travelling above fifteen floors & up to twenty floors 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 landing door [Two panel], this includes all	Floor	154679	15683	170362

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	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.				
2	For Lift having 900mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade 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	160037	16302	176339
3	For Lift having 1000mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade 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	164649	16908	181557
4	For Lift having 1100mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade 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	168825	18192	187017
5	For Lift having 1200mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade 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	174058	19452	193510
6	For Lift having 1300mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Two/four 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	178668	20713	199381
7	For Lift having 1400mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Two/four 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	183467	21973	205440
8	For Lift having 1500mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Four 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	192439	23222	215661
9	For Lift having 1700mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Four 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	200725	25754	226479
10	For Lift having 1800mm wide x 2000mm high clear entrance in	Floor	210819	27026	237845

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	1.5mm thick SS 304 grade landing door [Four 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.				
11	For Lift having 2100mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Six 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	228449	30784	259233
12	For Lift having 2200mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Six 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	234605	33339	267944
B	If there is additional automatic car door, add as below.				
1	For Lift car having 700mm wide x 2000mm high clear entrance having 1.5mm thick SS 304 grade sheet car door [Two panel] complete with required accessories like door operator mechanism with drive, required aluminium sill, infrared curtain & necessary wiring with interlocking arrangement etc. complete.	Set	118916	8322	127238
2	For Lift car having 800mm wide x 2000mm high clear entrance having 1.5mm thick SS 304 grade sheet car door [Two panel] complete with required accessories like door operator mechanism with drive, required Aluminium sill, infrared curtain & necessary wiring with interlocking arrangement etc. complete.	Set	122483	8681	131164
3	For Lift car having 900mm wide x 2000mm high clear entrance having 1.5mm thick SS 304 grade sheet car door [Two panel] complete with required accessories like door operator mechanism with drive, required aluminium sill, infrared curtain & necessary wiring with interlocking arrangement etc. complete.	Set	126769	9041	135810
4	For Lift car having 1000mm wide x 2000mm high clear entrance having 1.5mm thick SS 304 grade sheet car door [Two panel] complete with required accessories like door operator mechanism with drive, required aluminium sill, infrared curtain & necessary wiring with interlocking arrangement etc. complete.	Set	130573	9647	140220
5	For Lift car having 1100mm wide x 2000mm high clear entrance having 1.5mm thick SS 304 grade sheet car door [Two panel] complete with required accessories like door operator mechanism with drive, required aluminium sill, infrared curtain & necessary wiring with interlocking arrangement etc. complete.	Set	134490	10007	144497
6	For Lift car having 1200mm wide x 2000mm high clear entrance having 1.5mm thick SS 304 grade sheet car door [Two panel] complete with required accessories like door operator mechanism with drive, required aluminium sill, infrared curtain & necessary wiring with interlocking arrangement etc. complete.	Set	139197	10487	149684
7	For Lift car having 1300mm wide x 2000mm high clear entrance having 1.5mm thick SS 304 grade sheet car door [Two/four panel] complete with required accessories like door operator mechanism with drive, required aluminium sill, infrared curtain & necessary wiring with interlocking arrangement etc. complete.	Set	143373	11029	154402
8	For Lift car having 1400mm wide x 2000mm high clear entrance having 1.5mm thick SS 304 grade sheet car door [Two/four panel] complete with required accessories like door operator mechanism with drive, required aluminium sill, infrared curtain & necessary wiring	Set	147674	11388	159062

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
9	with interlocking arrangement etc. complete. For Lift car having 1500mm wide x 2000mm high clear entrance having 1.5mm thick SS 304 grade sheet car door [four panel] complete with required accessories like door operator mechanism with drive, required aluminium sill, infrared curtain & necessary wiring with interlocking arrangement etc. complete.	Set	155058	11867	166925
10	For Lift car having 1700mm wide x 2000mm high clear entrance having 1.5mm thick SS 304 grade sheet car door [four panel] complete with required accessories like door operator mechanism with drive, required aluminium sill, infrared curtain & necessary wiring with interlocking arrangement etc. complete.	Set	162811	13433	176244
11	For Lift car having 1800mm wide x 2000mm high clear entrance having 1.5mm thick SS 304 grade sheet car door [four panel] complete with required accessories like door operator mechanism with drive, required aluminium sill, infrared curtain & necessary wiring with interlocking arrangement etc. complete.	Set	170952	14032	184984
12	For Lift car having 2100mm wide x 2000mm high clear entrance having 1.5mm thick SS 304 grade sheet car door [six panel] complete with required accessories like door operator mechanism with drive, required aluminium sill, infrared curtain & necessary wiring with interlocking arrangement etc. complete.	Set	186337	15827	202164
13	For Lift car having 2200mm wide x 2000mm high clear entrance having 1.5mm thick SS 304 grade sheet car door [six panel] complete with required accessories like door operator mechanism with drive, required aluminium sill, infrared curtain & necessary wiring with interlocking arrangement etc. complete.	Set	192859	17025	209884
C	For Full Collective control system, add as below.				
1	For Lift travelling above First floor & up to Sixth floor	Each	29419	2257	31676
2	For Lift travelling above Sixth floor & up to Fifteenth floor	Each	68834	3613	72447
3	For Lift travelling above Fifteenth floor & up to Twentieth floor	Each	89515	5523	95038
D	For additional 2MP Camera along with necessary accessories at Home Landing, add as given.	Each	14620	990	15610
E	For Group control system of number of lifts, add as below.				
1	For Duplex Lift control system	Job	38346	1871	40217
2	For Triplex Lift control system	Job	57305	2807	60112
3	For Quadruplex Lift control system	Job	77320	3744	81064
F	For vision panel having Size 100mm wide x 200mm high covered with fire rated laminated glass, having punched Jali as a part of the door panel SS sheet itself.	Each	2554	625	3179
G	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	44758	7313	52071
2	for Lift car door, having clear entrance 1000/1100/1200/1300mm wide	per landing	63489	7912	71401
3	for Lift car door, having clear entrance 1400/1500/1700mm wide	per landing	116105	9109	125214
4	for Lift car door, having clear entrance 1800/2100/2200mm wide	per landing	201849	10905	212754
b	For Lift Landings per 100mm Step rise				0
1	for Lift Landing door having clear entrance of 700/800/900mm wide	per landing	9806	3211	13017
2	for Lift Landing door, having clear entrance of	per landing	13955	3790	17745

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
3	1000/1100/1200/1300mm wide for Lift Landing door, having clear entrance of 1400/1500/1700mm wide	per landing	23762	4322	28084
4	1800/2100/2200mm wide for Lift Landing door, having clear entrance of 1800/2100/2200mm wide	per landing	36334	5821	42155

Notes

- 1) 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.
- 2) Warrantee: - Job covers **three years onsite warrantee** for all the Lift parts with FCAMC as per the maintenance schedule.

Note 1 and 2 above shall be included in item description.

- 3) 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.
- 4) 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
- 5) 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 the job.
- 6) 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 accordingly
- 7) For building having height of 15 mtr or more, lift shall meet the requirement of fireman lift as per the statutory requirements laid in relevant Indian Standard
- 8) While framing estimates of lifts for handicapped persons/ Hospital/Goods Lifts, the relevant Indian standard shall be referred for dimensions.
- 9) The sizes in mm for Lift car, entrance, available lift Shaft etc. with travel shall be mentioned in the Detailed Estimate
- 10) 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
- 11) 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: Lift Repair/Modernization **LIFT Machine**

17-2-1	Overhauling of Gearbox by opening the gear box, cleaning the oil path with oil adjusting the Thrust bearing, & bush with packings etc. and refilling with the fresh oil of requisite viscosity and sufficient quantity, complete with re-erection as original with necessary alignment & testing.	Job	2669	3287	5956
17-2-2	Providing dismantling the existing worn-out/damaged Thrust bearing & bush with allied accessories complete supplying & installing new Thrust bearing & Bush with allied accessories like packings etc. and refilling with the fresh gear oil of requisite viscosity	Job	6751	3878	10629

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	and sufficient quantity, complete suitable up to 10 passenger lift car with re-erection as original with necessary alignment & testing				
17-2-3	Providing dismantling the existing lift duty electric motor from lift gearbox coupling to carryout necessary repairs and re-erection the same as original with necessary alignment & testing complete after repairing	Job	0	2961	2961
17-2-4	Providing rewinding of the electromagnetic type brake coil suitable to operate on 110V DC supply by superior quality enamelled copper wire of require size complete with testing	Job	3551	841	4392
17-2-5	Providing and fixing new set brake liner of good quality complete with alignment & testing with removal of old worn-out brake liners	Job	1924	564	2488
17-2-6	Providing dismantling the existing main driving sheave complete by hanging the lift car and providing and fixing a new main driving sheave made from superior quality cast iron completely finished having diameter up to 600mm suitable up to 4nos rope grooves the size for the same will be specified in the estimate	Job	9915	3188	13103
17-2-7	Providing dismantling the existing main driving sheave complete by hanging the lift car and providing and fixing a new main driving sheave made from superior quality cast iron completely finished having diameter 601 to 800mm suitable up to 4nos rope grooves .	Job	15106	3359	18465
17-2-8	Providing dismantling the existing diverter sheave complete by hanging the lift car and providing and fixing a new diverter sheave made from superior quality cast iron completely finished having diameter up to 250mm suitable up to 4nos rope grooves.	Job	8083	2308	10391
17-2-9	Providing dismantling the existing diverter sheave complete by hanging the lift car and providing and fixing a new diverter sheave made from superior quality cast iron completely finished having diameter 251 to 500mm suitable up to 4nos rope grooves.	Job	9449	2308	11757
17-2-10	Providing dismantling the existing OSG pulley set (top & bottom) complete and providing and fixing overspeed governor pulley set (top & bottom) made from superior quality cast iron completely finished suitable for Lift car rated speed.	Job	8994	1176	10170
17-2-11	Providing dismantling the existing OSG rubber roller complete, providing and fixing new nylon roller of superior quality.	Job	287	96	383
	Lift CAR				
17-2-12	Providing dismantling the existing lift car/counter weight guide shoe liner and providing and fixing new superior quality non-metallic car/counter weight guide shoe Liner complete with re-erection, alignment & adjustment complete with lubrication	Job	1954	934	2888
17-2-13	Providing dismantling the existing unserviceable retiring cam (Door) by supplying & erecting new one of superior quality with necessary spare complete with re-erection and testing etc. with copper wound magnetic coil of 110V DC supply.	Job	4001	595	4596
17-2-14	Providing dismantling the existing deteriorated lift car flooring/floor tiles by supplying & erecting SS chequered plate of required thickness and of superior quality with necessary material	Kg	408	61	469
17-2-15	Providing dismantling the existing deteriorated lift car enclosure by supplying & erecting new enclosure made from 1.5mm thick stainless steel sheet SS304 grade of superior quality with necessary material complete with handrail, mirror, required thickness stainless steel chequered plate flooring and min. 2.5mm thick GI sheet car top & stainless steel 304grade 1.2mm thick false ceiling & required LED light fitting & cabin fan/blower, emergency light with necessary grill along with required accessories suitable for 4 to 8 passenger lift car	Job	129302	22769	152071
17-2-16	Providing dismantling the existing deteriorated lift car enclosure by supplying & erecting new enclosure made from 1.5mm thick stainless steel sheet SS304 grade of superior quality with necessary material complete with handrail, mirror, required thickness stainless steel chequered plate flooring and min. 2.5mm thick GI sheet car top & stainless steel 304grade 1.2mm thick false ceiling & required LED light fitting & cabin fan/blower, emergency light with necessary grill along with required accessories suitable for 10 to 13 passenger lift	Job	153274	29936	183210

Item No (1)	Short Description (2)	Unit (3)	Material (4)	Labour (5)	Total (6)
	car				
17-2-17	Providing dismantling the existing deteriorated lift car enclosure by supplying & erecting new enclosure made from 1.5mm thick stainless steel sheet SS304 grade of superior quality with necessary material complete with handrail, mirror, required thickness stainless steel chequered plate flooring and min. 2.5mm thick GI sheet car top & stainless steel 304grade 1.2mm thick false ceiling & required LED light fitting & cabin fan/blower, emergency light with necessary grill along with required accessories suitable for 14 to 16 passenger lift car	Job	177302	36142	213444
17-2-18	Providing dismantling the existing deteriorated lift car enclosure by supplying & erecting new enclosure made from 1.5mm thick stainless steel sheet SS304 grade of superior quality with necessary material complete with handrail, mirror, required thickness stainless steel chequered plate flooring and min. 2.5mm thick GI sheet car top & stainless steel 304grade 1.2mm thick false ceiling & required LED light fitting & cabin fan/blower, emergency light with necessary grill along with required accessories suitable for 18 to 23 Passenger Lift Car	Job	202906	44579	247485
17-2-19	Providing dismantling the existing deteriorated Lift car enclosure by supplying & erecting new enclosure made from 1.5mm thick stainless steel sheet SS304 grade of superior quality with necessary material complete with handrail, mirror, required thickness stainless steel chequered plate flooring and min. 2.5mm thick GI sheet car top & stainless steel 304grade 1.2mm thick false ceiling & required LED light fitting & cabin fan/blower, emergency light with necessary grill along with required accessories suitable for 26 to 36 Passenger Lift Car	Job	265079	50785	315864
17-2-20	Supplying erecting & testing & commissioning minimum 2000mm high Infra-Red/IR curtain with minimum 80beams, suitable to attach automatic Lift car door complete with electronic driver suitable to work on 230V AC supply with required wiring & accessories complete connected to the lift controller safety circuit. including dismantling of existing accessories as applicable	Each	47860	1810	49670
17-2-21	Supplying & erecting laminated type with minimum 6mm thick mirror confirming to relevant standard in the lift car complete pasting with necessary adhesives if required and fixing with SS frame & accessories complete, this job includes dismantling of existing accessories as applicable	Sq ft	315	102	417
	Lift Shaft				
17-2-22	Providing Emergency Stop Switch as per IS [push to stop & pull/rotate clockwise to open] erected on GI box in pit/LMR /car top for maintenance work complete with necessary wires	Each	601	75	676
17-2-23	Supplying & erecting over travel final/Terminal limit switch complete with nylon roller for up & down direction along with cams etc as required.	Each	1748	217	1965
17-2-24	Providing and fixing new magnetic reed switch with M.S. Flag for levelling the lift. Providing and fixing necessary magnet for the floor position indicator, providing and fixing electronics card with digital indicator, complete with re-erection including dismantling of existing accessories as applicable	Each	758	217	975
17-2-25	Supplying & erecting lift car door lock with electrical contact [spring loaded NO/NC of 5A/250V rating] complete unit with Bakelite roller attached to bracket on car top with M.S. "T" bracket attached to car gate complete with Testing including dismantling of existing accessories as applicable	Each	945	39	984
17-2-26	Supplying & erecting main suspension wire rope of 13mm dia. having 8/19 construction as per IS complete with termination in provided eye bolts including dismantling of existing accessories as applicable	m	160	45	205
17-2-27	Supplying & erecting main suspension wire rope of 10mm dia.	m	135	45	180

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
17-2-28	having 8/19 construction as per IS complete with termination in provided eye bolts including dismantling of existing accessories as applicable Supplying & erecting main suspension wire rope of 8mm dia. having 8/19 construction as per IS complete with termination in provided eye bolts including dismantling of existing accessories as applicable	m	105	45	150
17-2-29	Supplying & erecting wire rope of 3/4/6mm dia. having 6/19 construction as per IS complete with termination in provided eye bolts including dismantling of existing accessories as applicable	m	73	27	100
17-2-30	Supplying & erecting GI eye bolt suitable for tie up of min. 13mm dia. lift wire ropes with 4nos bull dog clips 8/19 construction as per IS Complete with termination in provided eye bolts including dismantling of existing accessories as applicable	Each	1284	157	1441
17-2-31	Supplying & erecting GI eye bolt suitable for tie up of 8/10mm dia. lift wire ropes with 4nos bull dog clips 8/19 construction as per IS Complete with termination in provided eye bolts including dismantling of existing accessories as applicable.	Each	1027	157	1184
Car & Landing Doors					
17-2-32	Repairing of M.S. collapsible landing/lift car door for broken rivets, pickets gibes, roller bearings complete with oiling etc. complete with re-erection, and alignment for smooth operation	Job	280	573	853
17-2-33	Supplying & erecting MS collapsible type perforate Car/Landing door with 50mm high 8mm thick MS pata at top with roller bearings & nylon gibes complete having adequate strength as per requirements with necessary alignment complete with having clear opening of 700/800mm in width and clear height not less than 2000mm including dismantling of existing door as applicable	Job	7990	1051	9041
17-2-34	Supplying & erecting MS collapsible type perforate Car/Landing door with 50mm high 8mm thick MS pata at top with roller bearings & nylon gibes complete having adequate strength as per requirements with necessary alignment complete with having clear opening of 1000/1200mm in width and clear height not less than 2000mm including dismantling of existing door as applicable	Job	9658	1051	10709
17-2-35	Supplying & erecting MS Collapsible type imperforate Car/Landing door with 50mm high 8mm thick MS pata at top with roller bearings & Nylon gibes complete having adequate strength as per requirements with necessary alignment complete with grassing Note for Imperforate door the thickness of CRCA sheet not less than 1.mm having clear opening of 700/800mm in width and clear height not less than 2000mm , including dismantling of existing door as applicable	Job	10696	1051	11747
17-2-36	Supplying & erecting COPO/TOPO car/landing door panels with frame made from 1.5mm thick SS 304grade sheet complete with necessary coupler arrangements, nylon bearings at hanger with header assembly with all required accessories with electromechanical lock & nylon coated guide shoes complete having adequate strength as per requirements with necessary alignment complete with greasing having clear opening of 700mm in width and clear height not less than 2000mm , including dismantling of existing door as applicable.	Job	57717	4966	62683
17-2-37	Supplying & erecting COPO/TOPO car/landing door panels with frame made from 1.5mm thick SS 304grade sheet complete with necessary coupler arrangements, nylon bearings at hanger with header assembly with all required accessories with electromechanical lock & nylon coated guide shoes complete having adequate strength as per requirements with necessary alignment complete with greasing having clear opening of 800mm in width and clear height not less than 2000mm , including dismantling of existing door as applicable	job	62231	4966	67197
17-2-38	Supplying & erecting COPO/TOPO car/landing door panels with frame made from 1.5mm thick SS 304grade sheet complete with necessary coupler arrangements, nylon bearings at hanger with header assembly with all required accessories with electromechanical lock&	job	70863	5309	76172

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
17-2-39	nylon coated guide shoes complete having adequate strength as per requirements with necessary alignment complete with greasing having clear opening of 900mm in width and clear height not less than 2000mm , including dismantling of existing door as applicable Supplying & erecting COPO/TOPO car/landing door panels with frame made from 1.5mm thick SS 304grade sheet complete with necessary coupler arrangements, nylon bearings at hanger with header assembly with all required accessories with electromechanical lock & nylon coated guide shoes complete having adequate strength as per requirements with necessary alignment complete with greasing having clear opening of 1000mm in width and clear height not less than 2000mm , including dismantling of existing door as applicable	job	81361	5421	86782
17-2-40	Supplying & erecting COPO/TOPO car/landing door panels with frame made from 1.5mm thick SS 304grade sheet complete with necessary coupler arrangements, nylon bearings at hanger with header assembly with all required accessories with electromechanical lock & nylon coated guide shoes complete having adequate strength as per requirements with necessary alignment complete with greasing having clear opening of 1200mm in width and clear height not less than 2000mm , including dismantling of existing door as applicable	job	93026	5956	98982
17-2-41	Providing & fixing aluminium sill with 1 track suitable for fixing of car/ landing door with necessary material like MS brackets, fasteners complete with alignment, including dismantling of existing door as applicable	m	758	292	1050
17-2-42	Providing & fixing aluminium Sill with 2 track suitable for fixing of car/ landing door with necessary material like MS brackets, fasteners complete with alignment, including dismantling of existing door as applicable	m	1050	292	1342
17-2-43	Providing & fixing landing door gate lock of superior quality with necessary adjustable operating lever complies with the relevant IS suitable for swing or collapsible type landing doors	Each	3616	341	3957
17-2-44	Providing & fixing landing/Car gate movable contact electrical switch of superior quality complies with the relevant IS suitable for all type of landing/car doors	Each	116	36	152
17-2-45	Providing & fixing LOP with single push button with metallic top & Braille Coded suitable for UP/DN having luminous glow indicator around button with MS box & 3mm thick SS face plate with screws with UP & DN button & digital CPI (suitable for 1digits) complete with necessary connections, including dismantling of existing door as applicable	Each	3593	811	4404
17-2-46	Providing & fixing LOP with two push button with metallic top & Braille coded suitable for UP/DN having luminous glow indicator around button with MS box & 3mm thick SS face plate with screws with UP & DN button & digital CPI (suitable for 2digits) complete with necessary connections, including dismantling of existing door as applicable	Each	4490	811	5301
17-2-47	Providing & fixing COP with push buttons having luminous glow indicator around button suitable for G+7 floors with push buttons with metallic top & Braille coded suitable for door close, door open, alarm bell, stop, light, fan, intercom etc, FPI, with MS box & 3mm thick SS face Plate with UP & DN arrows & digital FPI (suitable for 2digits) complete with necessary connections, including dismantling of existing COP as applicable	Each	15047	1272	16319
17-2-48	Providing & fixing push button suitable with micro switch with push button on existing COP/LOP with necessary connections and testing complete including dismantling of existing button accessories as applicable	Each	904	45	949
17-2-49	Providing & fixing 40mm high fixing digital indicator module of gives indication of required shade with connections and testing complete including dismantling of existing accessories as applicable	Each	1102	53	1155
17-2-50	Providing & fixing car door operator motor with assembly of suitable capacity & speed with necessary pulleys & required	Each	22921	1102	24023

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	accessories complete including dismantling of existing accessories as applicable				
17-2-51	Providing & fixing hydraulic type landing door closer suitable for swing door with necessary material complete, including dismantling of existing accessories as applicable	Each	1107	139	1246
17-2-52	Providing & fixing car/landing door guide shoe liner/gibes complete with necessary material like nylon coating complete including dismantling of existing accessories as applicable	door	119	435	554
	CONTROLLER				
17-2-53	Supplying erecting, testing & commissioning of electronic microprocessor/ PLC based collective-selective lift controller with closed loop logic suitable up to 5.5kW capacity lift duty motor without VVVF Drive and lift car travelling Gr+7 floors having manual operated doors complete erected on wall or floor made from 1.5mm thick CRCA sheet with powder coated enclosure having IP54 protection grade, including dismantling of existing accessories as applicable.	Job	99558	5195	104753
17-2-54	Supplying erecting, testing & commissioning of electronic microprocessor/PLC based collective-selective lift controller with closed loop logic suitable up to 5.5kW capacity lift duty motor without VVVF Drive & lift car travelling Gr+7 floors having power operated doors complete erected on wall or floor made from 1.5mm thick CRCA sheet with powder coated enclosure having IP54 protection grade. including dismantling of existing accessories as applicable	Job	119504	5195	124699
17-2-55	Supplying erecting, testing & commissioning of VVVF drive having provision for closed loop logic with necessary card, suitable to drive lift duty electric motor up to 5.5kW capacity to be erected in position with necessary wiring in existing control panel including dismantling of existing accessories as applicable	Job	59723	1136	60859
17-2-56	Supplying erecting, testing & commissioning of VVVF drive having provision for closed loop logic with necessary card, suitable to drive lift duty electric motor up to 7.5kW capacity to be erected in position with necessary wiring in existing control panel including dismantling of existing accessories as applicable	Job	70198	1136	71334
17-2-57	Supplying erecting, testing & commissioning of VVVF drive having provision for closed loop logic with necessary card, suitable to drive lift duty electric motor up to 10/11kW capacity to be erected in position with necessary wiring in existing control panel including dismantling of existing accessories as applicable	Job	90050	1147	91197
17-2-58	Supplying erecting, testing & commissioning of VVVF drive having provision for closed loop logic with necessary card, suitable to drive lift duty electric motor up to 15kW capacity to be erected in position with necessary wiring in existing control panel including dismantling of existing accessories as applicable	Job	114080	1162	115242
17-2-59	Supplying erecting, testing & commissioning of VVVF drive having provision for closed loop logic suitable to drive lift door operator motor up to 0.5/0.75kW capacity to be erected in position with necessary wiring in existing control panel including dismantling of existing accessories as applicable	Job	22746	1136	23882
17-2-60	Supplying erecting, testing & commissioning of rotary encoder mounted on the lift motor shaft for correct & control the positioning & direction of the lift car & providing closed loop feedback to the lift controller complete with necessary shielded data cable up to controller with necessary connectors, this job includes dismantling of existing encoder if any.	Job	20996	1162	22158
17-2-61	Providing & fixing inspection/maintenance box with cover of suitable size with UP/DN push buttons (with mechanical protection), stop button as per IS, mechanically protected, toggle switch for normal/inspection/maintenance mode, 6A/250V 3Pin socket & 6A piano type switch protected cover with bulb & switch having IP54	Job	991	525	1516

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
17-2-62	grade protection class, this job includes dismantling of existing Inspection/maintenance box if any. Providing & fixing junction box having size of 300x300mm & height of 80mm complete with Bakelite terminal strip of 16A/500V rating with cover having IP54 grade protection class includes dismantling of existing Junction box if any. This job includes dismantling of existing inspection/maintenance box if any.	Job	875	199	1074
17-2-63	Supplying erecting, testing & commissioning of ARD panel having audio-visual indication in lift car complete with necessary SMF VRLA batteries suitable for up to 8 passenger capacity lift car including dismantling of existing accessories as applicable	Job	76870	1747	78617
17-2-64	Supplying erecting, testing & commissioning of ARD panel having audio-visual indication in lift car complete with necessary SMF VRLA batteries suitable for 9 to 12 passenger capacity lift car. including dismantling of existing accessories as applicable	Job	87368	1747	89115
17-2-65	Supplying erecting, testing & commissioning of ARD panel having audio-visual indication in lift car complete with necessary SMF VRLA batteries suitable for 13 to 16 passenger capacity lift car. including dismantling of existing accessories as applicable	Job	99978	1798	101776
17-2-66	Supplying erecting, testing & commissioning of ARD panel having audio-visual indication in lift car complete with necessary SMF VRLA batteries suitable for 17 to 22 passenger capacity lift car. including dismantling of existing accessories as applicable	Job	114197	1850	116047
17-2-67	Supplying erecting, testing & commissioning of ARD panel having audio-visual indication in lift car complete with necessary SMF VRLA batteries suitable for 23 to 29 passenger capacity lift car. including dismantling of existing accessories as applicable	Job	131344	1901	133245
17-2-68	Providing complete lift shaft wiring in copper wire/cable from main controller to car top with COP & to all landing push button panel to all landing gate locks to all floor levelling switch to main motor to brake unit & final limit switch indicator system using ISI mark single pvc insulated flexible copper wire having minimum 1.0 sq. mm size from controller to safety devices & 0.75 Sqmm size for indication system complete in PVC/GI trunking with cover for lift with manually/power operated doors travelling up to G+1 floors / 2 stops & 2 landings for floor height up to 4.2mtrs including dismantling of existing accessories as applicable	Job	17124	2891	20015
17-2-69	Supplying, erecting & terminating flat flexible PVC insulated cable 4 core 1.0 sq. mm copper conductor used for railing cables complete erected with PVC/wooden fastening arrangement & lugs, on wall / trunking as per specification including dismantling of existing accessories as applicable	m	128	25	153
17-2-70	Supplying, erecting & terminating flat flexible PVC insulated cable 12 core 1.0 sq. mm copper conductor used for trailing cables complete erected with pvc/wooden fastening arrangement & lugs, on wall/ trunking as per specification including dismantling of existing accessories as applicable	m	280	80	360
17-2-71	Supplying, erecting, testing & commissioning programmable rope mounted Overload Warning Device (OWD) within built digital indicator complete with required wiring & accessories with audio visual indication in lift car including dismantling of existing accessories as applicable.	Job	63164	644	63808

- Note:**
- For item no 17-2-2....**for 11 to 20 passenger capacity lift**, add 15% to the basic cost
 - For item no 17-2-2....**for 21 to 29 passenger capacity lift**, add 25% to the basic cost
 - For item nos. 17-2-6 to 17-2-9 **main/diverter sheave for additional groove exceeding 4nos**, add 10% in the basic cost per additional groove
 - For item no's 17-2-33 to 17-2-35 for Stainless Steel Collapsible doors, basic cost of MS collapsible shall be doubled,

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	<p>Note:- This item shall be operated with prior permission in writing from the concern Superintending Engineer (Electrical).</p> <p>5. For item no's 17-2-33 to 17-2-35, If the requirements for landing/car doors clear height above 2000mm , for Manual operated MS door panels add Rs.1,000/- per 100mm rise per landing.</p> <p>6. For item nos. 17-2-36 to 17-2-40 the rates are for automatic landing/car door with clear height of 2000mm If the Requirements for landing/car doors clear height above 2000mm, refer add on item no. 17-1/G (b)</p> <p>7. For item no 17-2-47- Providing & fixing additional Floor button with allied hardware components on COP, add Rs. 2526/- per additional button.</p> <p>8. For item no 17-2-53 & 17-2-54... Lift Controller for Lift car travelling 9 stops to 15 stops, add Rs. 27325/-.</p> <p>9. For item no 17-2-53 & 17-2-54... Lift Controller for Lift car travelling 16 stops to 21 stops, Rs. 45988/-.</p> <p>10. For item no 17-2-53 & 17-2-54...Lift Controller for Power Circuit suitable for above 5.5kW & up to 10kW motor, add Rs. 7440/-.</p> <p>11. For item no 17-2-53 & 17-2-54... Lift Controller for Power Circuit suitable for above 10kW & up to 15kW motor, add Rs. 10837/-</p> <p>12. For item no 17-2-68 ... For Lift Shaft Wiring in copper wire/cable, above 1st floor for lifts with manually/power operated doors, add Rs. 2506/- per floor.</p> <p>13. The cost of dismantled material of lift parts, shall be calculated on the rate analysis based on weight density calculations of actual dismantled material e.g. mild steel/MS/GI/SS sheets, motors, copper wire, wooden parts etc.</p> <p>14. This job includes transportation of the dismantled material up to division/section store.</p> <p>15. The Lift dismantled material will be the property of the department.</p>				
	<u>17.3: Dismantling</u>				
17-3-1	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	2835	23430	26265
17-3-2	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	2892	25501	28393
17-3-3	Dismantling the existing 13 to 17 Passenger/Stretchers/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	2963	27529	30492

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
17-3-4	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	3091	29791	32882
17-3-5	Dismantling the existing 23 to 26 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	3220	31838	35058
17-3-6	Dismantling the existing 27 to 36 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	3477	33953	37430
17-3-7	Dismantling the existing 3000-5000Kg Goods lift of all types travelling G+1Upper 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	3732	36022	39754
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	350	1299	1649
2	For 8 to 12 passenger lift of all types	Floor	391	1412	1803
3	For 13 to 17 passenger/stretcher/goods lift of all types	Floor	408	1501	1909
4	For 18 to 23 passenger/stretcher/goods lift of all types	Floor	420	1751	2171
5	For 23 to 26 passenger/stretcher/goods lift of all types	Floor	432	1842	2274
6	For 27 to 36 passenger/stretcher/goods lift of all types	Floor	443	1969	2412
7	For 3000 to 5000Kg goods lift of all types	Floor	467	2107	2574
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	391	1412	1803
2	For 8 to 12 passenger lift of all types	Floor	408	1501	1909
3	For 13 to 17 passenger/stretcher/goods lift of all types	Floor	420	1751	2171
4	For 18 to 23 passenger/stretcher/goods lift of all types	Floor	432	1842	2274
5	For 23 to 26 passenger/stretcher/goods lift of all types	Floor	443	1969	2412
6	For 27 to 36 passenger/stretcher/goods lift of all types	Floor	467	2107	2574
7	For 3000 to 5000Kg goods lift of all types	Floor	490	2220	2710
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	408	1501	1909
2	For 8 to 12 passenger lift of all types	Floor	420	1751	2171
3	For 13 to 17 passenger/stretcher/goods lift of all types	Floor	432	1842	2274

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
4	For 18 to 23 passenger/stretcher/goods lift of all types	Floor	443	1969	2412
5	For 23 to 26 passenger/stretcher/goods lift of all types	Floor	467	2107	2574
6	For 27 to 36 passenger/stretcher/goods lift of all types	Floor	490	2220	2710
7	For 3000 to 5000Kg goods lift of all types	Floor	513	2437	2950

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	116	1078	1194
2	For 8 to 12 passenger lift of all types	Set	128	1167	1295
3	For 13 to 17 passenger/stretcher/goods lift of all types	Set	140	1244	1384
4	For 18 to 23 passenger/stretcher/goods lift of all types	Set	151	1458	1609
5	For 23 to 26 passenger/stretcher/goods lift of all types	Set	175	1243	1418
6	For 27 to 36 passenger/stretcher/goods lift of all types	Set	233	1387	1620
7	For 3000 to 5000Kg goods lift of all types	Set	292	1665	1957

- Notes**
- 1) The lift dismantled material cost shall be calculated on the rate analysis based on weight density calculations of actual dismantled material 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

References

The applicable Indian Standards for Lifts are as follows

- National Building Code 2016 - Part 8 Building Services Section 5 & 5A Installation of Lifts,
- IS 8216:1976 Guide for Inspection of Wire Ropes
- 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 Part 5 Inspection Manual
- IS 15785 : 2007 Installation and Maintenance of Lift without conventional Machine Rooms Code of Practice
- IS 15330: 2003 Code of Practice for Installation and Maintenance of Lifts for differently abled Persons
- Lift ACT & Rules -The Maharashtra Lift, Escalators & Moving Walkway Act-2017 and Relevant Rules
- Local Authority Rules : The Development Control Regulations of The local Authority

Abbreviations

Symbol	Meaning
ARD	Automatic Rescue Device
CCTV	Closed Circuit Television
COP	Car Operating Panel

COPO	Centre Opening Power Operated
CPI	Car Position Indicator
CRCA	Cold Rolled Close Annealed
FCAMC	Fully Comprehensive Annual Maintenance Contract
FCC	Fire Command Centre
FHD	Full High Definition
FPI	Floor Position Indicator
GI	Galvanised Iron
HDR	High Definition Recording
IBMS	Intelligent Building Management System
IP	Internet Protocol
IP54	Ingress Protection i. e Protection from limited dust ingress & Protection from water spray from any direction
IS	Indian Standards
ISI	Indian Standards Institute,
Kg	Kilograms
kW	Kilowatt rating
LED	Light Emitting Diode
LFT	Lift Installation
LMR	Lift Machine Room
LOP	Landing Operating Panel
MP	Mega Pixel
mps	meters per second
MR	Machine Room
MRL	Machine Room Less
MS	Mild Steel
mtrs	meters
NBC	National Building Code
NVR	Network Video Recorder
OSG	Over speed Safety Governor
OWD	Overload Warning Device
PLC	Programmable Logic Control
PMSM	Permanent Magnet Synchronous AC Machine
PVC	Polyvinyl Chloride
SITC	Supplying, Installing, Testing and Commissioning
SMF	Sealed Maintenance Free
SS	Stainless Steel
TOPO	Telescopic Opening Power Operated
UP/DN	Up/Down
VAS	Voice Annunciation System
VRLA	Valve-Regulated Lead-Acid
VS	Variable Speed
VVVF	Variable Voltage Variable Frequency

Chapter: 18

Miscellaneous (MSC)

- 18.1 Rewinding**
- 18.2 Replacement**
- 18.3 Accessories**

Chapter 18 : MISCELLANEOUS (MSC)

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
<u>18.1 Rewinding</u>					
18-1-1	Rewinding motor of table / pedestal / wall bracket / cabin fans including minor repairs lubricating of ball bearings & bush bearing, and replacing condenser, screws etc. Testing of fan for original speed and consumption with guarantee for 1 year including transportation from site to workshop and back.	Job	284	164	448
18-1-2	Rewinding motor of the 900 mm ceiling fan and over hauling including minor repairs lubricating of ball bearings & bush bearing, and replacing condenser, screws etc. Testing of fan for original speed and consumption with guarantee for one year.	Each	311	164	475
18-1-3	Rewinding motor of the 1200/1400 mm ceiling fan and over hauling including minor repairs lubricating of ball bearings & bush bearing, and replacing condenser, screws etc. Testing of fan for original speed and consumption with guarantee for one year.	Each	325	164	489
18-1-4	Rewinding motor of the 900/1400 rpm 300 mm Exhaust fan and over hauling including minor repairs, lubricating of ball bearings & bush bearing, and replacing condenser, screws etc. & testing for original speed and consumption with guarantee for one year	Each	325	164	489
18-1-5	Rewinding motor of the 900/1400 RPM 375 mm Exhaust fan and over hauling including minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. Testing the motor for original speed and consumption with guarantee for one year	Each	415	164	579
18-1-6	Rewinding motor of the 900/1400 RPM 450 mm Exhaust fan and over hauling including minor repairs, lubricating of ball bearings & bush bearing, and replacing condenser, screws etc. Testing for original speed and consumption with guarantee for one year	Each	616	221	837
18-1-7	Rewinding of electric motor upto 1 H.P. single phase upto 1400 RPM with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing condenser, screws etc. Testing the motor for original speed and no load consumption with guarantee for one year.	Each	684	363	1047
Note:- <ol style="list-style-type: none"> 1) Item No. 18-1-7 is for rewinding of motors other than table / pedestal / cabin / wall mounting / ceiling / Exhaust fan. 2) All above rewinding items are excluding of bearing replacement. 3) The electric motor of the same fan shall not be rewound for more than 2 no of times. 					
18-1-8	Rewinding of electric motor upto and including 1 HP, three phase upto 1400 RPM of all types and makes with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. Testing the motor for the original speed and no load consumption with guarantee for one year	Each	984	363	1347
18-1-9	Rewinding of electric motor above 1 HP and upto 2 HP, three phase upto 1400 RPM with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	1206	363	1569
18-1-10	Rewinding of electric motor above 2 HP and upto 3 HP, three phase upto 1400 RPM with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	1426	406	1832

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
18-1-11	Rewinding of electric motor above 3 HP and upto 5 HP, three phase upto 1400 RPM with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	2219	748	2967
18-1-12	Rewinding of electric motor above 5 HP and upto 7.5 HP, three phase upto 1400 RPM with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	2815	748	3563
18-1-13	Rewinding of electric motor above 7.5HP and upto 10 HP, three phase upto 1400 RPM with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	3448	780	4228
18-1-14	Rewinding of electric motor above 10 HP and upto 12.5 HP, three phase upto 1400 RPM with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	3368	941	4309
18-1-15	Rewinding of electric motor above 12.5 HP and upto 15 HP, three phase upto 1400 RPM with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	4108	941	5049
18-1-16	Rewinding of electric motor above 15 HP and upto 20 HP, three phase upto 1400 RPM with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	5567	1112	6679
18-1-17	Rewinding of electric motor upto 25 HP, three phase upto 1400 RPM of all types and makes with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	7114	1657	8771
18-1-18	Rewinding of electric motor upto 30 H.P. three phase upto 1400 RPM of all types and makes with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed and no load consumption with guarantee for one year	Each	8504	2013	10517
18-1-19	Rewinding of submersible pump motor in borewell of all types and makes upto and including 5 HP with coated copper wires & overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed, H.P. and no load consumption & guarantee for one year.	HP	872	600	1472
18-1-20	Rewinding of submersible pump motor in borewell of all types and makes above 5 H.P. upto 25 HP with coated copper wires & overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed, H.P. and no load consumption & guarantee for one year.	HP	1051	600	1651
Note:-	1) Electric motors of burnt ceiling fans older than 10 yrs shall not be rewound. 2) Rates for rewinding of 2 pole motors shall be decreased by 5%. 3) The dismantled material shall be retained by the contractor.				

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
	4) 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%.				
	<u>18.2 Replacement</u>				
18-2-1	Replacing the existing bearing of approved make for electric motor A.C single phase / 3 phase upto 1 HP of all types with due alignment of the shaft and tested.	Each	175	75	250
18-2-2	Replacing the existing bearing of approved make for A.C electric motor 3 phase 2 H.P. to 3 HP of all types with due alignment of the shaft and tested.	Each	200	112	312
18-2-3	Replacing the existing bearing of approved make for electric motor 5 HP & 7.5 HP of all types with due alignment of the shaft and tested.	Each	353	120	473
18-2-4	Replacing the existing bearing of approved make for electric motor 10 HP & 12.5 HP of all types with due alignment of the shaft and tested.	Each	607	132	739
18-2-5	Replacing the existing bearing of approved make for electric motor 15H.P.to 20 H.P. of all types with due alignment of the shaft and tested.	Each	896	300	1196
18-2-6	Replacing the existing ball bearing of table/ cabin/ pedestal/ ceiling/ exhaust fan complete with alignment of shaft & tested.	Each	98	60	158
18-2-7	Replacing the existing Bush/ rubber, ring, washers of table/ cabin/ pedestal/ ceiling/ exhaust fan complete with alignment of shaft & tested.	Each	42	43	85
18-2-8	Replacing the existing bearing of approved make for electric motor of 25 H.P. of all types with due alignment of the shaft and tested.	Each	1664	375	2039
18-2-9	Replacing the existing bearing of approved make for electric motor of 30 H.P. of all types with due alignment of the shaft and tested.	Each	1827	375	2202
Note:-	Above rates are applicable for replacement of bearing only.				
	<u>18.3 Accessories</u>				
18-3-1	Filtration of Transformer oil on site till satisfactory test results.	Litre	13	10	23
18-3-2	Supplying and topping up filtered transformer oil of approved make with test certificate.	Litre	113	14	127
18-3-3	Supplying and erecting No-Volt-Coil for motor having DOL starters upto 7.5 H.P.	Each	123	112	235
18-3-4	Supplying and erecting No-Volt-Coil for motor having DOL starters from 7.5 H.P. to 10 H.P.	Each	362	112	474
18-3-5	Supplying and erecting No-Volt-Coil for motor having Star-Delta Starter from 12.5 H.P. to 15 H.P. motor.	Each	362	95	457
18-3-6	Supplying and erecting No-Volt-Coil for motor having ML1.5 type Star-Delta Starter from 15 H.P. to 25 H.P. motor.	Each	497	95	592
18-3-7	Supplying and erecting No-Volt-Coil for motor having Star-Delta Starter from 20 H.P. to 30 H.P. motor.	Each	362	112	474
18-3-8	Supplying and erecting No-Volt-Coil for motor having ML2 type Star-Delta Starter from 25 H.P. to 35 H.P. motor.	Each	830	112	942
18-3-9	Supplying and erecting No-Volt-Coil from 30 H.P.to 90 H.P. MU motor starter.	Each	1174	100	1274
18-3-10	Supplying and erecting No-Volt-Coil from 90 H.P. to 125 H.P. motor starter.	Each	1995	150	2145

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
18-3-11	Supplying and erecting thermal Overload Relay for motor starter suitable for up to 12.5 HP.	Each	946	95	1041
18-3-12	Supplying and erecting thermal Overload Relay for motor starter suitable for up to 15 HP.	Each	624	112	736
18-3-13	Supplying and erecting thermal over load relay for motor starter 10 H.P. to 17.5 H.P.	Each	930	112	1042
18-3-14	Supplying and erecting thermal over load relay for motor starter 20 H.P. to 25 H.P.	Each	1091	112	1203
18-3-15	Supplying and erecting thermal over load relay for motor starter 30 H.P to 35 H.P.	Each	1580	112	1692
18-3-16	Supplying and erecting thermal over load relay for motor starter 40 H.P. to 50 H.P.	Each	2070	125	2195
18-3-17	Supplying and erecting thermal over load relay for motor starter 60 H.P. to 90 H.P.	Each	2738	125	2863
18-3-18	Supplying and erecting thermal over load relay for motor starter from 100 H.P. to 125 H.P.	Each	3153	125	3278
18-3-19	Supplying & erecting timer for STAR/DELTA motor starter upto 12.5 H.P.	Each	453	95	548
18-3-20	Supplying & erecting Timer with Combination Coil for motor starter suitable from 15 H.P to 30 H.P.	Each	1694	95	1789
18-3-21	Supplying & erecting Electronic timer above 30 H.P motor starter.	Each	1094	95	1189
18-3-22	Supplying & erecting contactor for DOL motor starter from 7.5 H.P. to 10 H.P.	Each	839	112	951
18-3-23	Supplying & erecting contactor MU-1 for DOL motor starter from 7.5 H.P. to 10 H.P.	Each	1355	112	1467
18-3-24	Supplying & erecting contactor MU-1H for DOL motor starter from 7.5 H.P. to 10 H.P.	Each	1478	112	1590
18-3-25	Supplying & erecting contactor for MK-2 Star Delta motor starter from 12.5 H.P. to 15 H.P.	Each	906	68	974
18-3-26	Supplying & erecting contactor MU-2 Type for motor starter suitable from 12.5 H.P to 20 H.P.	Each	1840	112	1952
18-3-27	Supplying & erecting contactor for Star Delta motor starter from 15 H.P. to 25 H.P.	Each	2108	112	2220
18-3-28	Supplying & erecting contactor for Star Delta motor starter from 25 H.P. to 30 H.P.	Each	3917	112	4029
18-3-29	Supplying and erecting contactor for motor starter suitable from 25 H.P. to 30 H.P.	Each	2222	112	2334
18-3-30	Supplying and erecting contactor for motor starter suitable for above 30 H.P. to 40 H.P.	Each	5547	71	5618
18-3-31	Supplying and erecting contactor for motor starter suitable for above 45 H.P. to 50 H.P.	Each	7324	71	7395
18-3-32	Supplying and erecting contactor for motor starter suitable from 55 HP to 60 HP.	Each	9210	85	9295
18-3-33	Supplying and erecting contactor for motor starter suitable for 75 H.P. to 90 H.P.	Each	14643	107	14750
18-3-34	Supplying and erecting contactor for motor starter suitable for 100 H.P. to 125 H.P.	Each	19392	128	19520

<i>Item No (1)</i>	<i>Short Description (2)</i>	<i>Unit (3)</i>	<i>Material (4)</i>	<i>Labour (5)</i>	<i>Total (6)</i>
18-3-35	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-erecting at position.	Each	47	75	122
18-3-36	Replacing suitable capacity motor of water pump of air cooler of any capacity and type in lieu of old one.	Each	403	75	478
18-3-37	Checking the existing Indoor faulty fitting, finding the fault, repairing by provided necessary material, if any, and putting into beneficial use with necessary Tools & Tackles.	Each	0	40	40
18-3-38	Checking the existing outdoor faulty fitting, finding the fault, repairing by provided necessary material, if any, and putting into beneficial use with necessary Tools & Tackles.	Each	0	80	80

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

Chapter: 19
Credit for dismantled items

19.1 Credit for dismantled items

Chapter 19 : Credit for dismantled materials

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
<u>19.1 Credit for dismantled materials</u>					
19-1-1	PVC armoured/unarmoured cables and wires (Aluminium)	Kg	15	-	15
19-1-2	PVC armoured/unarmoured cables and wires (Copper)	Kg	63	-	63
19-1-3	Aluminium materials	Kg	71	-	71
19-1-4	HG / M.S / G.I. Materials / Poles etc.	Kg	18	-	18
19-1-5	Copper / Brass materials	Kg	223	-	223
19-1-6	Wooden materials	Kg	4	-	4
19-1-7	PVC pipes/materials	Kg	8	-	8
19-1-8	Paper cartoons/boxes.	Kg	6	-	6
19-1-9	I.C. / M.C. switches / D.P. / D.B./ T.P. / feeder pillar etc.	Kg	18	-	18
19-1-10	Meters (Ammeter / Voltmeter/Energy meter, etc..)	Kg	23	-	23
19-1-11	O.C.B./ A.C.B / V.C.B	Each	1450	-	1450
19-1-12	Ceiling/cabin/bracket/pedestal/table fan.	Each	161	-	161
19-1-13	Paper cartoons/boxes.	Kg	111	-	111
19-1-14	I.C. / M.C. switches / D.P. / D.B./ T.P. / feeder pillar etc.	Kg	155	-	155
19-1-15	Meters (Ammeter / Voltmeter/Energy meter, etc..)	Kg	228	-	228
19-1-16	O.C.B./ A.C.B / V.C.B	Each	356	-	356
19-1-17	Ceiling/cabin/bracket/pedestal/table fan.	Each	393	-	393
19-1-18	Air circulators	Each	613	-	613
19-1-19	Fluorescent/LED tube light fittings	Each	14	-	14
19-1-20	Street/flood light fittings.	Each	56	-	56
19-1-21	Geysers	Each	102	-	102
19-1-22	Accessories such as tube starter / bell / holder/ ceiling rose / MCB etc.	Kg	16	-	16
19-1-23	Chokes / condenser / small coils / motor starter etc.	Kg	36	-	36
19-1-24	Lift ropes / belts	Kg	22	-	22
19-1-25	Hot water boilers	Each	303	-	303
19-1-26	Electric motors	HP	422	-	422
19-1-27	Water pump sets.	HP	435	-	435
19-1-28	A.C compressors	TR	517	-	517
19-1-29	Window air conditioning unit.	TR	1728	-	1728
19-1-30	Outdoor unit of split air conditioner.	TR	1785	-	1785
19-1-31	Indoor unit of split air conditioner.	Each	645	-	645
19-1-32	Copper piping of air conditioning system.	Kg	278	-	278
19-1-33	Instant type water cooler	Each	602	-	602
19-1-34	Storage type Water cooler	Litre	34	-	34
19-1-35	Refrigerator up to 165 ltr.	Each	657	-	657
19-1-36	Refrigerator above 165 ltr.	Each	1122	-	1122
19-1-37	Air coolers without fan.	Each	475	-	475
19-1-38	Air coolers with fan.	Each	720	-	720
19-1-39	Transformer oil	Litre	11	-	11
19-1-40	Diesel Generating set	KVA	643	-	643
19-1-41	Transformer	KVA	73	-	73
19-1-42	Telephone exchange (EPABX)	Each	820	-	820

<i>Item No</i> <i>(1)</i>	<i>Short Description</i> <i>(2)</i>	<i>Unit</i> <i>(3)</i>	<i>Material</i> <i>(4)</i>	<i>Labour</i> <i>(5)</i>	<i>Total</i> <i>(6)</i>
19-1-43	Telephone instrument	Each	34	-	34
19-1-44	Water Purifier	Each	64	-	64
19-1-45	Inverter / UPS	KVA	62	-	62
19-1-46	Voltage Stabilizer	KVA	74	-	74
19-1-47	Amplifier	Each	327	-	327
19-1-48	Mikes	Each	40	-	40
19-1-49	Storage type water purifier	Each	84	-	84
19-1-50	Tubular/SMF Battery	Kg	54	-	54
19-1-51	All types of SS material	Kg	38	-	38

(New)

Note :

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

2) The cost of dismantled material as per above mentioned rates shall be deducted from the estimate to the limit of **Rs. 5,000/- (Rs. Five Thousand only)**. If the cost of dismantled material in the estimate exceeds **Rs. 5,000/- (Rs. Five 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 all updated notifications regarding disposal of material in non-hazardous / non-polluting manner shall be followed. Declaration from the contractor for the same shall be taken while calling for tenders.