

**MINISTRY OF HEALTH & FAMILY WELFARE  
GOVERNMENT OF INDIA, NEW DELHI**

***Tender No. MoHFW/ME/RIAHS-COIM/HLL/ID/2013/31***

**Request for Proposal (RFP)**

***for***

**Construction of Regional Institute of Allied Health Sciences (RIAHS)  
at Coimbatore, Tamilnadu**



**VOLUME – IV  
BILL OF QUANTITIES (BOQ)**



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## INDEX

<b>S. No</b>	<b>DESCRIPTION</b>	<b>Page No.</b>
<b>I</b>	<b>CIVIL &amp; STRUCTURAL</b>	<b>4</b>
<b>II</b>	<b>PLUMBING</b>	<b>35</b>
<b>III</b>	<b>EXTERNAL PLUMBING &amp; RAIN WATER HARVESTING</b>	<b>48</b>
<b>IV</b>	<b>FIRE PROTECTION SYTEMS</b>	<b>64</b>
<b>V</b>	<b>INTERNAL ELECTRICAL INSTALLATIONS</b>	<b>87</b>
<b>VI</b>	<b>EXTERNAL ELECTRICAL INSTALLATIONS</b>	<b>114</b>
<b>VII</b>	<b>LIFTS</b>	<b>130</b>
<b>VIII</b>	<b>NETWORKING, CCTV SYSTEM, MATV SYSTEM, PA SYSYTEM, UPS, OVERHEAD PROJECTOR, TELEPHONE NETWORK</b>	<b>136</b>
<b>IX</b>	<b>HVAC</b>	<b>149</b>
<b>X</b>	<b>UNDER GROUND WATER TANK</b>	<b>160</b>
<b>XI</b>	<b>HT &amp; LT ELECTRICAL INSTALLATION</b>	<b>166</b>
<b>XII</b>	<b>ROADS &amp; COMPOUND WALL</b>	<b>191</b>
<b>XIII</b>	<b>STP</b>	<b>199</b>
<b>XIV</b>	<b>WATER TREATMENT PLANT</b>	<b>203</b>

## ABSTRACT

<b>S. No</b>	<b>DESCRIPTION</b>	<b>AMOUNT QUOTED (Rs.)</b>
<b>I</b>	<b>CIVIL &amp; STRUCTURAL</b>	
<b>II</b>	<b>PLUMBING</b>	
<b>III</b>	<b>EXTERNAL PLUMBING &amp; RAIN WATER HARVESTING</b>	
<b>IV</b>	<b>FIRE PROTECTION SYTEMS</b>	
<b>V</b>	<b>INTERNAL ELECTRICAL INSTALLATIONS</b>	
<b>VI</b>	<b>EXTERNAL ELECTRICAL INSTALLATIONS</b>	
<b>VII</b>	<b>LIFTS</b>	
<b>VIII</b>	<b>NETWORKING, CCTV SYSTEM, MATV SYSTEM, PA SYSYTEM, UPS, OVERHEAD PROJECTOR, TELEPHONE NETWORK</b>	
<b>IX</b>	<b>HVAC</b>	
<b>X</b>	<b>UNDER GROUND WATER TANK</b>	
<b>XI</b>	<b>HT &amp; LT ELECTRICAL INSTALLATION</b>	
<b>XII</b>	<b>ROADS &amp; COMPOUND WALL</b>	
<b>XIII</b>	<b>STP</b>	
<b>XIV</b>	<b>WATER TREATMENT PLANT</b>	
	<b>GRAND TOTAL</b>	

# **CIVIL & STRUCTURAL**

<b>CIVIL WORKS</b>						
<b>Item no.</b>	<b>DSR 2012 Code No.</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
<b>1.00.00</b>	<b>2</b>	<b>EARTH WORK</b>				
1.01.00	2.1	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth upto 30 cm measured at a height of 1 m above ground level and removal of rubbish upto a distance of 50 m outside the periphery of the area cleared.				
1.01.01	2.1.1	All kinds of soil	Sqm	9048		
1.02.00	2.6	Earth work in excavation by mechanical means (Hydraulic Excavator)/Manual means over areas (exceeding 30cm in depth 1.5m in width as well as 10sqm on plan) including disposal of excavated earth ,lead up to 50m and lift up to 1.5m,disposed earth to be leveled and neatly dressed.				
1.02.01	2.6.1	All kinds of soil	Cum	12105		
1.03.00	2.7	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30 cm in depth, 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m and lift upto 1.5 m, disposed earth to be levelled and neatly dressed.				
1.03.01	2.7.3	All kinds of soil (Hard Rock - Blasting Prohibited)	Cum	10261		

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1.04.00	2.2	Earth work in rough excavation, banking excavated earth in layers not exceeding 20 cm in depth, breaking clods, watering, rolling each layer with ½ tonne roller or wooden or steel rammers, and rolling every 3rd and top-most layer with power roller of minimum 8 tonnes and dressing up in embankments for roads, flood banks, marginal banks and guide banks or filling up ground depressions, lead upto 50 m and lift upto 1.5 m :				
1.04.01	2.2.1	All kinds of soil	Cum	4379		
<b>1.05.00</b>		<b>FILLING IN SUBSTRUCTURE</b>				
1.05.01	2.25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc., in layers not exceeding 20cm in depth: consolidating each deposited layer by ramming and watering, lead up to 50m and lift up to 1.5m.	Cum	13300		
1.05.02	2.27	Supplying and filling, in plinth with coarse sand under floors including, watering, ramming consolidating and dressing complete.	Cum	2013		
1.05.03	0810 & 6501&2.2 7	Supplying and filling, in plinth with morrum under floors including, watering, ramming consolidating and dressing complete. Filling shall be done in a manner similar to earth filling in plinth specified in CPWD specifications.	Cum	5330		
<b>2.00.00</b>		<b>CONCRETE WORK</b>				
2.01.00	4.17	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	1301		
2.02.00	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth				

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2.02.01	4.1.3	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size)	Cum	12		
2.02.02	4.1.8	1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size)	Cum	1535		
2.03.00	4.1	Providing and laying damp-proof course 40 mm thick with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size).	Sqm	50		
2.04.00	4.13	Applying a coat of residual petroleum bitumen of grade of VG-10 of approved quality using 1.7 kg per square meter on damp proof course after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.	Sqm	50		
2.05.00		<b>SUNKEN FILLING</b>				
2.05.01	Derived on D.S.R	Providing and laying up to floor five level lime concrete with graded brick aggregate 25mm nominal size and 50% mortar comprising of 1 lime putty : 2 surkhi.	Cum	877		
2.05.02	4.12	Extra for providing and mixing water proofing material in cement concrete / Plastering work in doses by weight of cement as per manufacturer's specification	Kg	722		
<b>3.00.00</b>		<b>REINFORCED CEMENT CONCRETE</b>				

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3.01.00	5.37	Providing and laying in position ready mixed M-30 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work, including pumping of R.M.C. from transit mixer to site of laying , excluding the cost of centering, shuttering finishing and reinforcement, including cost of 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 the Engineer - in - charge				
3.01.01	5.37.1	a) i) All work up to plinth level.	Cum	9685		
3.01.02	5.37.2	b) i) All work above plinth level up to floor V level.	Cum	11880		
3.02.00	5.38	Extra for R.C.C. / B.M.C. / R.M.C. Above floor V level each floor or part thereof.	Cum	4531		
3.03.00		<b>RCC PLASTERING</b>				
3.04.00	5.23	Smooth finishing of the RCC exposed surface 6mm thick cement mortar 1:3 (1 cement : 3 fine sand)	Sqm	96196		
4.00.00	5	<b>FORM WORK</b>				
4.01.00	5.9	Centering and shuttering including strutting, propping etc., and removal of form for,				



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4.01.01	5.9.1	Foundations, Footings, bases of columns, etc for mass concrete.	Sqm	3714		
4.01.02	5.9.2	Walls any thickness including attached pilasters butteresses, Plinth and string courses etc.	Sqm	5944		
4.01.03	5.9.3	Suspended floors, roofs, landings, Balconies and access platform	Sqm	35156		
4.01.04	5.9.5	Lintel, beams ,plinth beams, girders, bressumers and cantilevers	Sqm	44380		
4.01.05	5.9.6	Columns and Pillars, Piers, Abutments, Posts and Struts.	Sqm	19565		
4.01.06	5.9.7	Stairs(excluding landings) except spiral-staircases.	Sqm	1443		
4.01.07	5.9.15	Small lintels not exceeding 1.5m clear span, molding, as in cornices, window sills, string courses, bands, copings, bed plates, anchor blocks and the like.	Sqm	232		
4.01.08	5.9.19	Weather shade, chajjas, corbels etc. including edges	Sqm	2830		
5.00.00		<b>STEEL REINFORCEMENT</b>				
5.01.00	5.22	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto Plinth level.				

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5.01.01	5.22.6	Thermo – Mechanically Treated Bars	Kgs	1346513		
5.02.00	5.22.A.	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above Plinth level.				
5.02.01	5.22.A.6	Thermo – Mechanically Treated Bars	Kgs	1635792		
6.00.00	6	<b>BRICK &amp; STONE WORK</b>				
6.01.00	6.1.	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:				
6.01.01	6.1.2&2602 &2603	Cement mortar 1:6 (1 cement :6 coarse sand)	Cum	142		
6.02.00	6.4	Brick work with F.P.S bricks of class designation 7.5 in superstructure above plinth level up to floor v level in all shapes and sizes in:				
6.02.01	6.4.2 &2602 &2603	Cement mortar 1: 6 (1 cement :6 coarse sand)	Cum	8545		
6.03.00	6.13	Half brick masonry with F.P.S brick of class designation 7.5 in superstructure above plinth level up to floor V level				
6.03.01	6.13.1 &2602 &2603	CM 1:3 (1 cement : 3 coarse sand)	Sqm	11565		
6.04.00	6.15	Extra for providing and placing in position 2 Nos. 6mm dia M.S bars at every third course of half brick masonry (with FPS brick)	Sqm	11565		

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6.04.01	6.5	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	855		
6.04.02	6.14	Extra for half brick masonry in superstructure, above floor V level for every four floors or part thereof by mechanical means.	Sqm	8842.4		
6.05.00		<b>RANDOM RUBBLE MASONRY</b>				
6.05.01	7.1	Random rubble masonry with hard stone in foundation and plinth including leveling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20mm nominal size) upto plinth level with:				
6.05.01.0 1	7.1.1	Cement mortar 1:6 (1 cement : 6 coarse sand).	Cum	446		
7.00.00	9	<b>WOOD AND ALUMINIUM WORK</b>				
7.01.00	9.1	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position.				
7.01.01	9.1.1	Second class Teak wood	Cum	35.85		
7.01.02	9.1.3	Kiln seasoned and chemically treated hollock wood	Cum	14		
7.02.00	9.5	Providing and fixing panelled or panelled and glazed shutters for doors, windows and clerestory windows including ISI marked M.S. pressed butt hinges bright finished of required size with necessary screws excluding, panelling which will be paid for separately, all complete as per direction of Engineer-in-charge.				

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7.02.01	9.5.1	Second class teak wood 35mm thick shutter	Sqm	353		
7.02.02	9.5.2	Kiln seasoned and chemically treated hollock wood				
7.02.02.01	9.5.2.1	35 mm thick shutters	Sqm	203		
7.03.00	9.7	Providing and fixing panelling or panelling and glazing in panelled or panelled and glazed shutters for doors, windows and clerestory windows (Area of opening for panel inserts excluding portion inside grooves or rebates to be measured). Panelling for panelled or panelled and glazed shutters 25 mm to 40 mm thick :				
7.03.01	9.7.1	Second class teak wood	Sqm	270.65		
7.03.02	9.7.2	Kiln seasoned and chemically treated hollock wood	Sqm	152		
7.03.00	9.9	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.				
7.03.01	9.9.3	Kiln seasoned selected planks of sheesham wood				
7.03.01.1	9.9.3.2	30 mm thick s	Sqm	312		

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7.04.00	9.2	Providing and fixing ISI marked flush door shutters conforming to IS :2202 (Part I) decorative type, core of block board construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters.	Sqm			
7.04.01	9.20.1	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	Sqm	578		
7.05.00	9.21	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 :				
7.05.01	9.21.2	30 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	Sqm	1139		
7.06.00	9.129	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	2377		
7.07.00	9.53	Providing 40 x 5mm flat iron hold fast 40 cm long including fixing to frame with 10mm diameter bolts, nuts and wooden plugs and embeddings in cement concrete block 30 x 10 x 15 cm 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size)	Nos	6359		
7.08.00	9.33	Providing and fixing expandable fasteners of specified size with necessary plastic sleeves and galvanized M.S. screws including drilling holes in masonry work / CC / R.C.C. and marking good etc.				

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7.08.01	9.33.4	50mm long	Nos	7172		
7.10.00	9.62	Providing and fixing ISI marked oxidised M.S. sliding door bolts with nuts and screws etc. complete :				
7.10.01	9.62.2	250x16 mm	Each	120		
7.11.00	9.63	Providing and fixing ISI marked oxidised M.S. tower bolt black finish, (Barrel type) with necessary screws etc. complete :				
7.11.01	9.63.2	200x10 mm	Each	146		
7.11.02	9.63.3	150x10 mm	Each	770		
7.11.03	9.63.4	100x10 mm	Each	390		
7.12.00	9.65	Providing and fixing ISI marked oxidised M.S. door latches conforming to IS:5930 with screws etc. complete :	Each	26		

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7.13.00	9.66	Providing and fixing ISI marked oxidised M.S. handles conforming to IS:4992 with necessary screws etc. complete :				
7.13.01	9.66.2	100mm	Each	240		
7.13.02	9.66.3	75mm	Each	736		
7.14.00	9.74	Providing and fixing bright finished brass tower bolts (barrel type) with necessary screws etc. complete :				
7.14.01	9.74.1	250x10 mm	each	192		
7.15.00	9.79.	Providing and fixing special quality bright finished brass cupboard or ward robe locks with four levers of approved quality including necessary screws etc. complete.				
7.15.01	9.79.2	50 mm	Each	1012		
7.16.00	9.8	Providing and fixing 50 mm bright finished brass cup board or wardrobe knob of approved quality with necessary screws.				
7.16.00	9.97	Providing and fixing aluminium 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.				

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7.16.01	9.97.2	250 x 10mm	each	1781		
7.16.02	9.97.4	150 x 10mm	each	1143		
7.16.03	9.97.5	100x10 mm	each	3528		
7.17.00	21.13	Providing and fixing 100mm brass locks (best make of approved quality) for aluminum doors including necessary cutting and making good etc. complete	Nos	28		
7.18.00	9.96	Providing and fixing aluminium sliding 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 :				
7.18.01	9.96.1	300x16 mm	Nos	127		
7.18.02	9.96.2	250x16 mm	Nos	583		
7.19.00	9.98	Providing and fixing aluminium pull bolt lock, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws bolts, nut and washers etc. complete.	Each	83		



<b>CIVIL WORKS</b>						
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7.20.00	9.1	Providing and fixing aluminium 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.				
7.20.01	9.100.2	100mm	Nos	1471		
7.20.02	9.100.3	75 mm	Nos	2272		
7.21.00	9.101	Providing and fixing aluminium hanging floor door stopper ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade with necessary screws etc., complete.				
7.21.01	9.101.1	Single rubber stopper	Nos	878		
7.22.00	9.102	Providing and fixing aluminium casement stays, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws etc. complete	Each	1262		
7.23.00	9.117	Providing and fixing factory made UPVC door frame made of UPVC extruded section having an overall dimensions as below ( tolerance $\pm 1$ mm ), with wall thickness 2.0mm ( $\pm 0.2$ mm), corners of the door frame to be joined with galvanized brackets and stainless steel screws, joints mitered and plastic welded. The hinged side vertical of the frames reinforced by galvanized M.S. tube of size 19x19 mm and 1mm ( $\pm 0.1$ mm) wall thickness and 3 nos. Stainless steel hinged fixed to the frame complete as per manufacturers Specification and direction of engineering -in-change				

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7.23.01	9.117.1	Extruded section profile size 48x40 mm	meter	2373		
7.24.00	9.118	Providing and fixing existing door frames:				
7.24.01	9.118.1	24 mm thick factory made PVC door shutters made of styles and rails of a UPVC hollow section of size 59x24 mm and wall thickness 2 mm ( $\pm$ 0.2mm) with in built edging on both sides. The styles and rails mitered and joint at the corners by means of M.S. galvanized / plastic brackets of size 75x220 mm having wall thickness 1.0 mm and stainless steel screws. The styles of the shutter reinforced by inserting galvanized M.S. tube of size 20x20 mm and 1mm ( $\pm$ 0.1mm) wall thickness. The lock rail made up of " H" section, a UPVC hollow section of size 100x24 mm and 2mm ( $\pm$ 0.2mm) wall thickness, fixed to the shutters styles by means of plastic/ galvanized M.S.'U' cleats. The shutter frame filled with a UPVC multi chambered single panel of size not less than 620mm, having over all thickness of 20mm and 1mm ( $\pm$ 0.1mm) wall thickness. The panes filled vertically and tie bar at two places by inserting horizontally 6mm galvanized M.S. rod and fastened with nuts and washers, complete as per manufacturer's specification and direction of Engineer- in - charge. (for W,C and bath room door shutter).	Sqm	630		
A		Aluminium Windows & Ventilators				
7.25.00	21.1	Providing and fixing aluminum work for doors, windows, ventilators and partitions with extruded built up standard tubular sections / appropriate z sections and other sections of approved make confirming to IS : 733 and IS : 1285 fixed with fixed with raw plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC / neoprene felt etc. Aluminium sections shall be smooth, rust free, straight, mitered and jointed mechanically wherever required including cleat angle, aluminium snap beading for glazing / panelling, C.P. brass / stainless steel screws all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing and panelling to be paid for separately).				

<b>CIVIL WORKS</b>						
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7.25.01	21.1.1	For fixed portion				
7.25.01.1	21.1.1.2	Powder coated aluminium (minimum thickness of powder coating 50 micron)	Kgs	62315		
7.26.00	21.1.2	For shutters of doors, windows & ventilators including providing and fixing hinges / pivots and making provision for fixing of fittings wherever required including the cost of PVC / neoprene gasket required (fittings shall be paid for separately)				
7.26.01	21.1.2.2	Powder coated aluminium (minimum thickness of powder coating 50 micron)	Kgs	45107		
7.27.00	21.2	Providing and fixing 12mm thick prelaminated particle board flat pressed three layer or graded wood particle board conforming to IS : 12823 Grade I type II in panelling fixed in aluminium doors, windows shutters and partition frames with C.P. brass / stainless steel screws etc., complete as per architectural drawings and directions of engineer-in-charge.				
7.27.01	21.2.2	Prelaminated particle board with decorative lamination on both sides.	Sqm	42		
7.28.00	21.3	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc., with PVC / neoprene gasket etc., complete as per the architectural drawings and the directions of engineer-in-charge. (Cost of aluminium snap beading shall be paid in basic item).				
7.28.01	21.3.2	With float glass panes of 5.5 mm thickness	Sqm	6411		

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7.29.00	21.8	Filling the gap in between aluminium frame & adjacent RCC/Brick/Stone work by providing weather silicon sealant over backer rod of approved quality as per architectural drawings and direction of Engineer-in-charge complete.				
7.29.01	21.8.1	Upto 5mm depth and 5mm width	meter	6588		
7.30.00	9.68	Providing and fixing oxidised M.S. casement stays (straight peg type) with necessary screws etc. complete.				
7.30.01	9.68.2	250 mm weighing not less than 150 gms	Each	1970		
7.31.00	9.64	Providing and fixing ISI marked 85x42mm oxidised M.S. pull bolt lock conforming to IS : 7534 with necessary screws bolts, nut and washers etc. complete.	Each	180		
7.32.00	9.65	Providing and fixing ISI marked oxidised M.S. door latches conforming to IS:5930 with screws etc. complete :	Each	160		
7.33.00	9.66	Providing and fixing ISI marked oxidised M.S. handles conforming to IS:4992 with necessary screws etc. complete :	Each	2170		
7.34.00	9.63.	Providing and fixing ISI marked oxidised M.S. tower bolt black finish, (Barrel type) with necessary screws etc. complete :				
		150x10 mm	Each	3580		

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7.35	9.62	Providing and fixing ISI marked oxidised M.S. sliding door bolts with nuts and screws etc. complete :				
	9.62.2	250x16 mm	Each	439		
7.36		Providing and fixing, in position concealed G.I. section for wall paneling using board of required thickness fixed on the 'W' profile (0.55 mm thick) having a knurled web of 51.55 mm and two flanges of 26 mm each with lips of 10.55 mm, placed @ 610 mm C/C in perimeter channel having one flange of 20 mm and another flange of 30 mm with thickness of 0.55 mm and web of length 27 mm. Perimeter channel is fixed on the floor and the ceiling with the nylon sleeves @ 610 mm C/C with fully threaded self-tapping dry wall screws. Board is fixed to the 'W' profile with 25 mm countersunk ribbed head screws @ 200 mm C/C., all complete as per the drawing & directions of engineer-in-charge, the joints of the boards are finished with specially formulated jointing compound and 48 mm wide jointing tape to provide seamless finish.				
	9.133.1	Tapered edge calcium silicate board made with calcareous & siliceous materials reinforced with cellulose fiber manufactured through autoclaving process to give stable crystalline structure with compressive strength 225 kg/ sq.cm, Bending strength 100 kg/sq.cm.				
	9.133.1.1	10mm thick	Sqm	624		
8.00.00		<b>STEEL WORKS</b>				
8.02.00	10.25	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.				

<b>CIVIL WORKS</b>						
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8.02.01	10.25.1	In stringers, treads, landings etc. of stair cases, including use of chequered plate wherever required, all complete	Kgs	1324		
8.03.00	10.26	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer.				
8.03.01	10.26.1	M.S. tube	Kgs	290		
8.05.00	10.28	Providing and fixing stainless steel (Grade 304) railing made of hollow tubes, channels, plates etc. including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolt complete i/c fixing the railing with necessary accessories & 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 Engineering-in-charge .( for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc. )	Kgs	9529		
8.06.00	9.48	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				
8.06.01	9.48.2	Fixed to openings with raw plugs screws etc.	Kgs	51535		
8.07.00	10.2	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete: (OTS area)	Kgs	23100		

<b>CIVIL WORKS</b>						
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8.08.00	10.5	Providing and fixing 1mm thick M.s. sheet door with frame of 40 x 40 x 6mm angle iron and 3mm gusset plates at the junction and corners, all necessary fittings complete, including applying a priming coat of approved steel primer				
8.08.01	10.5.2	Using flats 30 x 60mm for diagonal braces and central cross piece.	Sqm	130		
8.09.00	10.16	Steel work in builtup tubular trusses including cutting, hosting, fixing in position and applying a priming coat of approved steel primer welded and bolted including special shaped washers etc. complete				
8.09.01	10.16.3	Electric resistance or induction butt welded tubes.	Kgs	6600		
9.00.00		<b>FLOORING</b>				
9.01.00	11.3	Cement concrete flooring 1:2:4 (1 cement : 2coarse and : 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				
9.01.01	11.3.1	40mm thick with 20mm nominal size stone aggregate.	Sqm	1765		
		<b>GRANITE STONE FLOORING</b>				
9.02.00	7.38	Stone cladding work for wall lining upto 10m height with special adhesive over 12mm thick bed of cement mortar 1:3 (1cement : 3coarse sand) including pointing in white cement with an admixture of pigment to match the stone shade.				
9.02.01	7.38.1.1 & 7297 &2750	Granite stone 18mm thick of any colour and shade	Sqm	478		

<b>CIVIL WORKS</b>						
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9.03.00	8.2	Providing and fixing 18 mm 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, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels.				
9.03.01	8.2.1	Raj Nagar Plain white marble/ Udaipur green marble/ Zebra black marble				
9.03.01.1	8.2.1.1	Area of slab over 0.50 sqm	Sqm	404		
9.03.01.2	8.2.2	Granite of any colour and shade				
9.03.01.3	8.2.2.2	Area of slab over 0.50 sqm.	Sqm	261		
9.03.02	11.23 derived	Granite stone flooring with 18mm thick granite stone as per sample of granite approved by Engg. In charge over 20mm (avg) thick of cement mortar 1:4 (1 cement:4 coarse sand) laid and jointed with grey cement slurry , including rubbing and polishing complete.	Sqm	2692		
9.04.00	8.31	Providing edge moulding to 18 mm thick marble stone counters, Vanities etc., including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer-in-Charge				
9.04.01	8.31.1	Granite/Marble	meter	166		



<b>CIVIL WORKS</b>						
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	8.5	Extra for providing opening of required size and shape for wash basins/kitchen sink in kitchen platform, vanity counters and similar location in granite stone work including necessary holes for pillar taps etc .including rubbing and polishing of cut edges etc. complete.	Each	160		
9.05.00	8.6	Mirror polishing on marble work/Granite stone work where ever required to give high gloss finish complete.	Sqm	412		
9.06.00	8.3.2	Extra for providing edge moulding to 18mm thick granite stone counters. Vanities etc. item including machine polishing to edge to give high glass finish etc. complete as per design approved by Engineer- in - charge.	meter	127		
9.07.00	11.41	Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS : 15622, of approved make, in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand), including grouting the joints with white cement and matching pigments etc., complete.				
9.07.01	11.41.1	Size of Tile 600x600 mm	Sqm	10974		
		<b>KOTA STONE FLOORING</b>				
9.09.00	11.2	Chequered precast cement concrete tiles 22mm thick in footpath ,Ramp & courtyard jointed with neat cement slurry mixed with pigment to match the shade of tiles including rubbing and cleaning etc. complete on 20mm thick bed of cement mortar 1:4 (1 cement : 4 coarse sand)				
9.09.01	11.20.1	Light shade using white cement	Sqm	409		

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9.10.00	11.24	Extra for pre finished nosing to treads of steps of granite stone.	meter	805		
9.11.00	11.25	Extra for Granite stone flooring in treads of steps and risers using single length up to 2.00 meter	Sqm	505		
9.12.00	11.26 .1	Kota stone flooring over 20mm (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 1:4 ( 1 cement : 4 coarse sand) : 25mm thick	Sqm	2362		
9.13.00	11.27	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	242		
9.14.00	11.37	Providing and laying Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand), including pointing the joints with white cement and matching pigment etc., complete.	Sqm	15594		
9.15.00	11.36	Providing and fixing 1st quality ceramic glazed wall tiles confirming to IS: 15622(thickness to be specified by the manufacture)of approved make in all coloures,shades except burgundy, Bottle green, Black of any size as approved by Engineer-In -Charge in skirting, risers of steps and dados over 12mm thick bed of cement Mortar 1:3 (1 cement :3Coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete.	Sqm	9281		

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9.16.00	11.39	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), including grouting the joints with white cement and matching pigments etc., complete.				
		Size of Tiles 30 x 30 cm				
			Sqm	55		
10.00.00		<b>ROOFING</b>				
10.01.00	12.52	Providing and fixing tiled false ceiling of approved materials of size 595x595 mm in true horizontal level suspended on inter locking metal grid of hot dipped galvanized steel sections ( galvanized @ 120 gsm/sqm, both side inclusive) consisting of main "T" runner with suitably spaced joints to get required length and of size 24x38mm made from 0.30mm thick (minimum) sheet, spaced at 1200mm center to center and cross "T" of size 24x25mm made of 0.30mm thick (minimum) sheet, 1200mm long spaced between main "T" at 600mm center to center to form a grid of 1200x600 mm and secondary cross "T" of length 600mm and size 24x25mm made of 0.30 mm thick (minimum) sheet to be interlocked at middle of the 1200x600mm panel to form grids of 600x600mm and wall angle of size 24x24x0.3 mm and laying false ceiling tiles of approved texture in the grid including, wherever, required, cutting/making, opening for services like diffusers, grills, light fittings, fixtures, smoke detectors etc. Main "T" runners to be suspended from ceiling using GI slotted cleats of size 27 x 37 x 25 x 1.6 x mm fixed to ceiling with 12.5 mm dia and 50 mm long dash fasteners, 4mm GI adjustable rods with galvanised butterfly level clips of size 85 x 30 x 0.8 mm spaced at 1200mm center to center along main T, bottom exposed width of 24 mm of all T-sections shall be pre-painted with polyester paint, all complete at all heights as per specifications drawings and as directed by Engineer-in-charge.				

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10.01.01	12.52.1	GI Metal Ceiling Lay in plain Tegular edge Global white color tiles of size 595x595 mm, and 0.5mm thick with 8mm drop; made of G I sheet having galvanizing of 100 gms/sqm(both sides inclusive) and electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after bending.	Sqm	4935		
10.01.02	12.52.3	12.5 mm thick square edge PVC Laminated Gypsum Tile of size 595x595 mm, made of Gypsum plasterboard, manufactured from natural gypsum as per IS 2095 part I and laminated with white 0.16mm thick fire retardant PVC film on the face side and 12micron metalized polyester on the back side with all edges sealed with the face side PVC film which goes around and wraps the edges and is bonded to the edges and the back side metalized polyester film so as to make the tile a completely sealed unit.	Sqm	1240		
10.02.00	12.47	Providing and fixing UV stabilized fiber glass reinforced plastic sheet roofing up to any pitch including fixing with polymer coated 'J' or 'L' hooks, bolts and nuts 8mm dia GI plain/bitumen washers complete but excluding the cost of purling rafters, trusses etc the sheets shall be manufactured out of 2400 TEX panel roving incorporating minimum 0.3% Ultra-violet stabilizer in resin system under approximately 2400 psi and hot cured. They shall be uniform pigmentation and thickness without air pockets and shall confirm to IS 10192 and IS 12866.The sheets shall be opaque or translucent, clear or pigmented, textured or smooth as specified.				
10.02.01	12.47.1	2mm thick corrugated (2.5" or 4.2" or 6") or step down (2" or 3" or 6") as specified)	Sqm	1195		
11.00.00	13	<b>FINISHING</b>				
		Internal Plastering				
11.01.00	13.1.2	12mm cement plaster of mix 1:6 (1 cement : 6 fine sand)	Sqm	46927		

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11.02.00	13.2.2	15mm cement plaster on the rough side of single or half brick wall of mix : 1 : 6 (1 cement : 6 fine sand)	Sqm	29074		
11.03.00	13.16	6 mm cement plaster of mix :				
11.03.01	13.16.1	1:3 (1 cement : 3 fine sand)	sqm	15314		
		External Plastering				
11.04.00	13.12	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement: 5 coarse sand) and a top layer 6mm thick cement plaster 1:3 (1 cement: 3 coarse sand) finished rough with sponge.	Sqm	23344		
11.05.00	13.22	Extra for plastering exterior walls of height more than 10m from ground level for every additional height of 3m or part thereof				
11.05.01	13.22.1	more than 10m not exceeding 13m	Sqm	9487		
11.06.00	13.3	18mm thick moulded cement mortar band in two coats under layer 12mm thick with mortar 1:5(1cement: 5coarse sand) top layer 6mm thick with cement mortar 1:4(1cement:4 fine sand)- 2.5cm wide band	meter	11196		
		<b>WALL FINISHES</b>				
		<b>INTERNAL</b>				
11.07.00	13.41	Distempering with oil bound washable distemper of approved brand and manufacture to give an even shade :				
11.07.01	13.41.1	New work (two or more coats) over and including water thinnable priming coat with cement primer	Sqm	53780		

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11.08.00	13.48.2	Painting wood work with Delux Multi surface paint of required shade. Two or more coat applied @ 0.90 ltr/10sqm over an under coat of primer applied @ 0.75 ltr /10 sqm of approved brand or manufacture.	Sqm	6250		
11.09.00	13.48.3	Painting Steel work with Delux Multi surface paint to give an even shade. Two or more coat applied @ 0.90 ltr/10sqm over and over an under coat of primer applied @ 0.80ltr/10sqm of approved brand or manufacture.	Sqm	1900		
		<b>EXTERNAL</b>				
11.10.00	13.43	Applying one coat of cement primer of approved brand and manufacture on wall surface – Cement Primer	Sqm	51856		
11.11.00	13.45	Finishing wall with textured exterior paint of required shade:				
11.11.01	13.45.1	New work (Two or more coats applied @ 3.28ltr/10 sqm)over and including base coat of water proofing cement paint applied @2.20kg/10sqm)	Sqm	21114		
11.12.00	13.46	Finishing walls with Acrylic Smooth exterior paint of required shade :				
11.12.01	13.46.1	New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/ 10 sqm)	Sqm	8500		
11.13.00	13.48.2	Painting wood work with Delux Multi surface paint of required shade. Two or more coat applied @ 0.90 ltr/10sqm over an under coat of primer applied @ 0.75 ltr /10 sqm of approved brand or manufacture.	Sqm	1573		
11.14.00	13.48.3	Painting Steel work with Delux Multi surface paint to give an even shade. Two or more coat applied @ 0.90 ltr/10sqm over and over an under coat of primer applied @ 0.80ltr/10sqm of approved brand or manufacture.	Sqm	643		

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11.15.00	13.60.1	Wall painting with Plastic emulsion paint of approved brand and manufacture to give an even shade –Two or more coats on new work.	Sqm	51631		
11.16.00	13.8	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	49371		
11.17.00	13.81	Distempering with 1st quality acrylic distemper, having VOC (Volatile Organic Compound) content less than 50 grams/ liter, of approved brand and manufacture, including applying additional coats wherever required, to achieve even shade and colour.				
11.17.01	13.81.2	Two coats	Sqm	5337		
11.18.00	13.82	Wall painting with acrylic emulsion paint, having VOC (Volatile Organic Compound) content less than 50 grams/ liter, of approved brand and manufacture, including applying additional coats wherever required, to achieve even shade and colour				
11.18.01	13.82.2	Two coats	Sqm	1400		
11.09.00	13.62	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade Painting wood work with Delux Multi surface paint of required shade. Two or more coat applied @ 0.90 ltr/10sqm over an under coat of primer applied @ 0.75 ltr /10 sqm of approved brand or manufacture.				

<b>CIVIL WORKS</b>						
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11.09.01	13.62.1	Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture	Sqm	837		
12.00.00	22	<b>WATER PROOFING</b>				
12.01.00	22.3	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)	IIInd course of 20mm 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 1.7kg per sq.mm of area.				
	iv)	IVth course of 400 micron thick PVC sheet, (Overlaps at joints of PVC sheet should be 100mm wide and pasted to each other with bitumen @ 1.7 Kg/sq.m)	Sqm	1423		
12.02.00	22.7	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 300mm height including cleaning the surface before treatment.				



<b>CIVIL WORKS</b>						
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	b	Laying brick bats with mortar using broken bricks / brick bats 25mm to 115mm size with 50% of cement mortar 1:5 (1 cement mortar 1:5 (1 cement : 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer –in-charge over 20mm thick layer of cement mortar of mix 1:5 (1 cement : 5 coarse sand) admixed with proprietary water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge to require slope and treating similarly the adjoining walls upto 300mm height including rounding of junctions of walls and slabs.				
	c	After two days of proper curing applying a second coat of cement slurry using 2.5kg/sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge				
	d	Finishing the surface with 20mm 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 fiber cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making of 300 x 300 mm square 3mm 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.				
12.02.01	22.7.1	With average thickness of 120mm and minimum thickness at khurra as 65mm	Sqm	6653		
13.00.00		MISCELLANEOUS				

<b>CIVIL WORKS</b>						
<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
13.01.00	MR	Providing anti-termite treatment and creating a chemical barrier to the building by injecting chemical emulsion of required concentrations under raft slab and beam and around the footings. Column pits, trenches, pits, tunnels, wall trenches, back fill, plinth filling junction of wall and floor, side walls of basement floor external perimeter of building, surrounding of pipes, expansion joints, etc., as per IS specification and as per instructions of chemical manufacturer and also as directed. The treatment shall be carried out strictly in accordance with IS 6313 - Part II - Latest issue etc. complete. The work shall include the cost of all materials, cost of labour, cost of equipment and machinery, hire charges of equipments & machinery, lead & lift, loading and unloading, transportation and all other incidental charges etc., complete. The work shall be carried out as per the directions of the Engineer-in-Charge of the work.				
		Note: Plinth area of the building at Ground floor will be measured and paid for.				
			Sqm	6543		
		<b>TOTAL CIVIL COST</b>				

# **PLUMBING**

**CONSTRUCTION OF REGIONAL INSTITUTE OF ALLIED HEALTH AND SCIENCE, COIMBATORE**

**INTERNAL PLUMBING AND SANITATION WORKS**

<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
1	17.3	Providing and fixing white vitreous china pedestal type water closet (European type) with seat and lid, 10 liter low level white vitreous china flushing cistern & C.P. flush bend with fittings & C.I.brackets, 40mm flush bend, overflow arrangement with specials of standard make and mosquito proof coupling of approved municipal design complete including painting of fittings and brackets, cutting and making good the walls and floors wherever required :				
a)	17.3.1	W.C. pan with ISI marked white solid plastic seat and lid.	Nos.	245		
2	17.7	Providing and fixing wash basin with CI / MS brackets, 15mm CP brass Pillar taps, 32mm CP brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever required.				
a)	17.7.1	White Vitreous China Wash basin size 630 x 450mm with a single 15mm C.P brass pillar tap.	Nos.	254		
3	17.4	Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350mm and 340x410x265mm 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 :				
a)	17.4.1	One urinal basin with 5 liter white P.V.C. automatic flushing cistern.	Nos.	33		
4	17.70.	Providing and fixing PTMT Bottle Trap for Wash basin and sink				

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
a)	17.70.2	Bottle trap 38mm single piece moulded with height of 270mm, effective length of tail pipe 260mm from the centre of the waste coupling 77mm breadth with 25mm minimum water seal, weighing not less than 260 gms.				
5	17.69	Providing and fixing PTMT Waste coupling for wash basin and sink of approved quality, colour and make.				
a)	17.69.2	b) Waste coupling 38mm of 83mm length and 77mm breadth, weighing not less than 60 gms.	Nos.	366		
6	17.28	Providing and fixing PVC Waste pipe for sink or wash basin including PVC waste fittings complete.				
	17.28.1	Semi rigid pipe				
	17.28.1.1	32mm dia	Rmt	170		
7	MR	Providing and fixing Soap Dish approved make.	Nos.	310		
8	17.34	Providing and fixing Toilet paper holder .				
	17.34.2	C.P Brass	Nos.	180		
9	17.31	Providing and fixing 600 x 450mm bevelled edge mirror of superior glass (of approved quality) complete with 6mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete.				
10	17.72	Providing and fixing PTMT Towel ring trapezoidal shape 215mm long, 200mm wide with a minimum distances of 37mm from wall face with concealed fittings arrangement of approved quality, colour and make weighing not less than 90 gms.	Nos.	214		

<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
11	18.16	Providing and fixing C.P. brass Stop cock (concealed) of approved quality.				
a)	18.16.1	15mm nominal bore	Nos.	1046		
12	M.R.	Providing and fixing of CP brass Two way coat hooks of superior quality with CP screws.	Nos.	245		
13	MR	Providing & fixing of CP Health faucet.				
a)		CP angle stop cock with all flange.				
b)		PVC flexible tube				
c)		Hand operated spray unit (instant type).	Set	245		
14	18.7	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for Hot and Cold water supply including all CPVC plain and brass threaded fittings including fixing the pipe with clamps at 1.00m spacing. This includes jointing of pipes and fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in charge.				

SI No.	DSR Code	Description	Unit	Quantity	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
		Internal Work - Exposed on wall				
a)	18.7.1	15mm nominal outer dia. Pipes	Mtr.	75		
b)	18.7.2	20 mm nominal outer dia .Pipes.	Mtr.	365		
c)	18.7.3	25mm nominal outer dia. Pipes	Mtr.	280		
d)	18.7.4	32mm nominal outer dia. Pipes	Mtr.	274		
e)	18.7.5	40mm nominal outer dia. Pipes	Mtr.	260		
f)	18.7.6	50mm nominal outer dia. Pipes	Mtr.	179		
g)	MR	62.5mm nominal inner dia. Pipes	Mtr.	240		
h)	MR	75mm nominal inner dia. Pipes	Mtr.	195		
i)	MR	100mm nominal inner dia. Pipes	Mtr.	62		

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
15	18.8	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for Hot and Cold water supply including all CPVC plain and brass threaded fittings including fixing the pipe with clamps at 1.00m spacing. This includes jointing of pipes and fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in charge.				
		Concealed work including cutting chases and making good the wall etc.				
a)	18.8.1	15mm nominal outer dia. Pipes	Mtr.	1726		
b)	18.8.2	20mm nominal outer dia. Pipes	Mtr.	1037		
c)	18.8.3	25mm nominal outer dia. Pipes	Mtr.	270		
d)	18.8.4	32mm nominal outer dia. Pipes	Mtr.	27		
16	18.18	Providing and fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete :				
	18.18.2	20 mm nominal bore	Nos.	14		
	18.18.1	15 mm nominal bore	Nos.	2		



<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
17	18.17	Providing and fixing Gun metal gate valve with C.I. wheel of approved quality (screwed end).				
a)	18.17.1	25 mm dia nominal bore	Nos.	72		
b)	18.17.2	32 mm dia nominal bore	Nos.	53		
c)	18.17.3	40 mm dia nominal bore	Nos.	17		
d)	18.17.4	50 mm dia nominal bore	Nos.	1		
e)	18.17.6	80 mm dia nominal bore	Nos.	4		
f)	18.17.5	65 mm dia nominal bore	Nos.	4		
18	MR	Providing and fixing in position Butterfly Valve with CI wheel of approved quality including cost of all materials and labour with all leads complete as per specifications. Make:Lehry etc.,				
a)		100 mm dia nominal bore	Nos.	15		

<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
19	M.R.	Providing and fixing PVC soil, waste and vent pipe to IS : 13592 of SWR quality 4kg / sq.cm pressure rated up to 110mm dia and 6 kg / sq.cm pressure rated agricultural series above 110mm, including all fittings, like EG : Bends, Tees, Elbows, Collars, junction, inspection doors, cowls, offsets, access pipes, jointing with rubber ring / solvent cement by application of leak proof adhesive like FRP paste including cutting holes in walls and floors and making good.				
a)		40mm dia (4kg / sq.cm)	Mtr.	100		
b)		50mm dia (4kg / sq.cm)	Mtr.	219		
c)		63mm dia (4kg / sq.cm)	Mtr.	65		
d)		75mm dia (4kg / sq.cm)	Mtr.	1491		
e)		110mm dia (4 kg / sq.cm)	Mtr.	1126		
f)		90mm dia (4 kg / sq.cm)	Mtr.	400		
		Rain Water Pipe				
g)		110mm dia (6 kg / sq.cm)	Mtr.	199		

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
h)		160mm dia (6 kg / sq.cm)	Mtr.	495		
i)		75mm dia (6 kg / sq.cm)	Mtr.	50		
20	MR	Providing and fixing to the Inlet mouth of rain water pipe S.S grating 150mm diameter and weighing not less than 440 grams.	Nos	28		
21	MR	Providing and fixing unplasticised - PVC pipe clips of approved design to unplasticised - PVC rain water, soil and waste water pipes by means of metallic dash fasterns complete as per direction of the engineer in - charge.	Nos	500		
22	M.R.	Providing and fixing PVC floor trap self cleansing design with or without vent arm complete including cutting and making good the walls and floors.				
a)		110mm dia inlet 110mm dia outlet	Nos	576		
23	M.R.	Providing and fixing PVC 'P' or 'S' trap self cleansing design with or without vent arm complete including cutting and making good the walls and floors.				
a)		110mm dia inlet 110mm dia outlet	Nos	365		
24	M.R	Providing and fixing CP grating of 6mm thick with rim including setting in floor with white cement mortar and making good the floor (Chilli make)				

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
a)		125mm dia	Nos.	576		
25	18.36	Constructing Masonry Chamber 60x60x75 , inside with 75 class designation brick work in cement mortar 1:5 (1 cement : 5 fine sand) for sluice valve, with CI surface box 100mm, top diameter, 160mm bottom diameter and 180mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 grades stone aggregate 40mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12mm thick finished with a floating coat of neat cement complete as per standard design.	Nos.	46		
26	19.4	Providing and fixing square – mouth S.W. Gully trap grade “A” complete with CI grating brick masonry chamber with water tight CI cover with frame of 300 x 300mm 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				
a)	19.4.3	150 x 100mm size P type with FPS bricks class designation 75	each	20		
b)	19.4.2	150x100mm size P type				
	19.4.2.1	With common burnt clay F.P.S (non-modular) bricks of class designation 7.5	each	17		

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
27	MR	Providing and fixing to wall, ceiling and floor, UPVC pipes 6.00 kg/sq.cm working pressure 110mm outside diameter , compression type fittings, wall clips, making good the wall, ceiling and floor including cost of all material, labour charges. HOM of equipments and testing, excluding cost of fittings, complete as per specifications. (External Sewerage Line)	Mtr.	205		
28	MR	Providing and fixing to wall, ceiling and floor, UPVC pipes 6.00 kgf/sq.cm working pressure 160mm outside diameter , compression type fittings, wall clips, making good the wall, ceiling and floor including cost of all material, labour charges. HOM of equipments and testing, excluding cost of fittings, complete as per specifications. (External Sewerage Line)	Mtr.	750		
29	MR	Earth work in excavation in foundation trenches or drains (not exceeding 1.5mm in width or 10 sq.mm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5mm including getting out the excavated soil and disposal of excavated soil as directed, with in lead of 50m..	Cum	1100		
30	M.R.	Providing and fixing of over head shower set with shower flange 170 mm long, including shower head and shower arm conforming to I.S Specification of approved make as per directions including all lead and lift etc., complete.	Nos.	158		
31	M.R.	Providing and fixing of CP brass 15 mm dia, 2 in 1 exposed wall mixer cum spout for wall installation with lever control and necessary CP bend for shower connection, including cutting and making good the walls complete as per directions including all lead and lift etc., complete.	Nos.	62		
32	M.R	Providing and fixing Vertical Geyser of 25Ltrs capacity including cutting and making good the walls complete as per directions including all lead and lift etc., complete.	Nos.	62		

<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
33	17.10.	Providing and fixing Salem Stainless Steel A ISI 304 (18/8) Kitchen sink as per I.S 13983 with C.I. brackets and stainless steel plug 40mm including painting of fittings and brackets, cutting and making good the walls wherever required.				
a)	17.10.1	Kitchen sink with drain board				
b)	17.10.1.3	510 x 1040 mm bowl depth 200 mm	Nos.	49		
34	MR	Providing and fixing in position Kitchen Sink Tap of approved quality 15mm nominal bore including cost of all materials, labour and HOM of equipments with all leds complete as per specifications.	Nos.	49		
35	17.73	Providing and fixing PTMT Tower rail complete with brackets fixed to wooden cleats with CP brass screws with concealed fitting arrangement of approved quality colour and make.				
a)	17.73.2	600mm long towel rail with total length of 645mm, width 78mm and effective height of 88mm, weighing not less than 190 gms.	Nos.	158		
36	MR	Providing and fixing to the Inlet mouth of rain water pipe S.S grating 110mm diameter and weighing not less than 440 grams.	Nos	17		
37	MR	Providing and fixing to the Inlet mouth of rain water pipe S.S grating 75mm diameter and weighing not less than 440 grams.	Nos	8		
38	18.51	Providing and fixing C.P brass Long body bib cock of approved quality conforming to IS standards and weighing not less than 690gms.				
a)	18.51.1	15mm nominal bore	Nos.	101		

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
39	18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank ISI : 12701 marked with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank	Ltrs	17000		

## **EXTERNAL PLUMBING & RAIN WATER HARVESTING**



## **EXTERNAL PLUMBING ABSTRACT**

<b>SI.NO</b>	<b>DESCRIPTION</b>
1	STORM WATER DRAINAGE
2	EXTERNAL DOMESTIC SEWERAGE LINE
3	EXTERNAL WATER SUPPLY LINE
4	RAIN WATER HARVESTING PIT

**EXTERNAL STORM WATER DRAINAGE**

SL.NO	DSR	Description	Quantity	Units	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
1	2.9	Excavation work by mechanical means (Hydraulic excavator)/ manual means in foundation trenches or drains not exceeding 1.5m in width or 10 sqm on plan including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soils as directed, within a lead of 50m.				
a)	2.9.1	Ordinary rock	1213.00	Cum		
b)	2.9.2	Hard rock (requiring blasting)	1000.00	Cum		
c)	2.9.3	Hard rock (blasting prohibited)	650.00	Cum		
2	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
a)	4.1.8	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size).	310.00	Cum		
3	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : (Flagging Concrete all around the building).				

**EXTERNAL STORM WATER DRAINAGE**

Sl.NO	DSR	Description	Quantity	Units	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
a)	4.1.3	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	175.00	Cum		
4	4.2	Providing and laying cement concrete in retaining walls, return walls, walls (any thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets, sunken floor, etc., up to floor five level, excluding the cost of centering, shuttering and finishing :				
a)	4.2.2	1:1½:3 (1 cement:1½ coarse sand:3 graded stone aggregate 20 mm nominal size).	50.00	Cum		
5	5.9	Centering and shuttering including strutting, propping etc. and removal of form for :				
a)	5.9.3	Suspended floors, roofs, landings, balconies and access platform.	95.00	Sqm		
6	5.22	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.				
a)	5.22.1	Mild steel and Medium Tensile steel bars.	5000.00	Kg		

**EXTERNAL STORM WATER DRAINAGE**

Sl.NO	DSR	Description	Quantity	Units	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
7	6.3	Brick work with common burnt clay machine moulded perforated bricks of class designation 12.5 conforming to IS: 2222 -1991 in superstructure above plinth level up to floor five level in cement mortar 1:6 (1 cement : 6 coarse sand) :				
a)	6.3.1	With F.P.S.(non modular) bricks.	750.00	Cum		
8	13.1	12 mm cement plaster of mix :				
a)	13.1.1	1:4 (1 cement: 4 fine sand)	4350.00	Sqm		
9	19.6	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 :				
a)	19.6.2	150mm dia. R.C.C. Pipe	105.00	Rmt		
b)	19.6.4	300mm dia. R.C.C. Pipe	70.00	Rmt		
c)	19.6.5	450mm dia. R.C.C. Pipe	175.00	Rmt		
d)	19.6.7	600mm dia. R.C.C. Pipe	30.00	Rmt		

**EXTERNAL STORM WATER DRAINAGE**

SL.NO	DSR	Description	Quantity	Units	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
e)	19.6.8	700 mm dia. R.C.C. pipe	25.00	Rmt		
		<b>Total Cost</b>				

<b>EXTERNAL DOMESTIC SEWERAGE LINE</b>						
Sl.No	DSR	Description	Quantity	Units	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
1	2.9	Excavation work by mechanical means (Hydraulic excavator)/ manual means in foundation trenches or drains not exceeding 1.5m in width or 10 sqm on plan including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soils as directed, within a lead of 50m.				
	2.9.1	Ordinary rock	281.00	Cum		
	2.9.2	Hard rock (requiring blasting)	250.00	Cum		
	2.9.3	Hard rock (blasting prohibited)	75.00	Cum		
2	2.25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	200.00	Cum		
3	2.26	Extra for every additional lift of 1.5 m or part thereof in excavation /banking excavated or stacked materials.				
	2.26.1	All kinds of soil.	75.00	Cum		

EXTERNAL DOMESTIC SEWERAGE LINE						
Sl.No	DSR	Description	Quantity	Units	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
	2.26.2	Ordinary or hard rock.	50.00	Cum		
4	MR	Providing and laying non-pressure NP3 class (heavy 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 :				
		150mm diameter	650.00	Mtr.		
5	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
	4.1.8	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size).				
		150mm diameter	650.00	Mtr.		
6	MR	Construction brick masonry manhole size: 800 x 800mm, and depth upto 1000mm (clear inside dimension) using table moulded non-modular bricks of class designation 50 in cement mortar 1:4 including supply and fixing/ embedding of precast manhole cover with frame with clear opening 450x600/560dia with duty MD-10/ HD-20 as per IS:12592, R.C.C top slab with cement concrete 1:2:4 mix with 20mm and downsize granite metal, foundation concrete 1:3:6 with 40mm downsize metal granite inside plastering (both inside and outside walls)12mm thick with cement mortar 1:3, finish smooth with a floating coat of cement and bed concrete complete as per design including cost of materials, labour charge, curing etc.,complete as per specification and drawings.	15	Mtr.		

<b>EXTERNAL DOMESTIC SEWERAGE LINE</b>						
Sl.No	DSR	Description	Quantity	Units	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
7	MR	Construction brick masonry manhole size: 1200 x 900mm, and depth more than 1000mm upto 2000mm (clear inside dimension) using table moulded non-modular bricks of class designation 50 in cement mortar 1:4 including supply and fixing/ embedding of precast manhole cover with frame with clear opening 450x600/560dia with duty MD-10/ HD-20 as per IS:12592, R.C.C top slab with cement concrete 1:2:4 mix with 20mm and downsize granite metal, foundation concrete 1:3:6 with 40mm downsize metal granite inside plastering (both inside and outside walls)12mm thick with cement mortar 1:3, finish smooth with a floating coat of cement and bed concrete complete as per design including cost of materials, labour charge, curing etc.,complete as per specification and drawings.	15	Each		
8	MR	Constructing brick masonry circular type manhole 1500mm internal dia at bottom and 800mm dia at top, with table moulded and non modular bricks of class designation 50 in cement mortar 1:4, inside cement plaster (both inside and outside walls) 12mm thick with cement mortar 1:3, finished with a floating coat of neat cement, foundation concrete 1:3:6 mix using 40mm and down size granite metal and making necessary channel in cement concrete 1:2:4 mix with 20mm and down size granite metal, finished with a floating coat of neat cement, including supply and fixing of / embedding of precast manhole cover with frame with clear opening 560dia with duty HD-20 as per IS: 12592, in cement concrete 1:2:4 with 20mm and down size broken granite metal, providing and removing centering, shuttering including cost of materials, labour charges, HOM of machineries complete as per specifications and drawings.	10	Each		



<b>EXTERNAL DOMESTIC SEWERAGE LINE</b>						
<b>Sl.No</b>	<b>DSR</b>	<b>Description</b>	<b>Quantity</b>	<b>Units</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	<b>Code No.</b>					
9	MR	Providing orange colour safety foot rest of minimum 6mm thick plastic encapsulated a per IS : 10910 on 12mm dia steel bar conforming to IS : 1786 having minimum cross section as 23 mm x 25 mm and over all minimum length 263mm and width as 165mm with minimum 112mm space between protruded leg having 2mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projection on tail length on 138mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specification and having manufacture permanent identification mark to be visible even after fixing, including fixing in water tank RCC walls complete a per design.	125.00	each		
		<b>Total Cost</b>				

<b>EXTERNAL WATER SUPPLY LINE</b>						
<b>Sl. NO</b>	<b>DSR</b>	<b>Description</b>	<b>Quantity</b>	<b>Units</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	<b>Code No.</b>					
1	2.9	Excavation work by mechanical means (Hydraulic excavator)/ manual means in foundation trenches or drains not exceeding 1.5m in width or 10 sqm on plan including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soils as directed, within a lead of 50m.				
a)	2.9.1	Ordinary rock	500.00	Cum		
b)	2.9.2	Hard rock (requiring blasting)	200.00	Cum		
2	2.25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	600.00	Cum		
3	2.27	Supplying and filling in plinth with Jamuna sand under floors, including watering, ramming, consolidating and dressing complete.	35.00	Cum		
4	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				

EXTERNAL WATER SUPPLY LINE						
Sl. NO	DSR	Description	Quantity	Units	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
a)	4.1.8	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size).	35.00	Cum		
5	MR	Providing and fixing to wall, ceiling and floor, <b>HDPE</b> pipes 6.00 kg/sq.cm working pressure <b>outside diameter</b> , compression type fittings, wall clips, making good the wall, ceiling and floor including cost of all material, labour charges. HOM of equipments and testing, excluding cost of fittings, complete as per specifications.				
a)		150mm dia	310.00	Mtrs		
b)		100mm dia	210.00	Mtrs		
c)		65mm dia	105.00	Mtrs		
d)		50mm dia	65.00	Mtrs		
e)		40mm dia	45.00	Mtrs		
f)		25mm dia	120.00	Mtrs		

EXTERNAL WATER SUPPLY LINE						
Sl. NO	DSR	Description	Quantity	Units	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
6	18.17	Providing and fixing <b>Gun metal gate valve</b> with C.I. wheel of approved quality (screwed end). Make: Lehry,Supreme,Finolex,Prince etc.,				
a)	18.17.1	25 mm nominal bore	2	Nos.		
b)	18.17.3	40 mm nominal bore.	1	Nos.		
c)	18.17.4	50 mm nominal bore.	1	Nos.		
d)	18.17.5	65 mm nominal bore	1	Nos.		
7	MR	Providing and fixing in position <b>Butterfly Valve</b> with CI wheel of approved quality including cost of all materials and labour with all leads complete as per specifications. Make:Lehry etc.,				
a)		150mm nominal bore	5	Nos.		
b)		100mm nominal bore	3	Nos.		
8	MR	Providing and fixing <b>C.I. double acting air valve</b> of approved quality with bolts, nuts, rubber insertions etc. complete (The tail pieces, tapers etc if required will be paid separately) :				
a)		150mm dia	3	Nos.		

<b>EXTERNAL WATER SUPPLY LINE</b>						
<b>Sl. NO</b>	<b>DSR</b>	<b>Description</b>	<b>Quantity</b>	<b>Units</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	<b>Code No.</b>					
9	18.37	Constructing masonry Chamber 60x45x50 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for water meter complete with C.I. double flap surface box 400x200x200 mm (inside) with locking arrangement and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) , i/c necessary excavation, foundation concrete 1:5:10 ( 1 cement : 5 fine sand:10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design :				
a)	18.37.1	With common burnt clay F.P.S.(non modular) bricks of class designation 7.5.	15	Nos		
10	19.6	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 :				
a)	19.6.2	150mm dia	50.00	Rmt		
b)	19.6.4	300mm dia	35.00	Rmt		
		<b>Total Cost</b>				

<b>RAIN WATER HARVESTING PIT</b>						
Sl.No	DSR	Description	Quantity	Units	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
1	2.9	Excavation work by mechanical means (Hydraulic excavator)/ manual means in foundation trenches or drains not exceeding 1.5m in width or 10 sqm on plan including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soils as directed, within a lead of 50m.				
a)	2.9.1	Ordinary rock	350.00	Cum		
b)	2.9.2	Hard rock (requiring blasting)	200.00	Cum		
c)	2.9.3	Hard rock (blasting prohibited)	200.00	Cum		
2	2.27	Supplying and filling in plinth with Jamuna sand under floors, including watering, ramming, consolidating and dressing complete.	250.00	Cum		
3	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
a)	4.1.8	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size).	20.00	Cum		

<b>RAIN WATER HARVESTING PIT</b>						
Sl.No	DSR	Description	Quantity	Units	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
4	MR	Providing and fixing for surface drain covers at all elevations precast perforated slabs in grade M20 of various sizes, shapes and patterns as per drawing specification using graded hard stone aggregate of 12.5mm maximum size including form work, finishing smooth, curing etc. complete as as per specifications.	150.00	Cum		
5	6.3	Brick work with common burnt clay machine moulded perforated bricks of class designation 12.5 conforming to IS: 2222 -1991 in superstructure above plinth level up to floor five level in cement mortar 1:6 (1 cement : 6 coarse sand) :				
a)	6.3.1	With F.P.S.(non modular) bricks.	225.00	Cum		
6	13.1	12 mm cement plaster of mix :				
a)	13.1.1	1:4 (1 cement: 4 fine sand)	20.00	Sqm		
7	MR	Filling the approved graded gravel of 40mm to 60mm size material in pit area etc and wherever specified in layer of not exceeding 200 mm thick including breaking clots etc complete.	225.00	Cum		
8	MR	Supplying and filling of brick bats for all rain water collection pits	200.00	Cum		
9	19.6	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 :				
a)	19.6.2	150mm dia. R.C.C. Pipe	135.00	Rmt		
		<b>Total Cost</b>				

# **FIRE PROTECTION SYSTEMS**



## **FIRE PROTECTION SYSTEMS ABSTRACT**

<b>SL.NO</b>	<b>DESCRIPTION</b>
A	FIRE WATER PUMPING SYSTEM
B	EXTERNAL FIRE PROTECTION SYSTEM
C	INTERNAL HYDRANT & FIRST-AID HOSE REEL SYSTEMS
D	SPRINKLER SYSEM (HOSPITAL BLOCK)
E	ADDRESSABLE FIRE ALARM SYSTEM
F	FIRE EXTINGUISHERS
G	SIGNAGES

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	<b>PART - A. FIRE WATER PUMPING SYSTEM</b>				
1	a. Horizontal end suction top discharge centrifugal pump of cast iron body & bronze impeller with stainless steel shaft of 171 Cu.M per hour at 70MWC head as per CPWD specification				
	b. Suitable HP Sq. cage induction motor, TEFC, synchronous speed 2900 RPM, suitable for operation on 415 volts, 3 phase 50 Hz AC 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 pad.	Set.	1		
2	Supplying, Installation, Testing and Commissioning of diesel engine driven standby fire pump suitable for automatic operation and consisting of following: complete in all respect as required.				
	a. Horizontal end suction top discharge centrifugal pump of cast iron body & bronze impeller with stainless steel shaft of 171 Cu.M per hour at 70MWC head as per CPWD specification				
	b. Suitable HP, water cooled with radiator, diesel engine conforming to relevant BS & IS standard complete with auto starting mechanism, 24/12 Volts electric starting equipment, Diesel Tank, residential silencer, instruments and protection as per specification, stop solenoid for autostop in the event of fault with audio indications, painted with post office red colour etc. as required.				
	c. M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc., as required.				

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	d. Suitable cement concrete foundation duly plastered with anti vibration pads.	Set.	1		
3.	c. 100mm dia exhaust pipe with necessary fittings including insulated with 50 mm thick glass wool with 1.0mm thick aluminium sheet cladding.	Mtrs.	12		
4.	Supplying, Installation, testing and commissioning of electric driven pressurisation pump suitable for automatic operation and consisting of following: complete in all respect as required.				
	a. Horizontal end suction top discharge centrifugal pump of cast iron body & bronze impeller with stainless steel shaft of 10.8 Cu.M per hour at 70MWC head as per CPWD specification				
	b. Suitable HP SQ cage induction motor, TEFC type suitable for operation on 415 volts, 3 phase 50 Hz AC 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.	Set	1		
5	Supplying, installation, testing and commissioning vertical monoblock submersible dewatering pump of 1Cu.M/hr discharge of water at 11 m. head complete with all accessories suitable for operation on 230V, single phase, 50 Hz.AC supply complete with starter for automatic operation including water level sensing device, inter-connection with submersible cable etc. as required.	Set.	1		
6	Supplying, installation, testing and commissioning of electrical control panel of cubical construction, floor mounted type, fabricated out of CRCA sheet, compartmentalised with hinged lockable doors, dust and vermin proof, powder coated of approved shade, cable alley, inter-connection, having switchgears and accessories mounting and internal wiring, earth terminals, numbering etc. complete in all respect, suitable for operation on 415V, 3 phase, 50 HZ. AC supply with				

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	enclosure protection class IP 42 as required.				
	<b>A. COMMON PANEL IN FIRE PUMP HOUSE</b>				
	<b>(I) INCOMER</b>				
	(a) Suitable rating TPN SFU with HRC fuses				
	(b) Voltmeter (0-500 Volts) with selector switch				
	(c) Ammeter with selector switch & CT's etc.				
	(d) Set of 3 Phase indicating lamp.				
	(e) Suitable rating Al.bus bar				
	<b>(II) OUTGOING.</b>				
	(a) Main Fire pump.				
	1 No. - Suitable rating TPN SFU with HRC fuses with suitable HP star/delta starter with over load protection, current sensing type single phase preventer complete with all accessories and internal wiring required for automatic operation, selector switch auto/manual operation.				
	(b) Jockey pump				
	1 No. - Suitable rating TPN SFU with suitable HP DOL starter, overload protection, current sensing type single phase preventer complete with all accessories and internal wiring required for automatic operation, selector switch auto/manual operation.				

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	c) Feeder for Dewatering pump with Suitable rating MCB				
	d) Feeder for Diesel engine control panel with Suitable rating MCB				
	(e) electrical hooter with ON/OFF switch for the above pumps running indication				
	(f) necessary potential free contact for indication of above pumps running/fault/trip in the addressable fire alarm panel/BMS Panel.	set.	<b>1</b>		
<b>7</b>	<b>DIESEL ENGINE CONTROL PANEL</b>				
	Control panel for Diesel Engine comprising:				
	(a) Auto/Manual selector switch & 3 attempt starting device, timers and relays as required, push buttons, start/stop in manual mode..				
	(b) Indication lamp for High/Low Lub.oil pressure, High Water Temp. and Engine ON Indication.				
	(c) Battery charger suitable for 12/24V DC with boost and trickle selector switch, with digital panel meter for AC, DC voltage and Ammeter for battery charging current				
	(d) necessary potential free contact for indication of diesel engine driven fire pumps running/fault in the addressable fire alarm panel/BMS Panel.				
	(e) All standard relays and accessories for automatic operation of diesel engine	Set	<b>1</b>		
<b>8</b>	Supplying and Laying of suitable size XLPE insulated, PVC sheathed aluminium conductor 1.1 KV grade armoured cable of following sizes on surface/in existing cable tray suitably clamped as required.				

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	(a) for electrical motor driven main pump	Mtrs	15		
	(b) for electrical motor driven Jockey pump	Mtrs	15		
	(c) for electrical motor driven dewatering pump	Mtrs	15		
9	Supplying and Laying of XLPE insulated control wiring with multicore copper stranded conductor of following sizes, PVC sheathed armoured cable between various sensors and system controller/starter etc. in pump house & out side on surface/existing cable tray complete with connections at both end with glands etc. as required.				
	(a) 12 x 2.5 sq.mm	Mtrs	20		
	(b) 2 x 1.5 sq.mm	Mtrs	60		
10	Supplying and making end termination with brass compression gland & Al. lugs for following sizes of PVC insulated, PVC sheathed/XLPE Al. Conductor cables of 1.1 KV grade as required.				
	(a) for main pump cable	Sets.	2		
	(b) for jockey pump cable	Sets.	2		

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	(c) for dewatering pump cable	Sets.	<b>2</b>		
	(d) for 12Cx2.5Sq.mm cable	Sets.	<b>2</b>		
	(e) for 2C x 1.5 Sq.mm cable	Sets.	<b>10</b>		
11	Supplying, installation and testing of earthing station with tinned G.I electrode plate of size 600mm x 600mm x 6mm thick with 2 Nos of 50 mm x 6 mm G.I. Strips from earth electrode 50 mm dia medium class G.I. Pipe, C.I. funnel with 20 gauge G.I. wire mesh, masonry chamber of 450 mm x 450 mm with concrete base , C.I. man hole cover with frame, painted with bituminous paint and packing with bitumastic paint and packaging with mixture charcoal and salt around plate of electrode including digging of earth pit upto permanent moisture level but not less than 3 meters and back filling earth.	Set.	<b>2</b>		
12	Providing and fixing 50x6mm size GI strip earth electrode on surface or in recess for earth connections as per specifications complete as required.	Mtrs	<b>50</b>		
13	Providing and fixing 6 SWG dia G.I wire on surface or in recess for loop earthing complete as required.	Mtrs	<b>20</b>		
14	Fabrication and Installation of following sizes of perforated MS cable tray including horizontal and vertical bends, reducers, tees, cross members and other accessories as required duly suspended from the ceiling with MS suspenders and including painting with post office red synthetic paint as required.				
	(a) 100 mm.(W)x50mm (D)x1.6mm(T)	Mtrs	<b>15</b>		

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	(b) 150 mm.(W)x50mm (D)x1.6mm(T)	Mtrs	15		
15	Fabrication and fixing of Dashpot of suitable size for mounting instruments	Each.	1		
16	Providing and fixing of pressure switches	Each.	3		
17	Providing and fixing of pressure gauge assembly comprising of				
	a. 0-16 Kg/Sq.cm SS construction glycerin filled pressure gauge				
	b. suitable type SS construction syphon tube				
	c. suitable size isolation ball valve	Set	5		
18	Providing, Installation, testing and commissioning of 25 mm dia gun metal screwed ball valves	Each.	9		
19	Providing, Installation, testing and commissioning of 25 mm dia gun metal screwed non return valve	Each.	1		
20	Supplying & fixing air vessel made of 250mm dia 8mm thick MS pipe of 1200 mm long with necessary safety relief at top of the vessel also for provision of mounting 25mm dia gunmetal valves for drain and to connecting to system.	Each	1		



<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
21	Providing, laying, testing & commissioning of 'C' class heavy duty black steel pipe conforming to IS 3589 and 1239 including fittings, like elbows, tees, flanges, tapers, nuts, bolts, gaskets etc. fixing the pipe on the wall/ceiling with suitable clamps and painting with two or more coats of synthetic enamel paint of required shade complete as required.				
	(a) 200 mm dia (wall thickness 6.35mm)	Mtrs	12		
	(b) 150 mm dia	Mtrs.	18		
	(c) 80 mm dia	Mtrs	6		
	(d) 50 mm dia	Mtrs	24		
	(e) 25 mm dia	Mtrs	18		
22	Supplying, fixing, testing and commissioning of Cast Iron butterfly valve PN 1.6 as per specification				
	(a) 150 mm dia	Each.	4		
	(b) 50 mm dia	Each.	3		
23	Supplying, fixing, testing and 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, conforming to IS 14846, of following sizes as required.				

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	(a) 200 mm. dia	Each.	<b>4</b>		
	(b) 80 mm dia	Each.	<b>1</b>		
24	Providing, installation, testing and commissioning of Cast Iron 'Y' type strainer with SS mesh				
	(a) 200 mm dia	Each.	<b>2</b>		
	(b) 100 mm dia	Each.	<b>R.O</b>		
	(c) 80 mm dia	Each.	<b>1</b>		
25	Providing, installation, testing and commissioning of Wafer type non-return valve of following sizes				
	(a) 150 mm dia	Each.	<b>3</b>		
	(b) 50 mm dia	Each.	<b>1</b>		
26	Supplying & fixing 4 way fire brigade connection of cast iron body with 4 nos of gunmetal male instantaneous inlet couplings with inbuilt non-return valve complete with cap and chain as required.	Each.	<b>1</b>		
	<b>TOTAL AMOUNT OF PART - A</b>				

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	<b>PART – B EXTERNAL FIRE PROTECTION SYSTEM</b>				
1	Providing laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 1239/3589 including fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc.				
	(a) 150 mm dia.	Mtrs	12		
	(b) 100 mm dia	Mtrs	12		
	(c) 80 mm dia.	Mtrs	45		
2	Providing laying, testing and commissioning of Ductle Iron Class K-9 pipes conforming to IS:8329				
	a. 150 mm dia	Mtrs.	725		
3.	Providing, fixing, testing and commissioning of Ductle Iron flanged fittings conforming to IS:9523 including necessary gaskets, fasteners etc.				
	a. 150 mm dia flanged socket	Each.	54		
	b. 150 mm dia Flanged Spigot	Each.	54		
	c. 150 mm dia flanged bend	Each.	8		

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	d. 150 x150x150/100/80 All flanged TEE	Each.	<b>35</b>		
4.	Supply and wrapping of 4mm thick wrapping and coating materials for under ground pipes conforming to IS:10221 with primer	Sq.M	<b>45</b>		
5.	Supplying, fixing, testing and commissioning of Cast Iron butterfly valve PN 1.6 as per specification				
	(a) 150 mm dia	Each.	<b>7</b>		
	(b) 100 mm dia	Each.	<b>1</b>		
	(c) 80 mm dia	Each.	<b>1</b>		
6.	Supplying and fixing Stainless steel single headed hydrant valve with instantaneous SS couplings of 63mm dia with cast iron wheel ISI marked conforming to IS 5290 (Type-A) with blank cap and chain as required.	Each.	<b>18</b>		
7	Supplying and fixing 63mm dia 15mtrs long RRL hose pipe with 63 mm dia male and female SS couplings duly binded with CU/GI wire, rivets etc. conforming to IS:636 (Type-A) as required.	Each.	<b>36</b>		
8	Supply and fixing 63 mm dia SS branch pipe with 15 mm size nozzle conforming to IS:903 suitable for instantaneous connection to interconnect hose pipe coupling as required.	Each.	<b>18</b>		

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
9	Supply & fixing of external standard hose cabinet fabricated out of 16SWG MS sheet with front glass doors to accommodate 2 nos of 63mm dia 15 meters long hose with couplings and one number of branch pipe.	Each.	<b>18</b>		
10	Supply & laying of 300 mm dia NP2 class hume pipe with collars for fire hydrant pipe line crossings roads.	Mtrs	<b>50</b>		
11	Construction of Brick masonry valve chamber of 1.2 m x 1.2 m x 1.52 m (LxWxD) with internal plastering and removable slab for under ground valves	Each.	<b>8</b>		
12.	Excavation and back filling of pipe trench for under ground fire hydrant pile line				
	a. soft soil	RM	<b>650</b>		
	b. hard soil and rock	RM	<b>75</b>		
13	Providing 1:2:4 PCC thrust blocks for under ground DI pipes	Cu.M	<b>12</b>		
14	construction of brick supports for under ground DI pipes	Each	<b>240</b>		
13.	Supplying & fixing 4 way fire brigade connection of cast iron body with 4 nos of gunmetal male instantaneous inlet couplings with inbuilt non-return valve complete with cap and chain as required.	Each.	<b>1</b>		
	<b>TOTAL AMOUNT OF PART - B</b>				

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	<b>PART - "C" INTERNAL HYDRANT &amp; FIRST-AID HOSE REEL SYSTEMS</b>				
1	Providing, laying, testing & commissioning of 'C' class heavy duty MS galvanised pipe conforming to IS 1239 including fittings, like elbows, tees, flanges, tapers, nuts, bolts, gaskets etc. fixing the pipe on the wall/ceiling with suitable clamps and painting with two or more coats of synthetic enamel paint of required shade complete as required.				
	(a) 150 mm dia	Mtrs	<b>490</b>		
	(b) 100 mm dia	Mtrs	<b>250</b>		
	(c) 80 mm dia	Mtrs	<b>94</b>		
	(d) 25 mm dia	Mtrs	<b>290</b>		
2	Supplying, fixing, testing and commissioning of Cast Iron butterfly valve PN 1.6 as per specification				
	(a) 150 mm dia	Each.	<b>11</b>		
	(b) 100 mm dia	Each.	<b>11</b>		
3	Providing, installation, testing and commissioning of Wafer type non-return valve of following sizes				

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	(a) 150 mm dia	Each.	<b>1</b>		
	(b) 100 mm dia	Each.	<b>11</b>		
4	Supplying and fixing Stainless Steel hydrant valve with instantaneous SS couplings of 63mm dia with cast iron wheel ISI marked conforming to IS 5290 (Type-A) with blank cap and chain as required.	Each.	<b>94</b>		
5	Supplying and fixing 63mm dia 15mtrs long RRL hose pipe with 63 mm dia male and female SS couplings duly binded with GI wire, rivets etc. conforming to IS:636 (Type-A) as required.	Each.	<b>188</b>		
6	Supply and fixing 63 mm dia SS branch pipe with 20 mm size nozzle conforming to IS:903 suitable for instantaneous connection to interconnect hose pipe coupling as required.	Each.	<b>94</b>		
7	Supply 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:				
	a. MS fabricated hose reel drum to accommodate 20 mm dia 36 mtrs long hose with fixing bracket				
	b. 20 mm dia x 36 mtrs long water hose as per specification.				
	c. 20 mm dia gun metal nozzle				
	d. 25 mm dia gunmetal gate valve at inlet side of the hose reel drum	Set.	<b>94</b>		
8	Supply & fixing 1200mm x 900mm aluminium door frame with powder coating and glass door with universal key for internal wet riser shaft	Set.	<b>94</b>		

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
9	Providing, Installation, testing and commissioning of 25 mm dia gun metal air release valve	Each.	11		
10	Providing, Installation, testing and commissioning of 25 mm dia gun metal screwed ball valves	Each	11		
	<b>TOTAL AMOUNT OF PART - C</b>				
	<b>PART - "D" SPRINKLER SYSEM (HOSPITAL BLOCK)</b>				
1	Supply, installation, testing and commissioning of 150 mm dia sprinkler alarm valve with water gong and wet pilot trim				
	a. 150 mm dia	Each	1		
	b. 100 mm dia	Each	1		
2	Supply, installation, testing of 15mm dia Gunmetal body chrome finish QB sprinklers of following types				
	a. 68 Deg. C operating temperature pendent type	Each	1275		
	b. 79 Deg.C Operating temperature Pendent type	Each	12		
	c. 79 Deg. C operating temperature Up-right type	Each	25		
	d. 68 Deg. C side wall type	Each	10		



<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	e. 79 Deg. C side wall type	Each	12		
3	supply and fixing of Adjustable roset plate for below false ceiling sprinklers	Each	1275		
4	Supply, installation and testing of 25mm dia x 1200 long SS flexible hose for below false ceiling sprinklers	Each	1275		
5	Providing, laying, testing & commissioning of 'C' class heavy duty MS galvanised pipe conforming to IS 1239 including fittings, like elbows, tees, flanges, tapers, nuts, bolts, gaskets etc. fixing the pipe on the wall/ceiling with suitable clamps and painting with two or more coats of synthetic enamel paint of required shade complete as required.				
	(a) 150 mm dia	Mtrs	60		
	(b) 100 mm dia	Mtrs	125		
	(c) 80 mm dia	Mtrs	675		
	(d) 65 mm dia	Mtrs	50		
	(e) 50 mm dia	Mtrs	450		
	(f) 40 mm dia	Mtrs	60		

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	(g) 32 mm dia	Mtrs	<b>950</b>		
	(h) 25 mm dia	Mtrs	<b>1450</b>		
6	Supplying, fixing, testing and commissioning of Cast Iron butterfly valve PN 1.6 as per specification				
	(a) 150 mm dia	Each	<b>1</b>		
	(b) 100 mm dia	Each	<b>6</b>		
	(c) 80 mm dia	Each	<b>2</b>		
	(d) 50 mm dia	Each	<b>12</b>		
7	Providing, installation, testing and commissioning of Cast Iron 'Y' type strainer with SS mesh				
	(a) 150 mm dia	Each	<b>1</b>		
	(b) 100 mm dia	Each	<b>1</b>		
8.	Supply, fixing, testing and commissioning of sprinkler flow switch				

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	a. 100 mm dia	Each	<b>5</b>		
	b. 80 mm dia	Each	<b>1</b>		
<b>TOTAL AMOUNT OF PART - D</b>					
<b>PART -E ADDRESSABLE FIRE ALARM SYSTEM</b>					
1	Supply, fixing, testing and commissioning of 5 Loops Addressable fire alarm panel suitable for networking with necessary loop cards, networking cards and other accessories operate on 230V AC power supply with 24V battery back up	Each.	<b>3</b>		
2	Supply, fixing, testing and commissioning of 2 Loops Addressable fire alarm panel suitable for networking with necessary loop cards, networking cards and other accessories operate on 230V AC power supply with 24V battery back up	Each.	<b>1</b>		
3	Supply, fixing, testing and commissioning of Addressable active repeater panel for above fire alarm panel	Each	<b>1</b>		
5	Supply, fixing, testing and commissioning of Addressable optical smoke detectors	Each.	<b>10</b>		
6	Supply, fixing, testing and commissioning of Addressable Heat Detector	Each	<b>5</b>		
7	Supply, fixing, testing and commissioning of Addressable Multi detectors	Each.	<b>750</b>		

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
8	Supply, fixing, testing and commissioning of Response Indicator for the detectors installed in concealed places	Each.	<b>25</b>		
9	Supply, fixing, testing and commissioning of Addressable manual call points	Each.	<b>75</b>		
10	Supply, fixing, testing and commissioning of Addressable isolator modules (Short circuit Isolators)	Each.	<b>50</b>		
11	Supply, fixing, testing and commissioning of Addressable loop powered sounders	Each.	<b>80</b>		
12	Supply, fixing, testing and commissioning of Addressable Monitor module	Each	<b>5</b>		
13	Supply, fixing, testing and commissioning of Addressable Control module	Each	<b>5</b>		
14	Supply, laying, testing and commissioning of 2Cx1.5 Sq.mm FRLS PVC sheathed screened multi-stranded copper conductor armoured cable suitable for addressable fire alarm system	Mts	<b>18500</b>		
15	Laying of fire alarm cable in 25 mm dia PVC conduit pipe in slab and also fixing in walls by cutting and redoing the surface to the original finish	Mts	<b>150</b>		

<b>FIRE PROTECTION AND FIRE DETECTION &amp; ALARM SYSTEM</b>					
<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
16	Laying of fire alarm cable in 40 mm dia GI conduit pipe including excavation of trench of required depth and back filling the same to the normal surface	Mtrs	350		
	<b>TOTAL AMOUNT OF PART – E</b>				
	<b>PART -F FIRE EXTINGUISHERS</b>				
	Supplying, installing and commissioning Portable Fire extinguishers of following type & capacity				
1	Carbon-di- oxide type fire extinguisher of 4.5 kgs. Capacity, C02 gas filled in brand new seamless cylinder with powder coated finish, made out of Manganese steel, with wheel type valve, discharge nozzle, bend & horn, wall mounting bracket etc. complete, conforming to IS :2878	Each	12		
2	ABC stored pressure type fire extinguisher of 6 Kgs. Capacity, with initial filling in brand new cylinder with powder coated finish, fitted with Gun metal valve, discharge hose, wall mounting bracket etc. complete conforming to IS :15683	Each	143		
4	ABC stored pressure type fire extinguisher of 9 Kgs. Capacity, with initial filling in brand new cylinder with powder coated finish, fitted with Gun metal valve, discharge hose, wall mounting bracket etc. complete conforming to IS :15683	Each	45		
5	A set 4 Nos. Fire Buckets with suitable stand made up of angle iron of size 50 mm x 50 mm x 6 mm thick with lettering etc as required (confirming to IS: 2546/1974) (for MV Panel Room only)	Each	4		
6	Fire buckets round bottom type enamel painted, white inside & Red outside and Letter "FIRE" in black	Each	16		
	<b>TOTAL AMOUNT OF PART - F</b>				

**FIRE PROTECTION AND FIRE DETECTION & ALARM SYSTEM**

<b>Sl. No</b>	<b>Description of Item</b>	<b>Unit.</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	<b>PART-G SIGNAGES</b>				
	Providing and installing in position the following type sign boards made out of 3 mm thick "Opaque" PVC foam board with computer cut, PVC non-reflective self adhesive vinyl painted foam board, complete with mirror fasteners				
1	a. Signage with printed "IN CASE OF FIRE, USE STAIRS UNLESS INSTRUCTED OTHERWISE" 11.25cm height letters in red with white back ground. The size of the board shall be 25cm x 35 cm and shall be fixed at the height of 2 mts. from finished floor near Manual Call Point	No.	<b>35</b>		
2	a. Signage with printed "EXIT" of suitable size as per site condition with self illumination	No.	<b>110</b>		
3	b. Floor identification signage (i.e. GROUND FLOOR etc.) at each stair enclosure on every floor, indicating the floor number in words, lettering size shall be 5 cm with contrasting colour from back ground. Size shall be 15cm x 30cm.	No.	<b>35</b>		
	<b>TOTAL AMOUNT OF PART - G</b>				

# **INTERNAL ELECTRICAL INSTALLATIONS**

**INTERNAL ELECTRICAL INSTALLATIONS**

SI No.	DSR Code	Description	Unit	Quantity	Rate (Rs.in words & in figures)	Amount (Rs.in words & in figures)
	I	POINT WIRING				
1		Point Wiring in PVC Conduit with Modular Type Switch:				
1.1	1.10	Wiring for light point / fan point / exhaust fan point / call bell point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface/recessed conduit with modular switch, modular plate, suitable GI box and EARTHING the point with				
1.1.1	1.10.3	Group C	Point	3100		
2		Twin control point wiring in PVC conduit, with modular type				
2.1	1.11	Wiring for twin control light point with 1.5sq mm FR PVC insulated copper conductor single core cable in surface/ recessed conduit, 2 way modular switch, modular plate, suitable GI box and EARTHING the point with 1.5 SQ MM FR PVC insulated copper conductor single core cable etc as required				
		Group C	Point	132		
3		Power Plug Wiring (2X4 Sq.mm):				
3.1	1.12	Wiring for light/power plug with 2 X 4 sq.mm FR PVC insulated copper conductor single core cable in surface/recessed PVC conduits along with 1 no. 4 sq.mm FR PVC insulated copper conductor single core cable for loop EARTHING as required.	Mts	8000		
4		Circuit / Sub main Wiring in PVC Conduit:				
4.1	1.14	Wiring for circuit/sub main wiring along with earth wire with the following sizes of FR PVC insulated copper conductor, single core cable				



<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
4.1.1	1.14.1	2x1.5sq.mm + 1x1.5sq.mm earth wire	Mts	2000		
4.1.2	1.14.2	2x2.5sq.mm + 1x 1.5sq.mm earth wire [ For light circuit]	Mts	33600		
4.1.3	1.14.3	2 x4sq.mm +1x 4sq.mm earth wire [ For 16A Plugs]	Mts	9000		
4.1.4	1.14.4	2 X 6 sq.mm + 1 x 6 sq.mm earth wire [ For 20A Plugs and for Solar DBs]	Mts	2000		
4.1.5	1.14.8	4 x 4 sq mm + 2 x 4 sq.mm earth wire	Mts	1000		
4.1.6	1.14.9	4 x 6 sq.mm + 2 x 6 sq.mm earth wire	Mts	600		
4.1.7	1.14.10	4 x 10 sq.mm + 2 x 10 sq.mm	Mts	200		
5		Supply & Fixing PVC Conduits				
5.1	1.21	Supplying and fixing of following sizes of PVC conduit along with the accessories in surface/ recess including painting in case of surface conduit , or cutting the wall and making good the same in case of recessed conduit as required.				

<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
5.1.1	1.21.1	20 mm	Mts	1000		
5.1.2	1.21.2	25 mm	Mts	600		
5.1.3	1.21.3	32 mm	Mts	200		
5.1.4	1.21.4	40 mm	Mts	100		
5.1.5	1.21.5	50 mm	Mts	100		
6		PVC CONDUITS AS PER IS:9537:- MAKE :- BALCO/NICO/KONSAL/AVONPLAST/VIP				
6.1	1.22	Supplying and fixing metal box of following sizes (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including painting etc as required.				
6.1.1	1.22.1	75mm x 75 mm x 60mm deep	Each	300		
6.1.2	1.22.2	100mm x 100mm x 60mm deep	Each	50		

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
6.1.3	1.22.3	150mm x 75mm x 60 deep	Each	30		
6.1.4	1.22.4	150mm x 150mm x 60 deep	Each	20		
7		S/F 1 no 6A Plug Point Modular Type Accessories:				
7.1	1.29	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess including providing and fixing 1 NO 3 pin 6 amps modular socket outlet and 6 amps modular switch, connection, painting etc. as required	Each	1252		
8		S/F 2 Nos 6A Plug Point Modular Type Accessories:				
8.1	1.29	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess including providing and fixing 2 Nos 3 pin 6 amps modular socket outlet and 6 amps modular switch, connection, painting etc. as required	Each	241		
9		S/F Power Plug Point Modular Type Accessories				
9.1	1.30	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess including providing and fixing 6 pin 16Amps & 6 amps modular socket outlet and 16 amps modular switch, connection, painting etc. as required	Each	389		
10	2.17	Supplying and fixing 16/25/32 amps `C' series, TP, MCB in sheet steel enclosure on surface or in recess, and complete with connections, testing and commissioning etc, as required.	Each	60		

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
11	MR	Supplying and fixing Geyser switch Modular Type Accessories Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess including providing and fixing Double Pole 32 amps modular switch, connection, painting etc. as required.	Each	70		
12	MR	S/F 20A SPN MCB industrial socket outlet:				
		Supplying and fixing 20 amps, 240 volts, SPN industrial type, socket outlet, with 2 pole and earth, metal enclosed plug top along with 20 amps 'C' series, SP, MCB in sheet steel enclosure on surface or in recess, with chained metal cover for the socket outlet and complete with connections testing and commissioning etc, as required.	Each	68		
13	MR	S/F 20A DP MCB industrial socket outlet:				
		Supplying and fixing 20 amps, 240 volts, DPN industrial type, socket outlet, with 2 pole and earth, metal enclosed plug top along with 20 amps 'C' series, SP, MCB in sheet steel enclosure on surface or in recess, with chained metal cover for the socket outlet and complete with connections testing and commissioning etc, as required.	Each	26		
		TOTAL OF POINT WIRING CARRIED OVER TO SUMMARY				
	<b>II</b>	<b>WALL MOUNTED SUB-DISTRIBUTION BOARDS</b>				
1	2.7	Supplying and fixing of following Single pole and neutral, Prewired, sheet steel, MCB distribution board, 230 volts, on surface / recess, complete with loose wire box, terminal blocks, duly Prewired with suitable size FR PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, phosphatized and powder painted including EARTHING etc, as required (But without MCB / RCCB / Isolator)				

<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
1.1	2.7.1	2 + 4 way Single door(ELDB)	Nos	8		
		Incomer				
		1 No25 A DP RCCB				
		Outgoing				
		2 Nos.10 A SP MCBS,10KA				
		2 Nos.16A SP MCB				
1.2	2.7.2	2+8Way ( Unit DBs)	Nos	42		
		Incomer				
		1 No25 A DP RCCB				
		Outgoing				
		6Nos.10 A SP MCBS,10KA				
		2 Nos.16A SP MCB				
2.1	2.3.8	2 + 12way Double door ( UPS DB/ GH DB)	Nos	16		
		Incomer				
		1 No40A DP MCB				
		Outgoing				

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
		3Nos.32A DP MCB				
		6Nos.10 A SP MCBS,10KA				
3.1	2.8	Supplying and fixing following way prewired TP&N MCB distribution board of steel sheet for 415 volts on surface/ recess complete with loose wire box, terminal connectors for all incoming and outgoing circuits, duly prewired with suitable size FR PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required.(But without MCB/ RCCB/ Isolator)				
3.2	2.8.1	2 + 4 way Single door(PDB)	No	8		
		Incomer				
		1 No 40 A TPN MCB, 10 KA				
		Outgoing				
		3No.25A RCCB,100mA sensitivity				
		3No 32 A DP MCB 10 KA				
		6 Nos. 10 A SP MCB				
3.3	2.8.6	6Way (4+18) Double Door DB (Common Power, GH PDB)	No	34		
		Incomer				
		1 No63 A TPN MCB, 10 KA				
		Outgoing				
		3No.40A RCCB,100mA sensitivity				

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
		6No 32 A DP MCB 10 KA				
		6 Nos. 10 A SP MCB				
3.3	2.8.7	8Way(4+24) Double Door DB (Common Power/Lighting-Hostel/Auditorium)	No	16		
		For housing the following Components				
		Incomer				
		1 No. 40 A TPN RCCB				
		Outgoing				
		24 Nos.10 A SP MCBS,10KA				
		3 Nos.25A DP RCCB,30mA Sensitivity				
3.4	2.8.5	4Way(4+12) Double Door DB ( A.C.Power-IDU)	No	6		
		Incomer				
		1 No40 A TPN MCB				
		Outgoing				
		12 Nos.16 A SP MCBS,10KA				
4		MCB in the existing MCB DB complete with connections				
4.1	2.10	Supplying and fixing 5 amps to 32 amps rating, 240/415 volts, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and				
4.1.1	2.10.1	Single pole	Nos	1450		

<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
4.1.2	2.10.3	Double pole	Nos	50		
5.1	2.12	Supplying and fixing following rating, double pole, 240 volts, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
5.1.1	2.12.1	40 amps	Nos	2		
5.1.2	2.12.2	63 amps	Nos	2		
6		Supplying and fixing 32 amps to 63 amps rating, 240 volts/415 V , Residual Current circuit breaker(RCCB) upto 300 mA sensitivity in the existing MCB DB complete with connections, testing and commissioning etc, as required.				
6.1		Double Pole RCCB				
6.1.1	2.14.1	25A	Each	104		
6.1.2	2.14.2	40A	Each	100		
6.2		Triple Pole & Neutral RCCB				



<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
6.2.1	2.15.2	32/40 A	Each	24		
6.2.2	2.15.3	63 A	Each	12		
7	MR	Supply and installation of the following TPN MCCB/MCB switches on suitable MS box for housing MCCB/MCB, fixed with suitable Angle Iron Frame work with internal and earth wire connection complete with all accessories				
7.1	2.17	63A/100 TPN MCCB 16 KA	Set	3		
7.2	MR	32A TPN MCB	Set	5		
7.3	MR	40A TPN MCB	Set	3		
8		INTERLOCKED PLUG&SOCKET				
		Supplying and fixing 20 amps, 240 volts, SPN industrial type, socket outlet, with 2 pole and earth, metal enclosed plug top along with 20 amps "C" curve, SP, MCB, 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.				

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
		Preferred Makes				
		DB/MCB:- LEGRAND/L&T/SIEMENS				
		SWITCHES,SOCKETS:- LEGRAND Mosaic, MK Blenze, Crabtree, Athena, Clipsal				
		FRLS WIRES:- Finolex, V-guard, Havells, RRKable				
		TOTAL OF SUB-DISTRIBUTION BOARDS CARRIED OVER TO SUMMARY				
	<b>III</b>	<b>LT Cables</b>				
1	MR	Supply of the following 1100 volts grade Cable( TYPE:- A2XWY) as per IS:1554, XLPE insulated (R,Y,B& Black Colour) PVC Inner sheathed as per IS:7098,Stranded Al. Conductor, galvanized Round Wire Armoured, PVC Outer sheath of Black Colour Type ST-2 as per IS:5831 ( Make:- UNIVERSAL/TORRENT/GLOSTER/NICCO)				
1.1		Aluminium Conductor Cable				
1.1.1		3.5 C x 35 sq.mm	Mtr	250		
1.1.2		3.5 C x 25 sq.mm	Mtr	850		
1.1.3		4 x 16 sqmm	Mtr	1500		
1.1.4		4 x 6 sqmm	Mtr	750		

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
1.1.5		2 x 6 sqmm	Mtr	100		
2		Copper Cable				
2.1	MR	Supply of the following 1100 volts grade Cable( TYPE:-2XWY) as per IS:1554, XLPE insulated (R,Y,B& Black Colour) PVC Inner sheathed as per IS:7098,Stranded COPPER Conductor, galvanized Round Wire Armoured, PVC Outer sheath of Black Colour Type ST-2 as per IS:5831 ( Make:- UNIVERSAL/TORRENT/GLOSTER/NICCO)				
2.1.1		a) 4 C x 16 Sqmm	Mtr	75		
2.1.2		b) 4 C x 10 Sqmm	Mtr	200		
2.1.3		c) 4 C x 6 Sqmm	Mtr	400		
2.1.4		d) 4 C x 4 Sqmm	Mtr	250		
3	MR	Laying of one number XLPE/PVC insulated and PVC sheathed power cable of 1.1 KV grade of size ON Cable tray as required				
3.1	7.8	a) UPTO 3.5 C x 35 sq.mm	Mtr	2500		

<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
4	7.10	Laying of one PVC insulated and PVC sheathed/XLPE power cable of 1.1 KV grade of size from 10Sqmm but not exceeding 120 sq.mm direct in ground including excavation, sand cushioning, protective covering and refilling the trench, etc., as				
4.1		Upto 35 sq. mm Metre	Mtr	100		
5		Supply and making end termination with brass double compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed/XLPE aluminium conductor cable of 1.1 kV grade as				
5.1	9.1	2 X 6 sq. mm (19mm)	each	64		
5.2	9.1.1	2 X 10 sq. mm (19mm)	each	62		
5.3	9.1.2	4 X 6 sq. mm (19mm)	each	72		
5.4	9.1.32	4 X 10 sq. mm (19mm)	each	44		
5.5	9.1.33	4X 16 sq. mm (22mm)	each	86		

<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
5.6	9.1.20	3½ X 25 sq. mm (28mm)	Each	100		
5.7	9.1.31/32	3½ X35 / 50 sq. mm (38mm)	Each	36		
6	9.1	Supply and making end termination with brass double compression gland and Bimetallic lugs for following size of PVC insulated and PVC sheathed/XLPE Copper conductor cable of 1.1 kV grade as required.				
6.1	9.1.23	4X4 sq.mm	each	112		
6.2	9.1.27	4 X 6 sq. mm	each	8		
6.3	9.1.30	4 X 10 sq. mm	each	8		
		TOTAL FOR LT CABLES TO BE CARRIED OVER TO SUMMARY				
	IV	EARTHING& LIGHTNING PROTECTION				
1		Copper earth plate electrode:				

<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
1.1	5.6	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 etc. with charcoal or coke and salt complete as required. [ for Lifts]	Set	24		
2	5.2	Earthing with G.I. earth pipe 4.5 meter long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required. ( For Pnls & Lightning Protection)	Each	44		
3.1	5.20	Providing and fixing earth bus of 50 mm X 5 mm copper strip on surface for connections etc. as required	Mtr	500		
3.2	MR	Providing and fixing earth bus of 50 mm X 5 mm G.I. strip on surface for connections etc. as required	Mtr	100		
4	6.1	Providing and fixing of lightning conductor finial, made of 25 mm dia 300mm long, copper tube, having single prong at top, with 85 mm dia 3mm thick copper base plate including holes etc. complete as required.	Each	24		
5	6.6	Providing and fixing copper tape 20 mm X 3 mm thick on parapet or surface of wall for lightning conductor complete as required.(For vertical run)	Mtr	1000		
6	6.5	Providing and fixing copper tape 20 mm X 3 mm thick on parapet or surface of wall for lightning conductor complete as required.(For Horizontal run)	Mtr	700		
7		P/F 25mmX5mm copper earth strip in surface/ recess:				

<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
7.1	5.14	Providing and fixing 25 mm x 6 mm Copper strip on surface or in recess for earth connections etc. as required.	Mtr	250		
8		P/F 25mmX5mm GI earth strip in pipe:				
8.1	5.15	Providing and fixing 25 mm x 5 mm GI strip on surface or in recess for earth connections etc. as required.	Mts	700		
9	5.19	Supply and providing 4mm Dia copper wire on surface or in recess for earth connection	Mts	400		
10	MR	Supply and providing Nos 8 GI wire on surface or in recess for earth connection	Mts	600		
		<b>TOTAL OF EARTHING &amp; LIGHTNING PROTECTION CARRIED OVER TO SUMMARY</b>				
	V	<b>CABLING &amp; CONDUITING FOR TELEPHONE AND TV SYSTEM-</b>				
1		Supply and fixing of following sizes of PVC conduit in surface or in recess including painting the conduit in case of surface or making good the wall/damages in case of recess as required.				
1.1	1.21.1	20 mm	Mts	2000		
1.2	1.21.2	25 mm	Mts	1500		

<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
1.3	1.21.3	32 mm	Mts	400		
2	1.18.2	Supplying, laying and testing of telephone cables of 2-pair, unarmoured type in existing conduit complete with termination at both ends.	Mts	3000		
3	1.23.7	Supply and installation of TV outlets with spring shutter door suitable for terminating Co-Axial cables including compatible face plate with modular jack outlet, coloured snap-in-icon tabs complete as required.[RG 9 T V Socket]	Nos	62		
4	1.23.6	Supply and installation of telephone outlets with spring shutter door suitable for terminating telephone cables including compatible face plate with modular jack outlet, coloured snap-in- icon tabs complete as required.[RJ 11 Telephone Socket]	N0	110		
5	MR	Supply and laying of 50 mm Dia GI medium class pipe underground, road crossing, paved area, wall crossing etc. including excavation refilling ramming and making good the damages as required.	Mtr	100		
		<b>TOTAL OF TELEPHONE SYSTEM CARRIED OVER TO SUMMARY</b>				
	VI	<b>LIGHT FIXTURES AND FANS</b>				
1	MR	Supply of following light fixtures complete with electronic ballast, lamp holder, starter, starter holder and condenser to improve power factor duly wired up for use on 240V single phase 50 Hz AC supply. Suspension arrangement for High bay fixtures shall be quoted separately				



Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
1.1		All fittings should be fitted with electronic ballast of THD less than 10%				
		1 x 18/20 W FTL surface/Wall mounted fitting with 1 No 18/20 W FL lamp with all accessories complete	No	691		
		Phillips Type Mirolata Slim18W HF or WiproWRF20120				
1.2		Decorative Ornamental Chandelier with 6 Nos 11 W CFL in Crystal Glass complete with Holder,wiring, Powder Coated Suspension Chain complete	No	15		
1.3		1 x 18 W CFL surface/Wall mounted fitting with 1 No 18 W CFL lamp with all accessories complete	Nos	510		
		Reference Type No :- Philips FCS 100/118 or Wipro FWP42118				
1.4	MR	1 x 28 W T5 Surface mounting, Indoor Decorative, fluorescent luminaries with electronic ballast with 1No 28W T5 lamp with all accessories complete.	No	354		
		PhilipsCGX310 or Wipro WIF 20128 SG				
1.5		2 x 28 W T5 Surface mounting, Indoor Decorative, fluorescent luminaries with electronic ballast with 2No 28W T5 lamp with all accessories complete.	No	46		
		PhilipsCGX620 or Wipro WRF 20228 SG				
1.6		2 x 18 W CFL surface mounted fitting with 2 No 18 W CFL lamp with all accessories complete	Nos	38		

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
		Reference Type No :- Philips FCS 105 2XPL18W or Wipro				
1.7		1 x 9 W CFL Bulk Head fitting with 1 No 9W CFL Lamp with all accessories complete WIPRO WKP14109 or Philips FXC 101	No	227		
1.8		1 x 11 W CFL mirror Light fitting with 1 No 11 W CFL Lamp with all accessories complete.	Nos	16		
		WIPRO Type WRP21111/Philips FMS 200/211				
1.9		Aviation Fitting of 230V,1Ph, 12/15 W LED Cluster Type with LED Lamps with Built-in Transformer & all accessories complete( Make:- Baliga/ K-Lite/Bajaj)	No	10		
1.10		2 x 18 W CFL Recess mounted fitting with 2 No 18 W CFL lamp with all accessories complete	Nos	102		
		Reference Type No :- Philips FBS 075 2XPL18W or Wipro				
		WCP 32218SGW				
1.11		1' x 1' Recess Mounting fitting 2 x 18 W CFL complete with 2 Nos of 18W CFL Lamp & all accessories.	No	20		
		Wipro WCP 17218 /PHILIPS FBS 300/218 P5				
1.12		2'x2' ,2 x 36 W CFL ,Recess type fitting with 2 Nos 36W CFL lamp all accessories complete	Nos	12		

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
		Philips FBS580/236CNNODMMHPF / Wipro WVP 52236 SGW/Bajaj BCTI236 CFL				
1.13		70W MH Down Lighter Recess Mount inclusive of Control Gear & lamp complete	No	10		
		Reference Type No :- Philips MBS 050 1XTD70W or Wipro WCH50070				
1.14		Fully Adjustable 70W MH Down Lighter Recess Mount inclusive of Control Gear & lamp complete	No	5		
		Reference Type No :- Philips MBS 071 1XCDM70W or Wipro WGH55070				
1.15		1x 18 W CFL Recess mounted fitting with 2 No 18 W CFL lamp with all accessories complete	Nos	18		
		Reference Type No :- Philips FBS 075 1XPL18W or Wipro WCP32118SGW				
1.16		Surface Mounted Mirror Optics CFL ftg 1x36W with Paralite Louvers	No	10		
		Reference Type No :- Wipro WVP 45136SGW or Eqv				
1.17		1x70 W MH Street Light Ftg in Die cast Al. Housing, outdoor IP:65 Enclosure with Control Gear & Lamp complete	No	28		

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
		Reference Type No :- Philips SGP301 1XCDMTT70W or Wipro WVSH 24070				
		Philips Type Mirolata Slim18W HF or WiproWRF20120				
1.18		2X36w Surface /Recess Mount, Mirror Optics ftg in CRCA Box with Al Louvers ,starters, lamps etc complete	No	12		
		Wipro WCF 81236 SGW /PHILIPS TCS605 2XTL-D36W				
1.19		1' x 1' Recess Mounting fitting 2 x 18 W CFL complete with 2 Nos of 18W CFL Lamp & all accessories.	No	170		
		Wipro WCP 17218 /PHILIPS FBS 300/218 P5				
1.20		2'x2' ,2 x 36 W CFL ,Recess type fitting with 2 Nos 36W CFL lamp all accessories complete	Nos	140		
		Philips FBS580/236CNNODMMHPF / Wipro WVP 52236 SGW/Bajaj BCTI236 CFL				
1.21		1x70 W MH Street Light Ftg in Die cast Al. Housing, outdoor IP:65 Enclosure with Control Gear & Lamp complete	No	6		
		Reference Type No :- Philips SGP301 1XCDMTT70W or Wipro WVSH 24070				
1.22		1 x 6 W LED,CIRCULAR, Recess mounted fitting with 6 No 1 W LED lamp with all accessories complete	Nos	12		

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
		Make:-PHILIPS/WIPRO/JAQUAR				
1.23		4x14W, TL-5 fitting, 2'x2' Recess type Direct/Indirect Type, with Electronic Ballast, T-5 lamps & all accessories complete	Nos	6		
		Reference Type No :- Philips TBS869/414 D8 HF				
		Wipro;-WVF79414 SGW( Ideos)				
		Make:-PHILIPS/WIPRO				
1.24		1 x 28 W T5 Surface mounting fluorescent luminaries CRCA sheet steel box type fitting with electronic ballast with 1No 28W bulb with all accessories complete.	No	418		
		Philips TMS 122 /128 or Wipro WIF 20128 SG				
1.25		2 x 28 W T5 surface Mounting fluorescent luminaries CRCA sheet steel box type fitting with electronic ballast with 2 Nos 28W lamp with all accessories complete.	No	150		
		Philips Type;- TPH 824/228 D8 DI HF				
		Wipro:-WCF64228APF				
1.26		2 x 18 W CFL surface mounted fitting with 2 No 18 W CFL lamp with all accessories complete	Nos	20		
		Reference Type No :- Philips FCS 518/218				
		Make:-PHILIPS/WIPRO				
	B	FANS & MISCELLANEOUS				
		Pedestal Fan:				
1.1		Supply of 3 Wings , 230V, 400mm Sweep, Heavy Duty Pedestal fan	No	10		

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
		M/s. Almonard/ Crompton/ Bajaj/ Khaitan				
2.1		Ceiling Fan: Supply of 3 Wings , 230V,1Ph, 1200mm Sweep, Decorative Ceiling Mounted fan with Electronic regulator	No	732		
3.1		Wall Fan: Supply of 3 Wings , 400mm Sweep, Decorative Wall Mounted fan with cords for Control	No	36		
4.1		Supply of 300 mm dia Heavy Duty air exhaust fan complete with louvers and provision of cable Connection from ceiling rose/connector/5A Socket to fan. M/s. Crompton/ GE/ Khaithan / Usha	No	175		
5.1		Supply of 375 mm dia Heavy Duty air exhaust fan complete with louvers and provision of cable from ceiling rose/connector to fan.	No	10		
	C	MISCELLANEOUS				
		Supply, erection complete of the following Items				
1.1		230V,1Ph,DingDong Call Bell( Make:- Kona/Anchor)	No	30		
1.2		230V,1Ph,Musical Call Bell	No	30		
1.3		15W Night Lamp-GLS ( Philips/ GE	No	30		

Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
1.4		ceiling Rose/Batten Holder Without Lamp	No	150		
1.5		Wall Slant Holder for CFL/GLS Lamp	No	50		
	D	INSTALLATION OF LIGHT FIXTURES AND FANS				
1		CFL/Fluorescent/LED Fitting Directly on Surface				
1.1	1.41	Installation, testing and commissioning of Prewired, fluorescent fittings/compact fluorescent fitting of all types, complete with all accessories and tube etc. directly on ceiling/wall, including connections with 1.5 sq.mm FR PVC insulated, copper conductor, single core cable and earthing etc. as required.	Each	1540		
1.2	1.42	CFL/Fluorescent/LED Fitting in false Ceiling				
		Installation, testing and commissioning of Prewired, fluorescent fittings/compact fluorescent fitting of all types, complete with all accessories and tube etc. on false ceiling, including connections with 1.5 sq.mm FR PVC insulated, copper conductor, single core cable, Suspension G.I. Chain/Rod with adjustable system and earthing etc. as required.	Each	486		
1.3	1.44	Ceiling Fan:				
		Installation, testing and commissioning of ceiling fan including wiring the down rod of standard length (upto 30 cm.) with 1.5 sq.mm FR PVC insulated, copper conductor, single core cable etc. as required.	Each	732		
1.4	MR	Wall Fan:				

<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
		Installation, testing and commissioning of 3 Wings , 400mm Sweep, Decorative Wall Mounted fan with cords for Control	Each	36		
1.5		Exhaust Fan upto 450 mm Sweep:				
1.5.1	1.50.1	Installation of exhaust fan in the existing opening, including making the hole to suit the size of above fan making good the damage, connection, testing and commissioning etc as required. following Exhaust fans including repairing of civil damages :	Each	185		
		Total Cost				
		<b>SOLAR POWER SYSTEM</b>				
1.1	MR	Supply and installations testing and commissioning of solar lighting power system	SET	2		
		Supply and installations testing and commissioning of solar lighting power system of 2x5 KVA - Unit For Four ( 4 ) Hours Operation with the following specifications				
		Supply and installations of Solar panel, of monocrystalline silicon with each panel. Including module mounting structure made up of with all accessories complete.				
		Supply of LM battery load acid type 200AH,12V with inter connecting loads, erected in a suitable battery racks with connection complete.				
		<b>TOTAL OF SOLAR SYSTEM</b>				



Item no.	DSR 2012	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
	VII	<b>LIGHTNING PROTECTION FOR ACADEMIC BUILDING:-</b> The Scope covers supply, Installation, Testing & Commissioning of Lightning protection System complete with the following components , but not limited to it.				
1		state of the Art Copper Air Terminal ( Interceptor) mounted on suitable FRP mast atop the proposed Building, with advanced function as Upward Streamer to capture effectively the Lightning down leader complete with all accessories( Type INTMKIV-SS of Erico or Eqv make) conforming to NFC17-102 & UNE-21186 STANDARDS	No	1		
2		State of the Art screened insulated Lightning Down Conductor Tape:  Providing and fixing on parapet or surface of wall for lightning conductor with Saddles complete as required. [ For horizontal/ Vertical run]  DownConductor shall be with low Inductance for passage of Lightning Current with low or min Voltage build up to ensure safety, for currents upto 90 KA  Lightning Discharge Counter to be fixed @ suitable location on Terrace	Mts	50		
3		Providing & fixing testing joint with tinned brass bolts, nuts, check nuts and spring washers, etc. complete as required.	No	1		
4		Earthing with copper Bonded Steel rods with 25x3mm Cu Tape brazing in triPolar shape including accessories and providing Brick masonry enclosure 450x450 mmwith cover plate having locking arrangement and watering pipe etc. with earth enhancing Materials, excavation of soil for pit size of 300x3000 mm complete or as required.	Set	2		
		<b>Total Cost</b>				

## **EXTERNAL ELECTRICAL INSTALLATIONS**

**EXTERNAL ELECTRICAL INSTALLATIONS**

Sl.No.		DESCRIPTION	UNIT	QTY	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
	<b>I</b>	<b>EXTERNAL LIGHTING</b>				
		<b>STREET LIGHT POLES</b>				
	1	Supply and erection of 7.5 mts seamless stepped tubular pole confirming to IS 2713 made up of 3 sections, base plate with suitable bracket including ,Lighting Fixtures, Civil works etc	No	55		
		The Pole shall have sections as below				
		<b>Bottom Section</b>				
		Length - 4.00 Mts				
		Diameter - 165.00 mm				
		Thickness - 4.85 mm				
		<b>Middle Section:</b>				
		Length - 1.75 Mts.				
		Diameter - 139.70 mm				
		Thickness - 4.50 mm				
		<b>Top Section</b>				
		Length - 1.75 Mts.				
		Diameter - 114.70 mm				
		Thickness - 3.65 mm				

**EXTERNAL ELECTRICAL INSTALLATIONS**

Sl.No.		DESCRIPTION	UNIT	QTY	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
		<p>All the three sections shall be swaged /welded and finished smooth. The base plate is to be rigidly welded and secured to the bottom section of the pole. An earth coil of 8 SWG GI wire of 11.5 mt length in which 10 mts of the total length composed into a coil of 1 mt length with 75 - 100 mm dia ,connected with suitable hexagonal earth bolt @ the pole . The bracket shall be with suitable GI pipe for fixing the light fittings . The Pole shall be suitably painted withEAnti-Rust paint at the bottom to a length of 2 mts over one coat of red oxide primer and with 2 coats of quality aluminum paint to the balance length of pole .The Pole shall be fixed in suitable Concrete foundation in 1:2:4 cement concrete to a depth of 1.8 mts below ground level. suitable Coping of min 500mm above ground around the pole as required along with supply and fixing of cast ALU street light J.B. on pole with control accessories &amp; 2No 32mm Dia. G.I.Pipes of 2m length for Cable loop-in-loop out . I.B. shall have hinged door with neoprene gasket &amp; Turn lock facility</p>				
		The Control Accessories shall be as below for each Pole				
		a) Hylem terminal block with 8 Nos. 3/8" bolt nuts, washers, check nuts, Connectors etc for receipt of 4x6sq.mm AYRY Cable				
		b) 6A SP MCB				
		c) Supply and drawing 3 runs of 2.5 sq.mm copper wire inside the post for connection to Fixture				
	2	<b>Bracket</b>				
		Length - 2.0 Mts.				
		Diameter - 114.70 mm				
		Thickness - 3.65 mm				

**EXTERNAL ELECTRICAL INSTALLATIONS**

Sl.No.		DESCRIPTION	UNIT	QTY	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
		Over hang - 800 mm				
MR	A	Single Bracket	No	10		
	B	Double Bracket	No	32		
	C	Triple Bracket	No	8		
	D	Four Bracket	No	4		
	3	e) Supply, fixing and commissioning of One Nos. (HPSV)150 W sodium vapour lamp street light fittings complete with optic reflector insect / dust/ moisture proof glass cover in cast aluminium Enclosure (IP:66) with Bottom Opening for fixing to the above Poles.	No	110		
		Philps Type SGS454 or Eqv				
		Wipro Type Cruze-WST 50150				
MR	II	<b>Solar Street Lighting</b>				
		Supply, installation, testing and commissioning of solar street light fittings suitable for 22 W CFL lamp in 65mm GI pipe of length 5 Mtr with necessary battery housed in a weather proof MS box with mono PV module with automatic dusk to dawn controller complete with all accessories.	Each	20		

**EXTERNAL ELECTRICAL INSTALLATIONS**

Sl.No.		DESCRIPTION	UNIT	QTY	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
	III	<b>LT CABLES for street ltg</b>				
MR	1	Supply, laying of following 1100 volts grade XLPE insulated & sheathed., armoured L.T. UG cable as per IS:7098 in a trench				
		a. 3.5core x 25Sq. mm LTUG cable	Mts	300		
		b. 4core x 16 Sq. mm LTUG cable	Mts	200		
		c. 4 core x 10 Sq. mm LTUG cable	Mts	1500		
		d. 2 core x 6 Sq. mm LTUG cable	Mts	50		
	2	<b>cable Terminations</b>				
MR		a. 3.5core x 25Sq. mm LTUG cable	Nos	4		
		b. 4core x 10 Sq. mm LTUG cable	Nos	40		
		c. 2 core x 10 Sq. mm LTUG cable	Nos	86		
		d. 2 core x 6 Sq. mm LTUG cable	Nos	20		
DSR 12.38	3	Supplying and fixing of light class G.I. pipe of 80 mm dia.	Each	30		

**EXTERNAL ELECTRICAL INSTALLATIONS**

Sl.No.		DESCRIPTION	UNIT	QTY	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
		(nominal) 3 metres length along the pole for protection of under ground cable as required.				
MR	4	Cable Trench to be excavated in all kinds of Soil to a depth of 750 mm & width of 500mm, providing 150mm layer of sand for covering the cables completely, providing good quality bricks for protection of cables and refilling the trench to original ground level to make it good complete.	Mtr	1500		
MR	5	Supplying of cable route marker with 10 cm x 10 cm x 5 mm thick GI plate with inscription thereon, bolted / welded to 35mm x 35mm x 6mm angle iron, 60 cm long and fixing the same in ground as required.	Nos	50		
MR	<b>IV</b>	<b>STREET LIGHT PILLAR BOXES</b>				
	1	Supply, erection testing and commissioning of weather proof, vermin and dust proof street light pillar box of suitable size to accommodate 1 No 63A TPN MCB with 12 Nos. 20 A DP MCB (4 Nos. per phase) with neutral and earth link with 3 Nos of Timer relay switch so as to control ON/OFF timing of street light as per the requirements double door opening with lock and key arrangement, erected on suitable concrete pedestal complete all connections with all accessories	Nos.	2		
	2	Earthing with GI 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 etc. including charcoal or coke and salt complete as required.	Set	44		

**EXTERNAL ELECTRICAL INSTALLATIONS**

Sl.No.		DESCRIPTION	UNIT	QTY	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
MR	3	Supply and laying of No:8 SWG GI wire for earth connection	m	1000		
		<b>TOTAL FOR EXTERNAL LIGHTING TO BE CARRIED OVER TO SUMMARY</b>				
	V	<b>HT OUT DOOR EQUIPMENT</b>				
	A	<b>RMG UNIT</b>				
		Supply, erection, Testing & Commissioning of Outdoor Type, RMG UNIT, 11 KV, 3Ph,3 Wire,630Amps,26 KA, HT Ring Main panel comprising of 3 Nos Feeders.( 2 I/C LBS+1 O/G HT VCB) on a suitable weather proof M.S.enclosure with CRCA sheet of min 2.5 mm Thick.. LBS shall be provided with suitable spring Mechanism for Closing &Tripping. Sleeved Bus Bars of 800A of extensible Type to be provided. with all accessories as per IE and CEIG rules and regulation complete suitable for 2X750 KVA transformers. VCB Panel conforming to EB/ CEIG requirement( VCB Make:- ABB/ Schneider/Siemens). The unit shall be complete with earth Switches, CTs, self Powered Protective Relays for O/C, S/C,E/F, Indication lamps & accessories & for Termination of 11KV 3x185 sq.mm XLPE Cables. CTs of Cast Resin Type 200-100/5 A ,class 5P10,15 VA for Protection & CBCT for E/F. The same shall be as per TNEB approval.	No	1		



**EXTERNAL ELECTRICAL INSTALLATIONS**

Sl.No.		DESCRIPTION	UNIT	QTY	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
		VCB shall be of draw out type having horizontal draw out and isolation. The VCB shall be fitted with motorized spring mechanism for closing with mechanical ON- OFF indicator, emergency trip, safety shutter etc. The breaker shall be with closing coil and a shunt trip WITH BUIT-IN POWER SOURCE. . The panel shall also be provided with the required. Auxiliary contact and also provided with spare Aux such having 4 NO + 4 NC spare contact in addition.				
	B	<b>HT METERING PANEL</b>				
		Supply and erection of Outdoor HT metering panel in a suitable weather proof enclosure with all accessories as per CEIG rules and regulations conforming to TN Electricity Board Norms, complete suitable for 2x750 KVA transformers. The Panel shall be Pedestal mounted in H.T. Yard with HT Cable connections as specified.	No	1		
		Panel consisting of a) Current Transformers, Resin Cast, 3.75VA, Class : 0.5, 200-100/5 Amps or Suitable Ratio. 3 Nos				
		b) Draw out type 3 limb 11 KV/110V, 100VA, class 0.5, epoxy cast resin				
		c) Trivector Meter as approved by TNEB				
	VI	<b>H.T. CABLES</b>				
		Supply of the following 11 KV(UE) XLPE Insulated Armoured cable with stranded Compact Circular Aluminium Conductor, XLPE Insulated with Semi conducting Compound in combination with Copper Tape, core laid-up, inner PVC sheathed, GI Flat Strip Armoured, outer PVC Sheathed(PVC ST-2 Type), conforming to IS:7098-part-II ( Preferred Make:- Universal, Tropudor, CCI, Havells)				
	1	3 C x 300 sq.mm ( Mains)	Mtr	150		

**EXTERNAL ELECTRICAL INSTALLATIONS**

Sl.No.		DESCRIPTION	UNIT	QTY	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
	2	Laying of one number PVC insulated and PVC sheathed/XLPE HT cable of grade 11kV, of size not exceeding 300 sq.mm in the existing RCC/HUME/ METAL TRAY as required by excavating, sand cushioning and refilling the trench complete.				
		a) 3 C x 300 sq.mm	Mtr	150		
10..5.3	3	Supplying and making Outdoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for the following size of HT XLPE aluminium conductor cable of 11 kV grade as required(3M Birla / Raychem) for 3 Core 300 Sq.mm	No	3		
	4	Supplying and making cable end jointing with cast resin compound, including lugs and other jointing materials, for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required a) 3 Core 300 Sq.mm a) Outdoor	Nos	1		
	5	<b>RCC / HUME PIPES</b> 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				

**EXTERNAL ELECTRICAL INSTALLATIONS**

Sl.No.		DESCRIPTION	UNIT	QTY	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
		(75 cm deep) and refilling etc as required.				
	a	12"( 300 mm ) Dia	Mtr	20		
	<b>VII</b>	<b>EARTHING</b>				
	1	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 etc. with charcoal or coke and salt complete so as to achieve earth resistance less than 1 Ohm.	Set	6		
	2	Supply & Laying of 25X5MM CU Flat on Surface/ buried in ground	Mtr	50		
	3	Providing and fixing earth bus of 50 mm x 6 mm copper strip on surface for connections, etc. as required	Mtr	20		
		<b>TOTAL OF HT EQPT. CABLES &amp; EARTHING</b>				
	<b>VIII</b>	<b>CONSUMER 11 KV HT DP STRUCTURE</b>				
MR	A	<b>Supply, Erection, Testing and commissioning of 11 KV DP structure&amp; associated Works as given Below in conformance to CEI &amp; TN ELECTRICITY BOARD norms</b>				
		<b>DP Structure</b>				

**EXTERNAL ELECTRICAL INSTALLATIONS**

<b>Sl.No.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
1	RSJ pole of 9.15 Mt Height of size 175 x90mm with Suitable M.S. Base plate welded at Bottom	No	2		
2	MS Channel of size 100 x 50 mm, 4 M long	No	8		
3	11 KV, 400Amps, Double Break AB switch	set	1		
4	11 KV Horn Gap (HG) Fuse Unit	No	3		
5	11 KV, 10KA Lightning arrestor .	No	3		
6	11 KV Disc insulator	No	3		
7	11 KV Pin insulator	No	6		

**EXTERNAL ELECTRICAL INSTALLATIONS**

Sl.No.	DESCRIPTION	UNIT	QTY	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
8	6 SWG copper wire 1830mm Long for jumpering	No	3		
9	Supplying and erection of stay set complete (galvanised) with 19/20 mm dia X 1.8 metres long stay rod, anchor plate of size 45 cm X 45 cm X 7.5 mm, thimble, stay clamps, turn buckle ( 20 mm X 60 cm ), 7/ 4.00 mm dia G.I. stay wire and strain insulator etc in cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size ) foundation including excavation and refilling etc. as required.	set	1		
10	Concrete foundation for RSJ poles buried upto a depth of 1830mm in Ground in a Pit of size 450x450 mm in CC 1:3:6 along with 200mm Coping above Ground inclusive of Earth Work	No	2		
11	Necessary Bolts,Nuts,clamps, Operating handle for AB Switch, welding etc. Complete	L.S.	1		
12	Surface Preparation & Painting the RSJ poles & MS Frame Works complete with One coat of red oxide primer and two coats of Al. enamel paint. complete.	L.S.	1		

**EXTERNAL ELECTRICAL INSTALLATIONS**

Sl.No.		DESCRIPTION	UNIT	QTY	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
		<b>TOTAL FOR DP STRUCTURE</b>				
<b>MR</b>	<b>B</b>	<b>HT YARD WORKS</b>				
	1	Providing & constructing HT yard of approximate size 12m X 5m with floor level raised above existing ground by minimum+300mm. 230mm thick Brick Masonry Toe wall of 1st class Bricks in cement mortar 1:6 (1cement:6 coarse sand) is to be provided & constructed all around the HT yard over a stepped foundation of brick masonry of min depth of 750mm. Brick wall shall be plastered with plaster of cement mortar 1:4 (1cement:4 sand) above ground level. River sand to be filled and compacted with minimum thickness of 150mm inside yard with top layer of around 150mm thickness with 40mm & down stone aggregates etc. complete in all respects as directed by Engineer-in-charge.	LS	<b>1</b>		
	2	Supplying, cutting, welding & fixing in position of Angle/MS pipe post & struts of approved make of required size including painting with two or more coats of enamel paint of required make & shade over a coat of primer all complete as directed by Engineer-in-charge. The MS poles are to be grouted in ground with 300mm X 300mm X 600mm concrete pedestal using cement concrete of CC 1:2:4(1cement:2 coarse sand:4 aggregate) including excavation /filling etc. complete.	Kg	<b>2200</b>		
		for chain Link Fencing				
	3	Providing G.I. chain link fencing 50mm size of 8 gauge properly stretched between rectangular poles and fixed with suitable bolts and nuts, the free end shall be welded to the pole and black pipe at top and bottom as required including the cost of all materials and labour complete	Sqmtr	<b>100</b>		

**EXTERNAL ELECTRICAL INSTALLATIONS**

Sl.No.		DESCRIPTION	UNIT	QTY	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
	4	Supply and erection of welded mesh fencing M.S gate for a height of 2400 mm and 1200 mm wide hinged with necessary AL frame work with painting the gate complete with accessories	Kg	250		
		<b>TOTAL OF HT YARD</b>				
	<b>E</b>	<b>SAFETY &amp; Miscellaneous EQUIPMENT</b>				
MR		11KV Hand Gloves				
	1		Set	1		
		S&I Dry Powder Fire Extinguishers-10Kg				
	2		No	1		
		S&I Fire Bucket Stand for 2Nos. with Sand Filled Buckets				
	3		No	1		
		S&I Danger Plates as Per IS				
	4		No	6		
		<b>TOTAL OF SAFETY EQPT</b>				
		<b>TOTAL OF HT Eqpt, DP Structure, CABLES, LAYING, TERMINATION &amp; EARTHING FOR HT INSTALLATION TO CARRED OVER TO SUMMARY</b>				
	<b>IX</b>	<b>LT OUT DOOR feeder pillars</b>				

**EXTERNAL ELECTRICAL INSTALLATIONS**

Sl.No.	DESCRIPTION	UNIT	QTY	Rate (Rs. in words & in figures)	TOTAL AMOUNT (Rs. in words & in figures)
	Supply and erection of Outdoor Feeder Pillars in a suitable weather proof enclosure with all accessories as per CEIG rules and regulations conforming to TN Electricity Board Norms, complete. The Panel shall be Pedestal mounted in the Open Area with Cable connections as specified.				
	Outdoor mounted, dust, damp and vermin proof (IP:54) with Canopy , Cubicle Type Compartmentalised Panel with incoming and outgoing Feeders/ MCCBs/ MCBs as per SLD/ BOQ. Panels shall be made out of 14 SWG MS sheet, Epoxy Powder Coated, complete with Sleeved TPN Aluminium bus bars, protection relays, ammeter, voltmeter, ammeter selector switch, voltmeter selector switch, KWh ( Energy meter), indicating lamps etc. 2 Nos of 25 x 3mm copper earth Bus shall be provided. Cable Entry for Incomer & OUTGOINGS shall be generally from Bottom unless otherwise indicated. Panels shall have hinged doors with Neoprene gaskets for Feeder Compartments & Cable Alley. The Panel shall be complete with Power & Control Wiring, danger & Inscription Plates, Lifting Hooks etc. The F.P. shall be installed on a Pedestal 300mm above Gr.Level with required Civil works complete				
	<b>FEEDER PILLARS</b>	Set	2		
	<b>INCOMING</b>				
	1No 63A TPN MCB 16 KA				
	<b>OUTGOING</b>				
	3 No 32A TPN MCB				
	1 Nos 32A DP MCB				
	3 No Timers				



**EXTERNAL ELECTRICAL INSTALLATIONS**

<b>Sl.No.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>TOTAL AMOUNT (Rs. in words &amp; in figures)</b>
	3 No 32 A Contactors				
	<b>BUS BARS</b>				
	TPN63 A,16KA Bus bar of aluminium alloy				
	Complete with all accessories				
	Cable Entry:-Bottom				
	<b>TOTAL of FEEDER PILLARS</b>				
	<b>Total Cost</b>				

## **LIFTS**

<b>LIFT</b>						
<b>Code No.</b>	<b>Sl.No</b>	<b>Description</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	1	<b>I. PASSENGER LIFT</b> Supply, Installation, Testing, Commissioning, obtaining Statutory Approvals and handing Over of 20 passenger lift of <b>Gearless Type</b> as per the following technical specifications complete IN ALL RESPECTS	2	No		
		<b>Technical Specifications.</b>				
		1) Location – Academic Block				
		2) Type of Lift - Gearless Type				
		<b>3)Capacity of Lift - 20 Passengers (1360 Kgs)</b>				
		4) Speed - 1.25M / sec				
		5)Type of drive - AC variable voltage Variable Frequency drive system (With Close loop)				
		6) No of Floors - Ground + 4Floor				
		7) Total Travel - 16Mts (Approx)				
		8) Levelling _ High level accuracy with accuracy smooth jerk free stopping				

<b>LIFT</b>						
<b>Code No.</b>	<b>Sl.No</b>	<b>Description</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
		9) Construction - High Quality stainless steel of Car scratch proof surface				
		10) Hand rails - Stainless steel Mirror finish 900mm above floor level to be fixed adjacent to the control panel in the lift car.				
		<b>11) Car Size(INSIDE) 2000 X1500 x2000 MM</b> W X D X H <b>shall meet CPWD Norms</b>				
		<b>12) Car Entrance -1000 W x 2000 H MM</b> in the front				
		13) Car Entrance Door _ Automatic Power operated with IR sensors centre opening Horizontal sliding stainless steel scratch free surface.				
		14) Car Operation - Automatic, Microprocessor based through S.S. push buttons inside with / without attendant				
		15) Flooring - 4mm Thick Vinyl Tiles				

<b>LIFT</b>						
<b>Code No.</b>	<b>Sl.No</b>	<b>Description</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
		16) False Ceiling :- MS false ceiling				
		17) Position of _ Directly above the lifts Machine				
		18) Landing Centre opening M.S Powder Entrance - coated finish door with Door provision for emergency key opening at all landings				
		19) Power Supply _ 415V + /-15%, 3 Phase 50HZ 4 wire system				
		20) Car Fittings - Compact Fluorescent lights 6 nos and 400mm sweep cabin fans - 2 Nos. Safety Instructions in English & Malayalam in laminated Frame				
		21) Indication & Anunciation - UP/Down Scrolling direction and position indicator in car and all landing digital floor Position indicator scrolling type in car and at all landing Floor Annunciator in all Floors OverLoad Indication				

<b>LIFT</b>						
<b>Code No.</b>	<b>Sl.No</b>	<b>Description</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
		22) Emergency Battery operated alarm bell				
		Alarm Bell - to be provided with automatic charging device				
		23) Emergency - Battery operated light to be light provided with automatic charging device.				
		24) Fireman _ To be provided at Ground				
		Switch floor				
		25) Automate To facilitate the landing of the				
		Rescue - lift to the nearest floor at the				
		Device line of power failure. This shall consist of suitable type battery system with charger inverter, under voltage Protection system etc .,				
		Complete with all accessories.				
		26) Over speed governor, phase failure and phase reversal relay, alarm bell, T Guide brackets for car and counterweight, rubber padding under winding unit, motor of adequate capacity, single reduction worm gear, electromagnetic brake with compression springs, car safety gears, buffers, electro mechanical door locks, emergency keys side supporting angles, motor over load protection devices, final limit switch main suspension ropes counter weights, lifting joints for mounting the machineries, voltage stabilizer for circuit control.				
		27) Provision of Intercom with phone				
		Communication				

Code No.	Sl.No	Description	Qty	Unit	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	2	<b>PASSENGER LIFT</b> (HOSTELS) Supply, Installation, Testing, Commissioning, obtaining Statutory Approvals and handing Over of 20 passenger lift of <b>Gearless Type</b> as per the <b>ABOVE</b> technical specifications complete IN ALL RESPECTS	2	No		
		Travel Gr.Flr+8 Floors				
		Travel Distance=32M				
	3	<b>PASSENGER LIFT</b> (GUEST HOUSE) Supply, Installation, Testing, Commissioning, obtaining Statutory Approvals and handing Over of 10 passenger(680kg) lift of <b>Gearless Type</b> as per the <b>ABOVE</b> technical specifications complete IN ALL RESPECTS	2	No		
		Travel Gr.Flr+7 Floors				
		Travel Distance=28M				
	3	<b>PASSENGER LIFT</b> (STAFF QRTS) Supply, Installation, Testing, Commissioning, obtaining Statutory Approvals and handing Over of 8 passenger(544kg) lift of <b>Gearless Type</b> as per the <b>ABOVE</b> technical specifications complete IN ALL RESPECTS	2	No		
		Travel Gr.Flr+7 Floors				
		Travel Distance=28M				
		<b>Total Lift cost</b>				

## **NETWORKING, CCTV & OTHER LV SYSTEMS**



<b>NETWORKING, CCTV, BMS, &amp; OTHER LV SYSTEMS</b>	
<b>Sl.No</b>	<b>DESCRIPTION</b>
<b>1</b>	<b>NETWORKING</b>
<b>2</b>	<b>CLOSED CIRCUIT TV SYSTEM</b>
<b>3</b>	<b>MATV SYSTEM</b>
<b>4</b>	<b>PA SYSTEM</b>
<b>5</b>	<b>UPS</b>
<b>6</b>	<b>OVER HEAD PROJECTOR</b>
<b>7</b>	<b>TELEPHONE NETWORK</b>

NETWORKING , CCTV SYSTEM, MATV SYSTEM, PA SYSTEM, UPS, OVER HEAD PROJECTOR, TELEPHONE NETWORK					
Sl.No	DESCRIPTION	UNIT	QTY	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	<b>PART-I</b> <b>DATA:- Supply, Installation, Testing &amp; Commissioning of Data Net Working complete with VDI Structured CABLING &amp; co-coordinating with Server System Supplier</b>				
1	Supply, Installation, Testing and Commissioning of INTEL XEON E3110 (DUAL CORE) 3.0 GHz processor with 6 MB CACHE / 1333 MHz FSB; 2 GB MEMORY / 250 GB SATA HARD DISK / GIGABIT ETHERNET ON BOARD / DVR-ROM / KEYBOARD / MOUSE WITH Windows 2008 Server with 5 User Pack OEM	Nos	1		
2	Supply, Installation, Testing and Commissioning of core switch as per the technical specifications	No	2		
	i) (24) 10/100/1000 auto-sensing, auto-negotiating, MDI/MDI-X RJ45 ports				
	ii) (4) mini-GBIC combo ports				
	iii) (2) dedicated stacking ports				
	iv) (1) DB9 console port				
	(Make: CISCO/D-LINK/nortel/LINK SYS				
3	Supply, Installation, Testing and Commissioning of Edge switch as per the technical specifications	No	8		
	i) (24) 10/100/1000 auto-sensing, auto-negotiating, MDI/MDI-X RJ45 ports				
	ii) (4) mini-GBIC combo ports				

<b>NETWORKING , CCTV SYSTEM, MATV SYSTEM, PA SYSTEM, UPS, OVER HEAD PROJECTOR, TELEPHONE NETWORK</b>					
<b>Sl.No</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	iii) (2) dedicated stacking ports (Make: CISCO/D-LINK/nortel/LINK SYS				
4	LINE interface unit compatible for above switches & NETWORKING	No	8		
5	RJ-45 Outlets	No	235		
A	Patch cord with RJ 45 connectors for connecting work station from face plate 2 mtr Make: D-link/LEGRAND	Nos	235		
B	Patch cord with RJ 45 connectors for connecting work station from face plate 2 mtr Make: D-link/LEGRAND	Nos	235		
C	Patch cord with RJ 45 connectors for connecting @ Rack end from face plate 1 mtr Make: D-link/LEGRAND	No	4		
D	Patch cord with RJ 45 connectors for connecting @ Rack end from face plate 1 mtr Make: D-link/LEGRAND	No	4		
6	Equipped PATCH PANEL complete with Edge Switch,Power supply units for 50 No. UTP CAT6 RJ45 outlets- User End	No	8		

<b>NETWORKING , CCTV SYSTEM, MATV SYSTEM, PA SYSTEM, UPS, OVER HEAD PROJECTOR, TELEPHONE NETWORK</b>					
<b>Sl.No</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
7	PATCH PANEL UTP CAT6 - EPABX End	Nos	8		
8	42 U Network cum Server Rack Assembly, Floor Mounting, made of Aluminium Channels equivalent to Euro Rack System with side and rear panels made of Powder Coated sheet steel, front transparent perspex door and with rails, rollers with fans will be provided at the top for ventilation. Make : Netrack/Legrand/ DLink	Nos	1		
9	15 U Wall Mounting cabinet with Standard Accessories	No	6		
10	4 pair CAT 6 cable Make: D-link/Finolex/ LEGRAND	Box (305 M)	25		
11	50 Pair Jelly filled Riser cable	mtr	20		
12	80x50x 2mm mm PVC Casing/ Trunking with accessories	Mtr	500		
13	Plastic Box( Surface/ Flush Mount) 1/2 module	Nos	25		
	<b>TOTAL FOR DATA / NETWORKING(PART-T)</b>				

NETWORKING , CCTV SYSTEM, MATV SYSTEM, PA SYSTEM, UPS, OVER HEAD PROJECTOR, TELEPHONE NETWORK					
Sl.No	DESCRIPTION	UNIT	QTY	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
14	<b>PART-II</b>				
1	<b>Closed Circuit TV System</b>				
1	<b>Supply, installation, Testing &amp; Commissioning of CCTV system consisting of the following items, but not limited to it ,for total integrated operation of the system</b>				
A	<b>Indoor Camera</b> :- CCD camera with colour flexidome, 3.5mm varifocal lens, capable of operating in min Lux level of 0.2 lumens or less,min 660 TV lines, min 25 M IR range, compatible for CCTV application, in IP;65 housing with all accessories complete Make - Bosch/Videotec/Pelco	Nos	15		
B	Outdoor PTZ Camera with Power supply unit & PTZ controller	Nos	2		
C	Power Supply unit ( For camera) (24V AC/ 50 Hz or as per Camera requirement)	Nos	17		
2	<b>DIGITAL VIDEO RECORDER</b>				
	Sate of the Art IP based, 8Channel digital video recorder of Embedded Type with dual streaming Technology for Video & Audio, with Web Server feature, Mouse/ Joy stick Controller for Cameras, multi-client Viewing ,capable of supporting upto 5 T or more bytes, high resolution, multiscreen display & recording , capable of supporting Thumb Drive, HDD & Optical devices through USB, suitable for operation on 230 V,1Ph,50 Hz supply complete with required TV, soft ware & interlinking of all DVRs	Nos	3		
	Make:-				

<b>NETWORKING , CCTV SYSTEM, MATV SYSTEM, PA SYSTEM, UPS, OVER HEAD PROJECTOR, TELEPHONE NETWORK</b>					
<b>Sl.No</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	Sony/Bosch/Pelco/GE Security				
3	Supply & laying of CCTV Co-Axial Unarmoured cable in existing conduit, Cable shall be with Tinned Cu conductor, HRPVC/ Polyethylene insulated, shielded with mylar tape,Al wire braided with PVC outer sheath/jacket conforming to good connectivity & requirement for CCTV system	mtr	500		
	<b>TOTAL FOR CCTV SYSTEM</b>				
	<b>PART-III</b>				
1	MASTER ANTENA TV (MATV) system				
	<b>The Scope of work is Supply, installation, Testing for T.V. System with following Items &amp; components IN Specific Areas. It also covers co-ordination with T.V service provider for completeness &amp; usage of the Items /components erected by Vendor</b>				
	<b>T.V. CONNECTION</b>				
	A. Supply and fixing of booster amplifier	No	1		
	B. Supply and fixing of 3 way splitter	Nos	2		
	C. Supply and laying of RG 11 co-axial cable in the existing PVC pipe	Mtr	50		
	<b>TOTAL FOR MATV</b>				
	<b>PART-III</b>				
	<b>Public Address SYSTEM (Academic Block &amp; Auditorium)</b>				

<b>NETWORKING , CCTV SYSTEM, MATV SYSTEM, PA SYSTEM, UPS, OVER HEAD PROJECTOR, TELEPHONE NETWORK</b>					
<b>Sl.No</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	Supply, erection, Testing & Commissioning of PA system as below				
1	240W Power Amplifier, Table Top Model, with Inbuilt Protection for Overload & Short circuit . It shall have suitable battery back up,Led Indications for various functions .Make:- Bosch/Ahuja/ Philips)	Nos	2		
1a	Booster Amplifier 240W	Nos			
2	6 Watts ,70/100V Taps,Wooden Box Cabinet Speaker Make:Bosch Model:LBD 3902/Philips	Nos	6		
3	Co-axial Twisted pair cable, 4P, with 0.5 mm dia Tinned Cu conductor,Polythene insulated, braided with Al tape. outer sheath of FRLS PVC ,unarmoured Cable Make-Finolex/Havells/D-Link/Finecore	Mtr	2500		
4	Main junction box to terminate field cables with necessary tags	Nos	24		
5	2Way compact,8Watt,70/100V Tap, Wall Mounting Type with suitable bracket, High Fidelity Speaker with inbuilt Transformer, weather Resistance Type Make:Bosch Model:LBD 3902/Philips	Nos	30		
6	6 Watt Ceiling Mounting Speaker Make:Bosch /Philips /Ahuja	Nos	60		

<b>NETWORKING , CCTV SYSTEM, MATV SYSTEM, PA SYSTEM, UPS, OVER HEAD PROJECTOR, TELEPHONE NETWORK</b>					
<b>Sl.No</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
7	Rugged Type Goose Neck Microphone with suitable stem & excellent Voice output suitable for above PA system	No	2		
	<b>TOTAL OF PA SYSTEM</b>				
	<b>PART-IV</b>				
	<b>UPS</b>				
	Supply, Installation Testing and commissioning of double conversion, DSP Based, True on line UPS system ,30 KVA, 415V +/- 15% V,50Hz,3Ph Input &,Output, working on 16 Bit microprocessor Architecture, Isolation transformers, RS 232 ports, monitoring software , O/L.S.C. protections & self diagnostic features, LCD Display Panel for Functions & all parameters, complying with IEC standards. Convertors, Invertors & Battery Charger shall utilize PWM technology with IGBT. Battery Back up time of 15 minutes with required No of 'SMF Battery of 12V, 50 AH with Battery management System, housed in suitable Cabinet /stand, Static By Pass, complete with Internal wiring & all accessories to be provided. The System shall have in-built P.F. correction & shall ensure THD as per latest International standards. The efficiency of UPS shall be 97% or more. Only Incomer feeder Cables to UPS shall be provided by Client & Output from UPS final Point shall be Tapped from Client for further distribution.UPS shall be under Warranty for 2 years from the date of Acceptance by Client.	No	1		
	<b>PART-V</b>				
	<b>OVER HEAD PROJECTOR</b>				
1	Screen: Pull down screen, High Gain mat White with size 6 Ft X 5 Ft	Nos	2		



<b>NETWORKING , CCTV SYSTEM, MATV SYSTEM, PA SYSTEM, UPS, OVER HEAD PROJECTOR, TELEPHONE NETWORK</b>					
<b>Sl.No</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
2	LCD Projector COMPATIBLE WITH IBM PC : - Brightness of 3000 ANSI 1 --> Lumens with contrast ratio of 2000:1 with a resolution of 1024 X 768, supplied with cordless remote control, VGA cable etc complete with Ceiling mounting Kit	Nos	2		
	<b>Make - ACER / Panasonic/Sony/LG</b>				
	<b>TOTAL AMOUNT-OHP</b>				
	<b>PART-VI</b>				
	<b>TELEPHONE SYSTEM</b>				
1	<b>EPABX:- Supply, Installation, Testing &amp; Commissioning of micro-processor based, state of the Art, Telephone PBX System</b>				
	<b>, IP READY, based on Linux/GRUB compliant, integrated Software for multiTasking for Hospitality Services including Billing , comprising of items as below but not limited to them. Expandable upto 500 Ports</b>				
	Providing PRI cards for Trunk lines / for tie line				
	with reqd.software				
	16Analog Trunk Lines	Nos	1		
	4 Digital Extensions				
	100 Analogue Extensions( Expandable up to 150)				
	In-Built Voicemail ( 4 Port & 80 Min)				

<b>NETWORKING , CCTV SYSTEM, MATV SYSTEM, PA SYSTEM, UPS, OVER HEAD PROJECTOR, TELEPHONE NETWORK</b>					
<b>Sl.No</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	LAN Connectivity				
	Embedded WELCOME MESSAGE				
	Least Cost Routing				
	Personal Assistant				
	Music on Hold				
	<b>(Make - Siemens/ AVAYA/ALCATEL )</b>				
a	200 pair MDF with KRONE disconnection modules ( System MDF & Customer MDF)	Nos	1		
b	50Pair MDF	Nos	2		
c	SCP & IPM's for Trunk Lines	Nos	4		
d	Jumper Cable	Mtr	75		
e	IDF 20 Pair	Nos	12		
a	Supply, laying & Termination of Telephone Wires/ Cables as per DOT spcn, with solid annealed Cu Conductor of 0.5mm thick, High Density Polyethylene insulated, Twisted pair, unarmoured , with outer sheath of low density Polyethylene ( Make:-FINOLEX/ DELTON/HAVELLS)				
b	5pair 0.5mm unarmoured telephone Cu cable	Mtr	200		
c	10 pair 0.5mm unarmoured telephone Cu cable	Mtr	50		

<b>NETWORKING , CCTV SYSTEM, MATV SYSTEM, PA SYSTEM, UPS, OVER HEAD PROJECTOR, TELEPHONE NETWORK</b>					
<b>Sl.No</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
d	20 pair 0.5mm unarmoured telephone cable	Mtr	50		
e	50 pair 0.5mm unarmoured telephone Cu cable	Mtr	25		
a	Desk top Analog push button telephone with Caller ID, flash and radial ( Beetle/Siemens/ Panasonic)	Nos	114		
b	Digital Executive phone, Table Top Model, with 6 programmable Keys with LED,20character display ( Black& White).	Nos	4		
	numeric display, 6 keys with LED's etc( Type 4019 Alcatle/ eqv/Siemens/Crompton)				
a	10 Pair Krone Box	Nos	6		
b	20 Pair Krone Box	Nos	2		
c	50 Pair Krone Box	Nos	4		

**NETWORKING , CCTV SYSTEM, MATV SYSTEM, PA SYSTEM, UPS, OVER HEAD PROJECTOR, TELEPHONE NETWORK**

Sl.No	DESCRIPTION	UNIT	QTY	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	SUPPLY, Installation, Termination & Testing of <b>Outdoor Telephone</b> Cables as per DOT spcn, with solid annealed Cu Conductor of 0.5mm thick, High Density Polyethylene insulated, Twisted pair Jelly filled, Inner sheath of Polyethylene& core wrapping, moisture barrier with Al tape , Double G.I.wire/strip armoured ,with outerjacket of low density Polyetylene .The Work includes Cable Trench Excavation( 300Wx500mmD) in all Kinds of soil, Sand Cushion of 150 mm for Cables 7 covering with precast RCC slab or Good quality Bricks, back filling, levelling the ground etc complete.( Make:-FINOLEX/ DELTON/HAVELLS)				
a	50Pair( for G.H/Staff Qrts)	Mtr	250		
b	20 Pair ( Hostels)	Mtr	150		
c	10 Pair (kitchen/Auditorium)	Mtr	200		
	<b>TOTAL COST</b>				

# HVAC

HVAC					
No	Description of Items	Qty	Unit	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
<b>A.</b>	<b><u>Academic Block - Variable Refrigerant Volume (VRV) Air-conditioning System</u></b>	-	-	-	-
1.0	Supply Installation Testing and Commissioning of Outdoor Unit consisting of high efficiency multiple scroll compressors fitted with Variable Frequency Drive (VFD), air cooled condenser having internally grooved copper tubes and aluminium fins, axial flow condenser fans, electrical switchgear, controls, internal power cabling, earthing and control wiring all installed in a GI sheet metal housing finished with powder coating, suitable for all weather outdoor installation. Complete as per the specifications. Capacity of the Out door unit shall be 52 <b>HP</b>	6	Nos.		
2.0	Supply Installation Testing and Commissioning of Indoor Units, <b>ductable type</b> to be concealed in the false ceiling, comprising evaporator coil of aluminium fins and internally grooved copper tubes, centrifugal blowers and blower motors, HDPE air filters of 90% efficiency down to 20 microns particle size, all installed in a powder coated GI sheet metal housing suitable for ceiling suspension. The capacities of the air-conditioners shall be as follows:				
2.1	1.0 HP	2	Nos.		
2.2	1.5 HP	7	Nos.		
2.3	2.0 HP	2	Nos.		
2.4	2.5 HP	2	Nos.		
2.5	3.0 HP	4	Nos.		

HVAC					
No	Description of Items	Qty	Unit	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
2.6	4.0 HP	23	Nos.		
2.7	5.0 HP	6	Nos.		
2.8	8.0 HP	6	Nos.		
2.9	10.0 HP	15	Nos.		
3.0	Supply Installation Testing and Commissioning of <b>Wall Mounted type</b> Indoor unit comprising evaporator coil of aluminium fins and internally grooved copper tubes, centrifugal blowers and blower motors, HDPE air filters of 90% efficiency down to 20 microns particle size, all installed in an aesthetically designed plastic housing. The capacities of the IDUs shall be as follows:				
3.1	1.0 HP	1	No.		
3.2	1.5 HP	1	No.		
3.3	2.0 HP	1	No.		
3.4	2.5 HP	1	No.		

<b>HVAC</b>					
<b>No</b>	<b>Description of Items</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
4.0	Supply Installation Testing and Commissioning of <b>Cassette type</b> Indoor unit comprising evaporator coil of aluminium fins and internally grooved copper tubes, centrifugal blowers and blower motors and HDPE air filters of 90% efficiency down to 20 microns particle size. The capacities of the IDUs shall be as follows:				
4.1	2.5 HP	1	No.		
4.2	4.0 HP	1	No.		
4.3	5.0 HP	1	No.		
5.0	Supply, installation, testing and commissioning of Corded remote sets for the Indoor units	67	Sets		
6.0	Supply, installation, testing and commissioning of Cordless remote sets for the Indoor units	7	Sets		
7.0	Supply, installation, testing and commissioning of special refrigerant connection joint kits for taking branch connections to the various Indoor Units, as required for the complete installation and proper functioning of the VRV system.	68	Sets		



<b>HVAC</b>					
<b>No</b>	<b>Description of Items</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
8.0	Supply, installation, testing and commissioning of interconnecting copper tubing insulated with 20 mm thick nitrile rubber sleeves covered with aluminium foil, for refrigerant liquid and suction lines between the Outdoor and Indoor Units complete, including fittings like elbows, reducers etc. and suitable wall / ceiling clamps as required for the complete installation and proper functioning of the VRV system. The copper tube sizes and the installed length in Running Metres are as follows:				
8.1	6.35 mm (1/4 " ) OD	66	R Mt.		
8.2	9.52 mm (3/8 ") OD	195	R Mt.		
8.3	12.7 mm (1/2") OD	110	R Mt.		
8.4	15.88 mm (5/8") OD	210	R Mt.		
8.5	19.05 mm (3/4") OD	530	R Mt.		
8.6	22.23 mm (7/8") OD	165	R Mt.		
8.7	25.4 mm (1 ") OD	72	R Mt.		
8.8	28.58 mm (1 1/8") OD	132	R Mt.		
8.9	31.75 mm (1 1/4") OD	240	R Mt.		

<b>HVAC</b>					
<b>No</b>	<b>Description of Items</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
8.10	34.92 mm (1 3/8") OD	150	R Mt.		
8.11	38.1 mm (1 1/2") OD	48	R Mt.		
8.12	41.27 mm (1 5/8") OD	54	R Mt.		
9.0	Supply, installation, testing and commissioning of cabling, earthing and control wiring of 2,3 or 4 core copper wire of the required gauge thickness, as required for interconnecting the Indoor and Outdoor Units of all the VRV Units for proper performance.	1740	R Mt.		
10.0	Supply, installation, testing and commissioning of rectangular supply air ducts fabricated out of GI sheets of the following sheet thickness. The ducts must be machine fabricated and must be air-tight and have a neat finish. The ducting shall be complete with fasteners and gaskets at all joints. The ducts shall be supported from the ceiling with anchor fasteners, threaded rods of GI and support angles. The ducting shall conform to IS:655 and it's latest amendments.				
10.1	24 swg	1415	Sq mt.		
10.2	22 swg	490	Sq mt.		
10.3	20 swg	50	Sq mt.		

<b>HVAC</b>					
<b>No</b>	<b>Description of Items</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
11.0	Supply, installation, testing and commissioning of thermal insulation for ducts out of nitrile rubber sheet covered with aluminium foil as per the Technical Specifications				
11.1	20 mm thick insulation	1850	Sq. mt.		
11.2	32 mm thick insulation	150	Sq. mt.		
12.0	Supply, installation, testing and commissioning of duct acoustic lining for initial five metres duct length from the IDU, using 12 mm thick fiberglass rigidboard of 48 kg./cubic mt. density, covered with one layer of RP tissue and one layer of 26 swg thick perforated aluminium sheet - fixed to the ducts with bolts nuts and washers.	650	Sq mt.		
13.0	Supply, installation, testing and commissioning of supply air grills / diffusers of extruded aluminium with powder coated finish and fitted with VCDs of MS sheet.	28	Sq mt.		
14.0	Supply, installation, testing and commissioning of return air grills / diffusers of extruded aluminium with powder coated finish.	40	Sq mt.		
15.0	Supply, installation, testing and commissioning of fresh air intake with damper, cowl and wire netting.	2	Sq mt.		

<b>HVAC</b>					
<b>No</b>	<b>Description of Items</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
16.0	Supply, installation, testing and commissioning of drain piping of hard PVC pipe and fittings, insulated with 12 mm thick nitrile rubber sleeves. Size:				
16.1	25 mm	240	Rmt.		
16.2	32 mm	90	Rmt.		
16.3	40 mm	120	Rmt.		
17.0	Supply and charging of the required quantity of R 134a / R410 a / R 407 c Refrigerant gas and compressor oil and testing, commissioning and handing over the entire system in proper working condition.	1	Lot		
18.0	Supply, installation, testing and commissioning of under deck insulation for roof areas exposed to sun light, using 50 mm thick TF grade eps slabs as per the Technical Specifications.	1500	Sqm		
<b>B.</b>	<b><u>Auditorium Building - Ductable Split Air-conditioning System</u></b>	-	-	-	-

HVAC					
No	Description of Items	Qty	Unit	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
1	Supply, installation, testing and commissioning of 17 TR capacity Ductable Split Air-cooled Packaged Air-conditioner complete with Outdoor Unit (ODU), Indoor Unit (IDU) and Control panel. The Outdoor Condensing unit shall be fitted with high efficiency scroll type compressors, air cooled condenser coil having internally grooved copper tubes and aluminium fins, direct driven axial flow fans, drive motors for the fans, weather proof electrical control box, internal copper refrigerant piping including valves and fittings and electrical wiring, safety controls like HP/LP cut-outs - all installed in a GI sheet metal enclosure with powder-coated finish, complete. The Indoor evaporating unit shall consist of air cooled evaporator coil having internally grooved copper tubes and aluminium fins, DIDW type centrifugal blowers, drive motor for the blowers, HDPE air-filters having an efficiency of 90% down to 10 micron particle size, refrigerant flow controls like solenoid valves, thermostatic or electronic expansion valves, internal copper refrigerant piping including valves and fittings and electrical wiring all installed in a GI sheet metal enclosure with powder-coated finish, complete. The Control panel shall consist of starters for the compressor motors and fans, safety controls like electrical overload relays, thermostat control, indicating lamps and internal wiring all installed in a powder coated sheet metal enclosure. The quoted rates shall include mounting arrangements for the ODU and IDU, including rigging, material handling equipment, scaffolding etc., wherever required.	6	Sets		
2	Supply, installation, testing and commissioning of rectangular supply air ducts fabricated out of GI sheets of the following sheet thickness. The ducts must be machine fabricated and must be air-tight and have a neat finish. The ducting shall be complete with fasteners and gaskets at all joints. The ducts shall be supported from the ceiling with anchor fasteners, threaded rods of GI and support angles. The ducting shall conform to IS:655 and it's latest amendments.				
2.1	24 swg	1250	m <sup>2</sup>		
2.2	22 swg	450	m <sup>2</sup>		

<b>HVAC</b>					
<b>No</b>	<b>Description of Items</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
3	Supply, installation, testing and commissioning of duct acoustic lining for initial five metres duct length from the IDU, using 12 mm thick fibreglass rigidboard of 48 kg./cubic mt. density, covered with one layer of RP tissue and one layer of 26 swg thick perforated aluminium sheet - fixed to the ducts with bolts nuts and washers.	350	m <sup>2</sup>		
4	Supply, installation, testing and commissioning of duct external thermal insulation, using 20 mm thick nitrile rubber insulation covered with aluminium foil.	1750	m <sup>2</sup>		
5	Supply, installation, testing and commissioning of supply air grills / diffusers of extruded aluminium with powder coated finish and fitted with VCDs of MS sheet.	15	m <sup>2</sup>		
6	Supply, installation, testing and commissioning of return air grills / diffusers of extruded aluminium with powder coated finish.	20	m <sup>2</sup>		
7	Supply, installation, testing and commissioning of fire dampers of GI with fusible link.	5	m <sup>2</sup>		
8	Supply, installation, testing and commissioning of volume control dampers of GI sheet.	10	m <sup>2</sup>		
9	Supply, installation, testing and commissioning of fresh air intake with damper, cowl and wire netting.	2	m <sup>2</sup>		

<b>HVAC</b>					
<b>No</b>	<b>Description of Items</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
10	Supply, installation, testing and commissioning of drain piping of hard PVC pipe and fittings, insulated with 12 mm thick nitrile rubber. Size: 32 mm	120	Rmt.		
11	Supply, installation, testing and commissioning of copper refrigerant piping - Liquid line and suction line of suitable diameter to ensure minimum pressure loss, necessary fittings, insulation using 25 mm thick flexible nitrile rubber sleeves and suitable interconnecting power and control wiring between the 17 TR outdoor and indoor units.	200	Rmt.		
<b>C.</b>	<b><u>Guest House - Individual Split Air-conditioners</u></b>	-	-	-	-
1.0	Supply, installation, testing and commissioning of Split Room Air-conditioner complete with Wall mounted Indoor cooling unit, Outdoor condensing unit fitted with high efficiency scroll type compressors, 5 metres length of insulated copper tubing and cabling interconnecting the indoor and outdoor units, cordless remote control unit, suitable capacity automatic voltage stabiliser of slim wall mounting type, complete. The capacities are as follows:				
1.1	1.0 TR	2	Nos.		
1.2	1.5 TR	15	Nos.		
1.3	2 TR	10	Nos.		
2.0	Supply, installation, testing and commissioning of additional refrigerant piping - Liquid line of 3/8" dia and suction line of 5/8" dia copper pipes, necessary fittings and suitable electrical wiring for the 1,1.5 and 2 TR air conditioners	50	Rmt.		
	<b>Total Rs.</b>				

## **UNDER GROUND WATER TANK**



**UNDERGROUND TANK FOR DOMESTIC AND FIRE**

SL.NO	DSR	DESCRIPTION	Qty	Unit	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
		<b>EXCAVATION</b>				
1	2.8	Earth work in excavation in foundation trenches or drains (not exceeding 1.5m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50m.				
		<b>All Kinds of soil.</b>				
a)	2.9.1	Ordinary rock	580.00	Cum		
b)	2.9.2	Hard rock (requiring blasting)	580.00	Cum		
c)	2.9.3	Hard rock (blasting prohibited)	50.00	Cum		
2	1.1.1	Disposing off excavated materials beyond the initial lead of 50m and upto 2 km including the cost of labour, cost of equipment and machinery cost of hire charges of machinery lead & lift loading and unloading, transportation, leveling the excavated material at disposal yard and all other incidental charges etc. complete. The work shall be carried out as per the directions of the Engineer in charge of the works.				
a)	ii)	-do- for leads up to 5 km	170.00	Cum		
		<b>FILLING IN SUBSTRUCTURE</b>				
3	2.25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	300.00	Cum		

**UNDERGROUND TANK FOR DOMESTIC AND FIRE**

SL.NO	DSR	DESCRIPTION	Qty	Unit	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
4	2.27	Supplying and filling in plinth with Jamuna sand under floors, including watering, ramming, consolidating and dressing complete.	25.00	Cum		
		<b>CEMENT CONCRETE WORK</b>				
5	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
a)	4.1.8	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size).	25.00	Cum		
		<b>REINFORCED CEMENT CONCRETE WORK</b>				
6	5.37	Providing and laying in position of 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 and reinforcement including admixture in recommended proportions (as per IS 9103) to accelerate, retorts, setting of concrete improve workability without impairing strength and durability as per direction of engineer in charge- M25 grade reinforced cement concrete with mini mum cement content 360kg/cum and water cement ratio not exceeding 0.45, and slump not exceeding 100mm.				
		Note :				
		1. The rate is inclusive of pumping, all necessary scaffolding capable of with standing pumping of concrete.				
		2. Test results of concrete for 28 days strength shall confirm IS standards. The rate is inclusive of obtaining of concrete cube and furnishing test results.				
	5.37.1	<b>Grade of concrete M25</b>				
a)		Footings / Raft / combined footing	60.00	Cum		

**UNDERGROUND TANK FOR DOMESTIC AND FIRE**

SL.NO	DSR	DESCRIPTION	Qty	Unit	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
b)		SUMP RCC WALL	48.00	Cum		
		<b>Roof Slab</b>				
c)		Sump roof slab	32.00	Cum		
		<b>RCC Plastering</b>				
d)	13.4	12 mm cement plaster of mix :				
	13.4.1	1:4 (1 cement: 4 coarse sand)	475.00	Sqm		
		<b>FORM WORK</b>				
e)	5.9	Centering and shuttering including strutting, propping etc. and removal of form for :				
	5.9.1	Footings / Raft / combined footing	25.00	Sqm		
	5.9.2	RCC Wall	315.00	Sqm		
		<b>Roof slab</b>				
	5.9.3	Sump roof slab	160.00	Sqm		
		<b>STEEL REINFORCEMENT</b>				

**UNDERGROUND TANK FOR DOMESTIC AND FIRE**

SL.NO	DSR	DESCRIPTION	Qty	Unit	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
7	5.22	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.				
a)	5.22.1	Tor Steel (TMT Bars) - IS 1786 Fe415	18900.00	Kg		
		<b>CEMENT PLASTER (IN FINE SAND)</b>				
8	13.1	12 mm cement plaster of mix :				
a)	13.1.1	1:4 (1 cement: 4 fine sand)				
	a)	Sump walls	315.00	Sqm		
		<b>MISCELLANEOUS</b>				
9	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
a)	4.1.3	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	160.00	Sqm		
10	13.21	Extra for providing and mixing water proofing materials "Impermo" or equivalent in cement concrete / plastering work at 1.00kg per 50 kg of cement.	350.00	kg		

**UNDERGROUND TANK FOR DOMESTIC AND FIRE**

SL.NO	DSR	DESCRIPTION	Qty	Unit	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
11	19.16	Providing orange colour safety for rest of minimum 6mm thick plastic encapsulated a per IS : 10910 on 12mm dia steel bar conforming to 1 : 1786 having minimum cross section as 23 mm x 25 mm and over all minimum length 263mm and width a 165mm with minimum 112mm space between protruded leg having 2mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projection on tail length on 138mm as per standard drawing and suitable to with stand the bend test and chemical resistance test a per specification and having manufacture permanent identification mark to be visible even after fixing, including fixing in manholes with 30 x 20 x 15cm concrete blocks 1:3:6 (1cement : 3 course sand : 6 graded stone aggregate 20mm nominal size) complete as per design.	24	Nos		
12	19.18	Supplying and fixing C.I. cover with frame for manholes :				
a)	19.18.3	560 mm diameter C.I. cover (heavy duty) the weight of the cover to be not less than 108 kg.	4	Nos		
13	MR	Providing and fixing 600mm long puddle flange consisting of 6mm thick welded MS plate, flanges of suitable size properly fixed in RCC walls of water tanks. The work shall be carried out a per the directions of the Engineer - in - charge of the works				
a)		100mm dia G.I. Pipe with male thread at both ends of the pipe.	4	Nos		
b)		80mm dia G.I. Pipe with male thread at both ends of the pipe.	4	Nos		
c)		65mm dia G.I. Pipe with male thread at both ends of the pipe.	4	Nos		
		<b>Total Cost</b>				

## **HT & LT ELECTRICAL INSTALLATION**

<b>HT &amp; LT ELECTRICAL INSTALLATION</b>						
<b>Code .No</b>	<b>Sl. No</b>	<b>DESCRIPTION</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	<b>I</b>	<b>H.T. EQUIPMENT</b>				
		<b>INDOOR 11 KV HT BREAKER PANEL</b>				
		<b>Supply, installation, testing and commissioning of Indoor VCB Panel(1 I/C+2 O/G)</b>				
Mkt Rate	1	Indoor Type, floor Mounting HT Panel consisting of one No.11 KV 800A & 2No 630A,TP, 350 MVA, VCB of draw out type having horizontal draw out and isolation. The VCB shall be fitted with motorized spring mechanism for closing with ON- OFF indicator, emergency trip, Protection Relays for 750 KVA Transformer, safety shutter etc. The breaker shall be complete with closing coil and a shunt trip. Providing necessary power pack (In-Built) also forms part of the scope. The panel shall also be provided with the required Auxiliary contacts & spare 4 NO + 4 NC spare contacts	No	1		
		.Preferred make:- ABB/SIEMENS/ SCHNIEDER				
		Components n the Panel shall include, but not limited to the following items.				
		1 - Trip neutral close switch.				
		1 - Master trip relay, closing Coil, Shunt trip				
		1 - 144 Sqmm volt meter scaled 0-15KV				
		1 - Voltmeter selector switch.				
		with 110V secondary.				
		1 Set – Panel illumination lamps				
		1 - Set. Panel earth bus.				
		1 - Inbuilt Power pack of 110V A.C input with DC output for Control & indication				
		1 - Draw out type 3 limb 11 KV/110V,100VA, class 0.5, epoxy cast resin				
		Potential transformer with necessary H.T. & LT fuses.				

<b>HT &amp; LT ELECTRICAL INSTALLATION</b>						
<b>Code .No</b>	<b>Sl. No</b>	<b>DESCRIPTION</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
		1 - Panel heater with a control switch.				
		1 - Red & Green indicating lamp for breaker ON – OFF Status				
		1 - White lamp for trip circuit healthy with push button for testing.				
		1 - Test terminal block.				
		1 - 800A TP copper bus having a current density of 1.28A per Sqmm duly sleeved with the exception joint with all accessories complete.				
		wiring as required				
		<b>MAXIMUM NO. OF OPERATION</b>				
		i. at full rated interrupting current - 100 operation				
		ii. at 100% full load current - more than 50000				
		The Vacuum circuit breaker & panel shall be provided with necessary Standard safety feature as per IS & door interlocks such as breaker cannot be drawn out when breaker is in ON position and similarly breaker cannot be closed unless it is fully in drawn in condition etc.				
		In addition to the above, HT breaker shall also be suitable and acceptable by Local E.B. Authorities /T.N. E.B. as per their standards				
	<b>II</b>	<b>INDOOR DISTRIBUTION TRANSFORMER</b>				
		<b>(Dry type)</b>				
MR		Supply, installation, testing and commissioning of Cast Resin Dry type 750 KVA, 11 KV/433V, 3 phase, 50 HZ, Indoor, Distribution Transformer conforming to IS:11171 & IEC:726 & as detailed below. The Transformer shall be rated for 11kv,3Ph, 350 MVA,UE system & conforming to <b>Green House</b> requirement, Energy Efficient with Low Power Losses. The Efficiency of the Transformer shall be more than 98.2% & Impedance Voltage(%Z) shall be less than 5%	Set	2		



<b>HT &amp; LT ELECTRICAL INSTALLATION</b>						
<b>Code .No</b>	<b>Sl. No</b>	<b>DESCRIPTION</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
		Preferred Make:- Volt Amps/ Kirloskar/ Universal/CGL				
		<b>FITTINGS AND ACCESSORIES</b>				
		Transformer shall be provided with the following fittings:				
		1. Rating and Technical plate.				
		2. Earthing terminals with lugs.				
		3. 4 Nos. Flat rollers (Bi-directional).				
		4. Lifting Lugs.				
		5. Off Line tap changing				
		6. Winding Temperature Indicator				
		7. Neutral CT				
		8. HV Termination- Cable Box.( Cable size 1X3x120 sq.mm XLPE)				
		9. LV Termination- Cable Box.( Cable size 4X3.5x240 sq.mm XLPE)				
		10. Marshalling Box				
		<b>TESTS:</b>				
		All routine test as per IS 2026/1977 as below shall be conducted on the unit free of cost.				
		1. Polarity test				
		2. Voltage Ratio test				
		3. No load current test				
		4. Full load current test				
		5. Windings Resistance & insulation resistance test				
		6. Temperature Rise test				
		7. Copper loss and magnetizing current test				

<b>HT &amp; LT ELECTRICAL INSTALLATION</b>						
<b>Code .No</b>	<b>Sl. No</b>	<b>DESCRIPTION</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
		8. Short circuit test at normal tap.				
		9. Alarm and trip device operation check.				
		<b>TOTAL OF HT PNL &amp; TRANSFORMER</b>				
<b>MR</b>	<b>III</b>	<b>L.T. PANELS</b>				
		Design, fabrication, assembling, wiring, supply,				
		installation, testing and commissioning of Main				
		distribution panel/ sub-distribution panel/Metering				
		Panel/Common Amenities Panel/Lighting Panel etc, fabricated out of 2				
		mm thick CRCA sheet steel for the total panel including				
		doors & covers. However gland plates shall be of 3.0 mm				
		thickness. The doors shall be of hinged Type provided				
		with neoprene gaskets. The Panel shall be of cubicle				
		compartmentalized free standing, floor mounted, front				
		operable Type, dust & vermin proof( IP:50 Enclosure)				
		Reinforcement of suitable size angle / channel shall be provided.				
		Sheet Metal of Panel shall be treated with anticorrosive				
		process				
		<b>The Panels shall be Powder coated of final approved shade</b>				
		Same shall be indicated during GA drg approval stage.				
		Panels/distribution panels/ DB's shall be provided with 2				
		Nos. earthing terminals outside the enclosure of Panels.				
		Panels shall be suitable for operation on 415V, 3 phase, 4				

<b>HT &amp; LT ELECTRICAL INSTALLATION</b>						
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		wire, 50 Hz, 36 KA/ as specified ,. The panel shall be fully				
		wired with all interconnections as required. Generally				
		cable entry shall be from the Top of the panel.				
		The bus bar shall be Aluminium flats for phases &Neutral of				
		rating as indicated for each Type of Panel and 1 No				
		G.I earth bus of 50x6 mm. All the bus bars shall be				
		provided with Suitable PVC Sleeves & supported on FRP/				
		suitable insulators. Safety Clearances as Per IS shall be				
		provided between Components in the Panel. Two No's of				
		Lifting Hooks shall be provided for Panels for ease of				
		handling & Erection at site. Door Interlocking for all				
		ACBs/MCCBs / SFU feeders shall be provided.				
		meters shall be as specified/as per SLD				
		complete with switches , Metering CTs etc				
		Necessary MCBs for protection, One set of LED type R,				
		Y, B indicating lamps with SP MCBs to be provided on				
		line side. The No of Out going feeders & Type shall be as				
		given in the BOQ/SLD for various panels. The panel shall be				
		fabricated by Panel builders, Who have CPRI approval				
		for similar Types of panels.				
	1	<b>MAIN LT PANEL BOARD(college)</b>	No	1		
		<b>Incomer</b>				

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MR		Two Nos. EDO Type ACBs- 415V,1250A, 4 P, 50 KA breaking capacity. Electrical Draw Out ACB with inbuilt micro processor control unit which will have features for overload, earth fault, short circuit release with variable setting and also neutral protection(50% - 100% setting).,Shunt Trip etc.castle Key Interlock between Incomers & Bus Coupler.				
		1Set of Earth Fault Relay for 5A CT output				
		1 sets of phase indicating lamp with switches.				
		1 set of 1250/5 A, 10VA, CT,Class 1.0 Accuracy,				
		The Digital Meters- for display of Amp, Voltage, KW, P.F. KVAR, etc. with complete accessories (Compatible to BMS/RS232J) to be provided for Incomer				
		1 sets of ON/OFF push buttons.				
		1Set of Phase Monitoring Relays for DG starting				
		Auxiliary relays etc				
		1000Amps ACB without releases as Bus Coupler				
		<b>Outgoing</b>				
		1) 400A 4 P MCCB, 415V				
		4P 36KA breaking capacity with				
		built in microprocessor releases- 6 No.				
		2) 200A 4P MCCB 415V 4P 36KA -3 No.				
		breaking capacity with built in -				
		microprocessor control unit				
		3) 125A 4P MCCB 415V 4P 16KA -5 No.				
		breaking capacity with built in -				
		microprocessor control unit				

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		<b>Bus Bars :</b>				
		1250A,50KA bus bar of aluminium alloy.				
		[4 Nos 2x75X 10 mm Al. bar ]				
		<b>Note</b>				
		All the <b>outgoing feeders shall be</b> equipped with suitable ratio CT along with KWH Meter except Capacitor Feeder				
	<b>2</b>	<b>AUTOMATIC P.F. CORRECTION CONTROL PANEL</b>				
			Set	2		
		<b>(200KVAR)</b>				
		The Panel shall be designed for auto-manual power factor correction system of 200 KVAR capacity having 3 phase ISI marked power capacitor of Mix Di Electric Type. This shall operate in Twelve steps with Electronic switching to suppress switching Inrush current and reducing harmonics to improve capacitor life.				
		The system shall have micro processor based power factor controller provided in the command module having target P.F setting and digital P.F.display. The processor shall have RS 232C serial communication facility (suitable for control cable to computer ).				
		The system shall be provided with required capacity master MCCB, to check its main operating parameters such as over loads, short circuit, etc.				
		Also Protections for OverVoltage, Under Voltage, harmonics, Phase failure etc to be provided.				
		The panel shall be provided grills for proper ventilation, interconnections with suitable size conductor cables & lugs and accommodating the following :				

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		<b>Switchgears &amp; accessories in the panel</b>				
	1	1 No. 400A 4 P MCCB,36 KA,with Electronic Releases				
	2	Indicating lamp with holder for each stage				
	3	Twelve step automatic digital power factor Controller/relay				
	4	Power Factor Meter				
	5	Each stage shall have a Auto-Manual Selector Switch, MCB ( D curve),10KA,TP Contactor, On/Off Push Buttons & Indication( LED Type) lamps				
	6	For 20 KVAR:-32 A MCB & 32A Contactor				
		For 15 KVAR:-25 A MCB & 25A Contactor				
		For 5 KVAR:-10 A MCB & 10 A Contactor				
	7	The panel shall have forced exhaust fans for cooling which shall be operated through auto-sensing thermostat for ventilation.				
	8	The switching of capacitors shall take place at zero crossing level to reduce harmonics and improve capacitor life.				
		<b>Digital Display - Relay :</b>				
		The relay shall have the following parameters with 4 x 5 inch LCD display with graphical display for showing:				
	1	Voltage - 3 phase and per phase				
	2	Current - 3 phase and per phase				
	3	Power Factor - 3 phase and per phase				
	4	Active Power - 3 phase and per phase				
	5	Reactive Power - 3 phase and per phase				

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	6	Capacitor current - 3phase and per phase				
		<b>LT Capacitor Banks</b>				
		Make:- Meher(L&T)/ABB/ GE				
		Ratings				
		8 x 20 KVAR LT power capacitor banks				
		2 x1 5 KVAR				
		2x5KVAR				
		<b>TOTAL FOR LT PANELS</b>				
	IV	<b>HT CABLES</b>				
MR		Supply of XLPE Insulated 11 KV (E) Armoured, stranded Al.Conductor Cable with Screen Insulation& extruded semiconductingCompuond ,dry cured, as per IS:7098 ( Make:- CCI/INCAB/HAVELLS/NICCO )				
	1	3C x120 Sq.mm	Mtr	50		
SR2012	2	Laying of one number PVC insulated and PVC sheathed/XLPE HT cable of grade 11kV, of size not exceeding 300 sq.mm in the Cable Trench / RCC /HUME/ METAL TRAY as required.				
8.1.1		3C x120 Sq.mm	Mtr	50		
	3	Supplying and making Indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for the following size of HT XLPE aluminium conductor cable of 11 kV grade as required(3M Birla / Raychem)				

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10.4.2		3C x 120 Sq.mm	No	4		
	<b>V</b>	<b>CABLE TRAY</b>				
		Supplying and installing following size of perforated pre-painted convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting				
		M.S. cable trays with perforation not more than 17.5%, in conventional Sections				
		suspenders etc as required				
4.1.2	15	150 mm width X 50 mm depth X 1.6mm thickness	Mtr	500		
4.1.6	16	450 mm width X 50 mm depth X 2.0 mm thickness	Mtr	150		
		<b>TOTAL OF CABLES &amp; TRAYS</b>				
	<b>VI</b>	<b>EARTHING FOR HT/LT PNLs &amp; TRANSFORMER INSTALLATION</b>				
SR2012--5.6	14	Earthing with copper earth plate 600 mm x 600 mm x 6 mm thick including accessories and providing masonry enclosure with cover plate having locking arrangement and 2.7 M Long watering pipe etc. with charcoal or coke and salt complete as required.	Set	16		
5.2		Providing and fixing earth bus of 50 mm x 5 mm copper strip on surface/ Recess connections, etc. as required	Mtr	200		



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5.14		Providing and fixing earth bus of 25 mm x 5 mm copper strip on surface for connections, etc. as required	Mtr	125		
		<b>TOTAL OF HT CABLES, LAYING, TERMINATION &amp; EARTHING FOR HT INSTALLATION TO CARRIED OVER TO SUMMARY</b>				
	<b>VIII</b>	<b>SUB-STATION SAFETY EQUIPMENT</b>				
MR	25	Supply, installation, testing and commissioning of following safety equipments at suitable places as required.				
		a) First Aid Box as approved / IS Code 2217/1963.	No	1		
		b) Shock treatment chart in Hindi, Local language and English duly framed in glass frame work including mounting arrangement.	Nos	1		
		c) Electrical insulated rubber mat nonskid type with flouted top and plane 1 meter wide x 2M long and 12mm thick to withstand 22 KV dielectric strength, ISI marked.	No	6		
		d) Pair of Rubber Gloves to withstand upto 22 KV	Pair	2		
		e) 5Kg Fire Extinguisher Co2 Type	No	4		
		<b>TOTAL OF SUB-STATION SAFETY EQUIPMENT (MR) CARRIED OVER TO SUMMARY</b>				

<b>HT &amp; LT ELECTRICAL INSTALLATION</b>						
<b>Code .No</b>	<b>Sl. No</b>	<b>DESCRIPTION</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
MR	IX	<b>SUBDISTRIBUTION PANELS</b>				
		Supply, installation, testing and commissioning of MV cubicle type, electrostatically powder coated ,suitable for 415V, 3-phase, 4 wire system, totally enclosed floor / Wall mounted type, dust, damp and vermin proof ( IP:44) Distribution boards made out of 14 SWG MS sheet complete with bus bars, MV danger notice plates, Interconnection of incoming and outgoing modules, Cable Gland Plate etc and having following incoming and outgoing switchgear complete to accommodate the following accessories as per single line diagram & specification				
		<b>Note</b>				
		: All MCCBs are as per KA rating given and MCBs are of 10 KA rating.				
		MCBs shall be on "C" curve				
		Makes FOR MCCB,MCB:- Siemens/L&T/ABB/Schneider/Legrand				
		CBCT & EFR for Incomers				
		Control MCB				
MR		<b>ON/OFF TRIP INDICATION LAMPS</b>				
		Multifunction or KWH Meter as per SLD/ BOQ				
	1	<b>A.C.PANEL</b>				
			Set	1		
		<b>Incomer</b>				
		Two NoS.400A 4P MCCB, 36 KA with CASTLE Key Interlock & Adjustable Thermal and Magnetic trip				
		1 set of 400/5 A, 10VA, CT,Class 1.0 Accuracy,				
		1 No. Digital Multi Function meter for A,V,F				
		<b>Outgoing</b>				

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		6 Nos 125 A,16 KA, TPMCCB				
		<b>Bus Bars :</b>				
		400A ,36KA,bus bar of aluminium alloy.				
		[4 Nos 50X 10 mm Alu bar ]				
	2	<b>UPS PANEL</b>				
		<b>Incomer</b>	Set	1		
		ONE Nos. MCCB- 415V,100A, 3 P, 16 KA breaking capacity MCCB with inbuilt micro processor control unit which will have features for overload, earth fault, short circuit release with variable setting .				
		1 No. Digital Multi Function meter for A,V,F				
		1 set of 100/5 A, 10VA, CT,Class 1.0 Accuracy,				
		<b>Outgoing</b>				
		8 Nos .40 Amps DP MCB 10 KA				
		<b>Bus Bars :</b>				
		100A bus bar of aluminium alloy.				
		[3 Nos 25X 3mm Copper Bus bar ]				
	3	<b>MAIN EMG.PANEL</b>				
		<b>INCOMING</b>	No	1		
		Two(2)NO 630A TPN MCCB 36KA with Elect. Interlocks				
		<b>OUT GOING</b>				
		One Nos 400 A TPN MCCB 26KA				

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		One Nos 200 A TPN MCCB 26KA				
		Four(4)Nos 100 A TPN MCCB 16KA				
		<b>BUS BARS</b>				
		TPN 630 A,36KA bus bar aluminium alloy				
		Cable Entry:-top				
	4	<b>FLOOR DISTRIBUTION BOARDS (PFP-1 To PFP- 5 FOR College)</b>				
		<b>Incomer</b>	No	5		
		1 No 100 A TPN MCCB 16 KA with Thermal and Magnetic trip				
		One No CBCT with EFR with adjustable Current & Time settings				
		1 No. Digital Multi Function meter for A,V,F				
MR		<b>Outgoing</b>				
		Six (6) No 63 A TP MCCB 16 KA with Thermal and Magnetic trip				
		<b>Bus Bars :</b>				
		100A bus bar of aluminium alloy.				
		4 nos 25 x 6 mm Alu flats for phases				
	5	<b>COMMON.PANEL(College)</b>	No	1		
		<b>INCOMING</b>				
		One No. 200A TPN MCCB 26KA with Elect. Interlocks				
		<b>OUT GOING</b>				
		Three(3)Nos 100 A TPN MCCB 16KA				
		Four (4)Nos 63 A TPN MCCB 16KA				

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		Two(2)Star Delta Starter upto 10 HP Motor				
		3 Nos 40A DP MCB( For EDB)				
		<b>BUS BARS</b>				
		TPN 200 A,26KA bus bar aluminium alloy				
		Cable Entry:-top				
	6	<b>COMMON EMG. LOAD PANEL( Campus)</b>	No	1		
		<b>INCOMING</b>				
		1 NO 400A TPN MCCB 36 KA				
		<b>OUT GOING</b>				
		10 Nos 100 A TPN MCCB 16KA				
		One Nos 200 A TPN MCCB 26KA				
		<b>BUS BARS</b>				
		TPN 400 A,36KA bus bar aluminium alloy				
		Cable Entry:-top				
MR	7	<b>L.T.KIOSK( Campus)</b>	No	1		
		<b>INCOMING</b>				
		1 NO 400A TPN MCCB 36 KA				
		<b>OUT GOING</b>				
		Three(3) Nos 200 A TPN MCCB 26KA				
		Three(3)Nos 160 A TPN MCCB 16KA				
		Two(2)Nos 100 A TPN MCCB 16KA				

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		<b>BUS BARS</b>				
		TPN 400A,36KA bus bar aluminium alloy				
		Cable Entry:-top				
	8	<b>LT DISTRIBUTION BOARDS (LTP-1 To LTP- 2 FOR Hostels)</b>				
		<b>Incomer</b>				
			No	2		
		1 No 200 A TPN MCCB 26 KA with Thermal and Magnetic trip				
		One No CBCT with EFR with adjustable Current & Time settings				
		1 No. Digital Multi Function meter for A,V,F				
		<b>Outgoing</b>				
		18No 63 A TP MCCB 16 KA with Thermal and Magnetic trip				
		<b>Bus Bars :</b>				
		200A,26KA bus bar of aluminium alloy.				
		4 nos 40 x 6 mm Alu flats				
	9	<b>COMMON.PANEL(Hostels,G.H.Staff Qrts)</b>	No	4		
		<b>INCOMING</b>				
		One No. 125A TPN MCCB 26KA with Elect.Interlocks				
		<b>OUT GOING</b>				
		Eight(8)Nos 63 A TPN MCCB 16KA				
		Two(2)Star_Delta Starter upto 10 HP Motor				

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		<b>BUS BARS</b>				
		TPN 100 A,26KA bus bar aluminium alloy				
		Cable Entry:-top				
	10	<b>METERING PNL(Staff Qrts)</b>	No	1		
		<b>INCOMING</b>				
		One No. 160A TPN MCCB 26KA with Elect.Interlocks				
		<b>OUT GOING</b>				
		30 Nos 32 A DP SFU				
		30No 32 A DP MCB				
		30 No, 5-20 Amps,230V, 1Ph Electronic Energy MeterWith Counter display,class-1 Accuracy,AntiTamper feature				
		2 Nos 63 A TPN MCB Feeders				
		<b>BUS BARS</b>				
		TPN 200 A,26KA bus bar aluminium alloy				
		Cable Entry:-top				
	10	<b>LT CUM METERING PNL (G.H.)</b>	No	1		
		<b>INCOMING</b>				
		One No. 160A TPN MCCB 26KA with Elect.Interlocks				
		<b>OUT GOING</b>				

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		63 A TPN MCB Feeders-6Nos				
		1 Nos 32 A TPN SFU				
		1No 32 A TP MCB				
		One No, 5-20 Amps,415V, 3Ph ,CT Operated Electronic Energy Meter With Counter display,class-1 Accuracy, AntiTamper feature				
		12 Nos 32 A DP SFU				
		12No 32 A DP MCB				
		10 No, 5-20 Amps,230V, 1Ph Electronic Energy Meter With Counter display,class-1 Accuracy, AntiTamper feature				
		<b>BUS BARS</b>				
		TPN 200 A,26KA bus bar aluminium alloy				
		Cable Entry:-top				
		<b>LIFT POWER SUPPLY PANEL</b>	No	10		
		Incomer				
		1 No 63A TPN MCCB with fixed Thermal & magnetic Setting, 16 KA as incomer				
		Outgoings				
		1 No 63A TPN MCB				
		2 Nos 32A DP MCB				
		<b>AUDITORIUM POWER SUPPLY PANEL</b>	No	1		
		<b>INCOMING</b>				



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		One No. 250A TPN MCCB 26KA with Elect. Interlocks				
		<b>OUT GOING</b>				
		Three (3)Nos 100 A TPN MCCB 16KA				
		Four(4)Nos 63 A TPN MCCB 16KA				
		<b>BUS BARS</b>				
		TPN 160A,26KA bus bar aluminium alloy				
		Cable Entry:-top				
		<b>TOTAL OF SUB PANELS</b>				
		<b>D.G.SETS</b>				
		<b>200KVA</b>				
		Supply, Transportation, Installation, Testing and Commissioning inclusive of Statutory Approvals, of Diesel Generating set on Turn-Key Basis having Prime Power Rating of 200 KVA,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 along with AMF Panel and consisting of the following. Preferred Make;- Engine of Cummins/ Kirloskar/ Ashok Leyland/ Greaves/Kohler, Alternator:- Stanford/ Kirloskar/ABB/AEG	set	2		
	1	<b>Diesel Engine:</b>				
		Diesel engine of 6Cylinder,4Stroke, Turbo Charged, water cooled Type, electric start, developing REQUIRED BHP at 1500 RPM suitable for above output of 200 KVA Alternator at 40 Degree C, 50% RH & at 1000 Meter MSL and conforming to BS 5514 BS 649, IS 10000, capable of taking 10% over loading for one hour after 12 hours of continuous operation. The engine will be fitted complete with all the required accessories.				

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		<b>Engine mounted Instrument Panel fitted with and having digital display for following:</b>				
		(i) Start-stop switch				
		(ii) Water temperature indication				
		(iii) Lubrication oil pressure indication				
		(iv) Lubrication oil temperature indication				
		(v) Battery charging indication				
		(vi) RPM indication				
		(vii) Over speed indication				
		(viii) Low lub. Oil trip indication				
		(ix) Engine Hours indication				
	2	<b>Alternator:</b>				
		Synchronous alternator rated at 200 KVA 415 volts at 1500 RPM, 3 phase 50 Hz, AC supply with 0.8 lagging power factor at 40 Degree C, 50% RH & at 1000 Meter MSL. The alternator shall be having SPDP enclosure, brushless, continuous duty, self-excited and self-regulated through AVR conforming to IS: 4722/BS 2613 suitable for tropical conditions and with class-H insulation.( Make:- Stamford/ Kirloskar/ABB)				
	3	<b>AMF CUM LOAD SHARING PANEL</b>				
		Microprocessor- based generator set monitoring, protection, metering, and controlling in AUTO(AMF )LOGIC / IOCAL mode of DG set. The controls shall provide an operator interface to the genset, digital voltage regulation, digital governing, and generator set protective functions, etc The integration of all the functions in to a single control system shall be provided.				

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		<b>Incomer&amp; Outgoing</b>				
		TWO Nos. 400 A.3P. MCCBs (For DGsets)& 1 No. 630A( Outgoing Mains), 4 P, 415V,3Ph,36 KA breaking capacity. with inbuilt micro processor control unit which will have features for overload, earth fault, short circuit release with variable setting and also neutral protection(50% - 100% setting). Both MCCBS shall be electrically interlocked. 2 No 400 A Neutral Contactor,	No	1		
		Generator Protection relays,LCD Anunciator etc For 200 KVA,415V,3Ph,.Generator				
		1 set of AMF logic Micr-processor based, , Load Sharing relays,Adjustable Time Delay for Switching Off of D.G.during E.B fluctuations to ensure Continuous D.G.Power to the Utilities				
		1 sets of phase indicating lamp with switches.				
		1 sets of ON/OFF push buttons.				
		1set of Auxiliary Relays & Contactors as required				
		Complete wiring				
	4	<b>Base Frame &amp; Foundation:</b>				
		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.				
MR						
	5	<b>Exhaust System:</b>				
		Dry exhaust manifold with exhaust silencer and catalytic converter with insulation complete.				

<b>HT &amp; LT ELECTRICAL INSTALLATION</b>						
<b>Code .No</b>	<b>Sl. No</b>	<b>DESCRIPTION</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	6	<b>Starting System</b>				
		24V DC starting system comprising of starter motors: voltage regulator and arrangement for initial excitation complete with suitable 4 nos. of batteries with leads complete as required as per specifications.				
	7	<b>Acoustic enclosure as per CPCB standards suitable for Genset</b>				
		Daily service fuel tank of 990 liters capacity fabricated out of 3mm 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 indication & accessories as required as per specifications.				
	8	<b>INSTALLATION ITEMS</b>				
SR2012--5.6	a	Supply and installation of Exhaust piping using 100mm dia of M.S. Class 'B' pipe including hardware like flanges, bends, bolts & Gaskets etc, complete.	Mts	20		
	b	Erection of Residential silencers complete with all accessories.	Nos	2		
5.2	c	Supply and fixing of MS angle channel with anchor fasteners for supporting of exhaust / fuel piping with epoxy painting	Kgs	50		

<b>HT &amp; LT ELECTRICAL INSTALLATION</b>						
<b>Code .No</b>	<b>Sl. No</b>	<b>DESCRIPTION</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	d	Providing thermal cladding for exhaust pipe by mineral wool wrapping with chicken mesh and alu. sheet including bends.	Mts	20		
	e	Providing thermal cladding for residential silencer.	Nos	2		
	f	Supply and installation of 16" Flexible bellows.	No	2		
	g	Supply, fabrication and laying of 25mm M.S. pipe for fuel line.	Mts	10		
	h	Supply and laying of 4 core x 4 sqmm multistrand armoured copper control cable with end terminations.	Mts	25		
	i	Supply and laying of 4 core x 2.5 sqmm multistrand armoured copper control cable with end terminations.	Mts	25		
	j	Supply and laying of 12 core x 2.5 sqmm multistrand armoured copper control cable with end terminations.	Mts	25		
	k	Earthing with copper earth plate 600 mm x 600 mm x 6 mm thick including accessories and providing masonry enclosure with cover plate having locking arrangement and 2.7 M Long watering pipe etc. with charcoal or coke and salt complete as required.	Set	8		

<b>HT &amp; LT ELECTRICAL INSTALLATION</b>						
<b>Code .No</b>	<b>Sl. No</b>	<b>DESCRIPTION</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	1	Providing and fixing earth bus of 50 mm x 5 mm copper strip on surface/ Recess connections, etc. as required	Mtr	20		
	m	Liaison work and obtaining CEIG approval and safety certificate for Genset Installation	LS	1LOT		
		<b>TOTAL COST</b>				

## **ROAD AND COMPOUND WALL**

<b>ROAD AND COMPOUND WALL</b>						
<b>Item no.</b>	<b>DSR 2012 Code No.</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
		<b>ROAD WORKS</b>				
1.1	16.1	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	4800		
2.1	16.3	Supplying and stacking at site.				
2.1.1	16.3.2	63 mm to 45 mm size stone aggregate	Cum	602		
2.1.2	16.3.3	53 mm to 22.4 mm size stone aggregate	Cum	301		
2.1.3	16.3.7	Stone screening 11.2 mm nominal size (Type B)	Cum	96		
2.1.4	16.3.10	Moorum	Cum	106		
3.1	16.4	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.	Cum	1105		
4.1	16.6	Supplying, stacking and Spreading 6 mm thick red bajri, watering and rolling complete including preparation of the surface and rolling.				
4.1.1	16.6.1	With road roller/ hand roller	Sqm	4800		



<b>ROAD AND COMPOUND WALL</b>						
<b>Item no.</b>	<b>DSR 2012 Code No.</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
5.1	16.74	150 mm thick back filling for pitching including supplying of required materials and consolidation etc. complete with :				
5.1.1	16.74.1	Moorum	Sqm	10000		
6.1	16.42	Cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 40 mm nominal size) in pavements, laid to required slope and camber in panels as required including consolidation finishing and tamping complete.	Cum	72		
7.1	16.36	Providing and laying Bitumen Penetration Macadam with hard stone aggregate of quality, size and grading as specified, with bitumen of suitable penetration grade, including required key aggregate as specified, spreading coarse aggregate with the help of self propelled/ tipper tail mounted aggregate spreader and applying bitumen by a pressure distributor and then spreading key aggregate with the help of aggregate spreader complete, including consolidation with road roller of minimum 8 to 10 tonne capacity to achieve specified values of compaction and surface accuracy :				
7.1.1	16.36.2	For 75 mm compacted thickness in two layers using stone aggregate of size 63-41 mm graded @ 0.90 cum per 10 sqm key aggregate of size 20.0 mm graded @ 0.18 cum per 10 sqm. With paving asphalt grade VG - 10 @ 68 kg/10 sqm.	Sqm	4080		
8.1	16.32	2 cm premix carpet surfacing with 1.8 cum and 0.90 cum of stone chippings of 13.2 mm size and 11.2 mm size respectively per 100 sqm and 52 kg and 56 kg of hot bitumen per cum of stone chippings of 13.2 mm and 11.2 mm size respectively, including a tack coat with hot straight run bitumen, including consolidation with road roller of 6 to 9 tonne capacity etc. complete (tack coat to be paid for separately).				
8.1.1	16.32.1	With paving Asphalt grade VG - 10 heated and then mixed with solvent at the rate of 70 grams per kg of asphalt	Sqm	4080		

<b>ROAD AND COMPOUND WALL</b>						
<b>Item no.</b>	<b>DSR 2012 Code No.</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
9.1	16.31	Providing and applying tack coat using bitumen emulsion conforming to IS: 8887, using emulsion pressure distributor including preparing the surface & cleaning with mechanical broom.				
9.1.1	16.31.1	With rapid setting bitumen emulsion				
9.1.1.1	16.31.1.1	On W.B.M / W.M.M. @ 0.4kg/sqm	Sqm	4080		
10.1	16.69	Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge).	Sqm	102		
11.1	16.45	Providing and fixing in position pre-moulded joint filler in expansion joints.	sqm	32		
12.1	16.46	Providing and laying in position bitumen hot sealing compound for expansion joints etc.				
12.1.1	16.46.1	Using grade 'A' sealing compound.	Metre	354		
13.1	16.68	Providing and laying 60mm thick factory made cement concrete interlocking paver block of M -30 grade made by block making machine with strong vibratory compaction, of approved size, design shape, laid in required colour and pattern over and including 50mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge.	Sqm	720		

<b>ROAD AND COMPOUND WALL</b>						
<b>Item no.</b>	<b>DSR 2012 Code No.</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
		<b>COMPOUND WALL</b>				
1.1	2.8	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.				
1.1.1	2.8.1	All Kinds of soil.	Cum	640		
2.1	2.25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	Cum	256		
3.1	2.27	Supplying and filling in plinth with river sand under floors, including watering, ramming, consolidating and dressing complete.	Cum	118		
4.1	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
4.1.1	4.1.8	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size)	Cum	118		
5.1	4.2	Providing and laying cement concrete in retaining walls, return walls, walls (any thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets, sunken floor,etc., up to floor five level, excluding the cost of centering, shuttering and finishing :				
5.1.1	4.2.2	1:1½:3 (1 cement:1½ coarse sand:3 graded stone aggregate 20 mm nominal size)	Cum	20.5		

ROAD AND COMPOUND WALL						
Item no.	DSR 2012 Code No.	Item Description	Unit	TOTAL QTY.	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
6.1	5.1	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 :				
6.1.1	5.1.2	1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size)	Cum	223		
7.1	5.2.2	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. up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement :				
7.1.1	5.2.2	1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size)	Cum	81		
8.1	5.9	Centering and shuttering including strutting, propping etc. and removal of form for :				
8.1.1	5.9.1	Foundations, footings, bases of columns, etc. for mass concrete	Sqm	436		
8.1.2	5.9.5	Lintels, beams, plinth beams, girders, bressumers and cantilevers	Sqm	458		
8.1.3	5.9.6	Columns, Pillars, Piers, Abutments, Posts and Struts	Sqm	742		
9.1	5.22	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.				
9.1.1	5.22.6	Thermo-Mechanically Treated bars	Kg	24530		
9.2	5.22A	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level.				

<b>ROAD AND COMPOUND WALL</b>						
<b>Item no.</b>	<b>DSR 2012 Code No.</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
9.2.1	5.22A.6	Thermo-Mechanically Treated bars	Kg	8910		
10.1	5.23	Smooth finishing of the exposed surface of R.C.C. work with 6 mm thick cement mortar 1:3 (1 Cement : 3 fine sand).	Sqm	618		
11.1	6.1	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 50Kg in foundation and plinth in:				
11.1.1	6.1.2	Cement mortar 1:6 (1 cement : 6 coarse sand)	Cum	187		
12.1	6.4	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 50Kg in superstructure above plinth level up to floor V level in all shapes and sizes in :				
12.1.1	6.4.2	Cement mortar 1:6 (1 cement : 6 coarse sand)	Cum	57		
13.1	10.25	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.				
13.1.1	10.25.2	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	Kg	10056		
14.1	13.1	12 mm cement plaster of mix :				
14.1.1	13.1.2	1:6 (1 cement: 6 fine sand)	Sqm	1371		
15.1	13.2	15 mm cement plaster on the rough side of single or half brick wall of mix :				
15.1.1	13.2.2	1:6 (1 cement: 6 fine sand)	Sqm	1371		

<b>ROAD AND COMPOUND WALL</b>						
<b>Item no.</b>	<b>DSR 2012</b>	<b>Item Description</b>	<b>Unit</b>	<b>TOTAL QTY.</b>	<b>Rate (Rs. in words &amp; in figures)</b>	<b>Amount (Rs. in words &amp; in figures)</b>
	<b>Code No.</b>					
16.1	13.44	Finishing walls with water proofing cement paint of required shade :				
16.1.1	13.44.1	New work (Two or more coats applied @ 3.84 kg/10 sqm)	Sqm	2742		
17.1	13.61	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade :				
17.1.1	13.61.1	Two or more coats on new work	Sqm	215		
		<b>Road work + Compound Wall</b>				-
						-
		<b>Total cost</b>				-

# **SEWAGE TREATMENT PLANT**

**SEWAGE TREATMENT PLANT - MECHANICAL EQUIPMENT**

Sl. No.	DSR	Description	Qty	Unit	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
1	MR	Raw Sewage Pumps – Non clog, self priming pumps capable of handling 6cu.m/hr at 6m head fitted to a 1 HP motor.	2	Nos		
2	MR	Chlorine disinfection unit for organic destruction 3HP .	1	Unit		
<b>B</b>		<b>SEWAGE TREATMENT PLAN</b>				
3	MR	Bar Screen – fabricated in SS of width 0.50m and height of 0.60m having an opening of 40mm and 20mm resp.	2	Nos		
4	MR	Raw Sewage Pumps – Non clog, self priming pumps capable of handling 9cu.m/hr at 10m head fitted to a 1 HP motor for pumping from wet well to the collection tank.	1	Nos		
a	MR	Raw Sewage Pumps – Non clog, self priming pumps capable of handling 30cu.m/hr at 10m head fitted to a 3 HP motor for pumping from wet well to the collection tank.	1	Nos		



**SEWAGE TREATMENT PLANT - MECHANICAL EQUIPMENT**

Sl. No.	DSR	Description	Qty	Unit	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
b	MR	The common header of 100mm dia. at the discharge may be considered as peak flow at expanded capacity has to be accommodated from the wet well to the collection tank.	25.00	Metres		
5	MR	Raw Sewage Pumps – Non clog, self priming pumps capable of handling 6cu.m/hr at 6m head fitted to a 1 HP motor for mixing in the collection tank.	2	Nos		
6	MR	Raw Sewage Pumps – Non clog, self priming pumps capable of handling 6cu.m/hr at 6m head fitted to a 1 HP motor for pumping from collection tank to aeration tank.	2	Nos		
7	MR	Twin lobe blowers – capable of providing 65cu.m/hr of air at 3.00m water column fitted to a 3 HP motor for aeration in the aeration tank	2	Nos		
8	MR	Media – random packing media capable of fluidizing in the aeration tank and structured packing in the settling tank (tube settlers) of MOC PVC.	1	lot		
9	MR	Piping and Valves within the treatment plant and fixtures.	1	lot		

**SEWAGE TREATMENT PLANT - MECHANICAL EQUIPMENT**

Sl. No.	DSR	Description	Qty	Unit	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
	Code No.					
10	MR	Filter Feed Pumps – Centrifugal pump capable of handling 7.50cu.m/hr at 30m head fitted to a 3 HP motor.	2	Nos		
11	MR	Pressure Sand Filter capable of handling 7.50cu.m/hr with inter connecting piping and accessories of dia 1.00m x 1500mm HOS.	1	Nos		
12	MR	PE and chlorine dosing units 0 - 10 LPH.	1	Nos		
13	MR	Electrical Panel with necessary instrumentation Connected Load 13HP + 2HP Spare.	1	Unit		
		<b>TOTAL</b>				

# **WATER TREATMENT PLANT**

## INSTALLATION OF WTP EQUIPMENTS

Sl No.	DSR Code	Description	Unit	Quantity	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
1		Supply of plant and equipment inclusive of all applicable taxes and duties, freight and transit insurance as per T.S				
1.1		i) Raw water pumps centrifugal type with each capacity Q =27m <sup>3</sup> /h and H = 40 m WC(Tentative) MOC:SS:304 as per TS	Nos.	2		
1.2		ii) Pressure sand filters: The tentative specifications of the pressure sand filter shall be as follows:	Nos.	2		
		Diameter : 1200mm				
		HOS : 2000mm				
		Shell thickness : 5mm				
		Dish end thickness : 6mm				
		Max. Flow rate : 40m <sup>3</sup> /h				
		Average flow rate : 27m <sup>3</sup> /h				
		Period between backwash : 24 hours (inlet turbidity<25NTU)				
		Pressure for cleaning : 0.8 Kg/cm <sup>2</sup>				
		Max. Working pressure : 3.5 Kg/cm <sup>2</sup>				
		Min. Working pressure : 2.0 Kg/cm <sup>2</sup>				
		Backwash flow rate : 45.2 m <sup>3</sup> /h				
		Source of water : Raw Water (<25NTU)				
		MOC : MS internal black bituminous and external red oxide paint				
		Type of flow : Down flow				
		Internal arrangement : Pebbles & crushed gravels and support media of Mixture of multigrade sand				
		Type of Valves : Butterfly valve				
		Max Pressure loss : 1.0 Kg/cm <sup>2</sup>				
		Suitable backwash and overflow arrangement etc. complete. as per TS.				

SI No.	DSR Code	Description	Unit	Quantity	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
1.3		iii) Softeners: The tentative specification of the softener shall be as follows:	Nos	2		
		Diameter : 1800mm				
		HOS : 2000 mm				
		Shell thickness : 6mm				
		Dish end thickness : 8mm				
		Max. Flow rate : 40m <sup>3</sup> /h				
		Average flow rate : 27m <sup>3</sup> /h				
		Period between regeneration : 10 hours				
		Max. Working pressure : 3.5 Kg/cm <sup>2</sup>				
		Min. Working pressure : 2.0 Kg/cm <sup>2</sup>				
		MOC : MS internal black				
		bituminous and external				
		red Oxide paint				
		Type of Valves : Butterfly valve				
		Max Pressure loss : 0.5 Kg/cm <sup>2</sup>				
		Regeneration tank (HDPE) : 2000 liters capacity				
		Regenerant Qty. (NaCl) : As required				
		Residual hardness : <5 ppm				
		Suitable regeneration and waste water disposal arrangement etc complete as per TS				
1.4		iv) Sodium hypochlorite dosing systems: The tentative specification for sodium hypochlorite dosing system shall be as follows:				
		No. of pump : 1 No				
		Max. Discharge : 12 lph				
		Max. Working pressure : 5 kg/cm <sup>2</sup>				
		Construction details : PP Dosing Head				
		MOC of wet parts : PP/PVC				
		MOC of tank : HDPE/ LDPE				
		Capacity of tank (each) : 200 litres				
		No of tanks : 1				
		Power consumption : as required				
		Piping : PVC flexible hose				
		Accessories included with pump : Foot valve, Dosing valve, level switch – one No. each				

SI No.	DSR Code	Description	Unit	Quantity	Rate (Rs. in words & in figures)	Amount (Rs. in words & in figures)
1.5		v) Drinking water pumps : 1. The drinking water pumpset centrifugal type with each capacity Q=45m <sup>3</sup> /h and H = 40 m WC (tentative), MOC: SS:304 as per T.S	Nos.	4		
1.6		vi) Drainage pumpset: The capacity of pump shall be Q=7.5m <sup>3</sup> /h; H=10mWC (tentative). The material construction of pumps shall be SS: 304.	Nos.	1		
1.7		vii) All pipes and fittings, valves, etc complete : as per T.S	LS			
1.8		viii) Flow meters : a) Electro magnetic flow meter : Line size : DN 150mm(6"), Flow Range: 0 to 150 m <sup>3</sup> /h including all accessories and cables etc complete as per T.S	Nos.	2		
1.9		ix) Material handling facility: chain pulley block with capacity 0.5t and lift 5m as per T.S	Nos	1		
2.1		Supply, erection and commissioning of suitable pressure switch or level control switch for auto stop of drinking water pumpsets including supply and laying of cables from WTP to 2Nos OHT at Hospital building and all other required instrumentation for WTP as per T.S				
3.1		Erection, testing, trial run and commissioning as per T.S	LS			
4.1		Supply of spares for 2 years trouble free operation including all taxes and duties, freight and transit insurance. as per T.S	LS			
		<b>TOTAL</b>				

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