

**CONSTRUCTION OF NON-RESIDENTIAL BUILDINGS FOR 5TH VAHINI
U.P.S.S.F. AT DISTRICT SAHARANPUR (U.P.)**

TENDER BOQ (CIVIL WORKS)

S.N.	DESCRIPTION OF ITEM OF WORK	UNIT	QUANTITY
1	2	3	4
1	Earth work in surface excavation not exceeding 30 cm in depth but exceeding 1.5 m in width as well as 10 sqm on plan including getting out and disposal of excavated earth upto 50 m and lift upto 1.5 m, as directed by Engineer-in- Charge:	Cum.	751.67
2	Earth work in surface excavation not exceeding 30 cm in depth but exceeding 1.5 m in width as well as 10 sqm on plan including getting out and disposal of excavated earth upto 50 m and lift upto 1.5 m, as directed by Engineer-in- Charge:	Cum.	20992.31
3	Excavating, supplying and filling of local earth (including royalty) by mechanical transport upto a lead of 5km also including ramming and watering of the earth in layers not exceeding 20 cm in trenches, plinth, sides of foundation etc. complete.	Cum.	12925.85
4	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m :		
	All kinds of soil		
	Pipes, cables etc. exceeding 80 mm dia. But not exceeding 300 mm dia	Rmt	7750.00
5	Providing, laying and jointing P.V.C. pipes including testing of joints etc. complete : 150 mm dia pipe		2700.00
6	Supplying and filling in plinth with sand under floors, including watering, ramming, consolidating and dressing complete.	Cum.	1270.09
7	Supplying & Laying chemical emulsion in sealed containers including delivery as specified. Chlorpyrifos/Lindane emulsifiable concentrate of 20%.	Sqm	8489.62
8	Treatment of soil under existing floors using chemical emulsion @ one litre per hole, 300 mm apart including drilling 12 mm diameter holes and plugging with cement mortar 1 :2(1 cement : 2 Coarse sand) to match the existing floor: With Chlorpyrifos/Lindane E.C. 20% with 1% concentration. (ANTI- TERMITE TREATMENT)	Sqm	221.75
9	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:4:8 (1 Cement : 4 coarse sand (zone-II) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum.	1943.39
10	Applying a coat of residual petroleum bitumen of grade of VG-10 of approved quality using 1.7 kg per square metre on damp proof course after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.	Sqm	650.90
11	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level :		
	1:1.5:3 (1 cement : 1.5 coarse sand (zone-III) derived from natural sources : 3 graded stone aggregate 20 mm nominal size derived from natural sources)	CUM.	1447.21
12	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. above plinth level up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement :		
	1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) derived from natural sources : 3 graded stone aggregate 20 mm nominal size derived from natural sources)	Cum	76.54
13	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases above plinth level up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement with 1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) derived from natural sources : 3 graded stone aggregate 20 mm nominal size derived from natural sources).	Cum	101.84
14	Centering and shuttering including strutting, propping etc. and removal of form for :		
	Foundations, footings, bases of columns, etc. for mass concrete	Sqm	3234.14
	Walls (any thickness) including attached pilasters, buttresses, plinth and string courses etc.	Sqm.	12852.84
	Suspended floors, roofs, landings, balconies and access platform	Sqm.	26613.83
	Lintels, beams, plinth beams, girders, bressumers and cantilevers	Sqm	30702.87
	Columns, Pillars, Piers, Abutments, Posts and Struts	Sqm	18164.89
	Stairs, (excluding landings) except spiral-staircases	Sqm	193.49
	Edges of slabs and breaks in floors and walls Under 20 cm wide	Rmt	3139.65
15	Add for plaster drip course in plastered surface or moulding to R.C.C. projections.	M	8517.14
16	Extra for brick work / AAC block masonry / Tile brick masonry in superstructure above floor V level, for each four floors or part thereof by mechanical means.	cum	338.96

17	Boring with hydraulic piling rigs with power units, providing and installing cast in situ single under reamed piles of specified diameter and length below pile cap in M-25 cement concrete, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and the length of the pile to be embedded in pile cap etc. all complete. (Length of pile for payment shall be measured upto to the bottom of pile cap) : 11m Depth		
	300 mm dia piles	Rmt.	497.00
	400 mm dia piles	M	8267.00
	550 mm dia piles	M	7634.00
18	Vertical load testing of piles in accordance with IS 2911 (Part IV) including installation of loading platform by Kentledge/Anchor piles method and preparation of pile head or construction of test cap and dismantling of test cap after test etc. complete as per specification & the direction of Engineer-in-charge. Note: 1. Initial and Routine Load Test shall not be carried out by Dynamic method of testing. Note: 2. Testing agency shall submit the design of loading platform for the approval of Engineer-in-charge.		
	Group of two or more piles upto 50 tonne Safe capacity	PER TEST	22.00
	Initial test (Test Load 2.5 times the Safe capacity)	PER TEST	49.00
19	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, upto 90 metre depth below ground level.		
	All types of soil		
	400 mm dia	M	675.00
20	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge.		
	200 mm nominal size dia	M	405.00
21	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.		
	200 mm nominal size dia	M	270.00
22	Supplying, filling, spreading & leveling stone boulders of size range 5 cm to 20 cm, in recharge pit, in the required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	CUM	66.15
23	Supplying, filling, spreading & leveling gravels of size range 5 mm to 10 mm, in the recharge pit, over the existing layer of boulders, in required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	CUM	238.68
24	Supplying, filling, spreading & leveling coarse sand of size range 1.5 mm to 2 mm in recharge pit, in required thickness over gravel layer, for all leads & lifts, all complete as per direction of Engineer -in-charge.	CUM	66.15
25	Gravel packing in tubewell construction in accordance with IS: 4097, including providing gravel fine/ medium/ coarse, in required grading & sizes as per actual requirement, all complete as per direction of Engineer-in-charge.	CUM	238.68
26	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water samples & getting tested in approved laboratory, i/c disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	Hrs.	270.00
27	Providing and fixing suitable size threaded mild steel cap or spot welded plate to the top of bore well housing/ casing pipe, removable as per requirement, all complete for borewell of: 200 mm dia	No.	27.00
28	Providing and fixing Bail plug/ Bottom plug of required dia to the bottom of pipe assembly of tubewell as per IS:2800 (part I). 200 mm dia	No.	27.00
29	Thermo-Mechanically Treated bars of grade Fe-500D or more work such as in reinforced concrete or reinforced brick work (when not included in overall rates) wrought to required shape as necessary including bending for proper completion of the work and including supply of steel its wastage.	Qtl.	12420.55
30	Thermo-Mechanically Treated bars of grade Fe-500 D or more work such as in reinforced concrete or reinforced brick work (when not included in overall rates) wrought to required shape as necessary including bending for proper completion of the work and including supply of steel its wastage.	Qtl.	10398.83
31	Providing and laying in position ready mixed or site batched design mix cement concrete for reinforced cement concrete work; using coarse aggregate and fine aggregate derived from natural sources, Portland Pozzolana / Ordinary Portland /Portland Slag cement, admixtures in recommended proportions as per IS: 9103 to accelerate / retard setting of concrete, to improve durability and workability without impairing strength; including pumping of concrete to site of laying, curing, carriage for all leads; but excluding the cost of centering, shuttering, finishing and reinforcement as per direction of the engineer-in-charge; for the following grades of concrete. Note: Extra cement up to 10% of the minimum specified cement content in design mix shall be payable separately. In case the cement content in design mix is more than 110% of the specified minimum cement content, the contractor shall have discretion to either re-design the mix or bear the cost of extra cement.		
	All works upto plinth level. Concrete of M30 grade with minimum cement content of 350 kg /cum	Cum	7114.93

32	Providing and laying in position ready mixed or site batched design mix cement concrete for reinforced cement concrete work; using coarse aggregate and fine aggregate derived from natural sources, Portland Pozzolana / Ordinary Portland /Portland Slag cement, admixtures in recommended proportions as per IS: 9103 to accelerate / retard setting of concrete, to improve durability and workability without impairing strength; including pumping of concrete to site of laying, curing, carriage for all leads; but excluding the cost of centering, shuttering, finishing and reinforcement as per direction of the engineer-in-charge; for the following grades of concrete.		
	All works above plinth level upto floor V level. Concrete of M30 grade with minimum cement content of 350 kg /cum	Cum	8236.99
33	Add for using extra cement in the items of design mix over and above the specified cement content therein.	Qtl	
34	Extra for R.C.C./ B.M.C/ R.M.C. work above floor V level for each four floors or part thereof.	Cum	320.31
	IX level for each four floors or part thereof.		
35	Brick Work with common burnt clay F.P.S (non modular) brick of class designation 7.5 in foundation and plint in : Cement mortar 1:6 (1 cement : 6 coarse sand)	Cum	1675.25
36	15 mm cement plaster on rough side of single or half brick wall of mix: 1:4 (1 cement : 4 coarse sand)	Sqm	1155.91
37	Extra for additional height in centering, shuttering where ever required with adequate bracing, propping etc., including cost of de-shuttering and decentering at all levels, over a height of 3.5 m, for every additional height of 1 metre or part thereof (Plan area to be measured).	Sqm	14722.82
38	Add for using extra cement in the items of design mix over and above the specified cement content therein.	Qtl	
39	Providing and laying Autoclaved Aerated concrete(AAC) blocks masonry with 150 mm to 300 mm thick with Grade-I AAC blocks of density 551 to 650 kg/cum conforming to IS:2185 (Part 3) in super structure above plinth level up to floor V level with RCC band at sill level and lintel level with approved block laying polymer modified adhesive mortar all complete as per direction of Engineer-in-Charge.	Cum	1482.67
40	Providing and laying Autoclaved Aerated concrete(AAC) blocks masonry 100 mm/ 125 mm thick with Grade-I AAC blocks of density 551 to 650 kg/cum conforming to IS:2185 (Part 3) in super structure above plinth level up to floor V level in cement mortar 1 : 4 (1 cement: 4 coarse sand). The rate includes providing and placing in position 2 Nos 6 mm dia M.S. bars at every third course of masonry work.	Cum	98.61
41	Brick Work with common burnt clay F.P.S (non modular) brick of class designation 7.5 in super structure above plinth level up to floor V level in all shapes and sizes in : Cement mortar 1:6 (1 cement : 6 coarse sand)	Cum	5562.83
42	Half Brick masonry with common burnt clay F.P.S (non modular) brick of class designation 7.5 in super structure above plinth level up to floor V level Cement mortar 1:4 (1 cement : 4 coarse sand)	Sqm	9454.18
43	Extra for providing lipping with 2nd class teak wood battens 25 mm minimum depth on all edges of flush door shutters (over all area of door shutter to be measured).	Sqm	833.10
44	Providing and fixing fly proof galvanised M.S. wire gauze to windows and clerestory windows using galvanised M.S. wire gage with average width of aperture 1.4 mm in both directions with wire of dia. 0.63 mm.With 12 mm mild steel U beading.	Sqm	19.70
45	Providing and fixing Oxidized iron door bolts ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade with nuts and screws etc. complete : 250x16 mm	Nos.	107.00
46	Providing and fixing Oxidized iron tower bolts ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade with necessary screws etc. complete : 250x10 mm	Nos	392.00
47	Providing and fixing Oxidized iron handles ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade with necessary screws etc. complete :125 mm	Nos	425.00
47	9.21.1 - Providing and fixing ISI marked flush door shutters conforming to IS : 2202 (Part I) non-decorative type, core of block board construction with frame of 1st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters: 9.127.2 - Providing & Fixing decorative high pressure laminated sheet of plain / wood grain in gloss / matt/ suede finish with high density protective surface layer and reverse side of adhesive bonding quality conforming to IS : 2046 Type S, including cost of adhesive of approved quality.		
	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	Sqm	1543.76
48	9.21.1 - Providing and fixing ISI marked flush door shutters conforming to IS : 2202 (Part I) non-decorative type, core of block board construction with frame of 1st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters: 9.127.2 - Providing & Fixing decorative high pressure laminated sheet of plain / wood grain in gloss / matt/ suede finish with high density protective surface layer and reverse side of adhesive bonding quality conforming to IS : 2046 Type S, including cost of adhesive of approved quality.		
	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	Sqm	108.12
48	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length.	Cum	34.33

49	Providing and fixing cup board shutters 25 mm thick, with Pre-laminated flat pressed three layer particle board or graded wood particle board IS: 12823 marked, exterior grade (Grade I Type II), having one side decorative lamination and other side balancing lamination, including IInd class teak wood lipping of 25 mm wide x12 mm thick with necessary screws and bright finished stainless steel piano hinges, complete as per direction of the Engineer-in-Charge	SQM.	
50	Providing and fixing glazed shutters for doors, windows and clerestory windows using 4 mm thick float glass panes, including ISI marked M.S. pressed butt hinges bright finished of required size with necessary screws. 30mm thick Second class teak wood	Sqm	676.01
51	Providing and fixing factory made uPVC white colour sliding lazed window upto 1.50 m in height dimension comprising of uPVC multi-chambered frame with in-built roller track and sash extruded profiles duly reinforced with 1.60 ± 0.2 mm thick galvanized mild steel section made from roll forming process of required length (shape & size according to uPVC profile), appropriate dimension of uPVC extruded glazing beads and uPVC extruded interlocks, EPDM gasket, wool pile, zinc alloy (white powder coated) touch locks with hook, zinc alloy body with single nylon rollers (weight bearing capacity to be 40 kg), G.I fasteners 100 x 8 mm size for fixing frame to finished wall and necessary stainless steel screws etc. Profile of frame & sash shall be mitred cut and fusion welded at all corners, including drilling of holes for fixing hardware's and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealant over backer rod of required size and of approved quality, all complete as per approved drawing & direction of Engineer-in-Charge. (Single / double glass panes, wire mesh and silicon sealant shall be paid separately). Variation in profile dimension in higher side shall be accepted but no extra payment on this account shall be made.		
	Three track three panels sliding window with fly proof SS wire mesh (Two nos. glazed & one no. wire mesh panels) made of (small series) frame 92 x 44 mm & sash 32 x 60 mm both having wall thickness of 1.9 ± 0.2 mm and single glazing bead of appropriate dimension (Area of window upto 1.75 sqm).	Sqm	373.70
52	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6 mm angle iron and 3 mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer.		
	Using M.S. angels 40x40x6 mm for diagonal braces	Sqm	7.56
51	Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters. 80x1.25 mm M.S. laths with 1.25 mm thick top cover	Sqm	58.49
52	Providing and fixing ball bearing for rolling shutters.	Nos	14.00
53	Providing and fixing factory made ISI marked steel glazed doors, windows and ventilators, side /top /centre hung, with beading and all members such as F7D,F4B, K11 B and K12 B etc. complete of standard rolled steel sections, joints mitred and flash butt welded and sash bars tenoned and riveted, including providing and fixing of hinges, pivots, including priming coat of approved steel primer, but excluding the cost of other fittings, complete all as per approved design, (sectional weight of only steel members shall be measured for payment).		
	Fixing with 15x3 mm lugs 10 cm long embedded in cement concrete block 15x10x10 cm of C.C. 1:3:6 (1 Cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)	KG	907.20
54	Providing and fixing T-iron frames for doors, windows and ventilators of mild steel Tee-sections, joints mitred and welded, including fixing of necessary butt hinges and screws and applying a priming coat of approved steel primer. Fixing with 15x3 mm lugs 10 cm long embedded in cement concrete block 15x10x10 cm of C.C. 1:3:6 (1 Cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)	SQM.	
55	Providing and fixing M.S. Tubular frames for doors, windows, ventilators and cupboard with rectangular/ L-Type sections, made of 1.60 mm thick M.S. Sheet, joints mitred, welded and grinded finish, with profiles of required size, including fixing of necessary butt hinges and screws and applying a priming coat of approved steel primer.		
	Fixing with 15x3 mm lugs 10 cm long embedded in cement concrete block 15x10x10 cm of C.C. 1:3:6 (1 Cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)	Cum	14089.79
56	Steel work in built up tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete. Hot finished welded type tubes	Kg	13736.07
57	Providing corrugated G.S. sheet roofing including vertical / curved surface fixed with polymer coated J or L hooks, bolts and nuts 8 mm diameter with bitumen and G.I. limpet washers or with G.I. limpet washers filled with white lead, including a coat of approved steel primer and two coats of approved paint on overlapping of sheets complete (up to any pitch in horizontal/ vertical or curved surfaces), excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.	Sqm	266.62
58	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required. In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	kg.	5941.52
58	Providing and fixing M.S. grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete. Fixed to steel windows by welding	Kg	38858.49

59	Providing and fixing factory made uPVC white colour sliding glazed window above 1.50 m in height dimension comprising of uPVC multi-chambered frame with in-built roller track and sash extruded profiles duly reinforced with 1.60 ± 0.2 mm thick galvanized mild steel section made from roll forming process of required length (shape & size according to uPVC profile), appropriate dimension of uPVC extruded glazing beads, uPVC extruded interlocks and uPVC extruded Inline sash adaptor (if required), EPDM gasket, wool pile, zinc alloy (white powder coated) handle on one side of extreme panel along with zinc plated mild steel multi point locking having transmission gear with keeps, zinc alloy (white powder coated) touch lock with hook (if required for wire mesh panel), stainless steel (SS 304 grade) body with adjustable double nylon rollers (weight bearing capacity to be 120 kg), G.I fasteners 100 x 8 mm size for fixing frame to finished wall and necessary stainless steel screws etc. Profile of frame & sash shall be mitred cut and fusion welded at all corners, including drilling of holes for fixing hardware's and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealant over backer rod of required size and of approved quality, all complete as per approved drawing & direction of Engineer-in-Charge. (Single / double glass panes, wire mesh and silicon sealant shall be paid separately). Variation in profile dimension in higher side shall be accepted but no extra payment on this account shall be made.		
	Two track two panels sliding window made of (big series) frame 67 x 50 mm & sash 46 x 62 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead / double glazing bead of appropriate dimension. (Area of window above 2.50 sqm upto 4.00 sqm.)	Sqm	758.74
59	Providing and fixing factory made uPVC glazed/wire mesh windows/ doors comprising of lead free uPVC multi-chambered frame, sash and mullion/coupler (where ever required) extruded profiles having minimum wall thickness of 1.70 mm for Series R1 and R2 profiles and 2.10 mm for Series R3 and R4 profiles conforming to EN: 12608 in any shape, colour and design duly reinforced with galvanized mild steel section made of required shape & size as per CPWD Specification, uPVC extruded glazing beads, interlocks and Inline sash adaptor (where ever required) of appropriate dimension, EPDM gasket, hardware, SS 304 grade fasteners of minimum 8 mm dia with countersunk head, comprising of matching polyamide PA6 grade sleeve for fixing frame to finished wall as per IS 1367 : Part 1 to 1 4 , plastic packers, plastic caps and necessary stainless steel screws etc. Profile of frame, sash & mullion (if required) shall be mitred cut and fusion welded/mechanically jointed duly sealed at all corners, including drilling of holes for fixing hardware and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealant over backer rod of approved size and quality, all complete as per approved drawing conforming to CPWD specification & direction of Engineer-in-Charge. Section of steel reinforcement and cross sections of uPVC profiles to be as per design approved by Engineer-in-Charge. Wire mesh / Glazing of plain/ toughened/ laminated/ double glass unit with/ without high performance coatings as per design requirements and conforming to IS: 3548 & IS: 16231 shall be paid separately. Note:- Structural design proof checked from a Government Engineering Institute, to be provided by the manufacturer for (i) Sites with basic wind speed > 45 m/sec as per IS 875 -- Part 3 (ii) Sites with structure height more than 20m for all wind speeds		
	Casement door single panel with zinc alloy (zamak) 3D hinges, multi-point locking system with cylinder, zinc alloy. (zamak) powder coated handles on both sides. Using R3 series with frame (55 mm & above) x (50 mm & above) & sash (55 mm & above) x (85 mm & above) (Height upto 2.5 metre).	Sqm	80.04
60	Providing and fixing factory made single extruded WPC (Wood Polymer Composite) solid door/window/Ceostory windows & other Frames/Chowkhat comprising of virgin PVC polymer of K value 58-60 (Suspension Grade), calcium carbonate and natural fibers (wood powder/ rice husk/whea husk) and non toxic additives (maximum toxicity index of 12 for 100 gms) fabricated with miter joints after applying PVC solvent cement and screwed with full body threaded star headed SS screws having minimum frame density of 750 kg/cum, screw withdrawal strength of 2200 N (Face) & 1100 N (Edge), minimum compressive strength of 58 N/mm2, modulus of elasticity 900 N/mm2 and resistance to spread of flame of Class A category with property of being termite/borer proof, water/moisture proof and fire retardant and fixed in position with M.S hold fast/lugs/SS dash fasteners of required dia and length complete as per direction of Engineer-In- Charge.	M	608.37
61	Providing and fixing double scaffolding system (cup lock type) on the exterior side of building/structure, upto 25 metre height, above ground level, including additional rows of scaffolding in stepped manner as per requirement of site, made with 40mm dia M.S. tube, placed 1.5 metre centre to centre, horizontal & vertical tubes joint with cup & lock system with M.S. Tubes, M.S. tube challis, M.S. clamps and staircase system in the scaffolding for working platform etc. and maintaining it in a serviceable condition for execution of work of cleaning and/ or pointing and/ or applying chemical and removing it thereafter. The scaffolding system shall be stiffened with bracings, runners, connecting with the building etc, wherever required, if feasible, for inspection of work at required locations with essential safety features for the workmen etc., complete as per directions and approval of Engineer-in-charge. Note:- (1) The elevational area of the scaffolding shall be measured for payment purpose. (2) The payment will be made once only for execution of all items for such works.	sqm	
62	Providing and fixing factory made single extruded WPC (Wood Polymer Composite) solid plain flush door shutter of required size comprising of virgin polymer of K value 58-60 (Suspension Grade), calcium carbonate and natural fibers (wood powder/ rice husk/wheat husk) and non toxic additives (maximum toxicity index of 12 for 100 gms) having minimum density of 650 kg/cum and screw withdrawal strength of 1800 N (Face) & 900 N (Edge), minimum compressive strength 50 N/mm2, modulus of elasticity 850 N/mm2 and resistance to spread of flame of Class A category with property of being termite/borer proof, water/moisture proof and fire retardant and fixing with stainless steel butt hinges of required size with necessary full body threaded star headed counter sunk S.S screws, all as per direction of Engineer-In- Charge.		
	30 mm thick	Sqm	206.79
63	Providing and fixing 12 mm thick frameless toughened glass door shutter of approved brand and manufacture, including providing and fixing top & bottom pivot & double acting hydraulic floor spring type fixing arrangement and making necessary holes etc. for fixing required door fittings, all complete as per direction of Engineer-in-charge.	Sqm	18.36

64	Providing and fixing approved brand and manufacture SS 304 grade Glass to Glass Lock Round type with SS screws etc. complete in all respects as per manufacturers' specifications & as directed by Engineer-in-charge.	Each	8.00
65	Providing and fixing approved brand and manufacture SS 304 grade D type 900 mm Pull Handle with 32mm dia fixed with SS screws etc. complete in all respects.	Each	8.00
66	Providing and fixing stainless steel (Grade 304) railing made of hollow tubes, channels, plates etc. including welding grinding buffing, polishing and making corvechare (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing railing with necessary accessories and stainless steel dash fasteners, stainless steel bolts etc. of required size on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer in charge.(for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.	Kg	14823.33
67	Providing & fixing glass panes with putty and glazing clips in steel doors, windows, clerestory windows, all complete with 4.0 mm thick glass panes	Sqm	1296.38
68	Providing and fixing angle iron frames for doors, windows and ventilators of mild steel Angle sections of size 35x35x5 mm, joints mitred and welded by angle iron 35x35x5 mm or 35x 5 mm flat pieces to the existing T-iron frame or to the wall with dash fastener, including fixing of necessary butt hinges and screws and applying a priming coat of approved steel primer, all complete as per the direction of Engineer-in-charge.	KG	
69	Providing and fixing Fiber Glass Reinforced plastic (FRP) Door Frames of cross-section 90 mm x 45 mm having single rebate of 32 mm x 15 mm to receive shutter of 30 mm thickness .The laminate shall be moulded with fire resistant grade unsaturated polyester resin and chopped mat . Door frame laminate shall be 2 mm thick and shall be filled with suitable wooden block in all the three legs. The frame shall be covered with fiber glass from all sides. M.S. stay shall be provided at the bottom to steady the frame.	M	957.40
70	30 mm thick Glass Fibre Reinforced Plastic (FRP) panelled door shutter of required colour and approved brand and manufacture, made with fire - retardant grade unsaturated polyester resin, moulded to 3 mm thick FRP laminate for forming hollow rails and styles, with wooden frame and suitable blocks of seasoned wood inside at required places for fixing of fittings, cast monolithically with 5 mm thick FRP laminate for panels conforming to IS: 14856, including fixing to frames.	Sqm	333.21
71	Providing and fixing fly proof stainless steel grade 304 wire gauge, to windows and clerestory windows using wire gauge with average width of aperture 1.4 mm in both directions with wire of dia. 0.50 mm all complete.		
	With 2nd class teak wood beading 62X19 mm	Sqm	758.74
72	Providing and fixing wire gauge shutters using stainless steel grade 304wire gauge with wire of dia 0.5 mm and average width of aperture 1.4 mm in both directions for doors, windows and clerestory windows with necessary screws :		
	35mm thick shutter		
	With ISI marked stainless steel butt hinges of required size		
	Second class teak wood	Sqm	350.28
73	Providing and fixing wire gauge shutters using galvanized M.S. wire gauge of average width of aperture 1.4 mm in both directions with wire of dia 0.63 mm, for doors, windows and clerestory windows with hinges and necessary screws : 35 mm thick shutters With ISI marked stainless steel butt hinges of required size Second class teak wood	SQM	
74	Providing and fixing bright finished brass 100 mm mortice latch and lock with 6 levers and a pair of lever handles of approved quality with necessary screws etc. complete.	Sqm	
75	Providing and fixing chromium plated brass curtain rod having wall thickness of 1.25mm with two chromium plated brass brackets fixed with C.P. brass screws and PVC sleeves etc., wherever necessary complete : 20 mm dia	Rmt	114.64
71	Providing and fixing bright /matt finished Stainless Steel sliding door bolt of approved quality & make with necessary screws etc all complete. 250x16 mm	Each	889.00
72	Providing and fixing bright /matt finished Stainless Steel tower bolt of approved quality & make with necessary screws etc all complete. 250x10 mm	Each	2919.00
73	Providing and fixing bright /matt finished Stainless Steel handles of approved quality & make with necessary screws etc all complete. 125mm	Each	4252.00
74	Providing and fixing bright finished brass hanging type floor door stopper with necessary screws, etc. complete.	Each	521.00
75	Providing and fixing aluminium extruded section body tubular type universal hydraulic door closer (having brand logo with IS : 3564, embossed on the body, door weight upto 36 kg to 80 kg and door width from 701 mm to 1000 mm), with double speed adjustment with necessary accessories and screws etc. complete.	Each	521.00
76	Providing and fixing carbon steel galvanised (minimum coating 5 micron) dash fastener of 10 mm dia double threaded 6.8 grade (yield strength 480 N/mm2), counter sunk head, comprising of 10 mm dia polyamide PA 6 grade sleeve, including drilling of hole in frame , concrete/ masonry, etc. as per direction of Engineer-in-charge.	each	
	10 x 60 mm		

77	Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of following operations: A-Applying a slurry coat of neat cement using 2.75 kg/sqm of cement admixed with water proofing compound conforming to IS. 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls upto 300 mm height including cleaning the surface before treatment. B-Laying brick bats with mortar using broken bricks/brick bats 25 mm to 115 mm size with 50% of cement mortar 1:5 (1 cement : 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineerin- charge over 20 mm thick layer of cement mortar of mix 1:5 (1 cement :5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineerin- charge to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs. C-After two days of proper curing applying a second coat of cement slurry using 2.75 kg/ sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge.		
	D-Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 (1 cement :4 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making pattern of 300x300 mm square 3 mm deep. E-The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test.“All above operations to be done in order and as directed and specified by the Engineer-in-Charge :	Sqm	8985.54
78	Providing and applying fibre reinforced elastomeric liquid water proofing membrane with resilient acrylic polymers having Sun Reflectivity Index (SRI) of 105 on top of concrete roof in three coats @10.76 litre/ 10 sqm. One coat of self-priming of elastomeric waterproofing liquid (dilution with water in the ratio of 3:1) and two coats of undiluted elastomeric waterproofing liquid (dry film thickness of complete application/system not less than 500 microns). The operation shall be carried out after scrapping and properly cleaning the surface to remove loose particles with wire brushes, complete in all respect as per the direction of Engineerin- Charge.	Sqm	1654.99
79	12 mm cement plaster : 1:6 (1 cement : 6 coarse sand)	Sqm	54114.51
80	Extra for plastering exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.		
	10 M TO 13 M.	Sqm	1544.26
	13M TO 16 M	Sqm	1545.25
	16M TO 19 M	Sqm	1776.61
	19M TO 22 M	Sqm	1047.67
	22M TO 25 M	Sqm	212.06
81	15 mm cement plaster on rough side of single or half brick wall of mix: 1:6 (1 cement : 6 coarse sand)	Sqm	39153.06
82	Providing and applying 12 mm thick (average) premixed formulated one coat gypsum lightweight plaster having additives and light weight aggregates as vermiculite/ perlite respectively conforming to IS: 2547 (Part - I & II) 1976, applied on hacked / uneven background such as bare brick/ block/ RCC work on walls & ceiling at all floors and locations, finished in smooth line and level etc. complete.	Sqm	2175.93
83	Making grooves 10 to 12 mm wide x 8 mm deep in plaster the all or in ceiling vertically of horizontally as required.	Rmt	2325.68
84	Providing and fixing glass strips in joints of terrazo/ cement concrete floors. 40 mm wide and 4 mm thick	Rmt	3383.86
85	38 mm thick wood block flooring of first class teak wood laid over 25 mm thick leveling layer of cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 10 mm nominal size) to be paid separately, coated with a thin layer of hot bitumen penetration 80/25 (blown type) @ 2.45 kg per sqm, including fixing blocks in position after dipping in hot bitumen (blown type) up to half depth, planed, levelled smooth and finished complete.	Sqm	697.94
86	Providing and fixing at all height wall panelling with phenol bonded Bamboo Mat board conforming to IS:13958-1994 including providing and fixing to frame work made of 50mm x 50mm hardwood plugs including cutting brick work and fixing in cement mortar and making good the wall etc. and also providing and fixing wooden moulded corner beading of triangular shape to the junction of panelling etc. with iron screws all complete as per direction of Engineer-in-Charge.		
	9mm thickness	Sqm	259.23
87	Providing and laying tactile tile (PAVIT TILES) of size 300x300x9.8mm having with water absorption less than 0.5% and conforming to IS: 15622 of approved make in all colours and shades in for outdoor floors such as footpath, court yard, multi modals location etc., laid on 20mm thick base of cement mortar 1:3 (1 cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as per direction of Engineer-in-Charge.	Sqm	298.60
85	Providing and fixing 1st quality ceramic glazed floor tiles conforming to IS : 15622 of approved make in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge in skirting, risers of steps and dados over 12 mm thick bed of cement Mortar 1:3 (1 cement: 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete.	Sqm	1475.49
86	Cement concrete flooring 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement, including cement slurry, but excluding the cost of nosing of steps etc. complete. 40 mm thick with 20 mm nominal size stone aggregate	Sqm	1831.77
87	Cement plaster skirting (up to 30 cm height) with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement. 18 mm thick.	Sqm	154.87

88	Providing and laying rectified Glazed Ceramic floor tiles of size 300x300 mm or more (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in colours White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement: 4 Coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joints with white cement and matching pigments etc., complete.	Sqm	249.26
89	Providing and fixing 1st quality ceramic glazed wall tiles conforming to IS: 15622, of approved make, in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge, in skirting, risers of steps and dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm, including pointing in white cement mixed with pigment of matching shade complete.	Sqm	9525.14
90	Providing and laying Vitrified tiles in floor in different sizes with water absorption less than 0.08% and conforming to IS:15622, of approved brand & manufacturer, in all colours and shade, laid on 20 mm thick cement mortar 1:4 (1 cement: 4 coarse sand) jointing with grey cement slurry @3.3 kg/sqm including grouting the joints with white cement and matching pigments etc. The tiles must be cut with the zero chipping diamond cutter only . Laying of tiles will be done with the notch trowel, plier, wedge, clips of required thickness, leveling system and rubber mallet for placing the tiles gently and easily.		
	Double charge vitrified tile polished finish of size of Tile 600 x 600 mm	Sqm	9546.26
91	Double charge vitrified tile polished finish of size of Tile 600 x 600 mm	Sqm	1139.45
92	Glazed Vitrified tiles Matt/Antiskid finish of size of Tile 600 x 600 mm	SQM.	
93	Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) :		
	25 mm thick	Sqm	1213.92
94	Kota stone slabs 20 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement: 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	Sqm	76.07
92	Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge. Polished Granite stone slab colour of Black, Cherry/Ruby Red or equivalent	Sqm	6877.24
93	Providing and fixing machine cut, mirror/ eggshell polished , Granite stone work for wall lining (veneer work) including dado, skirting, risers of steps etc., in required design and pattern wherever required, stones of different finished surface texture, on 12 mm (average) thick cement mortar 1:3 (1 cement : 3 coarse sand) laid and jointed with white cement slurry @ 3.3 kg/sqm including pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing, polishing etc. all complete as per Architectural drawings, and as directed by the Engineer-in-Charge." 18 mm thick Granite in any colour and shade.	Sqm	3827.14
94	Marble work gang saw cut (polished and machine cut) of thickness 18 mm for wall lining (veneer work), backing filled with a grout of average 12 mm thick in cement mortar 1:3 (1 cement : 3 coarse sand), including pointing with white cement mortar 1:2 (1 white cement : 2 marble dust) with an admixture of pigment to match the marble shade (To be secured to the backing by means of cramps, which shall be paid for separately).		
	Raj Nagar Plain white marble/ Udaipur green marble/ Zebra black marble.		
	Area of slab over 0.50 sqm	SQM.	
95	Providing and fixing 18mm thick gang saw cut mirror polished premoulded and prepolished) machine cut for kitchen platforms, vanity counters, window sills , facias and similar locations of required size of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edge to give high gloss finish etc. complete at all levels.		
	Granite of any colour and shade		
	Area of slab over 0.50 sqm	Sqm	267.01
96	Providing and laying tactile tile (PAVIT TILES) of size 300x300x9.8mm having with water absorption less than 0.5% and conforming to IS: 15622 of approved make in all colours and shades in for outdoor floors such as footpath, court yard, multi modals location etc., laid on 20mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as per direction of Engineer-in-Charge.	Sqm	269.31
97	Providing and fixing concertina coil fencing with punched tape concertina coil 600 mm dia 10 metre openable length (total length 90 m), having 50 nos rounds per 6 metre length, upto 3 m height of wall with existing angle iron 'Y' shaped placed 2.4m or 3.00 m apart and with 9 horizontal R.B.T. reinforced barbed wire, stud tied with G.I. staples and G.I. clips to retain horizontal, including necessary bolts or G.I. barbed wire tied to angle iron, all complete as per direction of Engineer-in-charge, with reinforced barbed tape(R.B.T.) / Spring core (2.5 mm thick) wire of high tensile strength of 165 kg/ sq. mm with tape (0.52 mm thick) and weight 43.478 gm/ metre (cost of M.S. angle, C.C. blocks shall be paid separately)	Rmt	2723.90
97	French spirit polishing : Two or more coats on new works including a coat of wood filler	Sqm	1266.24
98	Painting wood work with Deluxe Multi Surface Paint of required shade. Two or more coat applied @ 0.90 ltr/10 sqm over an under coat of primer applied @0.75 ltr/10 sqm of approved brand and manufacture)	Sqm	3737.00

99	Painting Steel work with Deluxe Multi Surface Paint to give an even shade. Two or more coat applied @ 0.90 ltr/ 10 sqm over an under coat of primer applied @ 0.80 ltr/ 10 sqm of approved brand and manufacture	Sqm	3165.26
100	Finishing walls with textured exterior paint of required shade : New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @ 2.20kg/10 sqm	Sqm	26593.24
101	Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade: New work (Two or more coats applied @ 1.43 ltr/10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/10 sqm)	Sqm	36880.57
102	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.	Sqm	107200.56
103	Distempering with 1st quality acrylic distemper (ready mixed) having VOC content less than 50 gms/litre, of approved manufacturer, of required shade and colour complete, as per manufacturer's specification. New work (two or more coats) over and including water thinnable priming coat with cement primer having VOC content less than 50 gram/litre	Sqm	46855.69
104	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cement: 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including finishing the top smooth.	Sqm	1854.62
105	Brick edging 7cm wide 11.4 cm deep to plinth protection with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 including grouting with cement mortar 1:4 (1 cement : 4 fine sand).	M	1931.94
106	Providing and fixing mineral fibre false ceiling tiles at all heights of size 595X595mm of approved texture, design and pattern. The tiles should have Humidity Resistance (RH) of 99%, Light Reflectance ? 85%, Thermal Conductivity k = 0.052 - 0.057 w/m K, Fire Performance as per (BS 476 pt - 6 & 7) in true horizontal level suspended on interlocking T-Grid of hot dipped all round galvanized iron section of 0.33 mm thick (galvanized @ 120 gsm) comprising of main T runners of 15x32 mm of length 3000 mm, cross T of size 15x32mm of length 1200 mm and secondary intermediate cross T of size 15x32 mm of length 600 mm to form grid module of size 600x600 mm suspended from ceiling using galvanized mild steel item (galvanised@80gsm) 50 mm long 8mm outer diameter M-6 dash fasteners, 6 mm diameter fully threaded hanger rod up to 1000 mm length and L-shape level adjuster of size 85x25x2 mm, spaced at 1200 mm centre to centre along main 'T'. The system should rest on periphery walls /partitions with the help of GI perimeter wall angle of size 24x24X3000 mm made of 0.40 mm thick sheet, to be fixed to the wall with help of plastic rawl plug at 450 mm centre to centre & 40 mm long dry wall S.S. screws. The exposed bottom portion of all T-sections used in false ceiling support system shall be pre-painted with polyester baked paint, for all heights. The work shall be carried out as per specifications, drawings and as per directions of the engineer-in-charge.		
	With 20 mm thick beveled tegular mineral fibre false ceiling tile (NRC 0.7)	Sqm	4075.68
107	Providing and laying water proofing treatment to vertical and horizontal surfaces of depressed portions of W.C., kitchen and the like consisting of: (i) Ist course of applying cement slurry @ 4.4 kg/sqm mixed with water proofing compound conforming to IS 2645 in recommended proportions including rounding off junction of vertical and horizontal surface. (ii) IInd course of 20 mm cement plaster 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound in recommended proportion including rounding off junction of vertical and horizontal surface. (iii) IIIrd course of applying blown or residual bitumen applied hot at 1.7 kg. per sqm of area. (iv) IVth course of 400 micron thick PVC sheet. (Overlaps at joints of PVC sheet should be 100 mm wide and pasted to each other with bitumen @ 1.7 kg/sqm).	Sqm	734.25
108	Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm, at 1200 mm centre to centre, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 5x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the spacing of 1200 mm centre to centre, to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre, with 25mm long dry wall screws @ 230 mm interval,		
	including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound , jointing tapes , finishing with jointing compound in 3 layers covering upto 150 mm on both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting with :	Sqm	1868.44
108	Providing and fixing GI Clip in Metal Ceiling System of 600x600 mm module which includes providing and fixing 'C' wall angle of size 20x30x20 mm made of 0.5 mm thick pre painted steel along the perimeter of the room with help of nylon sleeves and wooden screws at 300 mm center to centre, suspending the main C carrier of size 10x38x10 mm made of G.I steel 0.7 mm thick from the soffit with help of soffit cleat 37x27x25x1.6 mm, rawl plugs of size 38x12 mm and C carrier suspension clip and main carrier bracket at 1000 mm c/c. Inverted triangle shaped Spring Tee having height of 24 mm and width of 34 mm made of GI steel 0.45 mm thick is then fixed to the main C carrier and in direction perpendicular to it at 600 mm centers with help of suspension brackets. Wherever the main C carrier and spring T have to join, C carrier and spring T connectors have to be used. All sections to be galvanized @ 120 gms/sqm (both side inclusive), fixing with clip in tiles into spring T with :		

	GI Metal Ceiling Clip in plain Beveled edge global white color tiles of size 600x600 and 0.5 mm thick with 25 mm height, made of G I sheet having galvanizing of 100 gms/ sqm (both sides inclusive) and 20% perforation area with 1.8 mm dia holes and having NRC of 0.5, electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after bending and perforation.	Sqm	1402.25
109	Providing and fixing of expansion joint system related with floor location as per drawings and direction of Engineer-In-Charge. The joints system will be of extruded aluminum base members, self aligning / self centering arrangement and support plates etc. as per ASTM B221-02. The system shall be such that it provides floor to floor /floor to wall expansion control system for various vertical location in load application areas that accommodates multi directional seismic movement without stress to it's components. System shall consist of metal profiles with an universal aluminum base member designed to accommodate various project conditions and finish floor treatments. The cover plate shall be designed of width and thickness required to satisfy projects movement and loading requirements and secured to base members by utilizing manufacturer's pre engineered self-centering arrangement that freely rotates / moves in all directions. The Self - centering arrangement shall exhibit circular sphere ends that lock and slide inside the corresponding aluminum extrusion cavity to allow freedom of movement and flexure in all directions including vertical displacement. Provision of Moisture Barrier Membrane in the Joint System to have watertight joint is mandatory requirement all as per the manufactures design and as approved by Engineer -in- Charge. (Material shall conform to ASTM 6063).		
	Floor Joint of 100 mm gap	Rmt	205.00
110	Providing and fixing of expansion joint system related with wall joint (internal/external) location as per drawings and direction of Engineer-In- Charge. The joints shall be of extruded aluminum base members, self aligning / centering arrangement and support plates as per ASTM B221- 02. The material shall be such that it provides an Expansion Joints System suitable for vertical wall to wall/ wall to corner application, both new and existing construction in office Buildings & complexes with no slipping down tendency amongst the components of the Joint System. The Joint System shall utilize light weight aluminum profiles exhibiting minimal exposed aluminum surfaces mechanically snap locking the multicellular to facilitate movement. (Material shall confirm to ASTM 6063).		
	Wall Joint of 100 mm gap	Rmt	72.00
111	Providing and fixing of expansion joint system of approved make and manufactures for various roof locations as per approved drawings and direction of Engineer-In-Charge. The joints shall be of extruded aluminum base members with, self aligning and self centering arrangement support plates asper ASTM B221-02. The system shall be such that it provides watertight roof to roof/roof to corner joint cover expansion control system that is capable of accommodating multidirectional seismic movement without stress to its components. System shall consist of metal profile that incorporates a universal aluminum base member designed to accommodate various project conditions and roof treatments. The cover plate shall be designed of width and thickness required to satisfy movement and loading requirements and secured to base members by utilizing manufacturer's pre-engineered self-centering arrangement that freely rotates / moves in all directions. The Self centering arrangement shall exhibit circular sphere ends that lock and slide inside the corresponding aluminum extrusion cavity to allow freedom of movement and flexure in all directions including vertical displacement. The Joint System shall resists damage or deterioration from the impact of falling ice, exposure to UV, airborne contaminants and occasional foot traffic from maintenance personnel. Provision of Moisture Barrier Membrane in the Joint System to have water tight joint is mandatory requirement. (Material shall confirm to ASTM 6063).		
	Roof Joint of 100 mm gap	Rmt	41.00
112	Providing and fixing fire resistant door frame of section 143 x 57 mm having built in rebate made out of 16 SWG G.I. sheet (zinc coating not less than 120 gm/sqm) duly filled with vermiculite based concrete mix, suitable for mounting 60 minutes fire rated door shutters. The frame is fitted with intumescent fire seal strip of size 10x4 mm (minimum) around the frame and fixing with dash fastener of approved size and make, including applying a coat of approved brand fire resistant primer etc. complete as per direction of Engineer-in-charge.	Rmt	388.20
113	Providing and fixing 50 mm thick glazed fire resistant door shutters of 60 minutes fire rating conforming to IS:3614 (Part-II), tested and certified as per laboratory approved by Engineer-in-charge, with suitable mounting on door frame, consisting of vertical styles, lock rail, top rail 100 mm wide, bottom rail 200 mm wide, made out of 16 SWG G.I.sheet (zinc coating not less than 120 gm/m2) duly filled FR insulation material and fixing with necessary stainless steel ball bearing hinges of approved make, including applying a coat of approved fire resistant primer etc. all complete as per direction of Engineer-in-charge.	Sqm	264.77
114	Providing and fixing glazing in fire resistant door shutters, fixed panels & partitions etc., with G.I. beading made out of 1.6 mm thick G.I. sheet (zinc coating not less than 120 gm/m²) of size 20 x 33 mm screwed with M4 x 38 mm SS screws at distance 75 mm from the edges and 150 mm c/c , including applying a coat of approved fire resistant primer/ powder coating of not less than 30 micron on G.I. beading, & special ceramic tape of 5 x 20 mm size etc complete in all respect as per NBC 2016, IS 16231 (Part 3):2016 and as per direction of Engineer-in-charge with glass of required thickness having 60 minutes of fire resistance both integrity & radiation control (EW60) and minimum 20 minutes of insulation (EI20). The manufacturer have to give test report/certification of fire glass and the glass should have the stamp showing the value of E, EW & EI. The glass shall be tested in approved NABL accredited lab or by any other accreditation body which operates in accordance with ISO/IEC 17011 and accredits labs as per ISO/IEC 17025 for testing and calibration scopes shall be eligible. The maximum glazing size shall not be more than 1100x2200 mm (w x h) or 2.42 sqm.	Sqm	16.25
115	Providing and fixing panic bar / latch (Double point) fitted with a single body, Trim Latch & Lock on back side of the Panic Latch of reputed brand and manufacture to be approved by the Engineer- in- charge, all complete.	Nos.	130.00
116	Providing and fixing 18mm thick both sides Pre-laminated cement bonded wood particle board as per IS : 15786:2008 of approved brand and shade with suitable full threaded steel screws etc. in partitions, boxes, shelves, racks and cupboard, kitchen cabinet under kitchen counter etc. all complete as per direction of Engineer-in-charge (Note: Fittings to be paid separately). 18 mm thick	SQM.	

117	Providing and fixing stainless steel soft closing spring hinges at 0 degree hinges (hydraulic type) of approved make/brand to cupboard shutters with full threaded steel screws including making necessary recess in board and finished etc. complete as per direction of Engineer-in-charge.	EACH	
118	Manufacturing, supplying and fixing retro reflective overhead signage boards made up of 3 mm thick aluminium sheet, face to be fully covered with high intensity and encapsulated lens type heat activated retro reflective sheeting conforming to type - III of ASTM-D-4956-01 as approved by Engineer-in-charge, letters, borders etc. as per IRC : 67-2001 in silver white with blue colour back ground and with high intensity grade, pasted on substrate by pressure sensitive adhesive backing which shall be activated by applying pressure conforming to class II of ASTM-D-4956-01 and fixing the same to the plate of structural frame work by means of suitable sized aluminium alloys, rivets or bolts & nuts @ 300 mm centre to centre all along the periphery as well as in two vertical rows along with theft resistant measures, including the cost of painting with two or more coats of epoxy paint in grey colour on the back side of aluminium sheet including appropriate priming coat.		
	The rate includes the cost of rounding off the corners, lowering down the structural frame work from the gantry, fixing and erecting the same in position all complete as per drawings, specification and direction of the engineer-in-charge.(Structural frame work including M.S. plate to be provided separately. Rectangular area of the sheet only shall be measured for payment).Overhead informatory road signage	Sqm	105.00
116	Providing and fixing G.I. chain link fabric fencing of required width in mesh size 50x50 mm including strengthening with 2 mm dia wire or nuts, bolts and washers as required complete as per the direction of Engineer-in-charge.		
	Made of G.I. wire of dia. 4 mm, PVC coated to achieve outer dia not less than 5 mm in required colour and shade	Sqm	723.46
117	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.		
	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	Kg	11551.38
	Cost of Superstructure Works		
118	Add W.S. Works	RS.	12530481.97
119	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching, refilling & testing of joints complete as per direction of Engineer in Charge.		
	80 mm nominal dia pipes	Rmt	400.00
	100 mm nominal dia pipes	Rmt	1100.00
	150 mm nominal dia pipes	Rmt	2000.00
119	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete :		
	250 mm diameter	Rmt	1400.00
	300 mm diameter	Rmt	150.00
120	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) all-round RCC. pipes including bed concrete as per standard design :		
	150 mm diameter P.V.C. pipe	Rmt	2700.00
	250 mm diameter S.W. pipe	Rmt	1400.00
	300 mm diameter S.W. pipe	Rmt	150.00
121	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) up to haunches of RCC pipes including bed concrete as per standard design :		
	250 mm diameter S.W. pipe	Rmt	1400.00
	300 mm diameter S.W. pipe	Rmt	150.00
122	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand) with R.C.C. top slab with 1:1.5:3 mix (1 cement : 1.5 coarse sand (zone- III) : 3 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand (zone- III) : 8 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design :		
	Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg)		
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	250.00
123	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand) R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 grade Inside size 120x90 cm and 90 cm deep including C.I. cover with frame (medium duty) 500 mm internal diameter, total weight of cover and frame to be not less than 116 kg (weight of cover 58 kg and weight of frame 58 kg) :		
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	100.00
124	Providing and fixing square-mouth S.W. gully trap class SP-1 complete with C.I. grating brick masonry chamber with water tight C.I. cover with frame of 300 x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design:		
	100x100 mm size P type		
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	200.00
125	Providing M.S. foot rests including fixing in manholes with 20x20x10 cm cement concrete blocks 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) as per standard design :		
	With 20x20 mm square bar	Each	800.00

126	Constructing brick masonry chamber for underground C.I. inspection chamber and bends with bricks in cement mortar 1:4 (1 cement : 4 coarse sand) C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover with frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg), R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:5:10 (1 cement : 5 coarse sand (Zone III) : 10 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete as per standard design:		
	Inside dimensions 600x 850 mm and 45 cm deep for pipe line with three or more inlets :		
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	270.00
127	Constructing brick masonry road gully chamber 50x45x60 cm with bricks of class designation 75 in cement mortar 1:4 (1 cement : 4 coarse sand) including 500x450 mm pre-cast R.C.C. horizontal grating with frame complete as per standard design :		
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	27.00
128	Trenching in ordinary soil up to a depth of 60 cm including removal and stacking of serviceable materials and then disposing of surplus soil, by spreading and neatly leveling within a lead of 50 m and making up the trenched area to proper levels by filling with earth or earth mixed with sludge or/and manure before and after flooding trench with water (excluding cost of imported earth, sludge or manure).	Cum	11213.00
129	Supplying and stacking of good earth at site including royalty and carriage up to 1 km (earth measured in stacks will be reduced by 20% for payment).	Cum	11213.00
130	Supplying and stacking at site dump manure from approved source, including carriage up to 1 km (manure measured in stacks will be reduced by 8% for payment) : Screened through sieve of I.S. designation 16 mm	Cum	4048.48
131	Fine dressing of the ground	Sqm	34819.49
132	Supplying and stacking of Good earth at site.	CUM	5101.98
133	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge..	Cum	11213.00
134	Grassing with selection No.1 grass including watering and maintenance of the lawn for 30 days or more till the grass forms a thick lawn, free from weeds and fit for mowing including supplying good earth, if needed (the good earth shall be paid for separately).		
	With grass Turf	Sqm	23547.49
135	Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20% : one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately).	Cum	672.78
136	Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any, with all leads and lifts (cost of manure, sludge or extra good earth if needed to be paid for separately) :	Each	2000.00
	Holes 90 cm dia, and 90 cm deep		
137	Providing and laying Neelgiri/Mexican grass turf with earth 50mm to 60mm thickness of existing ground prepared with proper level and ramming with tools wooden (Dhormos) and than rolling the surface with light roller make the surface smoothen and light watering with sprinkler and maintenance for 30 days or more till the grass establish properly, as per direction of officer-in-charge.	SQM	14577.09
137	SUPPLY OF PLANTS		
A	Supply and stacking of Grevillea robusta (Silver Oak) plant of height 150- 165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	Nos	200.00
B	Supply and stacking of Plumeria acutifolia plant of height 150-165 cm. with 3-4 branches in big size HDPE bag as per direction of the officer-in-charge	Nos	150.00
C	Supply and stacking of Chorisia speciosa plant of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	Nos	150.00
D	Supply and stacking of Polyalthia pendula (Ashok Pendula) plant of height 180-195 cm. in gunny bag of size 30 cm as per direction of the officer-in-charge.	Nos	300.00
E	Supply and stacking of Azadirachta indica (Neem) plant of height 120- 130cm in big polybag of size 25 cm as per direction of the officer-in-charge.	Nos	300.00
F	Supply and stacking of Polyalthia longifolia (Ashok) plant of height 180- 195 cm. in gunny bag of size 30 cm as per direction of the officer-in-charge.	Nos	350.00
G	Supply and stacking of Bauhinia blakeana (Kachnar) plant of height 120- 150 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	Nos	150.00
H	Supply and stacking of Bottle palm plant of ht. 210-240 cm bottom girth 30-35 cm well developed in big HDPE bags.	Nos	200.00

I	Providing and displaying of Areca Palm plant, having ht. 2.40 m to 2.70 m with 12 to 14 suckers, well developed, fresh and healthy with lush green foliage in 35 cm size of Bucket type cement pots & as per direction of the officer-in-charge.	Nos	200.00
138	Flowering & Indoor Potted Plants in 10" earthen Pots	Nos	150.00
139	Providing and laying Synthetic Flooring in required layers as per direction of Engineer-in-charge.	SQM	2096.46
140	Providing and fixing standard Tennis Net as per approved by Engineer-in-charge	Each	6.00
141	Cost of M.S. Pole	NO.	8.00
142	Design (including architectural and structural design and drawing to be carried out as per the Particular specifications of fire and drinking water pupose) and construction (as per contractor's own archetectural and structural design and drawings as approved by Engineer-in-charge) reinforced cement concrete Under Ground water tanks including providing, execution and fixing of the under mentioned items in required quantities except wherever specifically mentioned and including providing and execution of all other items required and necessary for the complete construction, commissioning and functioning of the tank (The decision of the Engineer-in - charge regarding the said other items shall be final and binding on the contractor)		
A	All necessary excavations, filling required eath available at site from excavations for UG TANK/Valve chambers manholes pipelines in trench plinth, side of foundations, inside the staging area above the foundation under the leveling layer of CC pavement etc in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering in all leads and lifts and for all types of soils.		
B	Providing and laying in position 100 mm thick and of required size in plan, cement concrete base leveling layer of concrete grade 1:5:10 (1 cement : 5 coarse sand :10 graded stone aggregate 40 mm nominal size) below the RCC foundation and below the CC pavement.		
C	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering shuttering, finishing and reinforcement including Admixtures in recommended proportions (as per IS: 9103) to accelerate, retard setting of concrete improve workability without impairing strength and durability as per direction of Engineer-in-charge M-25 grade reinforced cement concrete, upto all leads and lifts.		
D	Providing and admixing water proofing compound (impermo or equivalent) @ 1 kg per 50 kg of cement in all RCC elements of water retaining structures (including RCC elements of staging foundation) required quantities as per the approved structural drawings.		
E	Reinfocement with TMT steel bars for RCC work including straightning, cutting, bending, placing in position and binding all complete.		
F	Centering & shuttering including strutting, propping etc and removal of form for all types/ categories/ classes of RCC and PCC upto all leads and lifts		
G	Providing embedding and fixing in position Aluminium sheet 200 mm wide and 1.90 mm thick at the horizontal joints between two successive lifts of walls of tanks as well as between uppermost lifts of walls and beam/slab of roof dome in required lengths, out of which 100 mm width shall be embedded in the lower layer of RCC and remaining 100 mm width in the successive layer of RCC		
H	Brick work with FPS bricks of class designation 75 in cement mortar 1:6 (1cement : 6 coarse sand) in retaining, to wall for CC pavement.		
I	Cement concrete flooring 50mm thick with 20mm nominal size stone aggregate in 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with floating coat of neat cement including cement slurry on the treads and landing of the staircase, on the steps from the finished ground level to the plinth, on terrace balcony and on top external surface (terrace of tank roof)		
J	18 mm thick cement plaster in skirting and risers of steps with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a neat of floating cement.		
K	12 mm thick cement plaster in cement mortar 1:4 (1 cement : 4 fine sand) on outer perephery of the retaining/ toe wall for CC pavement.		
L	20 mm cement plaster 1:3 (1 cement : 3 fine sand) admixed with approved acrylic based water proofing comound (in required quantities as specified by the manufactures) on internal surface of RCC water tank including finishing with a floating coat of neat cement.		
M	Finishing all available areas of external RCC surfaces of staging and tank exposed to atmosphere excluding the top external surface of tank roof with premium Acrylic Smooth exterior paint with silicon additives "Snowcyl-XT" of M/s Snowcem India Ltd. Of equivalent of required shade on new work in two or more coats.		
N	Painting two or more caots on all mild steel work with synthetic enamel paint of approved brand and manufacture to give an even shade.		
O	950 mm high (above treads excluding flooring & upto bottom of hand rail) railing on both sides of RCC staircase RCC landing, on outer side of tank balcony at bottom dome with vertical 50x50x8 mm angle iron @ 750 mm center to center and 800 mm high (above treads excluding flooring and upto bottom of hand rail) on outer side of tank top dome with vertical 50x50x8 mm angle iron @ 750mm center to center including fixing embedding the vertical iron to treads, slab to the required depth, painting with priming coat of approved steel primer etc. One no MS steel ladder from bottom dome balcony to top dome landing consisting of two Nos MS angles 50x50x6 mm with 20 mm dia MS bar steps @ 250 mm center to center including painting and priming coat etc.		
P	Hand rail of MS pipes 25 mm nominal bore (class B) one no. on both side by welding etc. to vertical railing of RCC staircase, RCC landings and two Nos MS pipes 25 mm nominal bore (class B) hand rail to outer side of tank balcony railing at bottom dome and top including supplying & priming coat of approved steel primer.		
Q	Soil testing & verification of SBC of soil (Refer particular specifications also)		
R	Structural design & drawing including necessary submission of design/details, approval etc. all complete (Refer particular specifications also)		
S	Testing of tank (Refer particular specifications also) including making all necessary arrangements for filling of tank etc. all complete.		
T	Disinfection and commissioning of tank		
	Underground Tank 650 KL	Lit.	650000.00

143	Planning, Designing, Engineering, Construction, Procurement, Installation, Testing, Commissioning, Trial of proposed 450 KLD Sewerage Treatment Plant (STP) MBBR Type including civil, mechanical, electrical and instrumentation works for STP sub units namely – Oil and Grease Traps, Equalization Tank, Equalized Effluent Transfer Pump House, PH Correction Tank, Chlorination Tank, Chemical Dosing Tanks (Lime, Feso4, Polymer, UREA , DAP etc. etc), Parshal Flume, Fine Screen & Chamber, Grit Chamber, Flash Mixer, Clariflocculator, Aeration Tank, Secondary Clarifier, Chemical Sludge Sump, Biological Sludge Sump, Dewatering Polymer Dosing (Chemical Sludge), Dewatering Polymer Dosing (Biological Sludge), Chemical & Biological Sludge Pump House, Flash Mixer before Filtration, Deep Bed Filters, Chlorination Tonner House, Chemical & Biological Centrifuge House, Sludge Drying Bed, Chemical House, Chemical & Biological Storage Area, Backwash Tank, Filtered Effluent Storage Tank, Internal Road Parking, Boundary Wall, Horticulture works, Campus Lighting, Flow Meters, all Pumping Machinery such as Equalized Lifting Pumps, Clarifier Mechanism both for primary and secondary clarifier, machinery for flash mixers, Air Blowers, Chlorine Tonner, Pumping Machinery for Pumping of Biological and Chemical Sludge, Pumping of Treated water Effluent, Rising Main from Treated Effluent Sump to the nearby Drain with Sluice Valves , Non- Return Valves, Air Valves and other Accessories including connection to Recycling Network, Water Supply Service line for providing water supply to all units wherever required, all HT, LT Panels their rooms for Air Blowers etc., including Bye pass arrangement & trial run during the stabilization period. The scope of work also includes the construction of Boundary Walls, Roads & Pathways, Landscape & Horticulture, and Campus Lighting etc. at STP Site. Civil, Mechanical, Electrical required for proper performance shall form the part of the scope complete in all respect.		
	CPWD PAR 2025 7.20.1	kld	50.00
	CPWD PAR 2025 7.20.2	kld	50.00
	CPWD PAR 2025 7.20.3	kld	350.00
144	Preparation and consolidation of sub grade with power road roller of 8 to 12 tonne capacity after excavating earth to an average of 22.5 cm depth, dressing to camber and consolidating with road roller including making good the undulations etc. and re-rolling the sub grade and disposal of surplus earth with lead upto 50 metres.	Sqm	81173.55
145	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:4:8 (1 Cement : 4 coarse sand (zone-II) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)		
	For kerb stone	Cum	474.22
146	Construction of granular sub-base by providing close graded Material conforming to specifications, mixing in a mechanical mix plant at OMC, carriage of mixed material by tippers to work site, for all leads & lifts, spreading in uniform layers of specified thickness with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications and directions of Engineer-in-Charge. With material conforming to Grade-III (size range 26.5 mm to 0.075 mm) having CBR Value-20	Cum	314.46
147	Construction of granular sub-base by providing close graded Material conforming to specifications, mixing in a mechanical mix plant at OMC, carriage of mixed material by tippers to work site, for all leads & lifts, spreading in uniform layers of specified thickness with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications and directions of Engineer-in-Charge.		
	Road		
	Pathway		
		Cum	8100.00
148	Laying, spreading and compacting stone aggregate of specified sizes to WBM specifications in uniform thickness, hand picking, rolling with 3 wheeled road/vibratory roller 8-10 tonne capacity in stages to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density .		
	Road	Cum	2390.63
149	Providing and laying design mix cement concrete of M-40 grade, in roads/ taxi tracks/ runways, using cement content as per design mix, using coarse sand and graded stone aggregate of 40 mm nominal size in appropriate proportions as per approved & specified design criteria, providing dowel bars with sleeve/ tie bars wherever required, laying at site, spreading and compacting mechanically by using needle and surface vibrators, levelling to required slope/ camber, finishing with required texture, including steel form work with sturdy M.S. channel sections, curing, making provision for contraction/ expansion, construction & longitudinal joints (10 mm wide x 50 mm deep) by groove cutting machine, providing and filling joints with approved joint filler and sealants, complete all as per direction of Engineerin- charge (Item of joint fillers, sealants, dowel bars with sleeve/ tie bars to be paid separately). Note:- Cement content considered in M-40 is @ 380 kg/cum. Excess/ less cement used as per design mix is payable/ recoverable separately.	Cum	5418.75
150	Providing and fixing in position pre-moulded joint filler in expansion joints.	per cm depth,width,length	148750.00
151	Providing and laying in position bitumen hot sealing compound for expansion joints etc. Using grade 'A' sealing compound.	per cm depth,width,length	148750.00
152	Providing and laying factory made chamfered edge Cement Concrete paver blocks In foot path, park & lawns driveway or light & traffic parking etc. of required strength, thickness & size/ shape, made by table vibratory method using PU mould, laid in required colour & attern over 50mm thick compacted bed of course sand, compacting and proper embedding/laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand, all complete as per manufacturer's specifications & direction of Engineerin- Charge. 80mm thick Cement concrete paver block of M-30 grade with approved colour, design & pattern.	Sqm	32625.00
153	Providing and laying Kerb Stone 600mm c/c	Cum	244.38
154	Cement plaster 1:3 (1 cement: 3 coarse sand) finished with a floating coat of neat cement.20 mm cement plaster	Sqm	3344.00

155	ESTIMATE FOR 300MM X200 MM DIA TUBE WELL DRILLED BY ROTARY RIG TO A DEPTH OF 250 METER BELOW GROUND LEVEL WITH 800 LPM SUBMERSABLE PUMP SET AND PIPE LINE WORK		
	Transportation of heavy rig machine 1 job	JOB	2.00
	ERECTION AND DISMANTLING OF RIG MACHINE	JOB	2.00
	Water supply charge and drilling machine.	JOB	2.00
	Drilling 200MM dia bore hole in alluvium other than rock, sand stone & boulder formations: from G.L. to 250 M	M	700.00
	Reaming of 200 MM dia pilot bore to 675 MM dia bore: from G.L. to 70 M.	M	200.00
	Reaming of 200 MM dia pilot bore to 500 MM dia bore: from 70 M to 250 M.	M	500.00
	Washing of bore hole.	JOB	2.00
	Electric logging of bore hole.	JOB	2.00
	Providing & lowering of assembly pipe including cutting & welding by providing a collar:		
	300 MM dia MS ERW Housing pipe having wall thickness 7 MM.	M	120.00
	200 MM dia MS ERW Housing pipe having wall thickness 6 MM.	M	400.00
	200 MM dia MS ERW Slotted pipe.	M	140.00
	Providing and fixing Well Cap ,Reducer,Clamp, Centre Guide & Bail Plug.	M	2.00
	Providing and Packing the bore hole with suitable size of pea gravel.	CUM.	240.00
	Development by high velocity jetting together with Air Compressor:		
	Transportation of air compressor	JOB	2.00
	Erection of Air Compressor	JOB	2.00
	Runing of Air Compressor	Hrs.	220.00
	Development Of Tubewell by O.P. Unit		
	Transportation of O.P. Unit	JOB	2.00
	Erection of O.P. Unit	JOB	2.00
	Development Of Tubewell by O.P. Unit	Hrs.	280.00
	Water testing chemical and bactriological	JOB	2.00
	Supply and installation of 800 LPM discharge submersable pump complete	JOB	2.00
	100 mm pipe line work to connect Tubewell to O.H.T.	RMT.	400.00
156	Providing and fixing water closet squatting pan (Indian type W.C. pan) with 100 mm sand cast Iron P or S trap, 10 litre low level white P.V.C. flushing pipe, with manually controlled device (handle lever) conforming to IS : 7231, with all fittings and fixtures complete, including cutting and making good the walls and floors wherever required :		
	White Vitreous china Orissa pattern W.C. pan of size 580x440 mm with integral type foot rests	Each	51.00
157	Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with seat and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever), conforming to IS : 7231, with all fittings and fixtures complete including cutting and making good the walls and floors wherever required :		
	W.C. pan with ISI marked white solid plastic seat and lid	Each	156.00
158	Providing and fixing wash basin with C.I.brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls where required :		
a	White Vitreous China Wash basin size 550x400 mm with a pair of 15 mm C.P. brass pillar taps	Each	263.00
159	Providing and fixing white vitreous china battery based infrared sensor operated urinal of approx. size 610 x 390 x 370 mm having pre & post flushing with water (250 ml & 500 ml consumption), having water inlet from back side, including fixing to wall with suitable brackets all as per manufacturers specification and direction of Engineer-in-charge.	Each	24.00
160	Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standard flush pipe and C.P. brass spreaders with brass unions and G.I clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required :	Each	40.00
161	Providing & fixing stone slab table rubbed, edges rounded and polished of size 75 X 50cm deep and 1.8 cm thick fixed in urinal patitions by cutting chase of appropriate width with chase cutter and embedding the stone in chase with epoxy grout or with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 6mm nominal size) as per Engineer-in-charge and finished smooth		
	Granite stone of approved shade	Sqm	61.20
162	Providing and fixing Salem Stainless Steel A ISI 304 (18/8) kitchen sink as per IS: 13983 with CI brackets and stainless steel waste with plug 40mm including painting of fittings and brackets, cutting and making good the walls wherever required.		
a	Sink with drain board		
	510x1040 mm bowl depth 200 mm	Each	18.00
b	Sink without drain board		
	610X510 mm bowl depth 200mm.	Each	2.00
163	Providing & fixing PVC waste pipe for sink Including PVC waste fitting Complete		
	Flexible Pipe		
	32mm Dia	Each	327.00
	40mm Dia	Each	20.00
164	Providing and fixing mirror of superior glass (of approved quality) and of required shape and size with plastic moulded frame of approved make and shade with 6 mm thick hard board backing :		
	Circular shape 450 mm dia	Each	250.00
	Rectangular shape 1500x450 mm	Each	13.00
165	Providing and fixing 600x120x5 mm glass shelf with edges round off, supported on anodised aluminium angle frame with C.P. brass brackets and guard rail complete fixed with 40 mm long screws, rawl plugs etc., complete.	Each	263.00

166	Providing and fixing toilet paper holder : C.P. brass	Each	167.00
167	Providing and fixing soil, waste, vent pipes PVC SWR PIPE 110mm dia PVC SWR PIPE	Rmt.	3254.00
168	Providing and fixing MS holder bat clamps of approved design to PVC pipe embedded in and Including cement concrete blocks 10 x10 x10cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including cost of cutting holes and making good the walls etc. For 110mm dia. Pipe	Each	653.00
169	Providing and fixing heel rest sanitary bend, in PVC SWR PIPE 110mm	Each	51.00
170	Providing and fixing bend of required degree with access door, insertion rubber washer 3mm thick, bolts and nuts complete. 110X110X110mm PVC SWR PIPE	Each	565.00
171	Providing and fixing PLAIN JUNCTION of required degree 110X110X110mm PVC	Each	565.00
172	Providing and fixing terminal guard: 110mm PVC	Each	51.00
173	Providing and fixing collar. 110mm PVC SWR PIPE	Each	545.00
174	Providing and PVC joint with Primer & Cement etc. 110 Dia	Each	6257.00
175	Providing and fixing pvc swr trap of self cleansing design with cast iron screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors. 110 mm inlet and 110 mm outlet, PVC SWR PIPE & S as per IS: 3989	Each	565.00
176	Providing and fixing PTMT liquid soap container 109 mm wide, 125 mm high and 112 mm distance from wall of standard shape with bracket of the same materials with snap fittings of approved quality and colour weighing not less than 105 gms.	Each	263.00
177	Providing & fixing PTMT towel ring trapezoidal shape 215 mm long 200 mm wide with minimum distance of 37 mm from wall face with concealed fittings arrangement of approved quality and colour weighing not less than 88 gms	Each	262.00
178	Providing and fixing PTMT towel rail complete with brackets fixed wooden cleats with CP brass screws with concealed fittings arrangement of approved quality and colour. 600 mm long towel rail with total length of 645 mm, width 78 mm and effective height of 88 mm, weighing not less than 190 gms	Each	70.00
179	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of 15 mm dia nominal bore 20 mm dia nominal bore 25 mm dia nominal bore 32 mm dia nominal bore 40 mm dia nominal bore	Rmt. Rmt. Rmt. Rmt. Rmt.	3556.00 3651.00 3692.00 2944.00 3262.00
180	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes 15 mm nominal outer dia pipes 20 mm nominal outer dia pipes	Rmt. Rmt.	3300.00 1810.00
181	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings This includes jointing of pipes & fittings with one step CPVC solvent cement, trenc 50 mm dia, nominal bore 65 mm dia, nominal bore 80 mm dia, nominal bore	Rmt. Rmt. Rmt.	508.00 397.00 248.00
182	Providing and fixing of gun metal gate valve with CI wheel of approved quality (screwed ends) a 25mm dia, nominal bore b 32 mm dia, nominal bore c 40 mm dia, nominal bore d 50 mm dia, nominal bore e 65 mm dia, nominal bore f 80 mm dia, nominal bore	Each Each Each Each Each Each	184.00 152.00 171.00 25.00 22.00 15.00

183	Providing and fixing uplasticised PVC connection pipe with brass unions :		
	45 cm length		
	15 mm nominal bore	Each	808.00
184	Providing and fixing C.P. brass shower rose with 15 or 20 mm inlet 100 mm diameter	Each	70.00
185	Providing and fixing C.P. brass bib cock of approved quality confirming to IS:8931		
	15mm nominal bore	Each	218.00
186	Providing and fixing C.P. brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms.		
	15mm nominal bore	Each	180.00
187	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS 8931 a)		
	15 mm nominal bore.		
	15 mm nominal bore	Each	808.00
188	Providing and fixing PTMT grating of approved quality and colour		
	Circular type		
	100 mm nominal dia	Each	565.00
189	Excavating trenches of required width for pipes, cables, etc, including excavation for sockets, depth upto 1.5 m including getting out the excavated materials, returning the soil as required in layers not exceeding 20 cm in depth including consolidating each deposited layers by ramming, watering etc. stacking serviceable material for measurements and disposal of unserviceable material as directed, within a lead of 50m :		
	Pipes, cables etc. exceeding 80 mm dia but not exceeding 300 mm dia.	Rmt.	785.00
190	Providing, laying and jointing glazed stoneware pipes grade 'A' with stiff mixture of cement mortar in the proportion of 1:1 (1 cement : 1 fine sand) including testing of joints etc. complete :		
	150 mm diameter	Rmt.	50.00
191	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) all-round S.W. pipes including bed concrete as per standard design :		
	150 mm diameter RCC. Pipes	Rmt.	477.00
	250 mm diameter RCC. pipes	Rmt.	293.00
192	Providing and fixing square-mouth S.W. gully trap grade 'A' complete with C.I. grating brick masonry chamber with water tight C.I. cover with frame of 300 x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than		
	100x100 mm size P type		
	With F.P.S. Bricks class designation 75	each	36.00
193	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete :		
	150 mm dia rcc pipe	Rmt.	477.00
	250 mm dia rcc pipe	Rmt.	293.00
194	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand) R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 grade		
	Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg) :		
	With F.P.S. bricks with class designation 150	each	41.00
195	Inside size 120x90 cm and 90 cm deep including C.I. cover with frame (medium duty) 500 mm internal diameter, total weight of cover and frame to be not less than 116 kg (weight of cover 58 kg and weight of frame 58 kg) :		
	With F.P.S. bricks class designation 150	each	11.00
196	Earth Filling	Cum	415045.33

**DETAILED ESTIMATE FOR PROPOSED CONSTRUCTION OF
NON-RESIDENTIAL BUILDINGS FOR 5TH VAHINI
U.P.S.S.F. AT DISTRICT SAHARANPUR (U.P.)**

TENDER BOQ (ELECTRICAL & MECHANICAL WORKS)

S.No.	Description of Item	UNIT	Quantity
	Sub-Head : WIRING		
1	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable etc. as required.		
	Group B	Point	1508.00
	Group C	Point	3117.00
2	Wiring for twin control light point with 1.5 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, 2way modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable etc. as required.	Point	100.00
3	Wiring for circuit/ submain wiring along with earth wire with the following sizes of FRLS/HFFR PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required.		
	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	Metre	84669.00
	2 X 4 sq. mm + 1 X 4 sq. mm earth wire	Metre	35759.00
	2 X 6 sq. mm + 1 X 6 sq. mm earth wire	Metre	12885.00
	2 X 10 sq. mm + 1 X 6 sq. mm earth wire	Metre	720.00
	2 X 16 sq. mm + 1 X 6 sq. mm earth wire	Metre	50.00
	4 X 4 sq. mm + 2 X 4 sq. mm earth wire	Metre	120.00
	4 X 6 sq. mm + 2 X 6 sq. mm earth wire	Metre	1665.00
	4 X 10 sq. mm + 2 X 6 sq. mm earth wire	Metre	7905.00
	4 X 16 sq. mm + 2 X 6 sq. mm earth wire	Metre	4756.00
4	Supplying and drawing co-axial TV cable RG-6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed steel/ PVC conduit as required.		
	2 Pair	Metre	13595.00
5	Supplying and drawing co-axial TV cable RG-6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed steel/ PVC conduit as required.	Metre	1890.00

6	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.		
	20 mm	Metre	13595.00
	25 mm	Metre	15875.00
	32 mm	Metre	1890.00
7	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.		
	5/6 A switch	No.	2710.00
	15/16 A switch	No.	1045.00
	3 pin 5/6 A socket outlet	No.	2710.00
	6 pin 15/16 A socket outlet	No.	1045.00
	Telephone socket outlet	No.	247.00
	TV antenna socket outlet	No.	38.00
	Bell push	No.	8.00
8	Supplying and fixing two module stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.	No.	563.00
9	Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	No.	1148.00
10	Supplying and fixing following size/ modules, GI box along with modular base & cover plate for modular switches in recess etc. as required.		
	1 or 2 Module (75mmX75mm)	No.	588.00
	3 Module (100mmX75mm)	No.	1038.00
	4 Module (125mmX75mm)	No.	7.00
	6 Module (200mmX75mm)	No.	1360.00
	8 Module (125mmX125mm)	No.	186.00
	12 Module (200mmX150mm)	No.	367.00
11	Installation, Testing, Commissioning of wall bracket/ceiling fittings of all sizes and shapes containing upto two GLS/CFL/LED lamps per fitting, complete with all accessories including connections etc. as required.	No.	3762.00
12	Supplying and fixing call bell/ buzzer suitable for single phase, 230 V, complete as required.	No.	8.00
13	Installation, Testing and Commissioning of ceiling fan, including wiring the down rods of standard length (upto 30 cm) with 1.5 sq. mm FRLS/HFFR PVC insulated, copper conductor, single core cable, including providing and fixing phenolic laminated sheet cover on the fan box etc. as required.	No.	563.00
14	Installation of exhaust fan in the existing opening, including making good the damage, connection, testing, commissioning etc. as required.		
	Up to 450 mm sweep	No.	203.00
15	Extra for fixing the louvers/ shutters complete with frame for a exhaust fan of all sizes.	No.	203.00
16	Supplying, drawing, Installation, Testing and commissioning of CAT6 UTP LSZH 23AWG Twisted Pair Cable in existing conduit/ on surface, Category 6 Unshielded Twisted Pair, 4 pair should be complied as per UL/ETL verification program for compliance with ANSI/TIA-568.2-D standard. Outer diameter should be in the range of 6.1mm nominal with Operating Temperature Range : -5° to +60°C, Bending Radius : < 4 X Cable Diameter at -5°C ± 1°C and Pulling Force : 11.5Kg etc. complete as required.		
	1 run of cable	Metre	15875.00
17	Supplying & fixing suitable size GI box with modular plate and cover in fronton surface or in recess including providing and fixing 25 A modular socket outlet and 25 A modular SP MCB, "C" curve including connections, painting etc. as required.	No.	324.00
18	Supplying and fixing PVC batten/ angle holder including connections etc. as required.	No.	919.00

	Sub-Head : MCCB, MCB & OB'S		
19	Providing and fixing following rating and breaking capacity and pole MCCB with thermomagnetic release and terminal spreaders in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required.		
	100 A.30KA.FPMCCB	No.	52.00
20	Supplying and fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)		
	6 way , Double door	No.	16.00
	12 way , Double door	No.	2.00
21	Supplying and fixing following way, horizontal type three pole and neutral, sheet steel, MCB distribution board, 415 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)		
	4 way (4 + 12), Double door	No.	34.00
	6 way (4 + 18), Double door	No.	64.00
	8 way (4 + 24), Double door	No.	82.00
22	Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 V, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 A tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCBs (but without MCBs and incomer) as required . (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.)		
	4 way (4 + 12), Double door	No.	52.00
23	Supplying and fixing 5 A to 32 A rating, 240/415 V, 10 kA, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.		
	Single pole	No.	3222.00
	Double pole	No.	20.00
	Triple pole and neutral	No.	11.00
24	Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required.	No.	254.00
25	Supplying and fixing following rating, double pole, the existing MCB DB complete with connections, testing and commissioning etc. as required.		
	40 A	No.	7.00
	63 A	No.	2.00
26	Supplying and fixing following rating, four pole, 415 V, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.		
	63 A	No.	180.00
27	Supplying and fixing following rating, double pole, (single phase and neutral), 240 V, residual current circuit breaker (RCCB), having a sensitivity current 30 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required.		
	40 A	No.	7.00
	63 A	No.	2.00
28	Supplying and fixing following rating, four pole, (three phase and neutral), 415 volts, residual current circuit breaker (RCCB), having a sensitivity current 30 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required.		
	63 A	No.	180.00

29	Supplying and fixing 30 A, 415 V, TPN Industrial type socket outlet, with 4 pole and earth, metal enclosed plug top along with 30 A "C" curve, TPMCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	No.	11.00
30	Providing and fixing M.V. danger notice plate of 200 mm X 150 mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required.	No.	34.00
31	Providing and fixing H.T. danger notice plate of 250 mm X 200 mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required.	No.	2.00
	Sub-Head : CABLE TRAYS		
32	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (Galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.		
	150 mm width X 50 mm depth X 1.6 mm thickness	Metre	100.00
	300 mm width X 50 mm depth X 1.6 mm thickness	Metre	200.00
	Sub-Head : EARTHING		
33	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	Set	90.00
34	Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	Set	22.00
35	Supplying and laying 6 SWG G.I. wire at 0.50 metre below ground level for conductor earth electrode, including connection/ termination with GI thimble etc. as required.	Metre	5450.00
36	Supplying and laying 25 mm X 5 mm copper strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of brass nut bolt & spring washer spaced at 50mm)	Metre	290.00
37	Supplying and laying 25 mm X 5 mm G.I. strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer spaced at 50mm)	Metre	970.00
38	Providing and fixing 25 mm X 5 mm copper strip on surface or in recess for connections etc. as required.	Metre	80.00
39	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	Metre	867.80
40	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.	Metre	867.80
	Sub-Head : LIGHTNING CONDUCTOR		
41	Fixing of lightning conductor finial (single prong) with base plate including holes etc. complete as required.	Each	4.00
42	Jointing copper / G.I. tape (with another copper/ G I tape, base of the finial or any other metallic object) by riveting / nut bolting/ sweating and soldering etc as required.	Each	150.00
43	Fixing of copper/ G.I. tape 20 mm X 3 mm thick on parapet or surface of wall for lightning conductor complete as required.(For horizontal run)	Metre	337.50
44	Fixing of copper/ G.I. tape 20 mm X 3 mm thick on parapet or surface of wall for lightning conductor complete as required.(For vertical run)	Metre	112.50
45	Laying copper/ G.I. tape 32 mm X 6 mm from earth electrode directly in ground as required.	Metre	240.00
	Sub-Head : MV CABLE JOINTING & END TERMINATION		

46	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.		
	2 X 16 sq. mm (22mm)	No.	4.00
	3-1/2X 25 sq.mm	No.	23.00
	3-1/2 X 35 sq.mm	No.	34.00
	3-1/2 X50 sq.mm	No.	10.00
	3-1/2 X 70 sq.mm	No.	26.00
	3-1/2 X 95 sq.mm	No.	18.00
	3-1/2 X 120 sq. mm	No.	12.00
	3-1/2 X 150 sq. mm	No.	12.00
	3-1/2 X 185 sq. mm	No.	14.00
	3-1/2 X240 sq.mm	No.	2.00
	3-1/2 X300 sq.mm	No.	10.00
	3-1/2 X400 sq.mm	No.	28.00
	4 X 10 sq. mm (25mm)	No.	11.00
	4 X 16 sq. mm (28mm)	No.	29.00
	Sub-Head : MISC. CIVIL ITEMS		
47	Providing and fixing circular/Hexagonal G.I. Box for ceiling fan clamps, of internal dia 140 mm, 73 mm height, top LID of 1.5 mm thick G.I. sheet with its top surface hacked for proper bonding, top LID shall be screwed into the G.I. box by means of 3.3 mm dia rounded screws, one lock at the corners. Clamps shall be made of 12 mm dia M.S. bar bent to shap as per standard drawing. (DSR Civil-2014 item no. 10.18)	Each	563.00
	Sub-Head : FACADE LIGHTING (DSR 2019-E/M,FACADE LIGHTING)		
48	Supply, Installation, Testing and Commissioning of LED RGB/RGBW floodlighting luminaire for facade lighting with Die-cast aluminium housing, powder-coated finish, of following wattage.Luminaire shall be capable of producing dynamic color changing light for with 16 million colors by DMX/Ethernet based control.The beam angle of the fitting shall be narrow, medium, wide or asymmetric as per the requirement.Luminaire shall be complete with driver and capable of operating at line voltage without any separate power supply from 100-270VAC, 50Hz with power factor>0.9.Fixture shall be suitable to operate at an ambient temperature range of-10°C to +50°C and shall be IP65 and IK06 rated.Lifetime shall be atleast L70:50000 burning hours at 50°C.Luminaire shall be conforming to BIS(IS10322) and shall be complete with all necessary accessories required for proper working of fixture including weather proof connection cables, waterproof connectors etc. as required.		
	140 W	Each	20.00
	Sub-Head : LIGHT & FAN FIXTURE		
49	LED Down lighter (SMD Type) (System lumen efficacy ≥ 120 <135 lm/Watt)		

	<p>Supplying, installation, Testing & Commissioning of LED Recessed/surface Down lighter (Round/ square/ Rectangular) SMD type of following body material with PMMA and prismatic diffuser and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, frequency 50/60 hz, Operating temp range -5 0C to 40 0C centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10%, P. F.≥0.95, IP20, CRI >80, UGR (Unified Glare Rating) <19, Flicker free (flicker should be below 5 %), life time (LED, Driver & electrical circuitry), life time of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends, CCT 3000°K / 4000°K / 5700°K /6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard. Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing Complete in all respect i/c external connections with 1.5 sq mm FRSL/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥120 <135 lm/Watt output . LM79 & LM80 Test report and all testing required for LED fixtures as per BIS shall be submitted.. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).</p> <p>Powder coated die cast /Extruded aluminium Body including trim .</p>		
	18 watt	Each	1378.00
50	LED Panel light 2x2 ft. (System lumen efficacy ≥120 <135 lm/Watt)		
	<p>Supplying, Installation, Testing & Commissioning of Panel light 2x2 ft., of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, frequency 50/60 hz, Operating temp range -5 0C to 40 0C, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80, UGR (Unified Glare Rating) <19, Flicker free, (flicker should be below 5 %), life time (LED, Driver & electrical circuitry), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends, CCT 3000°K / 4000°K / 5700°K /6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard. Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c external connections with 1.5 sq mm FRSL/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥120 <135 lm/Watt output .LM79 & LM80 Test report and all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).</p>		
	Powder coated die cast / Extruded aluminium Body (Thickness≥ 1.20 mm)		
	36 watt	Each	537.00
51	LED Batten light (System lumen efficacy ≥120 <135 lm/Watt)		

	Supplying, installation, Testing & Commissioning of LED surface mounted Batten light of following body material and construction as per IS : 10322 with driver (Replaceable) as per the requirement with Driver efficiency >85%, Operating voltage AC 140- 270 Volt, frequency 50/60 hz, Operating temp range -5 0C to 40 0C, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80, Flicker free (flicker should be below 5 %), life time (LED,Driver & electrical circuitry), of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends, CCT 3000°K / 4000°K / 5700°K /6500°K (As per ANSI Bin), SDCM(Standard Deviation Colour Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard. Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c external connections with 1.5 sq.mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥120 <135 lm/Watt output . LM79 & LM80 Test report and all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).		
	Powder coated die cast / Extruded aluminium Body (Thickness≥ 1.20 mm)		
	18- 22 watt	Each	711.00
52	LED Flood Light, powder coated pressure die cast aluminum (System lumen efficacy ≥120 and <135 lm/Watt)		
	Supplying, Installation, Testing & Commissioning of Flood Light, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement with Driver efficiency >85%, Input voltage: Input voltage: 140-270 Volt AC, frequency 50/60 hz, Operating temp range -5 0C to 50 0C, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%,THD < 10% as per IEC 61000-3-2, P. F.≥0.95, IP-66,IK-10, CRI >70, under voltage and over voltage protection, EMI-EMC as per CISPR-15, lenses for beam angle 30 deg-120deg as per the application and the project requirement, suitable tilt able fitting, life time (LED, Driver & electrical circuitry) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K /6500°K (As per ANSI Bin), SDCM(Standard Deviation Colour Matching) <5, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c external connections with 1.5 sq.mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥120 and <135 lm/Watt output . LM79 & LM80 Test report and all testing required for LED fixtures as per BIS shall be submitted.. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).		
	50 watt	Each	2.00
	100 watt	Each	28.00
	150 watt	Each	22.00
53	Brush Less Direct Current (BLDC) Fan without Remote		

	Supply, Installation, Testing and Commissioning of ceiling fan with Brush Less Direct Current (BLDC) Motor, class of insulation: B, 3 nos. metal (Aluminium alloy) blades, 30 cm long down rod, 2 nos. canopies, shackle kit, safety rope, copper winding, steel/Al body Power Factor not less than 0.9, Service Value (CM/M/W) minimum as below, 350 RPM (tolerance as per IS : 374-2019), THD (Total Harmonic Distortion) less than 10%, suitable for operation with regulator for speed control and all remaining accessories including safety pin, nut bolts, washers, temperature rise=75 °C (max.), insulation resistance more than 2 mega ohm, suitable for 230 V, 50 Hz, single phase AC supply, Ceiling Fan compliant to IS 374:2019 fan i/c external connections with 1.5 sq.mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required.		
	1200mm, service value ≥ 6.0 CM/Min/Watt, air delivery 210 CM/Min (Minimum)	Each	193.00
	1400mm, service value ≥ 6.0 CM/Min/Watt, air delivery 245 CM/Min (Minimum)	Each	370.00
	Sub-Head : Non-Schedule Items		
54	Supply & Fixing of 400mm sweep, wall mounted fan complete with double ball bearing, motor, blades, capacitor etc suitable for single phase 230 volts, 50 Hz., AC supply, complete as required.	each	43.00
55	Supply of AC 300mm Sweep, 230/250 Volts, 50 Hz exhaust fan (Heavy Duty) with blades, cover etc. complete as required.	each	102.00
56	Supply of AC 200mm Sweep, 230/250 Volts, 50 Hz exhaust fan (Light Duty) with blades, cover etc. complete as required	each	101.00
57	Supply of Factory made 12 to 20 Watt LED Bulb fitting, cool day light, (65000 K temp.) suitable for Baton/Angle holder including making connection. Complete in all respect.	each	973.00
58	Supply of LED Tube Light with batten suitable for up to 1 X 10 watt LED tube light fitting including tube on Surface complete in all respect. (2ft) CAT- AAA	each	202.00
59	Supply of water tight oblong 10 Watt LED bulk head luminaire having die cast housing with driver set conforming to IP 65 and above Protection. Complete in all respect.	each	22.00
60	Supply & Fixing of LAN socket outlet modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.	each	295.00
61	Supply and fixing of Three phase multifunctional electronic energy meter 10 to 60 Amp. Capacity fitted in integral box on wall complete in all respect.	each	13.00
62	Supplying and laying of aluminium conductor PVC insulated armoured served sheathed cable 1100 volts grade at the depth of 750 mm below ground level over a cushion of 75 mm thick sand all around and protected with burnt bricks on side and on top as directed by Engineer-Incharge, complete in all respect including excavation and refilling. The armouring of the cable shall be properly connected with the earth conductor by clamps etc.		
	16 sq. mm 2 core	Mtr.	100.00
	10 sq. mm 4 core	Mtr.	5142.80
	16 sq. mm 4 core	Mtr.	2550.00
	25 sq. mm 3-1/2 core	Mtr.	1329.80
	35 sq. mm 3-1/2 core	Mtr.	2012.40
	50 sq. mm 3-1/2 core	Mtr.	344.40
	70 sq. mm 3-1/2 core	Mtr.	2550.00
	95 sq. mm 3-1/2 core	Mtr.	1153.20
	120 sq. mm 3-1/2 core	Mtr.	644.10
	150 sq. mm 3-1/2 core	Mtr.	671.40
	185 sq. mm 3-1/2 core	Mtr.	688.10

	240 sq. mm 3-1/2 core	Mtr.	236.70
	300 sq. mm 3-1/2 core	Mtr.	1450.00
	400 sq. mm 3-1/2 core	Mtr.	6902.95
63	Supply of Lightening Finial, 25mm dia X 300 mm long, copper	each	4.00
64	Supply of 20 mm X 3 mm copper tape (.533 kg/mtr.)	Mtr.	450.00
65	Supply of 32 mm X 6 mm copper tape (1.705 kg/mtr.)	Mtr.	400.00
	Supply & Erraction of factory fabricated & wired metal clad dust and vermin proof floor mounting, M.S. Channel Base with bottom and top cable entreis Electrical control panel with TPN MCCB's (Four Pole 36 KA with thermal magnatic release) Switches Complete and instrument chamber etc. complete in all respects. The instrument chamber shall be separate and shall comprise of flush type digital metering system for phase to phase voltage and single phase voltage, current and other parameters (KVA, P.F, KW etc) in each phase with touch type selector switches for different readings, instrument fuses, current transformer etc. The panel board shall have suitable capacity electrolytic aluminium busbars as per IS8623 or above istulated with heat shrink sleeving and mounted on non hygroscopic supports such as CMC/BMC support with deteachable side covers and shall be suitable for extension on the sides. The MCCB's shall be complete with suitable cable end boxes, compression glands and indicating lamp on incoming etc. The Job includes the grouting of the board as per directions of Engineer-in charge. All out goings of 100 Amp and above shall have an Ammeter. The panel board shall be fabricated with CRCA sheet with a minimum thickness of 1.6mm/2mm. Cubicle type switch board shall be of cat B Only.		
	Incoming		
	100 Amp MCCB -1 No		
	Outgoing		
66	63 Amp. MCCB-2 Nos.+(100 AMP. MCCB-4 NOS.+63 AMP FPMCB-4NOS.) AS BUILDING PANEL	each	3.00
67	63 Amp. MCCB-2 Nos.+(100 AMP. MCCB-3 NOS.+63 AMP FPMCB-6NOS.)	each	2.00
68	63 Amp. MCCB-2 Nos.+(100 AMP. MCCB-3 NOS.+63 AMP FPMCB-4NOS.) AS BUILDING PANEL	each	1.00
	Incoming		
	200 Amp. MCCB-1 No		
	Outgoing		
69	100 Amp. MCCB-2 Nos..+(100 AMP. MCCB-4 NOS.+63 AMP FPMCB-4NOS.)	each	2.00
70	100 Amp. MCCB-2 Nos.+(100 AMP. MCCB-8 NOS.)	each	1.00
71	100 Amp. MCCB-2 Nos.+(100 AMP. MCCB-3 NOS.+63 AMP FPMCB-4NOS.)	each	1.00
	Incoming		
	400 Amp. MCCB-1 Nos.		
	Outgoing		
72	200 Amp. MCCB-1 No 100 Amp MCCB-1 No & 63 Amp MCCB-2 Nos.+(100 AMP. MCCB-6 NOS.+63 AMP FPMCB-4NOS.)	each	1.00
	INTELLIGENT FIRE ALARM SYSTEM		

73	Supplying, installation, testing and commissioning of micro processor based intelligent addressable main fire alarm panel, central processing unit with the following loop modules and capable of supporting not less than 240 devices (including detectors) and minimum 120 detectors per loop and loop length up to 2 km, network communication card, minimum 320 character graphics/ LCD display with touch screen or other keypad and minimum 4000 events history log in the non volatile memory (EPROM), power supply unit (230 \pm 5% V, 50 hz), 48 hrs back-up with 24 volt sealed maintenance free batteries with automatic charger. The panel shall have facility to connect printer to printout log and facility to have seamless integration with analog/digital voice evacuation system (which is part of the schedule of work under SH: PA System) and shall be complete with all accessories . The panel shall be compatible for IBMS system with open protocol BACnet/ Modbus over IP complete as per specifications.		
	Ten Loop Panel.	No.	1.00
	Two Loop Panel.	No.	4.00
74	Supplying, installation, testing & commissioning of central graphical fire alarm management system to centrally monitor and operate the fire alarm system complete as required.	No.	4.00
75	Supplying, installation, testing & commissioning of intelligent analog addressable photothermal detector complete with mounting base complete as required.	No.	337.00
76	Supplying, installation, testing & commissioning of response indicator on surface/recessed MS Box having two LED, metallic cover complete with all connections etc as required.	No.	412.00
77	Supplying, installation, testing & commissioning of fault isolator complete with base as required.	No.	38.00
78	Supplying, installation, testing & commissioning of intelligent addressable thermal detector with rate of rise cum fixed temperature thermistor complete with base as required.	No.	42.00
79	Supplying, installation, testing & commissioning of addressable fire control module complete as required.	No.	45.00
80	Supplying, installation, testing & commissioning of addressable phone control module complete as required.	No.	7.00
81	Supplying, installation, testing & commissioning of addressable manual call point complete as required.	No.	45.00
82	Supplying, installation, testing & commissioning of addressable horn cum strobe complete as required.	No.	45.00
83	Supplying, installation, testing & commissioning of addressable strobe complete as required.	No.	7.00
84	Supplying, installation, testing & commissioning of fire fighter telephone handset complete as required.	No.	7.00
85	Supplying, installation, testing & commissioning of fire fighter phone jack complete as required.	No.	7.00
	PUBLIC ADDRESS SYSTEM		
86	Supplying, installation, testing & commissioning of 6 zone, voice alarm controller with USB, MP3 player (including 6 zone button paging station) with seamless integration facility with main fire alarm panel for voice evacuation complete as required.	No.	5.00
87	Supplying, installation, testing & commissioning of 6 inches dia, 2 watts, 70/100 volts ceiling speaker complete as required.	No.	120.00
	CABLING & WIRING		
88	Supplying & laying of 2x1.5 sqmm fire survival armoured cable, 600/1000V rated with annealed copper conductor having glass mica fire barrier tape covered by an extruded layer of Cross Linkable Ethylene Propylene Rubber (EPR) insulation and LSZH inner bedding, steel wire armouring & LSZH outer sheath complete as required.	Metre	6883.00

89	Supplying and drawing of cable Fire Retardant PVC insulated copper conductor cable in the existing surface / recessed steel conduit of following pairs, cores and size including connections and interconnections etc. as required.		
	speaker cable Single pair, 2-core, 1.5 sqmm	Metre	6630.00
90	Supplying and fixing 25 mm dia MS flexible pipe with PVC coating along with all ancillaries and accessories like coupler etc. as required.	Metre	133.00
91	Supplying, installation, testing and commissioning of electric driven terrace pump suitable for automatic operation and consisting of following, complete in all respects, as required: (Terrace Pump)		
	a) Horizontal type, multistage, centrifugal, split casing pump of cast iron body & bronze impeller with stainless steel shaft, mechanical confirming to IS : 1520		
	b) Suitable HP squirell cage induction motor TEFC type suitable for operation on 415 volts, 3 phase, 50 Hz, AC supply with IP55 class of protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.		
	c) M.S.fabricated common base plate, coupling, coupling guard, foundation bolts etc.as required.		
	d) Suitable cement concrete foundation duly plastered and with anti vibration pads.		
	900 lpm at 35 m Head	Set	2.00
	450 lpm at 35 m Head	Set	3.00
92	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 3589/IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required :		
	25 mm dia	m	1300.00
	32 mm dia	m	970.00
	40 mm dia	m	830.00
	50 mm dia	m	735.00
	65 mm dia	m	1075.00
	80 mm dia	m	1375.00
	100 mm dia	m	1835.00
	150 mm dia	m	295.00
93	Supplying and fixing single headed internal hydrant valve with instantaneous Gunmetal/Stainless Steel coupling of 63 mm dia with cast iron wheel ISI marked conforming to IS 5290 (Type -A) with blank Gunmetal/Stainless Steel cap and chain as required :		
	Single headed Stainless steel	Set	24.00
94	Supplying, fixing, testing and commissioning of butterfly valve of PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required :		
	80 mm dia	Set	9.00
	100 mm dia	Set	9.00
95	Supplying, fixing, testing & commissioning of double flanged sluice valve of rating PN 1.6 with non rising spindle, bronze/gun metal seat, ISI marked complete with nuts, bolts, washers, gaskets and conforming to IS 780 of following sizes as required :		
	80mm dia	Set	9.00
	100mm dia	Set	9.00
96	Supplying and fixing orifice plate made out of 6 mm thick stainless steel (Grade 304) with orifice of required size to be fitted between flange & landing valve of external and internal hydrants to reduce pressure at the outlet to the level of 3.5 kg/cm2 complete as required.	No.	24.00

	Providing, installation, testing and commissioning of non-return valve of following sizes confirming to IS: 5312 complete with rubber gasket, GI bolts, nuts, washers etc.as required :		
	100mm dia	Set	9.00
97	Providing, installation, testing and commissioning of stainless steel Y-strainer fabricated out of 1.6 mm thick stainless steel, Grade 304, sheet with 3 mm dia holes with stainless steel flange.		
	100mm dia	No.	5.00
98	Supplying and fixing 63 mm dia, 15 m long RRL hose pipe with 63 mm dia male and female couplings duly bound with GI wire, rivets etc. conforming to IS 636 (type-A) as required :		
	Gun Metal	Set	6.00
	Stainless Steel (Grade 304)	Set	42.00
99	Supplying and fixing first-aid Hose Reel with MS construction spray painted in post office red, conforming to IS 884 complete with the following as required. 20 mm nominal internal dia water hose thermoplastic (Textile reinforced) type -2 as per IS: 12585 20 mm nominal internal dia gun metal globe valve & nozzle.		
	Drum and brackets for fixing the equipments on wall. Connections from riser with 25 mm dia stop gun metal valve & M.S. Pipe and socket.		
	30 m	Set	24.00
	40 m	Set	4.00
100	Supplying & fixing 63 mm dia gun metal short branch pipe with 20 mm nominal internal diameter size nozzle conforming to IS 903 suitable for instantaneous connection to interconnect hose pipe coupling as required :		
	Gun metal	Nos.	3.00
	Stainless Steel (Grade 304)	Nos.	21.00
101	Supplying and fixing of fire brigade connection of cast iron body with gun metal male instantaneous inlet couplings complete with cap and chain as reqd. for suitable dia MS pipe connection conforming to IS 904 as required :		
	2 way-100 mm dia M.S. Pipe	Set	24.00
102	Supplying and fixing air vessel made of 250 mm dia, 8 mm thick MS sheet, 1200 mm in height with air release valve on top and flanged connection to riser, drain arrangement with 25 mm dia gun metal wheel valve with required accessories, pressure gauge and painting with synthetic enamel paint of approved shade as required.	Set	3.00
103	Providing, fixing, testing & commissioning of 15mm dia quartzoid bulb type sprinklers of rating 68 degree centigrade with required accessories :		
	Pendent Sprinkler	No.	1946.00
	Upright Sprinkler	No.	1319.00
104	Providing & fixing of pressure switch in M.S. pipe line including connection etc. as required.	No.	24.00
105	Providing, fixing, testing & commissioning of installation control valve of cast iron body, brass/bronze working parts comprising of water motor alarm, bronze seat clapper, clapper arm and hydraulically driven mechanical gong bell to sound continuous alarm when the wet riser/sprinkler system activates, pressure gauges, emergency releases, strainer, pressure switch, cock valve complete with drain valve and bypass, test control box, ball valves, MS pipe of required size, flanges, orifice plate, gasket etc of following sizes as required :		
	100mm dia	Set	21.00

106	Supplying, installation, testing & commissioning of sprinkler flexible pipe (UL Listed) of stainless steel complete with 15 NPT on reducer thread with maximum working pressure of 175 PSI test pressure of 875 PSI (Burst) with branch line (Inlet) 25mm NPT male thread to sprinkler head (Outlet) 15mm NPT female thread with reducer, nipple, 2 side brackets, center bracket, stockbar of following sizes complete as required.		
	1000mm	Set	650.00
107	Providing, installation, testing & commissioning of adjustable rosette plate for 15mm dia in white finish UL Listed or FM approved complete as required.	No.	650.00
	FIRE EXTINGUISHERS		
108	Supply and fixing of fire extinguisher, ABC Type (ISI Marked IS : 15683 & TAC approved) complete with initial charge and wall bracket, along with supply of all materials and labour for proper completion of work.		
	4.0 kg. capacity	Each	86.00
109	Supply and fixing of C02 type fire extinguisher (ISI Marked IS : 2878 & TAC approved) complete with initial charge and wall bracket, along with supply of all materials and labour for proper completion of work.		
	4.5 kg. capacity	Each	86.00
110	Providing & fixing carbon steel Fire Man Axe with rubber insulated handle tested to 20000 volts.	Each	86.00
111	Supplying and installing at approved location approved make fire buckets of 24 gauge galvanized steel sheet, standard of round bottom shape, painted white inside and red outside and black on the bottom, inscribed with letter "FIRE" in black and gold. Cost shall be inclusive of providing MS stand duly painted over a coat of primer (one stand shall be suitable for hanging 5 buckets).	Each	7.00
112	1200x900 mm (Indoor Cabinet) Only Frame	Each	28.00
113	Providing and Fixing of Self illuminated /Auto Glow Exit Signs printed on photo-luminescent sheet containing self illuminated base chemical, of appropriate size not less than 400x150mm, suspended from ceiling or fixed to the walls with accessories as required and as directed at site.	Each	56.00
114	Providing & fixing cast iron air release valve of 25 mm dia including 25 mm dia Ball valve with fittings etc. as per the requirement.	Each	9.00
115	Providing and Fixing M.S Structural Work fabricated from standard sections e.g MS rounds, angles, channels including cutting to size, drilling, welding, fixing and welding to insert plates in RCC structural members as directed by Engineer-in-Charge including cutting and making good the walls and floors (For sprinkler Pipe support etc.).		
	Tie Rod 10 mm	Each	280.50
116	Supplying, installation, testing and commissioning of Electric driven Main Fire Pump suitable for automatic operation and consisting of following, complete in all respects, as required :		
	(a) Horizontal type, multistage, centrifugal, split casing pump of cast iron body & bronze impeller with stainless steel shaft, mechanical seal conforming to IS 1520.		
	(b) Suitable HP Squirrel cage induction motor, TEFC, synchronous speed 1500 RPM, suitable for operation on 415 volts, 3 phase 50 Hz, AC supply with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.		
	(c) M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required.		
	(d) Suitable cement concrete foundation duly plastered with anti vibration pads.		
	Note: *The head of the pump is selected in a manner so as to give a minimum 3.5kgf/cm2 pressure at the highest/farthest point.		
	2850 lpm at 56 m Head	Set	2.00

117	Supplying, installation, testing and commissioning of diesel engine driven main fire pump suitable for automatic operation and consisting of following, complete in all respects, as required : (Diesel Driven Pump)		
	Horizontal type, multistage, centrifugal pump of cast of iron body and bronze impeller with stainless steel shaft, mechanical seal conforming to IS 1520.		
	Suitable HP, 1500 RPM water cooled with radiator, diesel engine conforming to relevant IS standard complete with auto starting mechanism, 12 /24 volts electric starting equipment, diesel tank, exhaust pipe extended upto 10 m outside pump house duly insulated 50 mm thick glass wool with 1.0 aluminium sheet cladding, residential silencer, instruments and protection as per standard specification, stop solenoid for auto stop in the event of fault with audio indications, painted with post office red colour etc. as required.		
	M.S fabricated, common base plate, coupling, coupling guard, foundation bolts etc. as required. Suitable cement concrete foundation duly plastered and with anti vibration pads.		
	Note: * The head of the pump is selected in a manner so as to give a minimum 3.5kgf/cm2 pressure at the highest/ farthest point.		
	2850 lpm at 56 m Head	Set	1.00
118	Supplying, installation, testing and commissioning of electric driven pressurisation pump suitable for automatic operation and consisting of following, complete in all respects, as required : (Jockey Pump)		
	Horizontal type, multistage, centrifugal pump of cast iron body and bronze impeller with stainless steel shaft, mechanical seal conforming to IS : 1520.		
	Suitable HP squirell cage induction motor TEFC type suitable for operation on 415 volts, 3 phase 50 Hz AC supply with IP 55 class of protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS : 325.		
	M.S.fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required. Suitable cement concrete foundation duly plastered and with anti vibration pads.		
	180 lpm at 56 m Head	Set	2.00
119	Fabrication, supply, Insallation testing & commissioning of Electrical control panel of cubical construction, floor mounted type, fabricated out of 2mm thick CRCA sheet, compartmentalised with hinged lockable doors, dust and vermin proof, powder coated of approved shade after 7 tank treatment process, cable alley, inter- connection with suitable size copper conductor cable/solid copper strip, having switchgears and accessories, mountings and internal wiring, earth terminals, numbering etc. complete in all respect, suitable for main fire pump, pressurisation pump & diesel pump set complete as per CPWD specification with following in coming and Outgoings, suitable for operation on 415V, 3 phase, 50Hz Ac Supply with enclosure protection class IP 42 as required :		
	Incomings		
	630A, 50kA 4 Pole MCCB, Ics=100% Icu Rating Digital Voltmeter 0-500V with selector switch Ammeter (0-630 A) with selector swtich & CTs etc.		
	LED type RYB phase indicating lamps, ON, OFF, trip indicating lamps.		
	Set of Copper Bus Bar 800Amps		
	Outgoings		
	(Note : All outgoing feeders for pumps should have digital Ammeter with selector switches, and LED type ON, OFF, trip indicating lamps)		
	Main Fire Pump		
	200 Amp, 50kA TPN MCCB, Ics=100% Icu, with fully automatic Star/Delta starter suitable for 75 hp pump with overload protection, current sensing type single phase preventor complete with all accessories and internal wiring required for automatic operation, selector switch for local/remote, auto/manual/OFF operation. - 2 sets		
	Jockey Pump		
	100 Amp, 50kA TPN MCCB, Ics=100% Icu, with Suitable		
	HP fully automatic Star/Delta starter with overload		
	protection, current sensing type single phase preventor		
	complete with all acceessories and internal wiring		
	required for automatic operation, selector switch for		

	local/remote, auto/manual/OFF operation. - 2 sets		
	Diesel Engine Control		
	Control for diesel engine comprising - Automatic/Manual selector switch & 3 attempts starting device, timers and relays as required, push buttons, start/stop in manual mode Indicating lamp for high/ Low Lub. Oil pressure, High Water Temp and Engine on indication		
	Battery charger suitable for 12V/24 V DC with boost and trickle selector switch, 0-30 V DC volt meter, and 0- 20 A DC Ammeter		
	All standard relays and accessories for automatic operation of diesel engine		
	System Controller		
	Designing, Supply, Installation, Testing and commissioning of system controller to control operation of main electric fire pump, diesel pump, Pressurization pump, Terrace pump in sequence as per specification consisting of relays, timers. Sensors, annunciation window for fault indication, complete as per specification	Set	1.00
120	Providing laying, testing & commissioning of 'C' class heavy duty MS Pipe conforming to IS 1239/3589 i/c fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. in ground including welding, excavation & providing cement concrete blocks as supports, anticorrosive treatment with coaltar/asphalt tape as per IS 10221, refilling the trench etc. of following sizes complete as required. (Underground)		
	150 mm. Dia	m	2800.00
121	Supplying and fixing Single headed external yard hydrant valve with 1 No. 63 mm dia instantaneous FM Gunmetal/Stainless Steel coupling and cast iron wheel, ISI marked, conforming to IS 5290 (type A) with blank Gunmetal/Stainless Steel cap and chain as required :		
	Single headed Stainless steel	Set	40.00
122	Supplying, installation, testing & commissioning of deluge valve (to be used for water curtains) UL listed with wet pilot basic trim assembly for DVA with test and alarm, drip and drain valve with water motor gong complete as required.		
	100mm dia	Set	3.00
	150mm dia	Set	3.00
123	Providing, installation, testing & commissioning of electric release trim assembly for deluge wall with two way solenoid valve, weather proof operation on 24 volts DC supply complete as required.	Set	3.00
124	Providing, fixing, testing & commissioning of flanged end Basket Strainer made from MS body with bottom and top removable flanges with nuts, bolts etc having filtration area at least 6 times the cross sectional area of the pipe. Make: Kalpana/Kartar/Sir/Advance.		
	200 mm dia	Each	3.00
	LIFT WORK		
125	Supply Installation , Testing & Commissioning of LIFTS with power operated centre opening doors and AC variable voltage & variable frequency control,car safety & Governor, Guides, guide rails, ropes, car platform, cabin finishes (stainless steel), car & landing doors (stainless steel), hoist motors, braking system, Automatic Rescue Device (ARD) etc. complete as per the CPWD Specifications and realated IS standards upto date.		
	16 Passenger,1.5 mps,5 stops , 5 Openings	SET	2.00
	20 Passenger,1.5 mps,5 stops , 5 Openings	SET	4.00
	20 Passenger,1.5 mps,4 stops , 4 Openings	SET	2.00
	20 Passenger,1.5 mps,6 stops , 6 Openings	SET	3.00
	Sub-Head : MCCB, MCB & OB'S		

126	Providing and fixing following capacity TP&N disconnecter fuse switch unit inside the existing panel board with ISI marked HRC fuses including drilling holes in cubicle panel, making connections, etc. as required.		
	63 A TP&N	Each	9.00
	Online UPS- Input supply: Three Phase, Output supply: Three Phase.		
127	Supplying, installation, Testing & Commissioning of following capacity at full load (Unity Power Factor) at operating temperature 0 to 40 0C, Relative humidity 0 to 95%, Online double conversion true sine wave Uninterrupted hot swapable (allow for the replacement or addition of battery modules without shutting down the entire system) modular Power Supply (UPS) system with N+1 modules (N denotes total number of modules required for rated capacity). The UPS shall include a Rectifier, inverter, battery bank suitable for 30 minutes back up (Battery VAH capacity shall not be less than 1600 VAH per KVA of UPS rating per Hour backup time) on full load (Battery shall be VRLA, SMF in ABS Container) and Static Bypass switch along with provision for manual bypass, suitable isolation transformer for additional protection against neutral faults etc. UPS shall have inbuilt phase sequence correction. The UPS systems offered are to be of the latest technology with Digital Control Microprocessor based for		
	reliable operation using Insulated Gate Bipolar Transistor (IGBT)'s both for the rectifier & inverter (3 Level) with PWM (Pulse Width Modulation). The quality of design, manufacturing and inspection process should confirm to the relevant Inter-national standards such as IEC/EN/VDE. The operating efficiency of the UPS systems shall be >96% while operating on battery mode and delivering quality power to the 100% non-linear loads. Current total harmonic effect(ITHD) on the input grid shall be < 5% at 50 %load. (The required LC (inductor (L) and a capacitor (C)) filters shall be included in UPS cost), extreme power factor kit to be included to limit the input power factor (PF) to 0.99 and output power factor shall be unity (i.e. kw rating of the UPS shall be kva rating x 1), however UPS shall be suitable to take load at 0.7 lagging to 0.7 leading power factor loads. UPS shall be suitable for incoming supply AC : 3Phase 400V +/-20%, 50 Hz +/-5 Hz, AC Output voltage: 3Phase 415 Volt, 50 Hz +/- 0.2Hz, Overload capacity of 120% for 10 mins, Sine wave output. Non condensing, noise level less than 60db at 1 meter distance, protections: Input Under voltage over voltage, abnormal out voltage, battery over charging, output over current, short circuit protection, battery deep discharge protection, 10KV surge. UPS must comply with low voltage electromagnetic compatibility (EMC) achieved as per EN 6204, EN6204 Part I and Part 2, it shall be a Voltage and Frequency Independent (VFI)-type UPS. . Communication RS232/RS485/SNMP port open protocol for BMS integration, all hardware & software for IoT Communication as per approved by Engineering in charge. Required battery racks and interconnecting copper conductor cables of suitable size and connectors and all required accessories are inclusive of the cost). This system must provide a means for logging and alarming of all monitored points plus email notification. Forced air-cooling with integral inbuilt fans with redundancy (if one fan fail UPS should be able to handle at least 80% of the load, Noise Level 65 DB at 1 meter distance. The system shall be in compliance IEC 62040- 1,2 & 3, IS: 16242 and CPWD Specification. Display Panel (minimum) (In-build 5 inch or more LC Display /		

	f)Temperature: STS, Inverter, PFC. g) Event Logging & Statistical Data (On LCD/LED): UPS should capture and display up to 3000 events like: Over temperature / DC Bus Fail / Fan Fail / Fuse Fail / Overload / Short-circuit / Device Fail / Inverter Fail / Rectifier Fail / Bypass Fail, etc. h) Statistical Data: No. of power failures / Transfers to Bypass /Total Running time, etc. i) Mains Mode of Operation /Battery Mode of Operation / Bypass feeding the load / UPS Fault /Battery charging and discharging, overload, battery voltage and battery capacity. j) Audible Alarms : Mains Failure, Battery Low Alarm, UPS Overload, Fault, Shutdown, Input Over, Under Voltage, Output Over, Under Voltage, Battery Over, Under Voltage, Over Load and short circuit, Over Temperature. The UPS should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc		
	60KVA (Each Power module shall be < 10 KVA) FOR ADMIN	EACH	1.00
	20KVA (Each Power module shall be <= 10 KVA) FOR HOSPITAL	EACH	2.00
	VRV / VRF SYSTEM		
	OUTDOOR UNIT		
128	Supplying, Installation, Testing & Commissioning of Modular type Variable Refrigerant Flow/Variable Refrigerant Volume air cooled Outdoor units suitable for cooling and heating having 100% hermetically sealed inverter type twin Rotary/Scroll Compressor(s), minimum two compressors (with individual separate PCB) for above 14HP modules, microprocessor based Controller, top discharge type condensing unit(s), with R-410-A Refrigerant or equivalent, vibration Isolators with suitable foundation etc. complete as required. To have better efficiency condenser fan shall be capable to operate at different speed with respect to load. The unit shall deliver the rated capacity and in confirmation as per IS 18728:2024 and CPWD Specifications and work even at 53°C ambient temperature without tripping. The system shall be able to deliver 100% of the rated capacity upto 39°C. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply and BMS compatible. The unit shall be filled with first charge of the refrigerant and ready for use as required. The condenser should be coated with a hydrophilic film to prevent water accumulation on the surface of the heat exchanger, enhance water dispersion, and reduce the risk of degradation, thereby improving overall performance and durability. The Indian Seasonal Energy Efficiency Ratio (ISEER) of the unit shall be as per Energy Conservation and Sustainable Building Code (ECSBC) 2024 as below and complete as per CPWD specification, connections, inter connections etc. as required. (For capacity <40 kW _r ISEER 5.4, Capacity > 40 and <70 ISEER 5.5, Capacity > 70 ISEER 5.6 for ECBC Building) For Cooling or Heating or Both		
	14 HP to 22 HP	Per HP	300.00
	INDOOR UNIT		

129	Supplying, Installation, Testing and Commissioning of following minimum capacity 4 way Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration Isolation, Corded remote control etc., suitable for operation on single phase 230 V \pm 10%, 50Hz AC supply, complete, as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement in auto mode. The cooling capacity of indoor unit will be at air inlet conditions of 27 OC DB and 19 OC WB temperature. (Make will be same as of Outdoor)		
	2.4 TR	NO.	6.00
	2.6 TR	NO.	48.00
	3.6 TR	NO.	13.00
	4.1 TR	NO.	5.00
	4.6 TR	NO.	4.00
130	Supplying, Installation, Testing and Commissioning of following minimum capacity High wall type Indoor unit equipped with and comfort washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, outer cabinet, cord less remote control, drain pan, necessary accessories etc., suitable for operation on 230 V \pm 10%, 50 Hz, single phase AC supply, complete as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement automatically. The cooling capacity of indoor unit will be at air inlet conditions of 27 OC DB and 19 OC WB temperature. (Make will be same as of Outdoor)		
	1.0 TR	NO.	4.00
	1.2 TR	NO.	10.00
	1.6 TR	NO.	16.00
	2.0 TR	NO.	1.00
131	Supplying, Installation, Testing and Commissioning of Y/T/Multi Joints. Joints shall be of same Original Equipment Manufacturer (OEM) make as of ODU's and IDUs		
	Indoor Units	EACH	108.00
	Outdoor Multi Joint	EACH	16.00
132	Supplying, Installation, testing and commissioning including vacuumization and Nitrogen testing of following nominal sizes of soft/hard drawn copper refrigerant piping for VRV/VRF system, complete with fittings, with suitable adjustable ring type hanger supports, jointing/brazing including accessories, insulated with XPLE Class-O tubular insulation/with Class-O closed cell elastometric nitrile rubber tubular sleeves sections of 19 mm thick insulation as given below for Suction and Liquid lines, all accessories as per specifications etc. as required :		
	6.4 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm	METER	267.50
	9.5 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm	METER	374.50
	12.7 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm	METER	267.50
	15.86 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm	METER	347.75
	19 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm	METER	133.75
	22.2 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm	METER	160.50
	25.4 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm	METER	133.75
	28.58 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm	METER	214.00
	31.8 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm	METER	96.00

	34.9 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm	METER	96.00
133	Supply, installation, testing and commissioning of PVC condensate drain water piping complete with fittings like elbows, tees, reducers, bends, flanges, supports, insulation etc. as required and of following sizes.		
	25 mm dia pipe, Insulation Thickness - 9 mm	RMT	428.00
	32 mm dia pipe, Insulation Thickness - 9 mm	RMT	321.00
	40 mm dia pipe, Insulation Thickness - 9 mm	RMT	150.00
	Supply, laying, testing and commissioning of power and control cabling as per specification given in the tender.		
134	Providing & fixing of control cum trans-mission wiring of copper between indoor and outdoor unit in 25 mm PVC Conduit. and Between Remote to Indoor		
	2X1.5 sq. mm + 1 X 1.5 sq. mm earth wire	RMT	1819.00
	Supply Installation and testing of Electrical Pannel for each Circuit		
135	Supply, Installation, Testing and Commissioning of L.T. Panel vermin proof floor mounting, M.S. Channel Base with bottom and Fabricated out of 2.0/1.6 mm thick CRCA sheet steel painted with powder coated paint of shade as per the direction of Engineer In charge after proper sheet treatment process of sheet steel. The bus bar of panel shall be Electrical grade high conductive aluminium alloy of appropriate cross section as per the rating. The busbar shall be supported by non hygroscopic SMC/DMC Bus bar support which shall be mounted on proper interval to ensure the bear the jerks of short cuircuit of 50kA for panel having ACB as Incomer & 36 kA for panels having MCCB Incomers. Panel shall be constructed in fully Segregated Compartment Design for each Feeder as per 3b construction Format. The panel shall be completed in all respect as per IS 8623 Part 2 &3. There shall be Seperated metering Component for Incomer metering and Outgoing metering.		
	All Incomer Feeder shall be provided with Multifunctional metering along with phase Indicating lights and other associated components such as CT control MCB Terminal Blocks etc. and all outgoing Feeders 100 A & above shall be provided with 3 phase Ammeter along with phase Indicating lights and other associates components such as CT control MCB Terminal Blocks etc. The feeder above shall be provided ac accommodated all measuring instrument shall be digital type & all indicating lights shall be LED type. Wiring shall be done from 1100V Grade PVC Insulated copper flexible wire all ACB shall be electrically operated Draw out Type with microprosser based O/L,S/C & E/F Release of Breaking/withstand capacity(ICU/ICs/Icw) 50 kA or more All MCCb shall be thermal magnetics/microprocessor with O/L & S/C protection along with required Spreaders & Extended rotary handle with pad locking facility of breaking capacity 36 kA or more All MCB shall be Thermal 10kA 'C'Curve Cubical type switch board shall be Cat-B Only.		
	Incoming		
	630 Amp. MCCB-1 No		
	Outgoing		
	200 Amp.MCCB-1No, 100 Amp.MCCB-2Nos. 63 Amp.MCCB-2 Nos. & 32 Amp MCCB- 1 No	EACH	1.00
	Extra outgoing		
	100 Amp FP MCB - 20 Nos.	EACH	12.00
	SOLAR PHOTO VOLTAIC POWER GENERATION SYSTEM		

136	Supplying Installation, Testing and Commissioning of on-grid Solar Photovoltaic Power Plant conforming to various applicable standards BIS, IEC, MNRE guidelines, the Central Electricity Authority Regulations and CPWD Specifications as amended up to date, consisting of Mono/Poly Crystalline silicon solar cells module, net zero metering facility, necessary control, protections, earthing, cabling, mounting structure, junction boxes, power conditioning units, Real time online web interfaced Data Monitoring System, Distribution panels, grid connecting arrangement, conduits, pipes, cable trays and other accessories etc. as required.		
	a) High Energy Efficiency Solar Photovoltaic Module of capacity 330 Wp or above, manufactured in India, conforming to IS 14286/IEC 61215, IS/IEC 61730-Part-1, IS/IEC 61730-Part-2. Solar Photovoltaic Module conversion efficiency shall not be less than 23% at STC with temperature coefficient of Pmax better than -0.30% per 0C. PV modules used in solar power plants/ systems must be warranted for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years. Solar Modules shall be designed to operate in relative humidity upto 100% with temperature between -10 0C and +85 0C. Further, each PV module used in any solar power project must have Radio frequency identification tag with information such as name of manufacturer, month and year of manufacturing, country of origin (separately for Solar cell and module), I-V curve, Unique Serial No and Model No of the module, Wattage, Im, Vm and FF, name of test lab issuing IEC certificate. The support structure, design and foundation shall normally be designed to withstand wind speed upto 169 km ph. The module shall perform satisfactorily and withstand gust up to 200 Km/h from backside of panel. Geographical data of data may be considered for design to get optimum generation of Solar PV System. It is proposed to install the solar panel to generate the electrical power. The solar panel shall be provided as per government regulation.		
	b) Power Conditioning Unit (PCU) of 350-800 V DC Power Conditioning Unit (PCU) of 350-800 V DC meter and data logger, MPPT, switching devices IGBT/MOSFETs and controller Microprocessor /DSP. PCU/inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown. The PCU shall be able to withstand unbalanced load conforming to IEC standard with shutdown/standby mode. It must be provided with grid islanding along with manual disconnect pole isolation switch besides automatic disconnection. Minimum protections: Mains Under / Over Voltage, Over current, Over/Under grid frequency, Over temperature, Surge voltage induced at output due to external source, Short-circuit, Lightning, Anti Islanding (for grid synch. Mode) and other protections as per applicable standards. LCD/LED display of minimum parameters: DC input voltage, DC current, AC Voltage and current (all 3 phases, in case of 3 phase), Instantaneous & cumulative AC output power, Daily DC energy produced and other parameters applicable standard. Communication interface RS 485 / RS 232.		
	c) Module mounting structure: The roof top solar plant generation units shall be installed by using supporting Aluminium/Galvanized MS structure (mass of zinc coating shall be as per IS 4759) having minimum head room clearance of 2.4 meter above the terrace level /ground level. The mounting structure would be designed to sustain wind load and seismic parameter of the site of installation. All the structure shall be design as per applicable BIS code and the material shall also confirm the applicable BIS Code. Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. The suitable arrangements for maintenance and cleaning shall be provided.		

	d)Real time online web interfaced Data Monitoring System complete with accessories for various parameters such as Solar Irradiance, temperature, AC Output Voltage and current, Output Power, Power factor, DC Input Voltage and Current, Time Active, Time disabled, Time Idle, Power produced and other parameters as per standard practices.		
	e)Array junction box & Main junction box with IP 65 protection and termination arrangement for incoming and outgoing cable along with glands, lugs and other accessories etc. as required. Each junction box shall be made of GRP/FRP/Powder Coated Aluminium /cast aluminium alloy with full dust, water & vermin proof arrangement with High quality Suitable capacity Metal Oxide Varistors(MOVs) (semiconductor diode with resistant applied voltage)/ surge arrestors and suitable Reverse Blocking Diodes, isolation switches isolate the DC input to Inverter, copper bus bar etc.		
	f)Lightning, surge voltage protection, earthing protection and grid islanding.		
	g)Cables: Connections & Interconnections required size IR/UV protected XLPE insulated copper conductor 1.1 kV grade armored power and control cables(ISI Marked) along with supplying & fixing of necessary channel/conduit, GI cable trays, supports, lugs, thimble and other accessories etc. as required.		
	h)DC Distribution Board And AC Distribution Panel Board: IP65, free standing, metal clad, having copper bus bar, having required protection and control gears, connection-interconnection, etc. as required.		
	SOLAR CAPACITY	KWP	240.00
	CCTV WORK		
137	5MP/6MP IP IR 2.8/3.6/6/8/12 mm fixed lens Dome Camera.	Nos	39.00
138	5MP/6MP IP IR 2.7 to 4 mm ~12 to 13.5mm or better Varifocal Motorized lens Dome Camera.	Nos	48.00
139	5MP/6MP IP IR 2.7 to 4 mm ~12 to 13.5mm or better Varifocal Motorized lens outdoor Bullet Camera.	Nos	124.00
140	5MP IP IR motorized PTZ @25/30fps or better camera, Triple streaming , configurable on resolution:- Main stream: 5MP@25/30 fps Sub streams:1080p@25/30 fps, varifocal lens 3.95mm (±5mm) ~ 177.75mm (±5mm) or better with Automatic & manual Focus Adjustment provisions, 45x Optical zoom and 16x Digital zoom with angle of view H: 65.7°–1.9°V: 39.4°–1.1°D: 73.1°–2.1, PAN Travel: Pan: 0° ~ 360° endless,Manual Pan: 260° /s, Preset : 300° /s, Tilt Travel: Tilt: -20° ~ 90°, auto flip 180°, Manual Tilt: 120° /s, Preset : 200° /s .	Nos	25.00
141	Supply, Installation, Testing & Commissioning of 2MP IP ANPR Camera:-1/1.8 Progressive Scan CMOS, 1920 × 1080 at 60fps,5.3 to 13 mm lens, ICR, ONVIF, support H.265, H.264,MJPEG, 3D Digital Noise Reduction, 24 V DC ± 20%, Support IR-30m,Support on-board storage up to 128 GB (TF card not included), License Vehicle detection with inbuilt independent automatic License plate recognition system working on optical character recognition technology. Camera should provide clear image of license plate along with recognized license plate no. and capture time,UL, CE, FCC certified. (to be installed near all entrance & Exit Gates.)	Nos	6.00
142	08 Channel Network Video Recorder (NVR) having display split :- Main screen: 1/4/8/9, 2nd screen: 1/4/8/9	Nos	1.00
143	32 Channel Network Video Recorder (NVR) having display split :- Main screen: 1/4/8/9/16/25/32(36), 2nd screen: 1/4/8/9/16.	Nos	1.00
144	64 Channel Network Video Recorder (NVR) having display split :- Main screen: 1/4/8/9/16/25/32(36), 2nd screen: 1/4/8/9/16	Nos	4.00

145	Supplying, Installation, Testing and Commissioning following capacity Serveillance grade Hard Disk with upto 256MB/s Transfer Rate, 256 MB Cache, 7200 RPM Disk Speed, 3.5 inch form factor, SATA Interface, BSMI, ICES-003/NNB-003, CE, FCC, KC, Maghreb, RCM, UKCA, VCCI, CB-Scheme, TUV, UL Certifications. 4 TB (Terabytes)	Nos.	1.00
146	Supplying, Installation, Testing and Commissioning following capacity Serveillance grade Hard Disk with upto 256MB/s Transfer Rate, 256 MB Cache, 7200 RPM Disk Speed, 3.5 inch form factor, SATA Interface, BSMI, ICES-003/NNB-003, CE, FCC, KC, Maghreb, RCM, UKCA, VCCI, CB-Scheme, TUV, UL Certifications. 10 TB (Terabytes)	Nos.	3.00
147	Supplying Installation Testing Commissioning of Client PC System comprising of PC Hardware with minimum 11th Gen Intel® I7 processor CPU E5-2640 x64 (or better), compatible with dual and quad core processors minimum 3.1 Ghz and 8GB or higher RAM, Hard Drive Space of 256 GB SSD or better, Video card and monitor capable of 1920 x 1080 pixel resolution or better with Ethernet adapter (10/100/1000 Mbps with RJ-45 connector) with 2 GB or higher Graphics card suitable for BMS System complete etc. as required.	Nos	4.00
148	Supplying, Installation, Testing and Commissioning of following size LED display (LED monitor) industrial grade with 3840x2160 resolution or better, USB playback, bluetooth and miracast connectivity, 4X HDMI 2.0, DP 1.2, HDR 10/10+, brightness: 500-nits or better, Video wall mode should be available, contrast ratio: 1200:1, OPS slot, viewing angle (H/V): 170°/ 170°, response time less than 12ms, Display control shall be on monitor screen and programmable with remote (remote shall be supplied with system), Key Board, Optical Mouse, etc. as required. 55 inch or larger	Nos	4.00
149	Supplying and fixing 24U Rack with 4 inch Castor wheels and front brake Floor Standing Rack with Main Frame Pillar of 1.25mm Powder Coated CRCA Sheet with removable side panels, L- Shape adjustable Vertical Mounting Rail of 2mm with 'U' Marking completely knocked-down condition (CKD) Shape, fitted with 4 number cooling fans, minimum 5nos two line cable entry/exit provision at top and bottom with rubber protection, Front door 5mm Toughened Glass with MS frame or MS perforated with lock, Rear MS vented or perforated door, Powder coated Color- RAL- 7035 or black, complied with UL & RoHS, 2 x 6 sockets 16A power distribution units, 3 numbers closed cable organizer, Hardware mounting screws packet of 20 x 1 number, etc. complete as required.	Nos	5.00
150	Supplying, drawing, Installation, Testing and commissioning of CAT6 UTP LSZH 23AWG Twisted Pair Cable in existing conduit/ on surface, Category 6 Unshielded Twisted Pair, 4 pair should be complied as per UL/ETL verification program for compliance with ANSI/TIA-568.2-D standard. Outer diameter should be in the range of 6.1mm nominal with Operating Temperature Range : -5° to +60°C, Bending Radius : < 4 X Cable Diameter at -5°C ± 1°C and Pulling Force : 11.5Kg etc. complete as required. 1 Run of cable	Mtr.	4500.00
151	Supplying, Installation, Testing and commissioning of CAT6 Copper Information Outlet (IO) with face plate of color as per site requirement, should have ETL/UL verification program certificate for compliance with ANSI/TIA-568.2-D. All copper Cable and Components should be from same OEM to maintain compatibility and interoperability etc. complete as required.	Nos	719.00
152	Supplying, Installation, Testing and commissioning of following CAT6 Patch Cord should have ETL/UL verification program certificate for compliance with ANSI/TIA-568.2-D etc. complete as required.	Nos	486.00

153	Supplying Installation Testing and Commissioning of 24 port Cat6 Patch Panel loaded. Must be of 1U height with clear label holders and white label with the panel. 24 Ports Cat-6 Patch Panel should have ETL/UL verification program certificate for compliance with ANSI/TIA-568.2-D etc. complete as required.	Nos	26.00
154	Supplying and drawing following core Multi mode Fiber Optic Cable having corrugated steel armoring, lesser optimize 50/125 μ m with HDPE jacket, LSZH (Low smoke Zero Halogen), Tight-buffered or loose tube, maximum attenuation: < 3.5 dB/km at 850 nm, < 1.5 dB/km at 1300 nm, bandwidth > 2000 MHz-km at 850 nm, > 500 MHz-km at 1300 nm compliance and certifications: ISO/IEC 11801 Ed. 2.2, ANSI/TIA-568- C.3, ITU-T G.651.1 RoHS compliant. Multi Mode Fiber shall be Central-loose tube filled with Thixotropic jelly, duly following Standards: ISO 11801, IEC 60793- 1/60794-1-2, ITU-T REC G.652D and Telecordia GR- 20-core, High quality Electro Chromium Coated Corrugated Steel tape (ECCS) and HDPE- Sheath, Operating ambient Temperature should be – 5 0C to +50 0C and Storage Temperature should be – 5 0C to +50 0C, Maximum Attenuation \pm 3.5 dB/km at Operational Wavelength 850 nm and \pm 1.5 dB / km at Operational Wavelength 1300 nm . type of fiber should be 50/125 / G.652D & Refractive Index should be 1.483/1.478, The value for Mode-field, Cladding Diameter 50 \pm 2.5 μ m and 125 \pm 1 μ m correspondingly i/c splicing & marking etc complete as required. 12 Core Multi Mode Optical Fiber Cable	Rmt.	2000.00
155	Supplying and fixing of following size Wall Mount Rack having Fixed Structure with 0.8mm CRCA Sheet, completely knocked-down condition (CKD) Shape, Vertical Mounting Rail 1.6 mm with 'U' Marking, Minimum 2 cable entry/exit provision at Top and bottom with rubber protection, Front 5mm Toughened Glass with lock, wall mounting kit, Powder coated Color- RAL- 7035, complied with UL & RoHS, 2 x 6 sockets 16A power distribution units, 3 numbers closed cable organizer, Hardware mounting screws packet of 20 x 1 number, etc. complete as required. 15U Rack	Nos	25.00
156	Supply, Installation, Testing and Commissioning of Pigtail For OFC Fiber Terminations including Splicing of OFC Make: Schneider/D-Link/AMP	Nos.	6.00
157	SITC of STP 4 pair Cat 6 Outdoor Cable in the existing surface/recess PVC conduit. Make: Dlink/AMP/Molex	Roll	13.00
158	SITC of 1U Horizontal Cable Manager. Make: Dlink/AMP/Molex	Nos	5.00
159	SITC of Pole Mount Weatherproof CCTV Box.	Nos.	135.00
160	SITC of Power cable 3 Core x 1.5 Sqmm Make: Havells/KEI/Polycap	Mtr.	4725.00
161	SITC of HDPE Pipe 32mm	Mtr.	4725.00
	LAN SYSTEM		
	Active Part		

162	Supplying, installation, Testing and commissioning of 10 Giga Bandwidth Data Centre Network Switch of 48 port Layer 1, 2, 3 having features and specifications etc. as mentioned here under: - ToR/EOR/Core Network Switch 48x 10GbE SFP+, 6x 100GbE QSFP28, RPS, with Console Port, Management Port and 1 x USB 2.0 Type A port, The switch must provide a switching capacity of no less than 2.16 Tbps and a forwarding rate of at least 1600 Mpps, ensuring non-blocking performance for high-bandwidth applications. It should support hot-swappable dual power supply modules (AC or DC) for 1+1 redundancy and load sharing, as well as hot-swappable, front-to-back airflow fan trays with N+1 redundancy to ensure continuous availability. IEEE 802.1X support for port-based and MAC-based authentication should be available, along with integration for RADIUS and TACACS+ authentication services. Guest VLANs, DoS prevention, and management access restrictions are essential. SNMP v1/v2c/v3, syslog, sFlow, and support for autoconfiguration via DHCP. Support for OpenFlow v1.4, Netconf/YANG, and LLDP is required for modern network automation. Support ONIE (Open Network Install Environment), IEEE 802.1Q bb Priority-based Flow Control (PFC), OpenFlow v1.4, ERPS, IPv6 Tunneling, IP interfaces and supported, VXLAN, Private VLAN, Multicast VLAN, Guest VLAN Double VLAN (Q-in-Q), RoCEv2, PIM-SSM/SM, MSDP. Support High Availability with MLAG/VSS and Layer 2/3 VPNs Critical for Multi-tenant, Virtualized, and Containerized Environments. BGPv4/v6, OSPFv2/v3, IS-IS, RIPng. VRRP, ECMP, BFD, and route redistribution for high-availability routing. Support flexible routing domains and secure inter-segment traffic flow. Certifications: CE, FCC, MTCET, OEM/Product must be on Trusted Telecom Portal of Department of Telecommunication, Government of India etc. complete as required.	Nos	2.00
163	Supply, Installation, Testing and Commissioning of 24 port PoE Layer 2 Network Switch with PoE Support of 370W or higher with each copper port supporting 802.3at PoE+ min.	Nos	2.00
164	Supplying, Installation, Testing and commissioning of small form-Pluggable (SFP) for Network Switches. Must be hot Pluggable, RoHS Complaint, etc. complete as required. 10 G SFP + Single Mode/Multi Mode	Nos	3.00
165	Supplying, Installation, Testing and commissioning of RJ45 Connector for CAT 6A Cables. RJ45 modular plug supports 4 twisted pairs, 8 positions, 8 connectors. Housing: PC, UL94V-2, transparent color, Use for 24- 26 AWG stranded wires etc. complete as required.	Nos.	500.00
166	Supplying and fixing 42U Rack with 6 inch Castor wheels and front brake Floor Standing Rack with Main Frame Pillar of 1.6mm CRCA Sheet with removable side panels, L- Shape adjustable Vertical Mounting Rail of 2mm with 'U'Marking completely knocked-down condition (CKD) Shape, fitted with 4 number cooling fans, minimum 8nos two line cable entry/exit provision at top and bottom with rubber protection, Front door 5mm Toughened Glass with MS frame or MS perforated with lock, Rear MS vented or perforated door, Powder coated Color- RAL- 7035 or black, complied with UL & RoHS, 2 x 6 sockets 16A power distribution units, 3 numbers closed cable organizer, Hardware mounting screws packet of 20 x 1 number, etc. complete as required.	Nos.	14.00
167	Supplying, drawing, Installation, Testing and commissioning of CAT6 UTP LSZH 23AWG Twisted Pair Cable in existing conduit/ on surface, Category 6 Unshielded Twisted Pair, 4 pair should be complied as per UL/ETL verification program for compliance with ANSI/TIA-568.2-D standard. Outer diameter should be in the range of 6.1mm nominal with Operating Temperature Range : -5° to +60°C, Bending Radius : < 4 X Cable Diameter at -5°C ± 1°C and Pulling Force : 11.5Kg etc. complete as required. 1 Run of cable	Rmt.	7500.00

168	Supplying and drawing following core Multi mode Fiber Optic Cable having corrugated steel armoring, lesser optimize 50/125 μ m with HDPE jacket, LSZH (Low smoke Zero Halogen), Tight-buffered or loose tube, maximum attenuation: < 3.5 dB/km at 850 nm, < 1.5 dB/km at 1300 nm, bandwidth > 2000 MHz-km at 850 nm, > 500 MHz-km at 1300 nm compliance and certifications: ISO/IEC 11801 Ed. 2.2, ANSI/TIA-568- C.3, ITU-T G.651.1 RoHS compliant. Multi Mode Fiber shall be Central-loose tube filled with Thixotropic jelly, duly following Standards: ISO 11801, IEC 60793- 1/60794-1-2, ITU-T- REC G.652D and Telecordia GR- 20-core, High quality Electro Chromium Coated Corrugated Steel tape (ECCS) and HDPE- Sheath, Operating ambient Temperature should be – 5 0C to +50 0C and Storage Temperature should be – 5 0C to +50 0C, Maximum Attenuation \pm 3.5 dB/km at Operational Wavelength 850 nm and \pm 1.5 dB / km at Operational Wavelength 1300 nm . type of fiber should be 50/125 / G.652D & Refractive Index should be 1.483/1.478, The value for Mode-filed,Cladding Diameter 50 \pm 2.5 μ m and 125 \pm 1 μ m correspondingly i/c splicing & marking etc complete as required. 12 Core Multi Mode Optical Fiber Cable	Rmt.	3050.00
169	Supply and fixing following port Rack Mount loaded LIU with pigtail, Front-mounted cable saddles for jumper management, suitable to manage both splices and terminations, Pre-assembled shelves in multiple configurations, Rubber fiber slotted bracket built-in, metal splice shelf to protect the fibers, 2 fiber spools built-in for 900 μ m tight buffered fiber storing, Capable of storing up to 3 meters of 900 μ m tight buffered fiber per adapter, Removable front and rear covers for better access to interior of LIU, Should be Single / Multi mode LC Type fully loaded. Accessory kit consists of cable ties, mounting ear screws, and spiral wrap tube etc complete as required. 24 Port LIU	Nos.	14.00
170	Supplying and fixing Patch Cord of Optical Fiber Multi Mode or Single Mode LC to LC Fiber Duplex having high precision ceramic ferrule with good concentricity, Fiber corning single mode G652D, Cable Type 2mm with Mechanical specification Apex Offset < 50 μ m, Fiber Height + 100 nm, End-face radius of Curvature 7mm < R <25mm, Repeatability < 0.2 db, Working ambient Temperature – 5 0C to +50 0C, Storage Temperature – 10 0C to +50 0C, Length -- 2meter, Type -- LC-LC Duplex etc complete as required.	Nos.	15.00
171	Supply, Installation, Testing and Commissioning of Pigtail For OFC Fiber Terminations including Splicing of OFC Make: Schneider/D-Link/AMP	Nos.	338.00
172	Supply, Installation, Testing and Commissioning of 6 Port LIU with SC Adaptor Loaded For Fiber termination box Make: Schneider/D-Link/AMP	Nos.	14.00
173	Supply, Installation, Testing and Commissioning of Gigabit Patch Cord 2 Mtr Make: Schneider/D-Link/AMP	Nos.	2.00
174	Supply, Installation, Testing and Commissioning of 1 U Cable Manager Make: Schneider/D-Link/AMP	Nos	53.00
175	Pentascanning of Data Nodes with Report	Nos.	210.00
	EPABX SYSTEM		
176	Supplying, installation, testing and Commissioning of IP based voice communication system with 04 Port Voicemail, 04 Port FXS, 04 Port FXO, 1 PRI Trunk lines (30 Channels) Circuit with CLIP Facility, min 100 IP users License with provision for further additions, 100 analog users, 01 Number IP based Operator Console, 100 Party Conference, Speed Dial, Music on Hold, Internal/ External ring difference, Call Barring, Call Pickup, Redundant server in active -Active mode and as per technical specification including supporting accessories etc complete as required. The system should have valid TEC GR approval from DoT.	Nos.	1.00

177	Supplying, installation, testing and Commissioning of IP at its core with IP switching technology and 100% non blocking communication system with 04 Port Voicemail, 04 Port FXS, 04 Port FXO, 1 PRI Trunk lines (30 Channels) Circuit with CLIP Facility, min 100 IP users License with provision for further additions, 100 analog users, 01 Number IP based Operator Console, 45 Party Conference, Speed Dial, Music on Hold, Internal/ External ring difference, Call Barring, Call Pickup. The system should be redundant which offer 100% duplication of power supply and CPU card and to match the hybrid IP-PBX as per technical specification including supporting accessories etc complete as required. The system should have valid TEC GR approval from DoT.	Nos.	1.00
178	Supplying, Installation, Testing & Commissioning of Type 1 IP Phone having 2 VoIP account, 120 x40 DOT matrix screen with backlight, Full HD duplex speaker phone, IPV6, L2 switches with 10G, 10 Giga SFP Module, PoE etc. complete as required	Nos.	43.00
179	Supplying, Installation, Testing & Commissioning of Analog phones having standard features like 16 digit LCD display, 2 way speaker, caller ID and number storage facility etc. complete as required.	Nos.	190.00
180	Supplying and drawing 20 Pair 0.5 mm dia FRLS PVC insulated annealed copper conductor, unarmored telephone cable in the existing surface/ recessed steel/ PVC Conduit etc. complete as required.	MTR	50.00
181	Supply, Installation, Testing and Commissioning of 100 Pair MDF, for termination of Extension	Nos.	2.00
182	Supply, Installation, Testing and Commissioning of 400 Pair MDF, for termination of Extension	Nos.	2.00
183	Supply, Installation, Testing and Commissioning of - Patch Cord 1 Mtr	Nos.	233.00
184	Supply, Installation, Testing and Commissioning of 1 U Cable Manager	Nos.	14.00
185	Supply, Installation, Testing and Commissioning of Digital for OFC Fiber Terminations including Splicing of OFC	Nos.	9.00
186	Supply, Installation, Testing and Commissioning of 6 Port - with SC Adaptor for Fiber termination box	Nos.	9.00
187	Supply, Installation, Testing and Commissioning of 24 Port U with SC Adaptor Loaded for Fiber termination box	Nos.	9.00
	GI OCTAGONAL POLE		
188	Supply & fixing of 7 mtr GI Octagonal Pole of approved make (top dia 70mm, Bottom dia 130mm and base plate 12mm thick) having 3mm thickness with double arm bracket length of 1 mtr. length in 1:2:4 RCC foundation bolt including the cost of foundation, excavation & back filling and Required T&P complete in all respect.	each	60.00
189	Supply & fixing of 10 mtr GI Octagonal Pole of approved make (top dia 100mm, Bottom dia 200mm and base plate 16mm thick) having 3mm thickness with single arm bracket length of 1 mtr. length in 1:2:4 RCC foundation bolt including the cost of foundation, excavation & back filling and Required T&P complete in all respect.	each	80.00
	HIGH MAST SHAFT		
190	Supply & fixing of 12.5 mtr High mast shaft of approved make with rising system hot dip galvanized inside & out side dip, heavy pole sheet thickness 3 mm. Top dia minimum 150 mm, Bottom dia 310 mm base plate 25 mm thick suitable for wind velocity as per IS 875 part 3 & having no circumferential weld, with accessories for high mast such as head frame suitable for 6 luminaries & its control gear boxes 0.75 HP power tool motor, 3 point suspension system with steel wire rope 6 mm dia, double drum winch, including making suitable foundation as per manufacture drawing/ site requirement along with foundation bolts nuts, washers, anchor plates etc complete in all respect.	each	4.00

191	Supply & fixing of 30 mtr High mast shaft of approved make with rising system hot dip galvanized inside & out side dip, heaving pole sheet thickness 4 mm. Top dia minimum 150 mm, Bottom dia 500 mm base plate 32 mm thick suitable for wind velocity as per IS 875 part 3 & having no circumferential weld, with accessories for high mast such as head frame suitable for 8 to 12 luminaries & its control gear boxes 1.5 HP power tool motor, 3 point suspension system with steel wire rope 8 mm dia, double drum winch, including making suitable foundation as per manufacture drawing/ site requirement along with foundation bolts nuts, washers, anchor plates etc complete in all respect.	each	2.00
192	Supply and fixing following capacity of automatic street light cubicle control panel painted with anti corrosive alkali and acid proof paint consisting of time switch TSO 100 series with contactors, HRC fuses, isolating switch metering instrument & instrument box with CTs etc. in case of TPN, complete in all respect.		
	40 A TPN	each	11.00
	STREET LIGHT LUMINAIRE		
193	LED Smart Street light fixture, powder coated pressure die cast aluminum (System. System lumen efficacy ≥ 120 and < 135 lm/Watt).		
	Supplying, installation, Testing & Commissioning of Smart Street light LED fixture, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement (< 700ma), Input voltage: 140-270 Volt AC, frequency 50/60 hz, Operating temp range -5 0C to 50 0C, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%, THD < 10% as per IEC 61000-3-2, P. F. ≥ 0.95 , IP-66, IK- 08, CRI >70, under voltage and over voltage protection, EMI- EMC as per CISPR-15, lenses for beam angle as per IESNA type I/II/III as per the width of the road and the project requirement., suitable to fit in up to 65mm dia pipe, life time of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report , CCT 3000°K / 4000°K / 5700°K /6500°K (As per ANSI Bin) , Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c external connections with 1.5 sq.mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥ 120 and < 135 lm/Watt output . LM79 & LM80 Test report and all testing required for LED fixtures as per BIS shall be submitted.. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C). Smart inbuilt controller shall have following features. 1.Control and monitor LED luminaries with bi directional control(Status, Fault, Alarm, dimming level, wattage, energy) 2. To measure voltage, current, power, power factor, apparent energy, active energy, operating hours. 3. Inbuilt ambient light sensor, motion sensor based on Passive Infra Red (PIR). 4. Wi-Fi LoRA/Zigbee/Powerline with ethernet network based IOT feature as per site requirement or engineer in charge. 5. Should be controlled through auto/ manual		
	72 watt	each	120.00
	90 watt	each	80.00
	200 watt	each	48.00
194	Supplying and drawing following sizes of FRLS PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required.		
	3x2.5 sq.mm	Metre	2504.00

	DIESEL GENERATING SETS		
195	<p>Supplying, Installation, Testing & Commissioning of 'Silent Type Diesel Generating set as per CPCB IV + or better norms along with having Prime Power Rating of KVA as below, 415 volts at 1500 RPM, 0.8 lagging power factor at 415 V suitable for 50 Hz, 3 phase system & for 0.85 Load Factor, including testing at factory and site with fuel, load for test and other necessary arrangements Complete as per CPWD specifications, should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location, rating plate as per relevant IS Code etc. and consisting of the followings:</p> <p>(A) Diesel Engine: Turbocharged Diesel engine 4 stroke water cooled, multi cylinder, dynamically balanced fly wheel, electric start of suitable BHP at 1500 RPM suitable for above output of alternator at 40 0C, 50% RH & at 1000 Meter MSL , capable of taking 10% over loading for one hour after 12 hours of continuous operation. The engine will be with Electronic governor, Dry type Air filter with service indicator, first filling of engine fuel (after commissioning) lubricating Oil, Coolant and other consumables complete with all the required accessories, the Electronic governor shall be as per ISO 8528. The engine shall comply to the latest CPCB norms (CPCB IV + or better) and Conforming to BS 5514, BS 649, IS 10000, IS 10002, IS 13018 and as per CPWD specifications.</p> <p>(B) Engine mounted Instrument Panel fitted with and having digital dis Plate for following:</p> <p>(i) Start-stop switch with key (ii) Water temperature indication (iii) Lubrication oil pressure indication (iv) Lubrication oil temperature indication (v) Battery charging indication and Voltage indication (vi) RPM indication</p>		
	<p>(vii) Over speed indication (viii) Low lubrication Oil trip indication (ix) Engine Running Hours indication (x) Fuel Level (C) Alternator: Synchronous alternator rated of appropriate KVA, 415 volts at 1500 RPM, 3 phase 50 Hz, AC supply with 0.8 lagging power factor at 40 0C, 50% RH & at 1000 Meter MSL. The alternator shall be having Screen Protected Drip Proof (SPDP) enclosure IP23, brushless, continuous duty, dynamically balanced rotor, capable of taking 10% over loading for one hour after 12 hours of continuous operation, self cooled, self-excited and self-regulated through AVR conforming to IS13364(Part 2)/IS: 4722/BS 2613 suitable for tropical conditions and with class- H insulation.</p> <p>(D) Base Frame & Foundation: Both the engine and alternator shall be mounted on suitable base frame made of MS channel with necessary reinforcement which shall be installed on suitable cement concrete foundation and vibration isolation arrangement as per recommendations of manufacturer.</p> <p>(E) FUEL TANK: Daily service fuel tank of suitable liters capacity as per CPWD Specifications, fabricated out of 3 mm thick M.S. sheet complete with all standard accessories and fuel piping between fuel tank and diesel engine with MS class 'C' pipes of suitable dia. Complete with valves, level indications & accessories as required as per specifications.</p> <p>(F) Exhaust System: Dry exhaust manifold with hospital type exhaust silencer and catalytic convertor.</p>		

	<p>(G) Starting System: 12V/24V DC starting system comprising of starter motors: voltage regulator and arrangement for initial excitation complete with suitable numbers of batteries (180 AH capacity lead acid SMF type) as required as per specifications. The battery shall be housed inside the acoustic enclosure of DG Set.</p> <p>(H) Acoustic and weather proof enclosure with arrangement for fresh air intake for cooling of the engine & alternator, extraction, discharging hot air in to the atmosphere and the temperature rise inside the enclosure, noise level outside enclosure. The acoustic enclosure should be suitable for cable connection/connection through bus-trunking. Such arrangements on acoustic enclosure should be water proof & dust-proof conforming to IP-65 protection. The enclosure shall be as per CPCB IV + or better norms etc. and as per CPWD specifications.</p> <p>(I) AMF Panel: Free standing floor mounted IP 42 automatic mains failure control panel including auto by-pass, suitable for KVA as below for silent type DG set complete with relays, timers, set of CTs for metering & protection and energy analyser to indicate currents, phase and line voltages, frequency, power factor, KWH, Kilo Volt Ampere Reative Hour (KVARH), KVA (Phase & Total), KW & provision for overload, short circuit, restricted earth fault, under frequency, power (aluminium) and control (copper) cabling of suitable size upto 15 meter between AMF panel, LT Panel and DG Set including connection interconnection etc. as required, all complete and inter locking and communication/ Ethernet /RS485/SNMP port open protocol for BMS integration including suitable software, the panel shall be of DG Set OEM make etc. as per approved by Engineering in charge and including the following:</p>		
	<ol style="list-style-type: none"> 1. Suitable numbers and appropriate capacity 4 pole motorised electrically operated draw out with cradle type 3 position ACB/ MCCB with electronic release for O/C & E/F and shunt trip. 2.Auto/Manual/Test/Off selector switch. 3.Protection for under and over voltage phase reversal (2 nos Over voltage relay, 2 Nos. reverse power relay and 2 Nos. under voltage relay). 4. 3 Sets of current transformers 15 P 10 accuracy for protection and 15 VA class-I for metering. 5. Energy analyser unit to indicate current, Voltage(L-N & L_L), kW, kVA (Phase & Total), Frequency, KWH, PF. 6.LED Indicating lamps for load on mains and load on set. 7. Fuse/ MCB for instruments. 8. Battery charger, complete with transformer/ rectifier,D.C. voltmeter and ammeter, selector switch for trickle, off and boost and current adjustment. 9. Main supply failure monitor. 10. Supply failure timer. 11. Restoration timer. 12.Control unit with three impulse automatic engine start/stop and failure to start lockout. 13. Impulse counter with locking and reset facility. 14.ON/OFF/Control circuit switch with indicator. 		

	15. Audio/Video annunciation for (i) High water temperature (ii) Low lubricating oil pressure (iii) Engine over speed (iv) Engine fails to start (v) Full load/maximum load warning 16. Protection for over/under Frequency, Loss of AC sensing, Over Current, Unbalancing load with suitable number of relays and accessories. 17. Maintenance notification based on Engine Run Hour & due date. 18. Load Management through PLC to achieve auto opening and closing of incomer breakers, bus coupler switching of essential panel, interlocking providing signal to AMF Panel for load status and AMF shall give command to DG Set to auto start / auto stop depending upon load status and requirement etc. and necessary hardware and software required to perform the operation shall be provided by the contractor including all control wiring.		
	320 KVA	EACH	2.00
196	Providing, laying and fixing following dia RCC pipe NP2 class light duty) in ground complete with RCC collars, jointing with cement mortar 1:2 (1 cement: 2 fine sand) including trenching (75 cm deep) and refilling etc as required.		
	100 mm dia	Metre	80.00
	150 mm dia	Metre	80.00
	300 mm dia	Metre	100.00
197	Illuminated signages (Rate applicable on total plinth area)	SQM.	50605.99
	Exit signs shall not exceed 5 W per phase as per ECBC-2017; Self contained rechargeable emergency exit light with minimum 6 hours battery backup; IP 20 rated; Confirms to IS : 10322 (part-5 / sec1) : 2012, Single side / Double side facia as per requirement of location installed.		
	<u>33/0.433 KV, 3 Phase, 50 Hz outdoor/ indoor mounting (Mineral oil filled)</u>		

198	<p>Supplying installation testing and commissioning of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 33/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x400 sq.mm XLPE cable of 33 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 0C for oil and 40 dg. C up to 200 KVA and 40 0C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition: a)</p>		
	<p>Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.</p>		
	2000 KVA	Set	3.00
	HYBRID Power Factor Correction System		

199	<p>Supply, Installation, testing and commissioning of HYBRID APFC Panel, 3 phase 4 wire, 415 V, 50 Hz AC System for Ambient temperature -5°C to +40°C of following capacity with passive solution of 60% capacity and active solution of 40% capacity, 3Phase 4 wire Hybrid Power Factor Correction Solution (with arrangement for neutral current balance) to achieve >0.99 lag and TDDI/THDV values within IEEE recommended limits. APFC should be designed as per IS 16636 Or IEC 61921. The active section and passive section shall work in sync to give optimized output. The degree of protection of passive section should be IP 42, and of active section should be minimum IP 21. The switching device for APFC passive section should be through capacitor duty contactor and for the active compensation system shall be IGBT based with 3 level topology having 12 IGBT in inverter circuit. The active compensation system should filter harmonics from 2nd to 50th individual harmonic order and shall be selectable for the entire range. The active compensation system should have feature to improve PF correction and harmonic filtration having response time < 100 Micro second. The hybrid panel shall be indoor type floor mounted free standing totally enclosed, extensible, fabricated in compartmentalised designed made of CRCA sheet steel of 2.0mm thick for framework & covers, 3 mm thick for gland plate i/c cleaning & finishing complete with 9 tank process for powder coated of approved shade (RAL 7032-Siemens gray or as approved by Engineer-in-Charge), having front section (switch gear and control accessories) and rear section (capacitor and reactor), front and rear access, having suitable current carrying capacity, extensible TPN Aluminium alloy bus bar of high conductivity, DMC/SMC bus bar supports, bottom base channel of MS Section, fabrication shall be done in transportable section, entire panel shall have common copper earth bar of minimum size of 25mm x 5mm with 2 nos. earth studs, the earth terminals provided on the body of capacitor bank shall also be bonded to the main capacitor panel earth bus with 2 nos. 8 SWG or 6 SWG GI earth wires/ equivalent size of copper conductor cable, forced ventilation for maintaining temperature</p>		
	<p>(A) Incomers Suitable capacity MCCB/ACB (Upto 300 KVAR, MCCB and above 300 KVAR, ACB) Microprocessor base with O/C, S/C, E/L release of TPN 50KA breaking capacity (Ics=Icu), ON, OFF, Trip, R, Y, B - LED Indicating Lamp set alongwith required Instruments and accessories with extended rotary handle and door interlocking arrangement. Current rating of the Incomer in ampere shall be APFC Panel rating in KVAR x 1.4 x 1.5 or Nearest higher standards rating.</p> <p>(B) Instruments & Indications</p> <p>a) For Passive Section :</p> <p>i) 3-Phase current sensing APFC microprocessor relay/controller, advance 12/16 stages (12 stages for over all capacity of panel (active + passive) below 500 KVAR and 16 stages 500 KVAR & above) and having display of Phase wise V, A, PF, Cos-Phi, KW, KVA, KVAR, THD-V, THD-I, harmonics up to 31 level.</p> <p>ii) Auto Manual Selector switch, auxiliary contactors with timer for delay in manual mode.</p> <p>iii) Digital Multi function meter with LED Display for V, A, PF, KW, KVA, KVAR, THD-V & I, Frequency.</p> <p>iv) Suitable rating control transformer shall be provided for control and indication circuit.</p> <p>v) All components like control transformer, meter, relay and indicating lamp shall be protected by using suitable rating individual MCB's.</p> <p>vi) Wiring of the control circuit shall be done by using 2.5 sq mm, FRLS/HFFR 1100 V grade, PVC insulated multi stranded copper control wire.</p> <p>vii) Communication Ethernet/RS485/SNMP port open protocol for BMS integration as per approved by Engineering in charge.</p> <p>b) For Active Section : Dedicated HMI (Human Machine Interface) (Minimum 7 inch display) for controlling and communication and having display of Phase wise V, A, PF, Cos-Phi, KW, KVA, KVAR, THD-V, THD-I, harmonics up to 50th level.</p> <p>Communication Ethernet/RS485/SNMP port open protocol for BMS integration as per</p>		
	800 KVAR	Set	3.00

	<u>H.T. VCB Panel</u>		
200	S.I.T.C. of VCB's Indoor Type as per latest specification of UP Power Corporations, make preferred approved by UP Power Corporation. Including construction of Plinth and earthing etc. with all material as per Technical Requirement.		
	INCOMER - 1 NO. VCB 800A, 33KV ,CT 150/75/5A, CORE 1: CLASS 0.5, BURDEN 15VA, CORE 2: CLASS 5P10, BURDEN 15VA, CT>5A , PT RATIO : 33KV/V3/110V/V3/110V/3V, CL-0.5, BURDEN-100VA, CLASS:3P, BURDEN 100VA, CAST RESIN , SPOUT BUS BUSHING 630A, 60/10 ,SPOUT CIRCUIT BUSHING 630A ,BREAKER ON/OFF/TRIP/SPRING CHARGE/ TRIP CKT HEALTHY , PHASE INDICATING LIGHT R, Y, B ,TNC SWITCH , MECHANICAL ON/OFF PUSH BUTTON , HEATER WITH HEATER SWITCH & THERMOSTAT , CUBICLE ILLUMINATED LAMP , IDMT (NUMERICAL NON DIRECTIONAL 3 O/C & E/F PROTECTION) + TRIP CIRCUIT SUPERVISION ,MASTER TRIP RELAY , POWER PACK , HOOTER ,DIGITAL AMP METER , DIGITAL VOLT METER , Multifunction Energy Meter with RS485, Parameters: Volts, Amps, PF, THD, F, W, Wh, VA, VAh, Var, Varh, Runhrs, Onhrs, Interrupts, Preloaded Demand & Import /Export, Acc. Cl: 1, 12 WINDOW ANNUNCIATOR , TEST TERMINAL BLOCK (TTB) , INSULATOR & MISCELLANIOUS ITEM .		
	OUTGOING 4 NOS. VCB 800A, 33KV ,CT 120/60/5A, CORE 1: CLASS 0.5, BURDEN 15VA, CORE 2: CLASS 5P10, BURDEN 15VA, CT>5A , SPOUT BUS BUSHING 630A, 60/10 ,SPOUT CIRCUIT BUSHING 630A ,BREAKER ON/OFF/TRIP/SPRING CHARGE/ TRIP CKT HEALTHY ,TNC SWITCH , MECHANICAL ON/OFF PUSH BUTTON , IDMT (NUMERICAL NON DIRECTIONAL 3 O/C & E/F PROTECTION) + TRIP CIRCUIT SUPERVISION ,MASTER TRIP RELAY , POWER PACK , HOOTER ,DIGITAL AMP METER , 12 WINDOW ANNUNCIATOR , INSULATOR & MISCELLANIOUS ITEM .	Set	1.00
	<u>33 KV Cable & Termination</u>		
201	Supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 33 KV grade as required:		
	240 sq. mm	Each	5.00
202	Supplying and making outdoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 33 KV grade as required :		
	240 sq.mm	Each	3.00
203	Supply and laying of 3 core standard aluminium conductor XLPE (Cross linked polyethylene) insulated PVC bedded, Galvanised flat steel strip armoured cables conforming to I.S. 7098 (Part-II with latest amendments) 33 KV grade at a depth of 1200 mm below ground level over a cushion of 100 mm thick fine river sand all around and protected with well burnt bricks on sides and on top put across. The armouring of cable shall be properly connected with earth conductor by clamps etc.		
	240 sq. mm 3 core	Mtr.	400.00
	<u>Main L.T. Panel (TTA TYPE)</u>		
204	Supply & Erection of factory fabricated & wired metal clad dust and vermin proof floor mounting, M.S. Channel Base with bottom and top cable entrance Electrical control panel with TPN ACB (65 KA, 4 Pole Elect draw out , Micor processer Release IPR2) and TPN MCCB's (Four Pole 36 KA with thermal magnetic release) Switches and instrument chamber etc. complete in all respects.		

	The instrument chamber shall be separate and shall comprise of flush type/digital ammeter Voltmeter, Selector switches for ammeter and Voltmeter, instrument fuses, current transformer etc. The Board shall have suitable capacity electrolytic aluminium busbars as per IS8623 insulated with heat shrink sleeving and mounted on non hygroscopic supports such as CMC/ DMC support with detachable side covers and shall be suitable for extension on the sides. The switches entry boxes shall be complete with suitable cable end boxes reverse.		
	The Job includes the grounding of the board as per directions of Engineer-in charge. All outgoing of 100 Amp and above Will be provided with Amp Metre, current transformers and selector switches etc and instrument fuse. The switch board shall be fabricated with CRCA sheet with a minimum thickness of 1.6 mm/2mm. Cubicle type switch board shall be of cat A & B Only. CAT. B Cubicle Type		
	(or As per requirement directed by Project Manager.)		
	Tr. Incoming -	each	1.00
	4000 Amp /415 Volt ACB -3 Nos.		
	DG. Incoming -		
	630 Amp /415 Volt MCCB -2 Nos.		
	Bus Coupler -		
	4000 Amp /415 Volt ACB -2 Nos.		
	1250 Amp /415 Volt ACB -1 Nos.		
	Bus-Bar -		
	4000 Amp /415 Volt FP AL. BUSBAR (TR.SIDE)		
	1250 Amp /415 Volt FP AL. BUSBAR (DG.SIDE)		
	Outgoing -		
	1600 Amp FP ACB - 4 Nos.		
	1250 Amp FP ACB - 4 Nos.		
	800 Amp FP ACB - 3 Nos.		
	630 Amp FP MCCB - 2 Nos.		
	400 Amp FP MCCB - 3 Nos.		
	250 Amp FP MCCB - 2 Nos.		
	200 Amp FP MCCB - 12 Nos.		
	100 Amp FP MCCB - 8 Nos.		
	63 AMP FP MCB-8 Nos.		
	Outdoor Feeder Piller Panels		
205	Supply, Installation, Testing and Commissioning of L.T. Panel vermin proof floor mounting, M.S. Channel Base with bottom and Fabricated out of 2.0/1.6 mm thick CRCA sheet steel painted with powder coated paint of shade as per the direction of Engineer In charge after proper sheet treatment process of sheet steel. The bus bar of panel shall be Electrical grade high conductive aluminium alloy of appropriate cross section as per the rating. The busbar shall be supported by non hygroscopic SMC/DMC Bus bar support which shall be mounted on proper interval to ensure the bear the jerks of short circuit of 50kA for panel having ACB as Incomer & 36 kA for panels having MCCB Incomers. Panel shall be constructed in fully Segregated Compartment Design for each Feeder as per 3b construction Format. The panel shall be completed in all respect as per IS 8623 Part 2 & 3. There shall be Separated metering Component for Incomer metering and Outgoing metering.		

	All Incomer Feeder shall be provided with Multifunctional metering along with phase Indicating lights and other associated components such as CT control MCB Terminal Blocks etc. and all outgoing Feeders 100 A & above shall be provided with 3 phase Ammeter along with phase Indicating lights and other associates components such as CT control MCB Terminal Blocks etc. The feeder above shall be provided ac accommodated all measuring instrument shall be digital type & all indicating lights shall be LED type. Wiring shall be done from 1100V Grade PVC Insulated copper flexible wire all ACB shall be electrically operated Draw out Type with microprosesser based O/L,S/C & E/F Release of Breaking/withstand capacity(ICU/ICs/Icw) 50 kA or more All MCCb shall be thermal magnetics/microprocessor with O/L & S/C protection along with required Spreaders & Extended rotary handle with pad locking facility of breaking capacity 36 kA or more All MCB shall be Thermal 10kA 'C'Curve Cubical type switch board shall be Cat-B Only.		
	Panel Board (MCCB TYPE)		
A	<u>Feeder Piller Panel - 1</u>		
	Incoming		
	400 Amp. MCCB-1 Nos.		
	Outgoing -		
	200 Amp. MCCB-2 Nos,100 Amp MCCB- 1 No, & 63 Amp MCCB-1 No	EACH	1.00
	Extra outgoing		
	100 Amp FP MCB - 4 Nos.	EACH	3.00
	125 Amp FP MCB - 1 Nos.	EACH	1.00
B	<u>Emergency Feeder Piller Panel - 1</u>		
	Incoming		
	200 Amp. MCCB-1 Nos.		
	Outgoing -		
	100 Amp. MCCB-2 Nos.	EACH	1.00
	Extra outgoing		
	100 Amp FP MCB - 4 Nos.	EACH	4.00