

**MINISTRY OF HEALTH & FAMILY WELFARE,
GOVT. OF INDIA, NEW DELHI**

TENDER

FOR

**Construction of Housing Complex including
external development & services for AIIMS
(Under PMSSY) at Raebareli (U.P.)**

VOLUME – V

**Bill of Quantities
(B.O.Q.)**

JUNE' 2013



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Tender No. HSCC/AIIMS/ Raebareli /Housing/2013

“ Construction of Housing Complex including external development & services for AIIMS (Under PMSSY) at Raebareli (U.P.)”

BILL OF QUANTITIES

SUMMARY SHEET - Construction of Housing Complex including external development & services for AIIMS (Under PMSSY) at Raebareli (U.P.)

S.No	Name of Head	Total Quoted Amount (In Indian Rupees)
1	Civil Works	=
2	Public Health Engineering	=
3	Fire Fighting	=
4	Electrical works	=
5	HVAC Works	=
Total in Figures (in RS.)		_____
Total in Words (in Rs.)		_____

BILL OF QUANTITIES

OF

CIVIL WORKS

Project Name:Construction of housing at AIIMS like Institute at Raebareli,UP

(I) CIVIL Works

ABSTRACT OF COST (Civil Works)

S.No.		Amount in Rs.
1	EARTH WORK	
2	CONCRETE WORK	
3	REINFORCED CEMENT CONCRETE	
4	BRICK WORK	
5	DOORS & WINDOWS	
6	STEEL WORK	
7	FLOORING	
8	CEILING & ROOFING	
9	FINISHING	
10	ROAD WORK	
11	LAND DEVELOPMENT & HORTICULTURE	
12	SIGNAGES	
13	MISCELLANEOUS	
	TOTAL	

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
1	EARTH WORK					
1.01	Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth, 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed.					
a)	All kinds of soil	26071.00	Cum			
1.02	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 up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.					
a)	All kinds of soil.	1131.00	Cum			
1.03	Extra for every additional lift of 1.5 m or part thereof in excavation /banking excavated or stacked materials.					
a)	All kinds of soil	1531.00	Cum			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
1.04	Extra for disosal of excavated earth for additional lead beyond 50 mtr or part there of upto 9 such additional leads					
a)	All kinds of soil	57009.00	Cum			
1.05	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 up to 1.5 m.	21504.00	Cum			
1.06	Supplying and filling in plinth with jamuna sand under floors including, watering. ramming consolidating and dressing complete.	802.00	Cum			
1.07	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.	8531.00	Sqm			
1.08	Supplying and stacking of good earth at site including royalty and carriage complete (earth measured in stacks will be reduced by 20% for payment).	5728.00	Cum			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
1.09	Felling trees of the girth (measured at a height of 1 m above ground level) including cutting of trunks and branches removing the roots and stacking of serviceable material and disposal of unserviceable material.					
a)	Beyond 30 cm girth upto and including 60 cm girth	25.00	Each			
b)	Beyond 60 cm girth upto and including 120 cm girth	25.00	Each			
SUB TOTAL						
2.00	CONCRETE WORK					
2.01	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:					
a)	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	101.00	Cum			
b)	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size).	1626.00	Cum			
c)	1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size)	863.00	Cum			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
2.02	Providing and laying damp-proof course 40mm thick with cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 12.5mm nominal size).	1548.00	Sqm			
2.03	Applying a coat of residual petroleum bitumen of grade of VG-10 of approved quality using 1.7kg per square metre on damp proof course after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.	1548.00	Sqm			
2.04	Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification.	11368.00	per bag of 50Kg. of cement used in the mix			
2.05	Providing and laying in position cement concrete 1:5:10 (1 Cement : 5 fine sand : 10 broken brick aggregates 40 mm nominal size) including consolidation etc all complete.	1388.00	Cum			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
2.06	Making plinth protection 50mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75mm bed by dry brick ballast 40mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.	2431.00	SQM			
	Sub Total					
3.00	REINFORCED CEMENT CONCRETE					
3.01	Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge.					

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
	(Note :- Cement content considered in this item is @ 330 kg/cum. Excess/less cement used as per design mix is payable/recoverable separately).					
a)	All works upto plinth level	7993.00	Cum			
b)	All work above plinth level upto floor V level	15980.00	Cum			
3.02	Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using fly ash and cement content as per approved design mix, and 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.					
a)	All works upto plinth level	745.00	Cum			
b)	All work above plinth level upto floor V level	1809.00	Cum			

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Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
3.03	Add or deduct for providing richer or leaner mixes respectively at all floor levels.					
a)	Providing M-30 grade concrete instead of M-25 grade BMC/ RMC. (Note:- Cement content considered in M-30 is @ 340 kg/cum)	6799.00	Cum			
3.04	Centering and shuttering including strutting, propping etc. and removal of form for:					
a)	Foundations, footings, bases of columns, etc. for mass concrete.	7755.00	Sqm			
b)	Walls (any thickness) including attached pilasters, butresses, plinth and string courses etc.	5566.00	Sqm			
c)	Suspended floors, roofs, landings, balconies and access platform.	48341.00	Sqm			
d)	lintels, beams, plinth beams. girders. bressumers and cantilevers.	70749.00	Sqm			
e)	Columns, Pillars, Piers, Abutments, Posts and Struts.	46482.00	Sqm			
f)	Stairs, (excluding landings) except spiral-staircases	3321.00	Sqm			
g)	Shelves (Cast in situ)	1270.00	Sqm			

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1	2	3	4	5	6	7
h)	Small lintels not exceeding 1.5m clear span, moulding as in cornices, window sills, string courses, bands, copings, bed plates, anchor blocks and the like.	288.00	Sqm			
i)	Edges of slabs and breaks in floors and walls.					
a)	Under 20 cm wide	888.00	Sqm			
3.05	Extra for shuttering in circular work for					
a)	columns	252.00	Sqm			
b)	Beams	273.00	Sqm			
3.06	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete at all levels					
a)	Thermo-Mechanically Treated bars	3707.00	Metric Ton			

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BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
3.07	Providing precast cement concrete Jali 1:2:4 (1 cement : 2 coarse sand:4 graded stone aggregate 6 mm nominal size), reinforced with 1.6 mm dia mild steel wire, including centering and shuttering, roughening cleaning, fixing and finishing in cement mortar 1:3 (1 cement: 3 fine sand) etc. complete, excluding plastering of the jambs, sills and soffits.					
a)	40 mm thick	50.00	Sqm			
3.08	Extra for additional height in centering, shuttering where ever required with adequate bracing, propping etc. including cost of de-shuttering and decentering at all levels, over a height of 3.5 m, for every additional height of 1 metre or part thereof (Plan area to be measured)					
a)	Suspended floors, roofs, landings, beams and balconies (Plan area to be measured).	1331.00	Sqm			
3.09	Extra for R.C.C./ B.M.C/ R.M.C. work above floor V level for each four floors or part thereof.	5269.00	sqm			
	SUB-TOTAL					
4.00	BRICK WORK					

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
4.01	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:					
a)	Cement mortar 1:6 (1 cement: 6 coarse sand)	3038.00	Cum			
4.02	Brick work with non modular fly ash lime bricks (FALG Bricks) conforming to IS:12894, class designation 10 average compressive strength in super structure above plinth level up to floor V level in					
a)	Cement mortar 1:6 (1 cement: 6 coarse sand)	17485.00	Cum			
4.03	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.	5616.00	Cum			
4.04	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundations and plinth in.					
a)	Cement mortar 1:3 (1 cement : 3 coarse sand)	210.00	Sqm			

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BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
4.05	Half brick masonry with non modular fly ash lime Gypsum bricks (FALG bricks) of class designation 10, conforming to IS : 12894, in super structure above plinth and upto floor V level					
a)	Cement mortar 1 : 3 (1 cement : 3 coarse sand)	35663.00	Sqm			
4.06	Extra for Half brick work in superstructure above floor V level for each four floors or part thereof.	10492.00	Sqm			
4.07	Extra for providing and placing in position 2 Nos. 6mm dia. M.S. bars at every third course of half brick masonry (with F.P.S. bricks).	35705.00	Sqm			
	SUB-TOTAL					
5.00	DOORS & WINDOWS					

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BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
5.01	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) :					
a)	For fixed portion.					
i)	Powder coated aluminium (minimum thickness of powder coating 50 micron)	87168.00	Kg			

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BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
5.02	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 EPDM rubber / neoprene gasket required (Fittings shall be paid for separately).					
a)	Powder coated aluminium (minimum thickness of powder coating 50 micron)	24653.00	Kg			
5.03	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 :					
a)	30 mm thick including ISI marked Stainless Steel butt hinges with necessary screws.	5073.00	Sqm			

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Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
5.04	Providing & Fixing decorative high pressure laminated sheet of plain / wood grain in gloss / matt / suede finish with high density protective surface layer and reverse side of adhesive bonding quality conforming to IS : 2046 Type S including cost of adhesive of approved quality					
a)	1.0 mm thick.	14911.00	sqm			
5.05	Providing and fixing fly proof stainless steel grade 304 wire gauge, to windows and clerestory windows using wire gauge with average width of aperture 1.4 mm in both directions with wire of dia. 0.50 mm all complete.					
a)	With 2nd class teak wood beading 62X19 mm	91.00	sqm			
b)	With 12 mm mild steel U beading	310.00	Sqm			
5.06	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.					

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
a)	35 mm thick shutters	369.00	sqm			
5.07	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 :					
a)	Second class teak wood	400.00	sqm			
5.08	Extra for providing frosted glass panes 4 mm thick instead of ordinary float glass panes 4 mm thick in doors, windows and clerestory window shutters. (Area of opening for glass panes excluding portion inside rebate shall be measured).	629.00	Sqm			
5.09	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 :					
a)	125 mm	8993.00	Each			

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1	2	3	4	5	6	7
b)	100 mm	6565.00	Each			
5.10	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 :					
a)	250x10 mm	9067.00	Each			
b)	150x10 mm	10773.00	Each			
5.11	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 :					
a)	250x16 mm	4097.00	Each			
5.12	Providing and fixing aluminium pull bolt lock anodised ISI marked (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.	291.00	Each			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
5.13	Providing and fixing bright finished brass 100 mm mortice latch with one dead bolt and a pair of lever handles with necessary screws etc. complete (best make of approved quality).	999.00	Each			
5.14	Providing and fixing chromium plated brass 100 mm mortice latch and lock with 6 levers and a pair of lever handles with necessary screws etc. complete (best make of approved quality).	178.00	Each			
5.15	Providing and fixing aluminium die cast body tubular type universal hydraulic door closer (having brand logo with ISI, IS : 3564, embossed on the body, door weight upto 35 kg and door width upto 700 mm) with necessary accessories and screws etc. complete.	4475.00	Each			
5.16	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.					
a)	Twin rubber stopper	4496.00	Each			

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Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
5.17	Providing and fixing double action hydraulic floor spring of approved brand and manufacture conforming to IS : 6315, having brand logo embossed on the body / plate with double spring mechanism and door weight upto 125 kg., for doors, including cost of cutting floors , embedding in floors as required and making good the same matching to the existing floor finishing and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate etc. complete as per the direction of Engineer-in-charge :					
a)	With stainless steel cover plate - minimum 1.25 mm thickness	5.00	Each			
5.18	Providing and fixing to existing door frames.					

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Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
a)	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 0.2 mm) with inbuilt edging on both sides. The styles and rails mitred and joint at the corners by means of M.S. galvanised/plastic brackets of size 75x220 mm having wall thickness 1.0 mm and stainless steel screws. The styles of the shutter reinforced by inserting galvanised M.S. tube of size 20x20 mm and 1 mm (\pm 0.1 mm) wall thickness. The lock rail made up of 'H' section, a uPVC hollow section of size 100x24 mm and 2 mm (\pm 0.2 mm) wall thickness, fixed to the shutter styles by means of plastic/galvanised M.S. 'U' cleats. The shutter frame filled with a uPVC multi-chambered single panel of size not less than 620 mm, having over all thickness of 20 mm and 1 mm (\pm 0.1 mm) wall thickness.					

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1	2	3	4	5	6	7
	The panels filled vertically and tie bar at two places by inserting horizontally 6 mm galvanised 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 bathroom door shutter).	2564.00	sqm			
5.19	Providing and fixing fire resistant door frame of section 143 x 57 mm having built in rebate made out of 16 SWG G.I. sheet (zinc coating not less than 120 gm/sqm) duly filled with vermiculite based concrete mix,suitable for mounting 60 minutes fire rated door shutters. The frame is fitted with intumescent fire seal strip of size 10x4 mm (minimum) around the frame and fixing with dash fastener of approved size and make,including applying a coat of approved brand fire resistant primer etc complete as per direction of Engineer-in-charge (Dash fastener to be complete as per direction of Engineer-in-charge (Dash fastener to be paid for separately).	1053.00	meter			

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Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
5.20	Providing and fixing 50 mm thick glazed fire resistant door shutters of 60 minutes fire rating conforming to IS:3614 (Part-II), tested and certified as per laboratory approved by Engineer-in-charge, with suitable mounting on door frame, consisting of vertical styles, lock rail, top rail 100 mm wide, bottom rail 200 mm wide, made out of 16 SWG G.I.sheet (zinc coating not less than 120 gm/m ²) duly filled FR insulation material and fixing with necessary stainless steel ball bearing hinges of approved make, including applying a coat of approved fire resistant primer etc. all complete as per direction of Engineer-in-charge (panneling to be paid for separately).	509.00	Sqm			
5.21	Providing and fixing glazing in fire resistant door shutters, fixed panels, ventilators and partitions etc., with G.I. beading of appropriate size, made out of 20 SWG G.I.sheet (zinc coating not less than 120 gm/m ²), fire resistant sealant, including applying a coat of approved fire resistant primer on G.I. beading etc., complete all as per direction of Engineer-in-charge.					

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Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
a)	1 With clear fire resistant glass panes 6mm thick of approved brand, having minimum 60 minutes fire resistance	20.00	Sqm			
5.22	Providing and fixing panic bar / latch (Double point) fitted with a single body, Trim Latch & Lock on back side of the Panic Latch of reputed brand and manufacture to be approved by the Engineer- in- charge, all complete.	188.00	Each			
5.23	Providing and fixing 12mm thick Pre-laminated 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.					
a)	Pre-laminated particle board with decorative lamination on both sides.	16.00	Sqm			

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1	2	3	4	5	6	7
5.24	Providing and fixing anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868. Minimum anodic coating of grade AC 15) sub frame work for windows and ventilators a with extruded built up standard tubular sections of approved make conforming to IS: 733 and IS : 1285 fixed with dash fastener of required dia and size(Dash fastener to be paid for separately).	6656.00	Kg			
5.25	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment).	19432.00	Kg			

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Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
5.26	Providing & Fixing Chromium plated brass door eye of approved brand & manufacture of size 35 mm dia suitable for doors upto 40mm thick having clear wide view.	122.00	each			
5.27	Providing & Fixing powder coated door chain of approved brand & manufacture of length 250 to 300 mm.	122.00	each			
5.28	Providing & fixing Curtain rod Vista Levolor (Florence III or equivalent approved make of approved colour) of required length, as discussed by engineer in charge.	4247.00	mtr			
Cupboards						
5.29	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 :					

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
a)	25 mm thick (for cupboard) including ISI marked nickel plated bright finished M.S. Piano hinges IS : 3818 marked with necessary screws	4868.00	sqm			
5.30	Providing and fixing Pre-laminated flat pressed 3 layer (medium density) particle board or graded wood particle board IS : 3087 marked, with one side decorative and other side balancing lamination Grade I, Type II exterior grade IS : 12823 marked, in cup board walls/ shelves with screws/ fasteners and fittings wherever required, edges to be painted with polyurethane primer (fittings to be paid separately).					
a)	18 mm thick	6392.00	sqm			
5.31	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length (hold fast lugs or dash fastener shall be paid for separately).					
a)	Second class teak wood	34.00	Cum			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
5.32	Providing and fixing curtain rods of 1.25 mm thick chromium plated brass plate, with two chromium plated brass brackets fixed with C.P. brass screws and wooden plugs, etc., wherever necessary complete					
a)	20 mm dia	1408.00	mtr			
5.33	Providing and fixing special quality chromium plated brass cupboard locks with six levers including necessary screws etc. complete (Best make of approved quality) of :					
a)	Size 50 mm	1884.00	each			
5.34	Providing and fixing bright finished brass hasp and staple (safety type) with necessary screws etc. complete					
a)	150 mm	488.00	each			
5.35	Providing and fixing 2nd class teak wood lipping/ moulded beading or taj beading of size 18X5mm fixed with wooden adhesive of approved quality and screws/ nails on the edges of the particle board including polishing of the exposed surface etc. as per direction of Engineer-in-charge.					
		4826.00	metre			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
5.36	Providing 40x5 mm flat iron hold fast 40 cm long including fixing to frame with 10 mm diameter bolts, nuts and wooden plugs and embeddings in cement concrete block 30x10x15cm 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size)	4226.00	each			
5.37	Providing and fixing wooden moulded corner beading of triangular shape to the junction of panelling etc. with iron screws, plugs and priming coat on unexposed surface and polishing of exposed surface etc. complete 2nd class teak wood.					
a)	50x50mm (base and height).	5442.00	metre			
5.38	Providing and fixing magnetic catcher in cupboard / ward robe shutters including fixing with necessary screws etc. complete (Best make of approved quality. Triple strip vertical type.	3184.00	each			
5.39	French spirit polishing					
a)	New work (Two or more coats on new work including a coat of wood filler)	2407.00	Sqm			
	SUB TOTAL					
6.00	STEEL WORK					

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
6.01	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.					
a)	Fixed to openings /wooden frames with rawl plugs screws etc.	19516.00	Kg			
6.02	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 bolts 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 Engineer-in-charge. (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.)	44624.00	kg			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work						
Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
6.03	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.					
a)	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works.	36791.00	kg			
6.04	Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 – part 1 and M.S. top cover of required thickness for rolling shutters.					
a)	80x1.25mm M.S. laths with 1.25 mm thick top cover.	32.00	Sqm			
6.05	Providing and fixing ball bearing for rolling shutters.	9.00	Nos			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
6.06	Extra for providing grilled rolling shutters manufactured out of 8 mm dia. M.S. bar instead of laths as per design approved by Engineer-in-charge. (area of grill to be measured).	7.00	Sqm			
SUB-TOTAL						
7.00	FLOORING					
7.01	Marble stone flooring /skirting with 18mm thick marble stone sample of marble shall be approved by Engineer-in-charge over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with grey cement slurry including rubbing and polishing complete with :					
a)	Raj Nagar plain.	4426.00	Sqm			
b)	Udaipur green/jaislamer marble	12118.00	Sqm			
7.02	Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) :					

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
a)	25 mm thick	10366.00	Sqm			
7.03	Kota stone slabs 25 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.	961.00	Sqm			
7.04	Cement concrete flooring 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement including cement slurry, but excluding the cost of nosing of steps etc. complete.					
a)	40mm thick with 20mm nominal size stone aggregate.	897.00	Sqm			
7.05	Cement plaster skirting up to 30 cm height, with cement mortar 1:3 (1 cement : 3 coarse sand), finished with a floating coat of neat cement.					
a)	18 mm thick	91.00	Sqm			
7.06	Providing and fixing glass strips in joints of terrazo/ cement concrete floors.					
a)	40 mm wide and 4 mm thick.	2242.00	Metre			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
7.07	Providing and laying Ceramic glazed floor tiles 300x300 mm or more (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.					
a)	Sizes upto 300mm x 300mm.	4433.00	Sqm			
7.08	Chequerred precast cement concrete tiles 22 mm thick in footpath & courtyard, jointed with neat cement slurry mixed with pigment to match the shade of tiles, including rubbing and cleaning etc. complete, on 20 mm thick bed of cement mortar 1:4 (1 cement: 4 coarse sand).					
a)	Medium shade pigment using 50% white cement 50% Grey cement	1000.00	Sqm			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
7.09	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					
a)	Size of Tile 600x600 mm	25995.00	Sqm			
7.10	Providing and laying Vitrified tiles in different sizes (thickness to be specified by manufacturer), with water absorption less than 0.08 % and conforming to I.S. 15622, of approved make, in all colours & shade, in skirting, riser of steps, over 12 mm thick bed of cement mortar 1:3 (1 cement: 3 coarse sand), including grouting the joint with white cement & matching pigments etc. complete					
a)	Size of Tile 600x600 mm	2601.00	Sqm			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
7.11	Providing and fixing 18mm thick gang saw cut mirror polished (premoulded and prepolished) machine cut for kitchen platforms, vanity counters ,window sills , facias and similar locations of required size of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing moulding and polishing to edge to give high gloss finish etc. complete at all levels.					
a)	Raj Nagar Plain white marble/ Udaipur green marble/ Zebra black marble					
i)	Area of slab over 0.50 sqm	948.00	Sqm			
7.12	Providing edge moulding to 18mm 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.					
a)	Marble work.	1629.00	Metre			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
7.13	Extra for fixing marble /granite stone over and above corresponding basic item, in facia and drops of width upto 150 mm with epoxy resin based adhesive including cleaning etc. complete.	1629.00	Metre			
7.14	Providing and fixing machine cut, mirror / eggshell polished , Marble stone work for wall lining (veneer work) including dado, skirting, risers of steps etc., in required design and pattern wherever required, stones of different finished surface texture, on 12 mm (average) thick cement mortar 1:3 (1 cement : 3 coarse sand) laid and jointed with white cement slurry @ 3.3 kg/sqm including pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing, polishing etc. all complete as per Architectural drawings, and as directed by the Engineer-in-Charge.					
a)	18 mm thick Granite stone of approved quality (Base rate 120/- per sqft)	1337.00	Sqm			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
7.15	Providing and fixing 1st quality ceramic glazed wall tiles conforming to IS : 15622 (thickness to be specified by the manufacturer) of approved make in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge in skirting, risers of steps and dados over 12 mm thick bed of cement Mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete.	21200.00	Sqm			
SUB- TOTAL						
8.00	CEILING & ROOFING					
8.01	Providing and laying water proofing treatment to vertical and horizontal surfaces of depressed portions of W.C., kitchen and the like consisting of :					

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
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 20 mm cement plaster 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound in recommended proportion including rounding off junction of vertical and horizontal surface.					
iii)	IIIrd course of applying blown or residual bitumen applied hot at 1.7 kg. per sqm of area.					
iv)	IVth course of 400 micron thick PVC sheet. (Overlaps at joints of PVC sheet should be 100 mm wide and pasted to each other with bitumen @ 1.7 kg/sqm).	7047.00	Sqm			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
8.02	Providing and fixing 10mm thick clear multi wall solar control polycarbonate sheets of approved quality and shade in desired shape in roofing including the cost of EPDM gaskets , sealing tape , aluminium profile and all necessary accessories complete as per architectural drawings and as directed by Engineer incharge. The item includes designing the complete system and supplying & getting approved from client and / or reputed engineering institue like IIT etc. The detailed shop drawings including supplying structural design calculations based on relevent codal provisions and carrying out water penetration test as per standards followed in India.					
a)	For Dome Structure	453.00	Sqm			
b)	for Plain Structure	453.00	Sqm			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
	The whole work is to be done through reputed and approved vendor having experience in polycarbonate work in Commercial/ Govt/ Corporate buildings as per architectural elevation drawings including filling of joints with silicon sealent and also with masonry/ RCC work, at all heights including double heights, straight or curved etc. complete in all respect. (Surface Area shall be measured for the payment) (M.S. Framing to be paid for seprately)					

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
8.03	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) Laying brick bats with mortar using broken bricks/brick bats 25 mm to 115mm size with 50% of cement mortar 1:5 (1 cement: 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge over 20 mm thick layer of cement mortar of mix 1:5 (1 cement :5 coarse sand) admixed with water proofing compound to IS : 2645 and approved by Engineer - in - charge to required slope and treating similarly the					

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
	adjoining walls upto 300 mm height including rounding of junctions of walls and slabs c) After two days of proper curing applying a second coat of cement slurry using 2.75kg/ sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge. d) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 (1 cement: 4 coarse sand) admixed with water proofing compound conforming to IS: 2645 and approved by Engineer-in-charge including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making pattern of 300x300 mm square 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 :					
a)	With average thickness of 120mm and minimum thickness at khurra as 65 mm.	8936.00	Sqm			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
8.04	Providing and fixing at all height false ceiling including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating of grade 350 as per IS : 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener 12.5mm dia x 40mm long with 6mm dia bolts to the angle hangers of 25x25x0.55mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick button wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm dia x 230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm high having flanges of 20mm and					

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
	30mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450mm centre to centre with 25mm long drive-all screws @ 230mm interval including jointing and fixing to a flush finish of tapered and square edges of the board with recommended filler, jointing tapes, finisher and two coats of primer suitable for board as per manufactures specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting with :					
a)	12.5 mm thick tapered edge gypsum board conforming to IS: 2095- Part I.	1397.00	sqm			
	SUB-TOTAL					
9.00	FINISHING					
9.01	12 mm cement plaster of mix :					
a)	1:6 (1 cement : 6 fine sand)	73813.00	Sqm			
9.02	15 mm cement plaster on the rough side of single or half brick wall of mix :					

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
a)	1:4 (1 cement : 4 fine sand)	77592.00	Sqm			
9.03	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement: 5 coarse sand) finished with a top layer 6mm thick cement plaster 1:6 (1 cement: 6 fine sand).	75582.00	Sqm			
9.04	6 mm cement plaster of mix :					
a)	1:3 (1 cement : 3 fine sand)	50148.00	Sqm			
9.05	Extra for plastering exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.	35592.00	Sqm			
9.06	Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete.	202362.00	Sqm			
9.07	Finishing walls with Acrylic Smooth exterior paint of required shade :					
a)	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)	71700.00	Sqm			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
9.08	Distempering with 1st quality acrylic distemper, having VOC (Volatile Organic Compound) content less than 50 grams/ litre, of approved brand and manufacture, including applying additional coats wherever required, to achieve even shade and colour.					
a)	Two coats	104168.00	Sqm			
9.09	Wall painting with premium acrylic emulsion paint of interior grade, having VOC (Volatile Organic Compound) content less than 50 grams/ litre of approved brand and manufacture, including applying additional coats wherever required to achieve even shade and colour.					
a)	Two coats	101181.00	Sqm			
9.10	Painting with synthetic enamel paint, having VOC (Volatile Organic Compound) content less than 150 grams/ litre, of approved brand and manufacture, including applying additional coats wherever required to achieve even shade and colour.					
a)	Two coats	987.00	Sqm			

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BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
9.11	Applying priming coats with primer of approved brand and manufacture, having low VOC (Volatile Organic Compound) content.					
a)	With water thinnable cement primer on wall surface having VOC content less than 50 grams/litre	205349.00	Sqm			
9.12	Providing and fixing 24 gauge and 18 mm mesh size chicken wire mesh at junction of concrete and brickwork and other locations at all heights including cutting to required size and side laps of minimum 75 mm and fixing in position with cement and nails as directed.	2993.00	Sqm			
	SUB-TOTAL					
10.00	ROAD WORK					

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
10.01	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.	12863.00	sqm			
10.02	Providing and applying tack coat using hot straight run bitumen of grade VG - 10, including heating the bitumen, spraying the bitumen with mechanically operated spray unit fitted on bitumen boiler, cleaning and preparing the existing road surface as per specifications :					
a)	On W.B.M. @ 0.75 Kg / sqm	5513.00	sqm			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
10.03	2.5 cm premix carpet surfacing with 2.25 cum and 1.12 cum of stone chippings of 13.2 mm 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).					
a)	With paving Asphalt grade VG - 10 heated and then mixed with solvent at the rate of 70 grams per kg of asphalt	5513.00	sqm			
10.04	Providing and laying seal coat of premixed fine aggregate (passing 2.36 mm and retained on 180 micron sieve) with bitumen using 128 kg of bitumen of grade VG - 10 bitumen per cum of fine aggregate and 0.60 cum of fine aggregate per 100 sqm of road surface, including rolling and finishing with road roller all complete.	5513.00	sqm			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
10.05	Providing and laying design mix cement concrete of M-30 grade, in roads/ taxi tracks/ runways, using cement content as per design mix, using coarse sand and graded stone aggregate of 40 mm nominal size in appropriate proportions as per approved & specified design criteria, providing dowel bars with sleeve/ tie bars wherever required, laying at site, spreading and compacting mechanically by using needle and surface vibrators, levelling to required slope/ camber, finishing with required texture, including steel form work with sturdy					
	M.S. channel sections, curing, making provision for contraction/ expansion, construction & longitudinal joints (10 mm wide x 50 mm deep) by groove cutting machine, providing and filling joints with approved joint filler and sealants, complete all as per direction of Engineer-in-charge (Item of joint fillers, sealants, dowel bars with sleeve/ tie bars to be paid separately).					
a)	Cement concrete prepared with batch mixing machine	1103.00	cum			

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BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
10.06	Providing, laying and making kerb channel 30 cm wide and 50 mm thick with cement concrete 1:3:6 (1 cement: 3 coarse sand:6 graded stone aggregate 20 mm nominal size) over 75mm bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including finishing the top smooth etc. complete and as per direction of Engineer-in-charge.	3308.00	sqm			
10.07	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 fine sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge.	1500.00	sqm			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
10.08	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).	504.00	CuM.			
10.09	Construction of granular sub-base by providing close graded Material conforming to specifications, mixing in a mechanical mix plant at OMC, carriage of mixed material by tippers to work site, for all leads & lifts, spreading in uniform layers of specified thickness with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications and directions of Engineer-in-Charge.					

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
a)	With material conforming to Grade-II (size range 53 mm to 0.075 mm) having CBR Value-25	1103.00	cum			
10.10	Providing, laying, spreading and compacting graded stone aggregate (size range 53 mm to 0.075 mm) to wet mix macadam (WMM) specification including premixing the material with water at OMC in mechanical mix plant, carriage of mixed material by tipper to site, for all leads & lifts, laying in uniform layers with mechanical paver finisher in sub- base / base course on well prepared surface and compacting with vibratory roller of 8 to 10 tonne capacity to achieve the desired density, complete as per specifications and directions of Engineer-in-Charge.	1103.00	cum			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
10.11	Construction of dry lean cement concrete sub base over a prepared sub-grade with coarse and fine aggregate conforming to IS:383, the size of coarse aggregate not exceeding 25 mm, aggregate cement ratio not to exceed 15:1, aggregate gradation after blending to be as per specifications, cement content not to be less than 150 Kg/cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, for all leads & lifts, laid with a mechanical paver, compacting with 8-10 tonne vibratory roller, finishing and curing etc. complete as per direction of Engineer-in- charge.	1103.00	cum			
	SUB-TOTAL					
11.00	LAND DEVELOPMENT & HORTICULTURE					

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
11.01	Trenching in ordinary soil upto a depth of 60cm including removal and stacking of serviceable materials and then disposing of by spreading and neatly levelling with in a lead of 50m and making up the trenched area to proper levels by filling with earth or earth mixed with sludge or/and manure before and after flooding trench with water (excluding cost of imported earth, sludge or manure).	3150.00	Cum			
11.02	Supplying and stacking sludge at site including royalty and carriage (sludge measured in stacks will be reduced by 8% for payment).	1050.00	Cum			
11.03	Rough dressing the trenched ground including breaking clods & Uprooting weeds from the trenched area after 10 to 15 days of its flooding with water including disposal of uprooted vegetation	10500.00	Sqm			
11.04	Fine dressing of the ground	10500.00	Sqm			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
11.05	Spreading of sludge, dump manure and / or good earth in required thickness as per direction of Officer-in-charge (Cost of sludge, dump manure and / or good earth to be paid separately).	1050.00	cum			
11.06	Grassing with selection No.1 grass including watering and maintenance of the lawn for 30 days or more till the grass forms a thick lawn, free from weeds and fit for mowing including supplying good earth, if needed (the good earth shall be paid for separately).					
a)	In rows 5 cm apart in both directions	10500.00	Sqm			
11.07	Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any with all leads and lifts (cost of manure, sludge or extra good earth if needed to be paid for separately):					
a)	Holes 1.2 m dia and 1.2 m deep.	27.00	each			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work						
Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
b)	Holes 60 cm dia, and 60 cm deep.	27.00	each			
11.08	Supply of trees as per following botanical names and 4 feet height in 450 mm dia pot size:					
a)	TREES					
i	Grevillea robusta (Silver oak)	16.00	Each			
ii	Erythrina indica (Coral tree)	16.00	Each			
iii	Champne palm	5.00	Each			
iv	Alstonia Scholaris	16.00	Each			
v	Debonix regia (Gulmohar)	16.00	Each			
vi	Azadiractha indica (Neem)	16.00	Each			
vii	Ficus Benjamin	15.00	Each			
b)	SHRUBS					
i	Raphis Excelsa	5.00	Each			
ii	Yucca starlite	5.00	Each			
iii	Russelia juncia	5.00	Each			
iv	Karonda	10.00	Each			
v	Ficus longifolia	5.00	Each			
vi	Ficus black	10.00	Each			
vii	Galphima glauca	10.00	Each			
viii	Tabernemontana (verigated)	10.00	Each			
ix	Tabernemontana coronaria	20.00	Each			
x	Hamelia patens	20.00	Each			
c)	GROUND COVERS					
i	Plumbago capensis	10.00	Each			
ii	Tecoma capensis	10.00	Each			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.**BOQ for Civil Work**

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
iii	Ficus longisland	10.00	Each			
iv	Opiphogen black	10.00	Each			
v	Chlorophytum	10.00	Each			
vi	Clerodendron inerme	10.00	Each			
vii	Duranta broadleaf	10.00	Each			
viii	Cuphea minata	10.00	Each			
ix	Weddelia trilobata	10.00	Each			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
11.09	Providing and fixing M. S. tree guard 50 cm square in plan, height 1.40 metre above ground level and 0.50 metre below ground level. The vertical members shall consist of four nos of angle iron of size 25x25x5 mm 1.9 long, one at each corner and 8 nos flat iron of size 25x5 mm 1.4 long. The vertical members shall be welded to 4 nos 25x6 mm M. S. flats placed horizontally around the vertical member of the cage. One name plate of 1 mm thick M.S. sheet of size 250x100 mm shall be welded to the tree guard near the middle height and lettered CPWD / PWD/ any other approved name. The tree guard shall be fixed to the ground by making suitable holes and by embedding four corners leg in the ground , including refilling the earth, compaction etc. complete. The tree guard shall be painted with two coats of paint of approved brand and manufacture over a coat of primer, complete in all respect.	53.00	each			
	Subtotal					
	SIGNAGES					
12.00						

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
12.01	Manufacturing, supplying and fixing retro reflective overhead signage boards made up of 2 mm thick aluminium sheet, face to be fully covered with high intensity and encapsulated lens type heat activated retro reflective sheeting conforming to type - III of ASTM-D-4956-01 as approved by Engineer-in-charge, letters, borders etc. as per IRC : 67-2001 in silver white with blue colour back ground and with high intensity grade, pasted on substrate by pressure sensitive adhesive backing which shall be activated by applying pressure conforming to class II of ASTM-D-4956-01 and fixing the same to the plate of structural frame work by means of suitable sized aluminium alloys, rivets or bolts & nuts @ 300 mm centre to centre all along the periphery as well as in two vertical rows along with theft resistant measures, including the cost of painting with two or more coats of epoxy paint in grey colour on the back side of aluminium sheet including appropriate priming coat.					

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
	The rate includes the cost of rounding off the corners, lowering down the structural frame work from the gantry, fixing and erecting the same in position all complete as per drawings, specification and direction of the engineer-in-charge.(Structural frame work including M.S. plate to be provided separately. Rectangular area of the sheet only shall be measured for seperately.					
a)	Overhead informatory road signage	53.00	sqm			
12.02	Providing and applying 2.5 mm thick road marking strips (retro- reflective) of specified shade/ colour using hot thermoplastic material by fully/ semi automatic thermoplastic paint applicator machine fitted with profile shoe, glass beads dispenser, propane tank heater and profile shoe heater, driven by experienced operator on road surface including cost of material, labour ,T&P, cleaning the road surface of all dirt, seals, oil, grease and foreign material etc. complete as per direction of Engineer-in-charge and accordance with applicable specifications.	53.00	sqm			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
12.03	Providing fabricating and fixing of signages of varying sizes and shapes using three mm thick PVC sheet at base with self adhesive coloured vinyl with graphicson top of glow tape complete including fixing on wall with screws and washers or hanging on ceiling with GI chain/GI Bar complete as per technical specifications and directions of Engineer.	10500.00	sqinch			
12.04	Providing and fixing of sinages of varying sizes and shapes using stainless steel sheet of minimum 16G thickness brush finish including engraving/etching of letters of required size filled with colour as desired by engineer,fixing with ss screws on walls	5250.00	sqinch			
12.05	Providing & Fixing Wall Mounted Nonlit Fire Exit 24" x 9" Internal sign of approved make & made of 10mm Acrylic with the required text matters stuck on it with plotted self adhesive vinyl & Mounted on 3mm Aluminium Composit Panel bracketed at suitable locations including necessary fittings & fastening etc. complete & as directed by The Engineer in charge.	105.00	each			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
12.06	Providing & Fixing Suspended Nonlit sign 48"x9" of approved make & made of 1" Aluminium framing duly PU painted and 10mm Acrylic element mounted to it from either side with the required text matters stuck on it with plotted Self Adhesive Vinyl bracketed at suitable locations, including necessary fittings & fastening etc. complete & as directed by The Engineer in charge.	53.00	each			
12.07	Providing & Fixing Wall Mounted Nonlit Utility 6" x 6" Internal sign of approved make & made of 10mm Acrylic with the required text matters stuck on it with plotted self adhesive vinyl & Mounted on 3mm Aluminium Composit Panel bracketed at suitable locations including necessary fittings & fastening etc. complete & as directed by The Engineer in charge.	105.00	each			

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.

BOQ for Civil Work

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
12.08	Providing & Fixing Wall Mounted Nonlit Identification sign 18"x5" of approved make & made of 10mm Acrylic with the required text matters stuck on it with plotted self adhesive vinyl & Mounted on 3mm Aluminium Composit Panel bracketed at suitable locations including necessary fittings & fastening etc. complete & as directed by The Engineer in charge.	210.00	each			
12.09	Providing & Fixing Wall Mounted Nonlit Utility 24" x 9" Internal sign of approved make & made of 10mm Acrylic with the required text matters stuck on it with plotted self adhesive vinyl & Mounted on 3mm Aluminium Composit Panel bracketed at suitable locations including necessary fittings & fastening etc. complete & as directed by The Engineer in charge.	105.00	each			
	SUB TOTAL					
13	Miscellaneous					

NAME OF THE WORK:- Construction of housing at AIIMS like Institute at Raebareli, UP.**BOQ for Civil Work**

Item No	Description Of Item	Total Qty	Unit	Rate in Rs (In figures)	Rate in Rs (In Words)	Amount in Rs
1	2	3	4	5	6	7
	Providing new vehicle, Ambassdor or equivalent, at any time for exclusive use of Engineer during currency of contract. The number of vehicles and period shall be informed by the Engineer as per requirement. The rates shall be inclusive of services of drivers, fuel, oil, lubricants, consummables, maintenance, toll tax etc complete as directed by Engineer	10000.00	Km			
SUB TOTAL						

BILL OF QUANTITIES

OF

PUBLIC HEALTH
ENGINEERING

Project Name:Construction of housing at AIIMS like Institute at Raebareli,UP

ABSTRACT OF COST (PHE Works)

S.No.	DESCRIPTION	Amount in fig (In Rs)	Amount in words (In Rs)
A	INTERNAL PLUMBING ,		
1.00	SANITARY FIXTURES		
2.00	SOIL, WASTE AND VENT PIPES		
3.00	WATER SUPPLY		
4.00	SEWERAGE AND DRAINAGE		
5.00	EARTH WORK		
B	EXTERNAL PLUMBING ,		
6.00	EXTERNAL WATER SUPPLY		
7.00	BOREWELL		
8.00	RAIN WATER HARVESTING		
9.00	RAIN WATER PIPING		
10.00	SOLAR WATER HEATING SYSTEM		
11.00	WATER TREATMENT PLANT ,PUMP & EQUIPMENT		
12.00	SEWAGE TREATMENT PLANT(including O & M)		
13.00	WATER SUPPLY PUMP PANEL		
	TOTAL		

GRAND TOTAL (RS)

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
1.00	SANITARY FIXTURES					
	Note: Based on the tender drawing the agency has to prepare the internal & external plumbing shop drawing and obtain the approval of the same before execution					
1.01	Providing and fixing water closet squatting pan (Indian type W.C. pan) with 100 mm sand cast Iron P or S trap, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever) conforming to IS : 7231, with all fittings and fixtures complete, including cutting and making good the walls and floors wherever required :					
a)	White Vitreous china Orissa pattern W.C. pan of size 580x440 mm with integral type foot rests	Each	325.00			
1.02	Providing and fixing white vitreous china pedestal type water close (European type) with seat and lid, 10 litre low level white vitreous china flushing cistern & C.P. flush bend with fittings & C.I.brackets, 40 mm 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)	W.C. pan with ISI marked black solid plastic seat and lid	Each	882.00			
1.03	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require :					
a)	White Vitreous China Wash basin size 630x450 mm with a single 15 mm C.P. brass pillar taps	Each	1,197.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

SI. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
1.04	Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink as per IS : 13983 with C.I. brackets and stainless steel plug 40 mm, including painting of fittings and brackets, cutting and making good the walls wherever required :					
b)	Kitchen sink without drain board					
b i)	610x510 mm bowl depth 200 mm	Each	107.00			
a)	Kitchen sink with drain board					
a i)	510x1040 mm bowl depth 250 mm	Each	173.00			
1.05	Extra for using coloured pedestal type W.C pan (European type) with low level cistern of same colour instead of white vitreous china W.C pan and cistern.	Each	794.00			
1.06	Providing and fixing mirror of superior glass (of approved quality) and of required shape and size with plastic moulded frame of approved make and shade with 6 mm thick hard board backing :					
a)	Rectangular shape 453x357 mm	Each	1,197.00			
b)	Rectangular shape mirror more than 0.6 sq.m. area	sq.m.	26.00			
1.07	Providing and fixing 600x120x5 mm glass shelf with edges round off, supported on anodised aluminium angle frame with C.P. brass brackets and guard rail complete fixed with 40 mm long screws, rawl plugs etc., complete.	Each	1,058.00			
1.08	Providing and fixing toilet paper holder :					
a)	Vitreous china	Each	880.00			
1.09	Providing and fixing PTMT liquid soap container 109 mm wide, 125 mm high and 112 mm distance from wall of standard shape with bracket of the same materials with snap fittings of approved quality and colour, weighing not less than 105 gms.	Each	4.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
1.10	Providing and fixing white vitreous china extended wall mounting water closet of size 780x370x690 mm of approved shape including providing & fixing white vitreous china cistern with dual flush fitting, of flushing capacity 3 litre/6 litre (adjustable to 4 litre/8 litres), including seat cover, and cistern fittings, nuts, bolts and gasket etc complete.	Each	100.00			
1.11	Providing and fixing water Jet Nozzle with hose pipe and half turn CP brass angle valve to be fitted with seat cover of european water closet complete in all respect of approved quality	Each	790.00			
1.12	Providing and fixing soap tray with CP brass lid and brackets fixed to wooden cleats with CP brass screws.(Jaquar model no.1131 or equivalent model of other approved make).	Each	1,343.00			
1.13	Providing and fixing CP brass towel rail size of 600x20 mm of approved make complete with CP brackets fixed to wooden cleats with CP brass screws(Jaquar model no.1111 or equivalent model of other approved make)	Each	1,207.00			
1.14	Providing and fixing CP brass coat hook of approved quality and make complete with material of fixing weight not less than 300 gm	Each	1,233.00			
1.15	Extra for providing and fixing white vitreous china oval shape wash basin in place of normal wash basin with CI/MS brackets painted white, 15 mm CP brass pillar taps, 32 mm CP brass waste of standard pattern, including painting of fittings and brackets cutting and making good the walls wherever required					
a)	Counter top oval shape wash basin size 550x470 mm with centre tap hole, single 15 mm CP brass swan neck type pillar tap	Each	1,003.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
1.16	Providing and fixing stainless steel grab bar 25mm dia of required length minimum 750 mm with PVC cleats, C.P. brass screws etc. complete.	Each	10.00			
	SubTotal (Sanitary Fixtures)					
2.00	SOIL, WASTE & VENT PIPES					
2.01	Providing and fixing soil, waste and vent pipes.					
a)	100 mm dia.					
i)	Centrifugally cast (spun) iron socket & spigot (S&S) pipe as per IS 3989	Metre	16,604.00			
b)	75 mm dia.					
bi)	Centrifugally cast (spun) iron socket & spigot (S&S) pipe as per IS 3989	Metre	350.00			
c)	150 mm dia					
i)	Centrifugally cast (spun) iron socketed pipe as per IS:3989	Metre	200.00			
2.02	Providing and fixing M.S holder-bat clamps of approved design to Sand Cast iron/ cast iron (spun) pipe embedded in and including cement concrete blocks 10x10x10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including cost of cutting holes and making good the walls etc.					
a)	for 100 mm dia. pipe	Each	2,327.00			
b)	for 75 mm dia. pipe	Each	58.00			
2.03	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.					
a)	100 mm					
a i)	Sand cast iron S&S as per IS-3989	Each	1,105.00			
b)	75mm					
bi)	Sand cast iron S&S as per IS-3989	Each	406.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
2.04	Providing and fixing plain bend of required degree.					
a)	100 mm					
a i)	Sand cast iron S&S as per IS:3989	Each	1,778.00			
b)	75 mm					
b i)	Sand cast iron S&S as per IS:3989	Each	406.00			
2.05	Providing and fixing heel rest sanitary bend.					
a)	100 mm dia					
a.i)	sand cast iron S&S as per IS-3989	Each	369.00			
b)	75 mm dia					
b.i)	sand cast iron S&S as per IS-3989	Each	202.00			
2.06	Providing and fixing double equal junction of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete :					
a)	100x100x100x100 mm					
ai)	Sand cast iron S&S as per IS - 3989	Each	67.00			
2.07	Providing and fixing single equal plain junction of required degree with access door, insertion rubber washer 3mm thick, bolts and nuts complete.					
a)	100x100x100mm					
a.i)	sand cast iron S&S as per IS-3989	Each	2,250.00			
b)	75x75x75mm					
b i)	sand cast iron S&S as per IS-3989	Each	102.00			
2.08	Providing and fixing single equal plain junction of required degree					
a)	100x100x100mm					

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

SI. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
a.i)	sand cast iron S&S as per IS-3989	Each	32.00			
b)	75x75x75mm Centrifugally cast (spun) iron S&S					
b.ii)	sand cast iron S&S as per IS-3989	Each	10.00			
2.09	Providing and fixing single equal plain invert branch of required degree :					
a)	100x100x100 mm					
ai)	Sand cast iron S&S as per IS - 3989	Each	62.00			
2.10	Providing and fixing terminal guard.					
a)	100 mm	Each	325.00			
a i)	sand cast iron S&S as per IS-3989					
b)	75 mm					
b i)	sand cast iron S&S as per IS-3989	Each	10.00			
2.11	Providing and fixing collar					
a)	100 mm					
a i)	Sand cast iron S&S as per IS-3989	Each	2,282.00			
b)	75 mm					
b i)	Sand cast iron S&S as per IS-3989	Each	50.00			
2.12	Providing lead caulked joints to sand cast iron /centrifugally cast (spun) iron pipes and fittings of diameter:					
a)	100 mm	Each	15,572.00			
b)	75 mm	Each	2,000.00			
2.13	Providing Drip seal joint of approved make for the sand cast iron/centrifugally cast iron pipes where the workability of lead joint can be effected due to space constraints.					
a)	100 mm	Each	3,905.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
2.14	Providing and fixing M.S. stays and clamps for sand cast iron / centrifugally cast (spun) iron pipes of diameter :					
a)	100 mm	Each	367.00			
2.15	Providing and fixing trap of self cleansing design with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors:					
a)	100 mm inlet and 100 mm outlet					
a i)	Sand cast iron S&S as per IS-3989	Each	1,617.00			
2.16	Cutting chases in brick masonry walls for following diameter sand cast iron/centrifugally cast (spun) iron pipes and making good the same with cement concrete 1:3:6 (1 cement:3 coarse sand:6 graded stone aggregate 12.5 mm nominal size) including necessary plaster and pointing in cement mortar 1:4 (1 cement: 4 coarse sand):					
a)	100 mm diameter pipe	Metre	1,469.00			
2.17	Painting sand cast iron / centrifugally cast (spun) iron soil, waste vent pipes and fittings with two coats of synthetic enamel paint off any colour such as chocolate, grey, or buff etc. over a coat of primer (of approved quality) for new work:					
a)	100 mm diameter pipe	Metre	6,951.00			
b)	75 mm diameter pipe	Metre	300.00			
2.18	Providing and fixing floor drain points formed out of 65 mm dia GI elbow, including with 75mm dia Stainless Steel grating with frame, embedded in floor, all complete as directed. Pipe will be paid separately.	Each	1,324.00			
2.19	Providing and fixing C.P. brass bottle trap for wash basin including CP waste fittings complete 32 mm dia complete in all respect of approved quality.	Each	1,197.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
2.20	Providing and fixing C.P. brass bottle trap for sinks & urinal basin including CP waste fittings complete 40 mm dia complete in all respect of approved quality.	Each	254.00			
2.21	Providing and laying cement concrete 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size) 80 mm thick all-round the SCL/centrifugally S&S pipe diameter.(based on DSR no.4.1.3)					
a)	100 mm dia	Metre	6,877.00			
b)	75 mm dia	Metre	200.00			
2.22	Providing and fixing floor clean out plug consist of CI bend & GI socket heavy class with Brass cap & key for opening male threaded cap etc. including lead caulked to CI pipescomplete in all respects as per drawing/ sample approved by Engineer -in - ChargeFCO (floor clean out plug shall be flushed with floor finish					
	100 mm dia/150 mm dia	Each	527.00			
2.23	Providing and fixing G.I EXTENSION PIECE for 100 mm dia floor trap formed out of main pipe(Type A) with multiple side inlets, suitable for various dia pipes, side connections, including all fixtures and fittings as per site conditions and as per standard details and water tight sealing of joints and area surrounding the grating and as directed.	Each	1,617.00			
2.24	Providing and fixing cPVC/GI pipes complete with cPVC/GI fittings including painting,jointing,testing the cost of cutting the chases and making good the same for waste water disposal complete as per direction of engineer incharge.					
a)	32 mm dia nominal bore (Wash basin to floor trap/floor drain)	Metre	1,208.00			
b)	40 mm dia nominal bore (Sink,Urinal to floor trap)	Metre	100.00			
c)	50 mm dia nominal bore (Floor Drain to Floor Trap)	Metre	2,092.00			
2.25	Providing & fixing SS floor trap grating 143x143x5mm thick screwable with SS fixed frame of 150x150 mm size as per approved make & model	Each	500.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
2.26	Providing and fixing WC connector socket(for vitreous china & CI pipe) of EDPM good quality with polypropelene body 100x150/100x250 of approved quality and make complete in all respect.	Each	857.00			
	SUBTOTAL(Soil,Waste & Vent pipes)					
3.00	WATER SUPPLY					
3.01	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge.					
	Internal work – Exposed on wall					
a)	15 mm nominal outer dia pipes	Metre	2,404.00			
b)	20 mm nominal outer dia pipes	Metre	5,093.00			
c)	25 mm nominal outer dia pipes	Metre	3,104.00			
d)	32 mm nominal outer dia pipes	Metre	1,760.00			
e)	40 mm nominal outer dia pipes	Metre	2,580.00			
f)	50 mm nominal outer dia pipes	Metre	3,040.00			
g)	65 mm nominal outer dia pipes	Metre	90.00			
3.02	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & 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 walls etc.					

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
a)	15 mm nominal outer dia pipes	Metre	10,025.00			
b)	20 mm nominal outer dia pipes	Metre	3,577.00			
c)	25 mm nominal outer dia pipes	Metre	891.00			
d)	32 mm nominal outer dia pipes	Metre	90.00			
3.03	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes and fittings with one step CPVC solvent cement, trenching, refilling and testing of joints complete as per direction of Engineer in Charge.					
	External Work					
a)	25 mm nominal outer dia pipes	Metre	35.00			
b)	32 mm nominal outer dia pipes	Metre	125.00			
b)	40 mm nominal outer dia pipes	Metre	235.00			
b)	50 mm nominal outer dia pipes	Metre	135.00			
3.04	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, including cutting and making good the walls etc.					
	Internal Work- Exposed on walls					
a)	65 mm dia nominal bore	Metre	470.00			
b)	80 mm dia nominal bore	Metre	650.00			
3.05	Making connection of G.I. distribution branch with G.I. main of following sizes by providing and fixing tee, including cutting and threading the pipe etc. complete :					
a)	25 to 40 mm nominal bore	Each	38.00			
b)	50 to 80 mm nominal bore	Each	24.00			
3.06	providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end)					
a)	25 mm nominal bore	Each	246.00			
b)	32 mm nominal bore	Each	114.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
c)	40 mm nominal bore	Each	186.00			
d)	50 mm nominal bore	Each	141.00			
e)	65 mm nominal bore	Each	51.00			
f)	80 mm nominal bore	Each	9.00			
3.07	Providing and fixing ball valve (brass) of approved quality, High or low pressure with plastic floats complete					
a)	20mm	Each	197.00			
b)	25mm	Each	197.00			
3.08	Providing and fixing brass ferrule with C.I. mouth cover including boring and tapping the main					
a)	20 mm nominal bore	Each	13.00			
b)	25 mm nominal bore	Each	43.00			
3.09	Providing and fixing unplasticised PVC connection pipe with brass unions:					
a)	45 cm length					
a i)	15 mm nominal bore	Each	4,925.00			
3.10	Constructing masonry chamber 30x30x50 cm inside, in brick work in cement mortar 1:4 (1 cement: 4 coarse sand) for stop cock, with C.I. surface box 100x100x75 mm (inside) with hinged cover fixed in cement concrete slab 1:2:4 mix (1 cement: 2 coarse sand:4 graded stone aggregate 20 mm nominal size) 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)	With F.P.s bricks	Each	86.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

SI. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
3.11	Constructing masonry chamber 60x60x75 cm, inside in brick work in cement mortar 1:4 (1 cement: 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement: 2 coarse sand:4 graded stone aggregate 20 mm nominal size) 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)	With F.P.s bricks	each	24.00			
3.12	Painting CPVC/G.I. pipes and fittings with synthetic enamel white paint with two coats over a ready mixed priming coat, both of approved quality for new work					
a)	15 mm nominal outer dia pipes	Metre	2,404.00			
b)	20 mm nominal outer dia pipes	Metre	5,093.00			
c)	25 mm nominal outer dia pipes	Metre	3,104.00			
d)	32 mm nominal outer dia pipes	Metre	1,760.00			
e)	40 mm nominal outer dia pipes	Metre	2,580.00			
f)	50 mm nominal outer dia pipes	Metre	3,040.00			
g)	65 mm nominal outer dia pipes	Metre	90.00			
3.13	Painting G.I. /CPVC pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality.					
a)	15 mm diameter pipe	Metre	10.00			
b)	20 mm diameter pipe	Metre	10.00			
c)	25 mm diameter pipe	Metre	45.00			
d)	32 mm diameter pipe	Metre	105.00			
e)	40 mm diameter pipe	Metre	245.00			
f)	50 mm diameter pipe	Metre	135.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

SI. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
3.14	Providing and filling sand of grading zone V or coarser grade all-round the G.I./CPVC pipes in external work					
a)	15 mm diameter pipe	Metre	10.00			
b)	20 mm diameter pipe	Metre	10.00			
c)	25 mm diameter pipe	Metre	45.00			
d)	32 mm diameter pipe	Metre	15.00			
e)	40 mm diameter pipe	Metre	245.00			
f)	50 mm diameter pipe	Metre	135.00			
3.15	Providing and fixing G.I. Union in G.I. pipe including cutting and threading the pipe and making long screws etc. complete (New work) :					
a)	15 mm dia nominaal bore	Each	2.00			
b)	20 mm dia nominaal bore	Each	2.00			
c)	25 mm dia nominaal bore	Each	7.00			
d)	32 mm dia nominaal bore	Each	97.00			
e)	40 mm dia nominaal bore	Each	137.00			
f)	50 mm dia nominaal bore	Each	47.00			
g)	65 mm dia nominaal bore	Each	2.00			
h)	80 mm dia nominaal bore	Each	2.00			
3.16	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.					
	Treated water Tank and Untreated water tank	per litre	329,000.00			
3.17	Providing and fixing C.P brass bib cock of approved quality confirming to IS:8931.					
a)	15 mm nominal bore	Each	1,205.00			
3.18	Providing and fixing C.P. brass long nose bib cock of approved quality conforming to IS standards and weighing not less than 810 gms.					
a)	15 mm nominal bore	Each	2,670.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

SI. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
3.19	Providing and fixing C.P. brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms.					
a)	15mm nominal bore	Each	173.00			
3.20	Providing and fixing C.P. brass angle valve for basin mixer and geyser/cisterns points of approved quality conforming to IS:8931.					
a)	15 mm nominal bore	Each	4,925.00			
3.21	Providing and fixing C.P. brass stop cock (concealed) of standard design and of approved make conforming to 18:8931.					
a)	15mm nominal bore.	Each	2,202.00			
3.22	Providing and fixing enclosed type water meter (bulk type) conforming to IS : 2373 and tested by municipal board complete					
a)	80mm dia nominal bore	Each	19.00			
3.23	Providing and fixing PTMT ball cock of approved quality, colour and make complete with Epoxy coated aluminium rod with L.P./H.P.H.D. plastic ball.					
a)	40 mm nominal bore, 206 mm long weighin not less than 690 gms	Each	46.00			
b)	50 mm nominal bore, 242 mm long weighin not less than 1240 gms	Each	10.00			
3.24	Cutting holes upto 30x30 cm in walls including making good the same					
a)	with common burnt clay F.P.S.(non modular) bricks	Each	1,129.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

SI. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
3.25	Cutting holes up to 15x15 cm in R.C.C. floors and roofs for passing drain pipe etc. and repairing the hole after insertion of drain pipe etc. with cement concrete 1:2:4 (1 cement:2 coarse sand: 4 graded stone aggregate 20 mm nominal size) including finishing complete so as to make it leak proof	Each	1,124.00			
3.26	Extra for providing wash basin mixer pillar tap in place of normal pillar tap	Each	1,086.00			
3.27	Extra for providing bath wall mixer with bend pipe on upper side (Jaquar model CON273 or equivalent approved) in place of normal concealed cock 2 nos. and 1 no. long nose tap	Each	1,080.00			
3.28	Providing & fixing full way lever operated forged brass ball valve of brass body with forged brass hard chrome plated steel ball tested to a pressure not less than 10 Kg / sqcm with threaded / flanged joints complete with nuts, bolts, gaskets, washers etc.					
a)	15 mm diameter	Each	190.00			
b)	20 mm diameter	Each	182.00			
3.29	Providing and fixing mosquito proof coupling of approved Municipal design for scour and vent pipes for RCC overhead tanks complete in all respects					
a)	20 mm diameter	Each	186.00			
b)	25 mm diameter	Each	26.00			
c)	32 mm diameter	Each	193.00			
d)	40 mm diameter	Each	14.00			
e)	50 mm diameter	Each	10.00			
f)	65 mm diameter	Each	10.00			
3.30	Providing & fixing 9 mm thick thermal insulation tubing of elastomeric flexible material on hot water supply/return pipes having hermetic blistered closed cell structure of expanded synthetic rubber over pipes/ fitting as per manufacturer's specifications etc.complete.					
a)	15 mm to 25 mm diameter	Meter	5,295.00			
b)	32 mm to 50 mm diameter	Meter	710.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
3.31	Providing and fixing C.P. brass Overhead (Rain Fall) shower (100mm) with arm and wall flange complete including cutting and making good the walls wherever required.	Each	996.00			
3.32	Supplying, fixing, testing and commissioning of storage type water heater (Geyser) etc. with Stainless steel body , copper container , automatic thermostatic control electric element, pressure release valve, M.S. nuts and bolts etc. conforming to IS: 2082					
a	35 Litre Capacity	Each	151.00			
a)	25 Litre Capacity	Each	958.00			
3.33	Providing & fixing water storage cooler of approved make and brand with SS body having minimum flow rate of 40 ltrs. Per hour and storage capacity 80 ltrs. Complete in respects.(VOLTAS/ BLUE-STAR/ USHA SHRIRAM)	Each	76.00			
3.34	Providing and fixing approved make & suitable model of R.O. plant 100 ltrs. Per hour flow rate having capacity to treat the raw water having TDS 1200 ppm and not less than 40%. The treated water should have TDS less than 100 ppm and hardness less than 50 ppm. The operating voltage to 230 volt AC +/- 10% alongwith required capacity pump and solenoid valves, dry run protection of pump, automatic tank level control, inbuilt auto flush timer for periodic flushing of membranes, hydro pneumatic tank, over voltage and over current protection with switch mode power supply system antiscaling dosing system complete in all respects including installation and fittings with the following provisions: (IONIEXCHANGE/ KENT/AQUAPROCESS/Pantair)					
a)	10 micron polypropylene sediment pre filter					
b)	10 micron bacteriostatic activated carbon block on line micron filter with 5 micron rating					
c)	3 Nos. of reverse osmosis memberane with 0.0001 micron pore size energy saving poly amide type					
	Antiscaling dosing system and digital display panel					

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

SI. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
d)	UV lamp of minimum capacity 100 LPH and minimum lamp wattage 9W	Each	76.00			
	Sub Total(Water Supply)					
4.00	SEWERAGE & DRAINAGE					
4.01	Providing laying and jointing glazed stoneware pipes grade 'A' with stiff mixture of cement mortar in the pro-portion of 1:1 (1 cement : 1 fine sand) including testing of joints etc. complete.					
a)	100 mm diameter	Metre	308.00			
4.02	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) all-round S.W. pipes including bed concrete as per standard design:					
a)	100 mm diameter S.W. pipe/RCC NP2	Metre	238.00			
b)	150 mm diameter S.W. pipe/RCC NP2	Metre	1,635.00			
c)	250 mm diameter S.W. pipe/RCC NP2	Metre	2,000.00			
4.03	Providing and laying cement concrete 1:5:10 (1 cement:5 coarse sand:10 graded stone aggregate 40 mm nominal size) up to haunches of S.W. pipes including bed concrete as per standard design:					
a)	150 mm diameter S.W. pipe	Metre	390.00			
b)	250 mm diameter s.W. pipe	Metre	1,550.00			
c)	450 mm diameter S.W. pipe/RCC NP2(based on DSR no.4.1.10)	Metre	500.00			
4.04	Providing and fixing square-mouth S.W. gully trap grade 'A' complete with C.I. grating, brick masonry chamber with water tight C.I. cover with frame of 300x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design:.					
a)	150x100mm size P type					
a.i)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	212.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
4.05	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)	150 mm dia R.C.C. pipe	Metre	1,747.00			
b)	250 mm dia R.C.C. pipe	Metre	3,550.00			
C)	450 mm dia R.C.C. pipe	Metre	500.00			
4.06	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand), R.C.C. top slab with 1:2:4 mix (1cement : 2 coarse sand : 4graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 (1cement : 4 coarse sand : 8graded stone aggregate 40 mm nominal size), inside plastering 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement all complete as per standard design.					
a)	Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg):					
a i)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	221.00			
4.07	Inside size 120x90 cm and 90 cm deep including C.I. cover with frame (medium duty) 500 mm internal diameter, total weight of cover and frame to be not less than 116 kg (weight of cover 58 kg and weight of frame 58 kg) :					
a)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	10.00			
4.08	Extra depth for manholes					
a)	Size 90 x 80 cm					

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

SI. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
a i)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Metre	37.50			
4.09	Size 120x90 cm					
a)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Metre	5.00			
4.10	Constructing brick masonry circular type manhole 0.91m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement :4 coarse sand), in side cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement: 3 coarse sand: 6 graded stone aggregate 40mm nominal size), and making necessary channel in cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement all complete as per standard design:					
a)	0.91 m deep with S.F.R.C. cover and frame (heavy duty, HD-20 grade designation) 560mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182kg., fixed in cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size) including centering shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately)					
a i)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	129.00			
4.11	Extra depth for circular type manhole 0.91m dia (at bottom) with beyond 0.91m to 1.67 m					
a)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Metre	8.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
4.12	Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement: 4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 mix (1 cement :3 coarse sand : 6 graded stone aggregate 40mm nominal size) and making necessary channel in cement concrete 1:2:4 (1 cement :2 coarse sand : 4 graded stone aggregate 20mm nominalsize) finished with a floating coat of neat cement complete as per standard design.					
a)	1.68 m deep with SFRC cover and frame(heavy duty HD-20 grade designation) 560 mm internal diameter conforming to IS: 12592, total weight of cover and frame to be not less than 182 kg. fixed in cement concrete 1:2:4 (1 cement :2 coarse sand : 4 graded stone aggregate 20mm nominalsize) including centering shuttering all complete. (Excavation, foot rests and 12 mm tick cement plaster at the external surface shall be paid for separately)					
a.i)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	80.00			
4.13	Extra depth for circular type manhole 1.22 m internal dia (at bottom) with beyond 1.68 m to 2.29 m					
a)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Metre	14.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
4.14	Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS: 10910 on 12 mm dia steel bar conforming to IS: 1786 having minimum cross section as 23 mm x 25 mm and over all minimum length 263 mm and width as 165 mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specification mark to be visible even after fixing, including fixing in manholes with 30x20x15 cm cement concrete block 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) complete as per design.	Each	1,453.00			
4.15	Making connection of drain or sewer line with existing manhole including breaking into and making good the walls, floors with cement concrete 1:2:4 mix (1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size) cement plastered on both sides with cement mortar 1:3 (1 cement:3 coarse sand) finished with a floating coat of neat cement and making necessary channels for the drain etc. complete (including obtaining approval from DJB/Municipal corporation)					
a)	For pipes 100 to 250 mm dia	Each	19.00			
4.16	Providing sand cast iron drop connection externally for 60 cm drop from branch sewer line to main sewer manhole including inspection and cleaning eye with chain and lid sand cast iron drop pipe and bend encased all-round with cement concrete 1 :5:1 0 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) with all centering and shuttering required, cutting holes in walls and making good with brick work in cement mortar 1:4 (1 cement: 4 coarse sand) plastered with cement mortar 1:3 (1 cement: 3 coarse sand) on, inside of the manhole wall lead caulked joints between sand cast iron pipes and fittings, stiff cement mortar 1:1 (1 cement: 1 fine sand) joints between sand cast iron tee and S.W. pipe, making required channels complete as per standard design and specifications:					
a)	150 mm dia. sand cast iron drop connection	Each	46.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
4.17	Constructing brick masonry road gully chamber 50x45x60 cm with bricks in cement mortar 1:4 (1 cement : 4 coarse sand) including 500x450 mm pre-cast R.C.C. horizontal grating with frame complete as per standard design :					
a)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	299.00			
4.18	Constructing brick masonry open surface drain including factory made perforated RCC cover with edge protected with MS plate of 3 mm thick with bricks of class designation 75 in cement mortar 1:4 (1 cement : 4 fine sand) including earth excavation, 10cm thick bed concrete 1:5:10 (1 cement: 5 fine sand :10 graded stone aggregate 40mm nominal size) and 25mm thick cement concrete 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate 12.5 mm nominal size) for filling hunches including 12mm cement plaster 1:4 (1 cement:4 coarse sand) with a floating coat of neat cement inside the drain, its top and exposed side including disposal of surplus earth complete as per standard design.					
	25cm drain 30cm average depth					
a)	With F.P.S bricks	Metre	1,500.00			
	45cm drain 75cm average depth					
b)	With F.P.S bricks	Metre	2,385.00			
4.19	Constructing grease trap 1.5x1.0x1.2m (inside) with one brick thick brick masonry wall with inlet and outlet drain with bricks of class designation 75 in cement mortar 1:4 (1 cement:4 fine sand) plastered 12mm thick with 1:4 (1 cement : 4 coarse sand) finished with a floating coat of neat cement on inside and exposed surfaces having baffled walls with 40mm flooring in cement concrete 1:2:4 (1 cement:2 coarse sand 4: graded stone aggregate 12.5 mm nominal size) with a floating coat of neat cement including all earth excavation, refilling and disposal of surplus earth complete as per standard design.					
	With F.P.S bricks	Each	3.00			
	SubTotal(Sewerage & Drainage)					

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
5.00	EARTH WORK					
5.01	Earth work in excavation 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 1.5m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50m					
a)	All kinds of soil	cum	700.00			
5.02	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m:					
a)	All kinds of soil					
a.ii)	Pipes, cables etc. exceeding 80 mm dia but not exceeding 300 mm dia	metre	5,950.00			
5.03	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m	cum	220.00			
	SubTotal(Earth Work)					
6.00	EXTERNAL WATER SUPPLY					
6.01	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m :					
a)	All kinds of soil					
a.ii)	Pipes, cables etc, not exceeding 80 mm dia but not exceeding 300 mm dia	metre	9,550.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

SI. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
6.02	Providing and fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc.					
a)	40 mm dia nominal bore	metre	500.00			
b)	65 mm dia nominal bore	metre	1,000.00			
c)	80 mm dia nominal bore	metre	1,000.00			
6.03	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :					
a)	40 mm dia nominal bore	each	17.00			
b)	65 mm dia nominal bore	each	17.00			
6.04	Providing and fixing gun metal non-return valve of approved quality (screwed end)					
a)	65 mm nominal bore					
a.i)	Horizontal	each	35.00			
b)	100 mm nominal bore					
b.i)	Horizontal	each	8.00			
6.05	Providing and fixing C.I. sluice valves (with cap) complete with bolts, nuts, rubber insertions etc. (the tail pieces if required will be paid separately) :					
a)	100 mm diameter					
a.i)	Class I	each	25.00			
b)	150 mm diameter					
b.i)	Class I	each	16.00			
c)	200 mm diameter					
c.i)	Class I	each	8.00			
d)	250 mm diameter					
d.i)	Class I	each	4.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
6.06	Constructing masonry Chamber 90x90x100 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100 mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid 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)	With common burnt clay F.P.S.(non modular) bricks of class designation 7.5	each	25.00			
6.07	Constructing masonry chamber 120x120x100 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement: 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement: 2 coarse sand:4 graded stone aggregate 20 mm nominal size) 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)	With F.P.S.bricks	each	28.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
6.08	Constructing masonry Chamber 60x60x75 cm, inside in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for fire hydrants, with C.I. surface box 350x350 mm top and 165 mm deep (inside) with chained lid 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 :					
	With common burnt clay F.P.S.(non modular) bricks of class designation 7.5	each	25.00			
6.09	Providing and fixing C.I. double acting air valve of approved quality with bolts, nuts, rubber insertions etc. complete (The tail pieces, tapers etc. if required will be paid separately):					
a)	100 mm dia	each	10.00			
a)	50 mm dia	each	2.00			
6.10	Providing and fixing C.I. dirt box strainer for bulk type water meter with nuts, bolts, rubber insertions etc. complete conforming to IS:2373					
a)	100 mm dia	each	1.00			
b)	150 mm dia	each	4.00			
c)	200 mm dia	each	4.00			
6.11	Providing and laying D.I. specials of class k-12 suitable for push-on jointing as per IS:9523					
a)	Upto 600 mm dia	quintal	415.00			
6.12	Providing push-on-joints to Centrifugally (Spun) Cast Iron pipes or Ductile Iron Pipes including testing of joints and including the cost of rubber gasket					
a)	100mm dia pipes	joint	2,200.00			
b)	150 mm dia pipes	joint	1,300.00			
c)	200 mm dia pipes	joint	410.00			
d)	250mm dia pipes	joint	70.00			

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SI. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
6.13	Providing and laying S&S Centrifugally Cast (Spun)/Ductile Iron pipes confirming to IS:8329:					
a)	100 mm dia Ductile Iron Class k-7 pipes	metre	5,000.00			
b)	150 mm dia Ductile Iron Class k-7 pipes	metre	3,500.00			
c)	200 mm dia Ductile Iron Class k-7 pipes	metre	900.00			
d)	250 mm dia Ductile Iron Class k-7 pipes	metre	150.00			
6.14	Disinfecting C.I./D.I./GI water mains by flushing with water containing bleaching powder at 0.5 gms per litre of water and cleaning the same with fresh water, operation to be repeated three times including getting the sample of water from the disinfected main tested in the municipal laboratory					
a)	80 mm diameter C.I./D.I./GI pipe	100 metre	25.00			
b)	100 mm diameter C.I./D.I./GI pipe	100 metre	50.00			
c)	150 mm diameter C.I./D.I./GI pipe	100 metre	35.00			
d)	200 mm diameter C.I./D.I. pipe	100 metre	9.00			
e)	250 mm diameter C.I./D.I. pipe	100 metre	1.50			
6.15	Providing and fixing puddle flanged including 60 cm long GI pipe piece welded/threaded with MS plates 450x450x6 mm thick with both end screwed/flanged.					
a)	For 40 mm dia pipe	Each	5.00			
b)	For 50 mm dia pipe	Each	5.00			
c)	For 65 mm dia pipe	Each	5.00			
d)	For 80 mm dia pipe	Each	5.00			
e)	For 100 mm dia pipe	Each	7.00			
f)	For 150 mm dia pipe	Each	5.00			
g)	For 200 mm dia pipe	Each	5.00			
6.16	Providing and fixing double seal type D.I. Manhole cover of 560 mm clear internal diameter of over all heavy duty with locking arrangement complete in all respects.	Each	12.00			
6.17	Providing and fixing garden hydrant of approved quality and make complete in all respect	each	45.00			

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Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
6.18	Providing and fixing suitable G.I. vent pipe upto 1m high Class-B (medium quality) with fittings complete as per drawing and as directed.					
a)	100mm Dia	each	10.00			
6.19	Providing and filling sand of grading zone V or coarser grade all-round the G.I./CPVC pipes in external work					
a)	40 mm diameter pipe	metre	500.00			
b)	65 mm diameter pipe	metre	1,000.00			
c)	80 mm diameter pipe	metre	1,000.00			
6.20	Providing and fixing 3 layer PP-R (Poly propylene Random copolymer) pipes, U V stabilized & anti - microbial fusion welded, having thermal stability for hot & cold water supply, including all PP - R plain & brass threaded polypropylene random fittings, including trenching, refilling & testing of joints complete as per direction of Engineer in Charge.					
a)	PN - 16 Pipe, 90 mm OD (SDR - 7.4)	metre	1,000.00			
b)	PN - 16 Pipe, 110 mm OD (SDR - 7.4)	metre	2,000.00			
c)	PN - 16 Pipe, 160 mm OD (SDR - 7.4)	metre	800.00			
	SubTotal(External water supply)					
7.00	BOREWELL(4 No)					
7.01	Drilling by suitable rig as per IS : 2800-1979 (percussion or combination rig) or Reverse Rotary to suit site condition from ground level in all kind of soils and weathered rock including boulders (excluding rock) diameter of bore 450mm including carry out hydrological survey report before boring & getting the approval based on Hydrogeological survey before start of the work.Also getting approval from local authority if any required					
a)	0-30m	metre	120.00			
b)	30-60m	metre	120.00			
c)	60-90m	metre	120.00			
d)	90-120 m	metre	120.00			
7.02	Extra additional for drilling in Ordinary Rock if any found	metre	100.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

SI. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
7.03	Providing and lowering uPVC casing/housing pipe 200mm dia. with wall thickness 10 mm conforming to IS :12818 including sockets of standard design.	metre	280.00			
7.04	Providing & fixing uPVC screen/slotted pipe with 1.5 mm to 3mm (slots as per strata condition) including sockets of standard design as per IS: 12818/1992.					
a)	200 mm dia uPVC socketed pipe with wall thickness 10.0 mm	metre	320.00			
7.05	Providing and fixing in position threaded iron cap with locking arrangement of approved design to prevent foreign matters getting into the bore-hole as required.	Each	4.00			
7.06	Providing and laying rounded pea gravel washed & served 3 to 6 mm nominal bore as per relevant ISI code.	Cum	64.00			
7.07	Providing and laying cement concrete 1:2:4 mix for sanitary sealing of well at top.	Cum	4.00			
7.08	Supplying, lowering and fixing in position reducer ,PVC bail plug with "U" hooks as per IS:2800-1964.	Each	4.00			
7.09	Development of Tubewell including testing of yield depression & quality of water (for all parameters of potable water), contractor to obtain certificate for quality for water from Competent Authority approved by client or Engineer- In -Charge.					
a)	Development of Tube well by high capacity air compressor till the clear water discharge but not more than 100 hours.	per hour	320.00			
b)	Additional development of Tube well by high an over pumping unit till complete development of tube well does not clear by maximum 100 hours air compressor	per hour	200.00			
7.10	Tranportation, mobilisation and demobilisation or drilling equipment and ancillary equipment to site including clearing and cleaning the site after completion of work.	set	2.00			
7.11	Providing and fixing brass full way valve with C.I. wheel of approved make, tested to a pressure of 21 kg/sqcm.					

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
a)	100 mm dia	Each	4.00			
7.12	Providing and fixing gunmetal non return valve of approved make tested to a pressure of 21kg/sqcm.					
a)	100 mm dia	Each	4.00			
7.13	Providing & fixing G.I. pipes (heavy class)confirming to IS with special fittings in external works including earthwork ,excavationin all kinds of soil including ordinary rock,refilling, painting pipes & fitting complete in all respects.					
	100 mm dia	Metre	400.00			
7.14	Providing & filling sand of grading zone V or coarser grade all around GI pipe in external work					
	100 mm dia	Metre	400.00			
7.15	Submersible pumps					
	Providing and installing submersible pump and electrical panel suitable for 8" dia casing of bore with SS impeller, high tensile SS shaft, copper wound squirrel cage wet type induction motor 2880 rpm, 415 V, 50 Hz,3 phase A.C. supply, conforming to ISS: 8034-1976, capacity 500 litre per minute at 70-120 m head along with a directly coupled submersible type squirrel cage electric induction 10 H.P(approx.) . motor suitable for operation on 400 V, 3 phase, 50 c.p.s. A.C. supply, water lubricated bearings and provided with pivoted segment type thrust bearings to withstand non-vertical lead with minimum wear and tear and duly fitted with device to take up the expansion of water with heating of motor, including supply, testing and commissioning of elctrical panel from the same manufacturer, complete with all accessories in all respects. The contractor to obtain approval for model and make of pumpset & suitable Electrical panel after having yield report of fully developed tube well and submite actual bore strata chart.					

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
	including supplying laying and fixing water proof PVC insulated flat set submersible cable 3x10 sqmm with end termination with its accessories. complete in all respect as required. 1 No. 3 Phase, fully automatic star-delta starter of 10 HP with thermal overload relay, contactor, Timer, Push Buttons and Auto-manual selector switch etc complete as required.	set	4.00			
7.16	Carrying out Electrical logging of Borewell before lowering of pipe for analysiing of water quality including Electrical logging report, calculation etc.	Job	4.00			
	SUBTOTAL (BOREWELL)					
8.00	RAIN WATER HARVESTING(40 NOS.)					
8.01	Designing and Constructing of percolation pit cum perforated well 2500mm. dia upto 3000mm deep, 230 mm thick brick masonry work alround upto 1.5 m deep with 75 class brick in cement mortar 1:4, 200 mm foundation concrete in 1:4:8 mix below brick work only, 150 mm thick precast removable RCC top slab with required steel reinforcement in cement concrete 1:2:4 mix, filled with coarse aggregate, SFRC covers, river pebbles of requisite size stone as shown in the drawing including centering and shuttering, as shown complete as per detailed drawings complete	Each	40.00			
8.02	Drilling as per IS : 2800-1964 (with percussion or combination rig) from ground level in all kind of soils including boulders (excluding rock) diameter of bore 450mm.					
a)	0-50m	Metre	1,000.00			
8.03	Extra for drilling in Ordinary Rock	Metre	400.00			
8.04	Extra for drilling in Hard Rock	Metre	250.00			
8.05	Providing and lowering of 200 mm dia uPVC blank/ slotted pipe with ribs, special fittings, jointing conforming to IS 12818 - 1992.	Metre	1,000.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
8.06	Constructing bar screen / settling tank, of sizes 3500x2000 with suitable depth up to 2.0 m in 1: 4 Cement Mortar (one cement : 4 coarse sand) height as per site requirement, in brick masonry 350mm thick walls upto water level and 230mm thick walls above water level & upto ground level, including all excavation, 20 cm thick bed concrete in 1:4:8 (one cement 4 fine sand 8 stone aggregate 40 mm), cement plaster 1:3 (one cement :3 coarse sand) with a floating coat of neat cement as inside finish , top slab in RCC 1:2:4, including centring, shuttering and steel work, also providing and fixing D.I. manhole cover & frame of size 605mm x 450mm of weight not less than 38 kg (frame + cover) and cost of 100mm dia C.I. vent pipe with C.I. Ventilating Cowl and suitable wire mesh provision for inlet, 115mm baffle walls extending 2/3 the width spaced@500mm c/c including finishing with 1:3 cement plaster 15mm thick with floating coat of neat cement slurry , all complete in every respect as per drawing and as directed to suit site condition.	Each	40.00			
	SUBTOTAL (RAIN WATER HARVESTING)					
9.00	RAIN WATER PIPING					
9.01	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion, (i) Single socketed pipes.					
a)	110 mm diameter	Metre	802.00			
9.02	Providing and fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion.					
a)	Coupler					
ai)	110 mm	each	111.00			
b)	Bend 87.5°					
bi)	110 mm bend	each	264.00			
c)	Shoe (Plain)					
ci)	110 mm Shoe	each	33.00			

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SI. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
9.03	Providing and fixing unplasticised -PVC pipe clips of approved design to unplasticised - PVC rain water pipes by means of 50x50x50 mm hard wood plugs, screwed with M.S. screws of required length,including cutting brick work and fixing in cement mortar 1:4 (1 cement: 4 coarse sand) and making good the wall etc. complete.					
a)	110 mm	each	623.00			
9.04	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter and weighing not less than 440 grams.	Each	132.00			
9.05	Providing and fixing rain water ,soil, waste and vent pipes.					
a)	100 mm dia.					
a i)	Centrifugally cast (spun) iron socketed pipe as per IS:3989	Metre	1,048.00			
b)	150 mm dia pipe as per IS:3989	Metre	1,549.00			
9.06	Providing and fixing M.S holder-bat clamps of approved design to Sand Cast iron/ cast iron (spun) pipe embedded in and including cement concrete blocks 10x10x10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including cost of cutting holes and making good the walls etc.					
a)	for 100 mm dia. pipe	Each	554.00			
b)	for 150 mm dia pipe	Each	701.00			
9.07	Providing and fixing plain bend of required degree.					
a)	100 mm					
a i)	Sand cast iron S&S as per IS:3989	Each	42.00			
b)	150 mm	Each	54.00			
9.08	Providing and fixing heel rest sanitary bend.					
a)	100 mm dia					
a.i)	sand cast iron S&S as per IS-3989	Each	42.00			
b)	150 mm dia	Each	54.00			
9.09	Providing and fixing collar					

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Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
a)	100 mm					
a.i)	Sand cast iron S&S as per IS-3989	Each	297.00			
b)	150 mm	Each	358.00			
9.10	Providing lead caulked joints to sand cast iron /centrifugally cast (spun) iron pipes and fittings of diameter:					
a)	100 mm	Each	367.00			
b)	150 mm	Each	503.00			
9.11	Painting sand cast iron / centrifugally cast (spun) iron soil, waste vent pipes and fittings with paint of any colour such as chocolate, grey, or buff etc. over a coat of primer (of approved quality) for new work:					
a)	100 mm diameter pipe	Metre	1,072.00			
b)	150 mm diameter pipe	Metre	1,525.00			
	SubTotal(Rain water piping)					
10.00	SOLAR WATER HEATING SYSTEM					
10.01	Supply, installation, testing and commissioning of solar water heating system, Thermosyphon type, all complete based on Flat plat collector system (Cu-Cu Type only) comprising of but not limited to the following:					
a)	Requisite number of Flat plate collectors of 2 sq. mtr. collector area. Collector absorber plate to be made of copper tubes & copper fins only					
b)	Hot water storage tank made of stainless steel 304- food grade quality with 100 mm Glass wool insulation and cladding with 24 SWG Aluminum sheet. One temperature measuring device and suitable inlet, outlet and drain connections on the storage tank to be provided.					

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SI. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
c)	Heat Exchanger - Cage type Internal Heat Exchanger made of SS pipes shall be provided inside the Solar Tank. Heat exchangers shall have min. heat transfer area of 0.24 sq. mtrs. for every 100 LPD calacity. Suitable make up tank for the Heat Exchanger circuit shall also be provided					
d)	Interconnecting system piping shall consist of B Class insulated G pipes covered with 50mm thick glasswool & clad with 26 SWG Aluminium Sheet. All Gate/Ball valves shall be of ISI make.					
e)	Electrical control panel, cabling from panel to pumps shall be provided					
f)	The solar collector shall be arranged on roof of building in such a way that shadow can be avoided and requisite number of MS support for collector/tanks of minimum 35x35x5 MS angle adequate for 150 Km/Hr wind speed.					
g)	Solar water heating system based on Flat plat collector system technology with output capacity of as mentioned below with hot water at 60 degree centigrade having required Nos. solar collectors . As per complete item as per technical specification of make BHEL/TATA/EMMVEE. The system has to be installed by Manufacturers authorised distributors/approved specialised firms of Solar water heating of approved makeThe shop drawing of the systems shall be provided by the agency as per site condition obtain the proper efficiency The system shall be procured after obtaining the approval of shop drawings from HSCC / Engineer-in-charge. The solar hot water will supply the hot water to all the geyser,in view of this provision the backup electrical heating system at terrace hot water tank will not be provided for non solar days.					
i)	Solar System of Capcity 1500 Litre/day (With minimum 12 nos of Collect) of 2.0 Sqm area	each	21.00			
ii)	Solar System of Capcity 1000 Litre/day (With minimum 8 nos of Collect) of 2.0 Sqm area	each	33.00			

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Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
iii)	Solar System of Capacity 100 Litre/day	each	1.00			
	SUBTOTAL(SOLAR WATER HEATING SYSTEM)					
11.00	WATER TREATMENT PLANT , PUMPS &EQUIPMENT					
11.01	WATER TREATMENT PLANT (/Domestic use)					
	Planning, Designing, Detailing, Manufacturing, Supplying, Erection, Testing and Commissioning of Water treatment plant for supply of treated water for use of domestic purpose comprising of filter and pumps. The plant is to be installed in pump room and Raw water supply is available in UGT including design and execution of all Civil, Structural, Electrical, Mechanical, Plumbing and processing, ancillary equipments & works etc required to complete the package, getting approval from HSCC/client etc.					
	The shop drawings & design of WTP shall also be prepared in such a way that it comprise of the following units of required size as per detail design requirements. The work has to be carried through authorised vendor, dealer/representative of approved make (lon exchange, Pollucon technologies, AKAR Impex,Thermax, Aquaprocess, LN Tech).					
i)	Providing and fixing vertical on line SS raw water filter feed pumps with CI volute and SS impellar and with stainless steel shaft, mechanical seal and chrome steel shaft sleeve, connected to a TEFC induction motor suitable for 400/440 volts,1500 RPM, 3 phase 50 cycles A.C. supply having IP 55 protection enclosure. complete with base frame, vibration eliminating pads, nuts and bolts etc. (Necessary RCC foundations as per requirement and as per instructions shall be provided by the agency)					
	Raw water , filter feed pumps(only for domestic use).					
	Capacity : 400 lpm (Each)					
	Head 35 m					
	Power : 6.0HP or as required					
	100% standby					
ii)	Providing and fixing C.I. "Y" Type suction strainer with stainless steel perforated sheet screen,flangfd ends iner installed outside water tanks. (Make: Leader / Zoloto / Kartar or equivalent)					

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Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
	100/80 mm dia (4 nos.) (min.) or required size and required number					
iii)	Providing and fixing gun metal or bronze ball valves/butterfly valve/NRV/Rotameter, tested to 15.00 Kg / cm ² , screwed end connections complete . (Make: Leader/ Zoloto or equivalent)					
	80/65 mm NB (min.) or required size and number					
iv)	Filtration Plant : Vertical Downflow Multigrade Pressure Sand Filter in MS Welded construction fabricated in accordance with IS 2825 from minimum 6 mm thick M.S. plate on shell and minimum 8 mm thick M.S. plate on dished ends as per applicable IS standards. The filter shall have :					
	a) One no pressure tight manhole and at least one no. pressure tight side hole for maintenance purposes.					
	b) Initial charge of Filter Media.					
	c) Complete underdrain system and raw water distributor as per manufacturer's design.					
	d) M.S. heavy class fabricated - epoxy coated / post galvanised face piping comprising of connections with CI Butterfly Valves of required size for inlet, outlet, backwash inlet, backwash drain and rinse drain. Air release line with GM Ball Valve of required size.					
	e) Pressure gauges (100 mm dia bourdon type pressure gauge) / Sampling points with SS isolation cocks at inlet and outlet.					
	f) All internal parts of the filtration plant shall be coated with two coats of food grade epoxy paint after thorough sand blasting. All external surfaces of the plant including piping shall be coated with two coats of red iron oxide / zinc chromate primer followed by two coats of high gloss enamel paint .					
	g) The filter shall be complete with all gaskets / fasteners of standard quality as required.					

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Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
	h) The filter shall be designed to give rated output at given raw water quality and flow rate without any operational problem and should not get any loss of performance as long as the operating pressure remains within the given range. Any additional provision is required to make the item complete, the same should be included herein. The work has to be carried through authorised vendor, dealer/representative of approved make (Ion exchange, Pollucon technologies, AKAR Impex, Thermax, Aquaprocess, Fontus). The filter water will be supplied to treated water tank through U.V. water steriliser					
	Capacity - 400lpm					
	Filtration rate - 20,000 lph/sqm (min.)					
	Filter dia approx. 1.20 m (min.)					
	Filter HOS Min. : 1800 mm (min.)					
	Working pressure : 3.0 Kg/sq cm.					
	Test pressure : 4.5 Kg/sq cm					
	No. of Filters :Two nos.					
v)	UV WATER STERILISERS(between filter &clear water tank)					
	High performance on line UV water sterilisers of capacity 340 lpm designed on at least 250 J/Sq. M. UV dosage, comprising of glass UV chamber in SS 316 housing, UV lamp and electrical circuit, wall mounted model / line mounted model, capacity 250lpm, minimum lamp rating :120 watts - 2 Nos.					
vi)	Providing and fixing G.I.pipes/CPVC pipes to I.S. 3589/1239 (Heavy class) with G.I./CPVC Fittings e.g., Tee, elbow reducers, unions, end cap etc., flanges & clamps, including supporting the pipes with G.I. supports, cutting and making good the walls etc. complete. For Suction & Delivery headers.					
	65 mm dia (min.) (Interconnection between units)/ Drain lines etc. as per plant room requirement. (All piping and fitting of required size inside the plant room included in the item)					

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
vii)	Painting G.I./CPVC pipes with two or more coats of synthetic enamel paint of approved quality and shade over a coat of approved priming coat as directed by the Project-in-charge (shade as per pipe colour code).					
	50 mm dia (min.) (as per required length)					
	Complete W.T.P as mentioned above including testing, training and trial run till commissioning of W.T.P.	Job	2.00			
11.02	Providing and fixing of OxilYte (Mixed Oxidant)Generation System , based on ECA technology, producing non toxic mixed oxidant solution at 1000 ppm of Oxidant concentration The solution should be at a pH 3+-0.5 suitable for 24x7 operations should produce 720 L per day. The system should be supplied complete with appropriate dosing pumps, digital display, singal cell, valves, piping, fittings, chemical dosing tank etc. complete in all respect(shope drawing model and technical data etc. are to be submitted for approval before purchase).	Lot	2.00			
11.03	STRUCTURAL STEEL WORK					
i)	Supply, fabrication, erection, painting of pipe supports of structural steel, for piping work in the production areas and anchoring them. 2 coats of zinc chromate primer and one coat of finishing paint	Kgs.	500.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

SI. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
11.04	Supplying, assembly, erection, testing and commissioning of level controllers based on level switches and necessary auxillary circuits included in the electric panel ,including all accessories required for the performance of the system to the satisfaction of the engineer in charge complete including providing and fixing wiring from control panel to the level switches of required size,all interconnections as required . Note : The required transformers / associated equipment shall be designed keeping in view the actual distance of various tanks from the control panel, particularly the distance of Terrace water tank from panel. The most suitable route of sensor cable travel between the panel and the tank shall have to be worked out by the contractor according to site conditions and in consultation with engineer in charge. All cabling / switch installation should be done in an easy to maintain manner.					
	One way one tank level controller as under.					
i)	To switch on the tube well pump when the level of water in the UG raw water tank is low and to cut off the pump when the level in the underground raw water tank is high. (Approx. control cable requirement -100 meters.)	Set	2.00			
	Two way - Two tank level controller as under.					
ii)	For Filter Feed Pumps for Domestic Water.(Operating between the raw water tank and the under ground treated water tank near the plant room. (Approx. control cable requirement - 50 meters.)	Set	2.00			
iv)	For Treated water supply Pumps(Operating between the under ground treated water tank near the plant room and the Terrace treated water tank . (Approx. control cable requirement - 50 meters.)	Set	2.00			
v)	For Raw water supply Pumps(Operating between the under ground Raw water tank near the plant room and the Terrace Raw water tank . (Approx. control cable requirement - 50 meters.)	Set	2.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
11.05	Providing and fixing gun metal foot valve with stainer of approved quality/model complete in all respect					
a)	80 mm dia	Each	2.00			
b)	100 mm dia	each	2.00			
c)	150 mm dia	each	2.00			
11.06	Supplying, installing, testing and commissioning vertical on line multi stage centrifugal pumping set with mechanical seal, C.I. volute and SS impeller & SS shaft connected to a TEFC induction motor of suitable HP for 415 volts, 3 phase, 50 cycles A.C. supply with 150 mm dia pressure gauge with SS/gunmetal isolation cock, vibration eliminating pads, base plate wiring upto panel and equipment for water level controller to start and stop the pump automatically at predecided levels of the water in the tank with provision of protection for dry run etc. complete in all respect (The shop drawing or the pumps along with its characteristics curves, model and technical data etc. are to be submitted for approval before purchase of pump).					
a)	Domestic water pumps (Treated water transfer pump to terrace tank)					
	Capacity 800 lpm					
	Head 55 M	each	4.00			
b)	Domestic water pumps (Raw water Transfer pump to terrace tank)					
	Capacity 800 lpm					
	Head 55 M	each	2.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

SI. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
11.07	Supply, installing, testing and commissioning vertical fully floodable type submersible drainage pump of non-corrosive material in close coupled design single stage, suitable for handling minimum 10 mm dia solids for transferring waste water from sump to outside the building with float switch for automatic start and stop arrangement with panel and wiring, chain and pulley, mechanical seal complete in all respect as per instruction of the Engineer in charge. (The shop drawing or the pumps along with its characteristics curves, model and technical data etc. are to be submitted for approval before purchase of pump).Star delta suitable starter complete in all respect for automatic/manual operation of pump,start and stop push button contactor with required overload production and single phase preventor.					
	Material of Construction (M.O.C): Corrosion Resistant in general : Casing — Cast Iron					
	: Impeller — SS					
	: Bearings — Anti friction, prelubricated ball bearings, packed with grease for life.					
	Motor: — Dry Motor with built in over load protection					
	Protection - IP68.					
	Insulation Class - F					
	Duty of each pump					
	150 LPM against 8M head (Basement)	Each	2.00			
II)	Electicl panal cable,etc complete as per instruction of the Enginee in charge	Set	1.00			
11.08(a)	Testing Underground tank for water sepage before fixing of tiles or any other finishing including pressure grouting (if required). The tank should be disinfected and cleaned before use as per instruction of Engineer-in-charge(up to 5 lac ltr tank)	set	1.00			
	Subtotal (Water treatment Plant,Pump and Equipment)					
12.00	SEWAGE TREATMENT PLANT					

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
	Planning,Designing,Detailing,Supplying, Erection,Testing and Commissioning of Package Sewage treatment plant based on MBBR (Moving bed Bio Reactor) technology of average flow rate of 625 cu.m/day for sewer and provision in planning shall be made for hospital effluent which would be constructed separately but both the STP can be maintained by common plant operation staff . But the present scope of work will be limited to 625 KLD only including provision of recirculation of treated sewage/effluent for the use of horticulture purposes including design and execution of all civil,structural,electrical,mechanical,plumbing and processing,ancillary equipments and works etc required to complete the package, getting approval from state pollution control board and other statutory bodies as well as from consultant (HSCC) including the cost of STP building for electrical room, treated sewage under ground storage tank of 200 cu.m capacity etc.					
	All the water retaining structure shall be designed as water retaining structure as per provision of IS code and water proofing with fixed or any other approved chemical shall be carried out by approved agency with 10 year (minimum) garanty. All the unit shall be painted by epoxy or any other approved paints.					
i)	The shop drawings & design of STP shall be prepared by the agency .The STP shall comprising of the following units of required size as per detail process and hydraulic design.The structure design shall be carried as per provision of IS code.The agency has to get their structure drawing checked and approved by IIT Delhi/Kharagpur/NITE or any other govt. Engineering colleg approved by HSCC.(set-1)					
ii)	RCC Suitable size Bar Screen chamber with minimum free board 300 mm and minimum size 0.6mx1mx0.3m SWD and suitable size SS Bar screen is installed at suitable angle at the inlet of raw sewage sump before pumping. The unit shall be designed for peak flow - 2 nos.(min.) .					
a)	Electrical & mechanical(2 Nos)					
	Civil (2Nos)-will be paid seperately in civil work					

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

SI. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
iii)	Providing and fixing submersible sewage pumping set with CI body, SS impeller and shaft coupled with totally enclosed fan cooled induction motor complete with HDPE double flanged/CPVC pipings, sluice valves, non return valves, fittings etc as required. Motor suitable for 415 volts, 3 phase 50Hz, 1500 rpm A/c supply with control auto start float swich, cable and all fitting complete in all respect.					
	RAW SEWAGE PUMP-(4 nos min.)					
iv)	Capacity - 260LPM (min.)					
	Head - 15 m					
	Solid handing - 50-80mm					
	RCC Equalisation tank with hydraulic retention time Min.6 Hrs HRT of suitable Size free Board 500 mm,the effluent of equalisation tank is agitated with diffused air that is fed by an air blower, including pipe non-corrosive material and its complete system. (1 unit)					
	Civil-will be paid seperately in civil work					
	Mechanical & Electrical					
	RCC MBBR-(4 nos. minimum) with minimum 4hr. retention time of each reactor of suitable size with Air grid CPVC pipe material of construction or corrosion resistant material,Air diffusers (fine bubble), HDPE approved make Bio media for each aeration tank,with minimum water depth of 3.6 m.					
	Electrical & mechanical(4 Nos)					
	Civil(4 Nos)-will be paid seperately in civil work					
	ROTARY AIR BLOWERS					
a)	Providing and Installation of Rotary air blowers for air scouring, driver through v-belt or directly coupled through flaxble coupling. Motor shall be of suitable HP for 400-440 volts, ,1500RPM, 3 phase, alongwith air filter, non-return valve, safetyvalve, base plate and necessary air piping fittings, valves, flowmeters etc.					

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
b)	(Blower capacity and pressure head shall be suitable to meet the requirement of equalisation tank and Bio reactor suitable for average flow rate of effluent of 625cu.m per day)- 6 nos.(4working +2 stand by)					
v)	RCC secondary tube settler -2 nos. maximum Hydraulic loading 2.0 cu.m/sq.m/hr and with approved quality media.(2 units)					
a)	Electrical & mechanical(2 Nos)					
	Civil(2 Nos)-will be paid seperately in civil work					
vi)						
a)	Providing and fixing of OxiLyte (Mixed Oxidant) Generation System , based on ECA Technology, producing non toxic mixed Oxidant Slution at 1000 ppm of Oxidant Concentration . The solution should be at a pH 3+-0.5 suitable for 24x7 operations should produce 720L per day. The system should be supplied complete with appropriate dosing pumps ,digital display, singal cell, valves, piping, fittings, chemical dosing tank etc. complete in all respect.(2 unit)					
vii)	RCC supernatant tank/Filter feed tank minimum 60 cu.m capacity (1 unit) with filter feed pumps - will be paid seperately in civil work					
	FILTER FEED PUMPSETS					
	Providing and installation horizontal single/multistage centrifugal monoblock pumping set with CI body, SS impeller, coupled with totally enclosed fan cooled inlduction motor mounted on common structural base plate with all pump accessories complete as per specifications inclusive rubber vibration eleminators motor suitable for 415 volts, 1500RPM, 3 phase 50 HZ. A/c supply.					
a)	Type of pump - Horizontal					
	Capacity -350 LPM					
viii)	Head - 30 M					
a)	Nos.- (2W+1S)					

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
ix)	MULTI GRADE FILTER					
a)	Providing and installation of mild steel pressure vessel (as per IS:2825) 6 mm thick natural rubber lining fabrication standard multi grade filter complete in all respects, of total capacity 350LPM, complete with dished ends, supporting legs, manhole cover, frontal pipe work fitting with valves. Plant shall be provided with inlet, outlet pressure gauge, sample cocks, charge of filter media graded sand and internals consisting of strainers fitted on plate for collection. (No. of unit-2)					
	Dia of vessel -1.2 m (minimum)					
x)	Shell thickness -6mm (minimum.)					
	Dish end thickness-8mm (minimum.)					
	Nozzie plate -10mm thick (minimum.)					
	Manhole -450mm					
	ACTIVATED CARBON FILTER					
	Providing and installation of mild steel pressure vessel (as per IS:2825) 6 mm thick natural rubber lining fabrication standard multi grade filter complete in all respects, of total capacity 600LPM, complete with dished ends, supporting legs, manhole cover, frontal pipe work fitting with valves. Plant shall be provided with inlet, outlet pressure gauge, sample cocks, charge of approved quality activated carbon media. (No. of unit-1)					
	Dia of vessel -1.5 m (minimum)					
a)	Shell thickness -6mm (minimum.)					
xi)	Dish end thickness-8mm (minimum.)					
	Nozzie plate -10mm thick (minimum.)					
	Manhole -450mm					
	RCC sludge sump (40cu.m minimum) and submersible sludge pump set with CI body, SS impeller and shaft coupled with to a totally enclosed fan cooled iniduction motor complete with HDPED/F pipings, sluice valves, non return valves, fittings etc as required. Motor suitable for 415 volts, 3 phase 50Hz. A/c supply with control auto start float switch with return sludge line upto Bioreactor.					
	SLUDGE PUMP- (2 set minimum)					

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

SI. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
	Capacity -150 LPM					
	Head - 8 m					
	Solid handling - 50mm (minimum)					
a)	Civil - RCC sludge sump and piping(1 Nos)-will be paid seperately in civil work					
xii)	Providing and fixing 24 plates 600 x 600mm size filter press hydrpneumatic mechanical operated - 2no. with suitable sludge pump and sludge tank of 5,000 ltrs. (min.) capacity alongwith piping, fittings valve etc. complete in all respects.					
	Providing and fixing dust and vermine proof cubical type motor control panel centre for the various pumps, blower etc. required. It is fabricated from 2mm thick CRCA sheet with stove enamelled finish and comprising of:Panel should have at least 20% spare feeders.					
	One incomming main MCCB of required capacity suitable rating					
	MCCB/MPCB, one for each motor					
	Fully automatic DOL/star delta starters suitable for different motors/pumps used in the ETP.Upto 7.5 HP DOL may be used and above star/delta starter used with push buttons one for each motor and on/off indicating neon lamps.					
	Single phasing preventors of appropriate rating for each motor.					
	rotary type selector switch					
a)	Panel type ampere meters, one for each motor shall be with rotary selector switch to monitor line currents.					
	Panel type volt meters, on incoming main with rotary selecting switch to monitor voltage between phase to neutral and phase to phase.					
xiii)	Neon phase indicating lamps and indicating lamp for each motor on incoming mains.					
	Rotary switch for manual or auto operation for each pump					
	Fully taped separate aluminium bus bar of required capacity for normal and emergency supply.					

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
	The panel shall be pre-wired with coded wiring. All intercnnting wiring from incoming main to switchgear, meters and accessories within the switchboard panel shall have suitable copper ferrules					
a)	Electrical works (including supply, installation and termination of cables of suitable size as per HP of all pumps with all structural supports, clamps and cable trays as per approved design/specifications, installation will be as per relevant Indian standard and CPWD specification alongwith control cable of suitable size).(1 lot). Any other electrical and mechanical item required to complete the work.					
xiv)	Providing and fixing digital type flow meter etc. complete in all respects. (1 no.)					
xv)	Providing and fixing lab. Equipments including digital type pH meter, COD kit, TDS kit, bicker, conical flask etc. complete in all respects. (1 set)					
a)	Sludge drying beds (5.0X15.0X1.2) (minimum size) (complete civil & mechanical work)-will be paid seperately in civil work					
xvi)	Rooms for Pumps & control panel (80 sq.m.) (minimum size)					
a.	Civil-will be paid seperately in civil work					
b.	Electrical & mechanical					
c.	RCC Treated water tank (200m3) (minimum)-will be paid seperately in civil work					

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
d.	Supplying, installing, testing and commissioning monoblock centrifugal pumping set with mechanical seal, C.I. volute and SS impeller & SS shaft connected to a TEFC induction motor of suitable HP for 415 volts, 3 phase, 50 cycles A.C. supply with 150 mm dia pressure gauge with SS/gunmetal isolation cock, vibration eliminating pads, base plate wiring upto panel and equipment for water level controller to start and stop the pump automatically at predecided levels of the water in the tank with provision of protection for dry run etc. complete in all respect (The shop drawing or the pumps along with its characteristics curves, model and technical data etc. are to be submitted for approval before purchase of pump).					
	Domestic water pumps (Treated water transfer pump to terrace tank)/horticulture					
	Capacity 600 lpm					
	Head 50 M					
	(1W+1S)					
e	Note: The rate also be included the cost of trial run for period of two month from the date of handing over and operation and maintenance of the plant for a period of one year from the expiry of trial run period including the cost of consumables complete as specification as directed. Obtain required no. of test report of treated/raw sewer during trial run. Tentative raw sewage generation & characteristics for designing of the plant are mentioned below. The bidder has to take this own judgment for designing the system					
f	Average daily flow (cum/day) : 625 CuM per day					
g	pH : 5.5 - 8.5					
h	BOD (5 days at 20 degree C) (mg/l) : 150-400					
i	COD (mg/l) : 250-600					
j	Suspended solids (mg/l): 200-400					
k	Oil & grease (mg/l) :20-50					
	The treated effluent characteristics shall be as per local pollution control board standards. The treated effluent (indicative) shall have following standard:-					
xvii)	BOD : Less than 10 Mg/l					
	COD : Less than 100 mg/l					

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
xviii)	Suspended solids: Less than 10 mg/l					
	Oil & grease : Less than 10 mg/l					
xix)	pH : 6.5 - 8.0					
	Bio-assay test : Survival of fish after 96 hrs 100 %					
xx)	Odor-Odorless					
xxi)	On the basis of the above and as per site condition the detailed drawing along with design calculation (Hydraulics, process, Structure etc.) shall be submitted to HSCC for the approval of the same before the start of the work The STPhas to be designed and installed by the approved vendor (Geo Miller, Ion Exchange, Thermax, Pollucon Technologies, AKAR Implex (P) Ltd. KWAN Environmental solution, LN Tech). To have flexibility in O&M and to minimize the operation cost during lean flow or when the occupancy of the campus is low, the plant shall be designed in such a way that half portion of plant can be closed for O & M without disturbing the operation of another half portion of STP including the cost of operation & maintenance.					
xxii)	Complete functional STP 625 KLD capacity as mentioned above					
	The work to be executed as per approved shop drawings/design which meet the functional requirement quoted by the agency. The price quoted by the bidder shall include all the items stated above and also any other item/work required for completion of the work and efficient functioning of STP nothing extra shall be paid beyond above rates (BOQ item no. 1.00 subhead i to xx).					
		job	1.00			
	SUB TOTAL(Sewage Treatment Plant)					
12.02	Operation and maintance Cost					
i)	Testing charges of Raw and treated effluent for all the required parameter from approved lab (after defect and liability period)	Set	6.00			
ii)	Providing chemical and consumables for satisfactory operation of STP etc. completed in all respect in all respect excluding cost of electricity and manpower and spare parts during defect liability period i.e. 1 year and also including the cost for providing the on plant training to the respective personnels for operation and maintenance of STP.	month	12.00			

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
iii)	Providing (operator & one Helper) i.e. manpower to operate the STP in each shift. In case the additional manpower required for proper operation, the same will be considered as part of this item only.					
a)	Helper - 1 no./day(in each shift)	Month	24.00			
b)	technical operator - 1 no./day(in each shift)	Month	24.00			
iv)	AMC of all equipments, components and spares of STP after one year defect liability period. The consumables will be reimbursed by owner as per actual cost.	Year	1.00			
	SubTotal(O & M)					
13.00	WATER SUPPLY PUMP PANEL					
	Design, Supply, installation, testing and commissioning of following M.V. cubicle type totally enclosed, powder coated, wall mounted/ free standing type, dust, damp and vermin proof, indoor type Distribution Board/Panel complete with busbars, M.V. danger notice plate, interconnections with suitable capacity aluminium leads/solid aluminium strips/rods, connection of incoming and outgoing cables with thimbles, and having following incoming and outgoing switchgears complete as required.					
i)	Note1) :- All MCCB Should have Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	Note2) :- All Incomer and outgoing Should have					
i)	"ON" and "OFF" LED indicating lamp and Trip and 2A control SP MCBs					
ii)	Push button for CLOSE and TRIP					
iii)	Digital voltmeter with selector switch (Only For Incomer)					
iv)	Digital ammeter with selector switch with one set of suitable cast resin C.T' s					
v)	1 set of Phase indicating lamp with 2A SP Control MCB's					
	INCOMER :					
	400 Amp 415 volts, 35 KA (Isc), FP MCCB with thermal magnetic release having variable current settings .					
	BUSBARS :					

Name of Work: BOQ of Plumbing work of proposed housing at AIIMS, Raebareli.

Sl. No.	Description of Item	Unit	Total qty.	Rate in Rs (In fig)	Rate in Rs (words)	Amount
1	2	3	4	5	6	7
	600 Amp TPN busbars of aluminium					
	OUTGOINGS :					
i	6 Sets of following (Treated water transfer pump to terrace tank & Raw water transfer pump)					
	63 Amp. 415/500 volts,25 KA, three Pole, Moulded Case Circuit Breaker with variable current setting .					
	1 No. 3 Phase, fully automatic star-delta starter of 20 HP with thermal overload relay, contactor, Timer, Push Buttons and Auto-manual selector switch etc complete as required.					
	Single Phase preventer					
ii	4 Sets of following (Raw water (filter) feed Pump)					
	32 Amp. 415/500 volts,25 KA, three Pole, Moulded Case Circuit Breaker with variable current setting .					
	3 Phase, DOL starter of 7.5 HP with thermal overload relay, contactor, Push Buttons and Switches etc complete as required.					
	Single Phase preventer					
iii	2 Sets of following (Submersible Draniage Pump)					
	16 Amp. 415/500 volts,25 KA, three Pole, Moulded Case Circuit Breaker with variable current setting .					
	1 No. 3 Phase, DOL starter of 1 HP with thermal overload relay, contactor, Push Buttons and Switches etc complete as required.					
	Single Phase preventer					
iv	5 Sets of following (Tubewell 10 HP)					
	32 Amp. 415/500 volts,25 KA, three Pole, Moulded Case Circuit Breaker with variable current setting .					
	WATER SUPPLY PUMP PANEL	Set	1.00			
	Sub Total(Water supply pump Panel)					
	Note: Based on the tender drawing the agency has to prepare the internal & external plumbing shop drawing and obtain the approval of the same before execution					

BILL OF QUANTITIES

OF

FIRE FIGHTING

Project Name: Construcion of Housing At AIIMS Like Institute at Raebareli,UP

ABSTRACT OF COST (Fire Fighting)

S.No	DESCRIPTION OF WORK	Amount In Rs (in fig)	Amount in Rs (in words)
1	FIRE FIGHTING		
	Sub Total(Fire Fighting work)		
	GRAND TOTAL		

Project: AIIMS Housing at Raebareli

Name of Works: BOQ of Fire Fighting Works of proposed housing at AIIMS, Raebareli

Item No	Description Of Item	Total qty.	Unit	Rate in Rs (in Fig)	Rate in Rs (in words)	Amount in Rs
1	2	3	4	5	6	7
1.00	FIRE FIGHTING SYSTEM					
	Note: Based on the tender drawing the fire agency has to prepare the internal & external fire fighting shop drawing and obtain the approval of the same before execution					
1.01	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m :					
a)	All kinds of soil					
a1)	Pipes, cables etc. exceeding 80 mm dia. but not exceeding 300 mm dia	105.0	Metre			
1.02	Providing, fixing jointing and testing of Heavy (class -C) G.I. pipes as per relevant IS :1239/4736 with special accessories like tees, elbow, gasket, flanges, flanged joints, rubber insertion nuts and bolts including earth work excavation and trenching, wrapping pipecoat 4mm thick 500mm width tar based polymeric corrosion protection tape or equivalent suitable to GI/ MS pipe line including applying uniform coat of cold pipecoat primer complete 1 m below the ground level, refilling in layers not exceeding 20 cm in depth consolidated each deposited layer by ramming & watering complete in all respect as per IS : 1022 (Under ground)					

Project: AIIMS Housing at Raebareli

Name of Works: BOQ of Fire Fighting Works of proposed housing at AIIMS, Raebareli

Item No	Description Of Item	Total qty.	Unit	Rate in Rs (in Fig)	Rate in Rs (in words)	Amount in Rs
1	2	3	4	5	6	7
a)	150 mm dia G.I. Pipe with flange joints (5.4 mm wall thickness)	155.0	Metre			
b)	100 mm dia G.I. Pipe with flange joints (5.4 mm wall thickness)	50.0	Metre			
c)	80 mm dia G.I. Pipe with flange joints (5.4 mm wall thickness)	135.0	Metre			
1.03	Heavy class G.I. pipes conforming to IS with accessories like tees, elbows, flanged joints, rubber insertion, nuts, bolts or welded joints including fixing the pipe with suitable flat iron strip clamps/brackets, structural members, dash fastener , cutting hole and chases in walls, floor, R.C.C. slab etc. and making good the same, including painting pipes and fittings with a primer coat of steel primer and two coats of postal red enamel paint etc. complete as required. (All the fitting i.e. tee /elbow, Valve shall be joint the pumps will flanged joints)					
a)	150 mm dia (with Flanged joints)	450.0	Metre			
b)	100 mm dia (with Flanged joints)	315.0	Metre			
c)	80 mm dia (with Flanged joints)	125.0	Metre			
d)	65 mm dia (with Flanged joints)	50.0	Metre			
1.04	Providing and fixing Single headed hydrants flanged inlet with 63 mm female instantaneous outlet of gunmetal complete with male blank caps, chains conforming to IS:5290 type A with stainless steel orifice plate (if required) to keep the pressure not more than 3.5 kg/sq.cm at any point.	147.0	Each			

Project: AIIMS Housing at Raebareli

Name of Works: BOQ of Fire Fighting Works of proposed housing at AIIMS, Raebareli

Item No	Description Of Item	Total qty.	Unit	Rate in Rs (in Fig)	Rate in Rs (in words)	Amount in Rs
1	2	3	4	5	6	7
1.05	Providing 63mm dia 15 m long reinforced rubber lined hose pipe conforming to IS: 636-1992 Part-II with gunmetal male & female coupling wire wound with pipe as required.	262.0	Each			
1.06	Providing and fixing 63mm dia 15 m long canvas hose pipe complete with gunmetal male & female coupling wire wound with the pipe The pipe shall confirm to IS: 4927.	32.0	Each			
1.07	Providing and fixing Gunmetal branch pipe with 20mm dia nozzle conforming to IS:903. suitable for installation connections to hose coupling etc. as required.	147.0	Each			
1.08	Providing and fixing Four way fire brigade connection housed in steel cabinet of size 900mm x 750mm x 400mm fabricated from 1.5mm thick M.S. sheet having lockable arrangement, openable glazed door with 4mm thick glass, including painting a coat of steel primer and two coats of postal red enamel paint, with necessary supports for the cabinet etc. with 150 mm dia. non return and butterfly valves complete in all respects.					
a)	4 Way - 150mm dia	16.0	Each			
1.09	Providing and fixing Set of "Siamese" quadruplet instantaneous fire brigade connections comprising of two gunmetal instantaneous male inlet coupling 63mm dia with plug and cap, chain bends, tees etc for inlet to the static tank.	3.0	Each			

Project: AIIMS Housing at Raebareli

Name of Works: BOQ of Fire Fighting Works of proposed housing at AIIMS, Raebareli

Item No	Description Of Item	Total qty.	Unit	Rate in Rs (in Fig)	Rate in Rs (in words)	Amount in Rs
1	2	3	4	5	6	7
1.10	Providing & Fixing 150 mm dia, 4 way suction coupling for firebrigade withdrawal of water from the fire tan	1.0	Each			
1.11	Providing and fixing glazed door shutter and frame for Fire hose cabinet with hold fasts (frame fabricated from 40 x 40 x 5mm and shutter from angle)2100 mm high x 1200 mm wide with locking arrangement, 4mm thick glass with M.S. flats including all accessories, painting with one coat of steel primer and two coats of postal red enamel paint complete as per drawing and as directed. The words " hose cabinet" to be painted on the box complete in all respects.	131.0	Each			
1.12	Providing and fixing Weather proof standard stand post type hose cabinet (900mm x 750 mm x 400 mm) out door type made of 1.5mm thick M.S. sheet having central opening glazed door with 4mm thick glass suitable for accommodating hydrants, 2 Nos. canvas hose pipe and branch pipe including necessary locking arrangements, painting one coat of primer and two coats of postal red enamel paint.. The shutters are to be lockable type. The words " hose cabinet" to be painted on the box.	16.0	Each			
1.13	Providing and fixing cast iron body IS: 210 FG 220 and double flange gear simple operation type butterfly valve conforming to IS: 13095 with SS304 disc and shaft NITNLE rubber replaceable seat of the following size complete with bolts, nuts, washers and rubber insertions as per specification.					
a)	150 mm dia	36.0	Each			

Project: AIIMS Housing at Raebareli

Name of Works: BOQ of Fire Fighting Works of proposed housing at AIIMS, Raebareli

Item No	Description Of Item	Total qty.	Unit	Rate in Rs (in Fig)	Rate in Rs (in words)	Amount in Rs
1	2	3	4	5	6	7
b)	100 mm dia	26.0	Each			
c)	80 mm dia	5.0	Each			
1.14	Supplying, testing, installation & commissioning of pressure switches for pumps including necessary wiring upto the control panel.	19.0	Each			
1.15	Constructing masonry Chamber 90x90x100 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100 mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid 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)	With common burnt clay F.P.S.(non modular) bricks of class designation 7.5	8.0	Each			
1.16	Supplying and Fixing First Aid Hose Reel , wall mounting swinging type complete with drum & bracket of MS construction, spray painted in Post office Red, conforming to IS 884/1995 with upto date amendments, complete with the following as required 36 Meter long 20 mm dia water hose Thermoplastic (Textile reinforced) Type - 2 as per IS : 12585 20 mm dia gun metal ball valve & nozzle					

Project: AIIMS Housing at Raebareli

Name of Works: BOQ of Fire Fighting Works of proposed housing at AIIMS, Raebareli

Item No	Description Of Item	Total qty.	Unit	Rate in Rs (in Fig)	Rate in Rs (in words)	Amount in Rs
1	2	3	4	5	6	7
	Drum and brackets for fixing the equipments on wal Connection from riser with stop valve (gun metal) & M.S. Pipe	131.0	Each			
1.17	Providing and fixing C.I. sluice valves (with cap) complete with bolts, nuts, rubber insertions etc. (the tail pieces if required will be paid separately)Class-					
a)	150 mm dia	2.0	Each			
b)	100 mm dia	12.0	Each			
c)	80 mm dia	9.0	Each			
1.18	Supply, Installation, Testing and Commissioning of 100 mm dia Bourden type, Stainless Steel dial type Pressure Gauge including brass isolation valve and siphon pipe having caliberation of 0 - 16 Kg / cm ²	97.0	Each			
1.19	Supplying and Fixing of Fire Man's axe with heavy insulated rubber as per standard conforming to IS 926	131.0	Each			
1.20	Supplying and Fixing vane type waterflow switch with contacts suitable for installation on 50 mm to 150 mm dia pipeline for a service pressure upto 20 Kg/sq.cm.	10.0	Each			

Project: AIIMS Housing at Raebareli

Name of Works: BOQ of Fire Fighting Works of proposed housing at AIIMS, Raebareli

Item No	Description Of Item	Total qty.	Unit	Rate in Rs (in Fig)	Rate in Rs (in words)	Amount in Rs
1	2	3	4	5	6	7
1.21	Fabricating, Supplying, Installation, Testing and Commissioning Air Vessel of continuous welded construction with flanged discharge header on the top of each riser fabricated out of 10 mm thick dished ends and 8 mm thick MS sheet, Air Release Valve complete with suitable drain arrangement with 25 mm dia gun metal wheel valve complete with all accessories etc. as required of the following sizes					
a)	1.2 Metre high and 250 mm dia	17.0	Each			
1.23	Supply, Installation, Testing and Commissioning External Yard Hydrant Stand Post comprising of GI pipe 80 mm dia (heavy duty C class) from existing ringmain to about 1 meter above ground level and Single Headed Yard Hydrant Valve with 80 mm dia flanged inlet, instantaneous gunmetal coupling of 63 mm dia with cast iron wheel ISI marked, conforming to IS : 5290 (Type A), with ABS cap and chain etc.complete with all accessroies as required.	16.0	Each			
1.24	Supply, erection, testing & commissioning of exit glow sign board of size 200mm x 350 mm wall mounting signage consisting of photo luminescent coating on acrylic cover	131.0	Each			

Project: AIIMS Housing at Raebareli

Name of Works: BOQ of Fire Fighting Works of proposed housing at AIIMS, Raebareli

Item No	Description Of Item	Total qty.	Unit	Rate in Rs (in Fig)	Rate in Rs (in words)	Amount in Rs
1	2	3	4	5	6	7
1.25	Providing and fixing fire extinguisher of carbon dioxide type consisting of brand new high pressure steel cylinder bearing IS: 7285 mark and having the approval of controller of explosives Nagpur, wheel type valve bearing IS:3224 mark internal discharge tube, 1 meter long high pressure discharge hose, non conducting horn, suspension bracket, fully charged bearing IS: making fixed to wall as directed.					
a)	4.5kg capacity cylinder	135.0	Each			
1.26	Providing and fixing 9 liters capacity fire extinguisher water type gas pressure conforming to IS marking, fixed to wall.					
		135.0	Each			
1.27	Providing and fixing ABC type fire extinguishers complete in all respects.					
a)	Capacity 5.0 Kg.	135.0	Each			
1.28	Providing and fixing ABC type automatic modular ceiling mounted type extinguisher with body powder coated 10 lts. Capacity min. 300 mm dia 68 degree centigrade bul temperature complete in all respect of approved make and model					
		1.0	Each			
1.29	Providing and fixing C.I. non-return valve complete with gunmetal seat, bolts, nuts washer & rubber insertions as required conforming to IS:5312					
a)	150 mm dia	9.0	Each			
b)	100 mm dia	7.0	Each			

Project: AIIMS Housing at Raebareli

Name of Works: BOQ of Fire Fighting Works of proposed housing at AIIMS, Raebareli

Item No	Description Of Item	Total qty.	Unit	Rate in Rs (in Fig)	Rate in Rs (in words)	Amount in Rs
1	2	3	4	5	6	7
1.3	Providing, Fixing, Testing and Commissioning of Downcomer Installation Control Valve of Cast iron body and brass / bronze working parts comprising of water motor, alarm, bronze seat clapper and clapper arm, hydraulically driven mechanical gong bell to sound continuous alarm when the Sprinkler system activates, pressure gauges, emergency releases, strainer, pressure switch, cock valve complete with drain valve and bypass, test control box, ball valves, MS pipe of required size, flanges, orifice plate, gasket etc. of size 200/150 mm dia, as required.	16.0	Set			
1.31	Supplying, installing, testing and commissioning of electric motor driven type automatic pressurisation, pump set suitable for automatic operation of terrace down comer and consisting of the following (as per CPWD specifications Part V-1985) for fire fighting and its amendmends).					

Project: AIIMS Housing at Raebareli

Name of Works: BOQ of Fire Fighting Works of proposed housing at AIIMS, Raebareli

Item No	Description Of Item	Total qty.	Unit	Rate in Rs (in Fig)	Rate in Rs (in words)	Amount in Rs
1	2	3	4	5	6	7
a	Fire pump with stainless steel impeller CI casing, SS shaft shall be horizontal end suction centrifugally type having following capacity so as to ensure a minimum pressure of 3.0 kg/sqm at the highest and farthest out at the specified flow complete with necessary strainer with foot valve in suction side and pressure gauge on the delivery side including bypass arrangement for periodic testing of the working of the pumping set as required. The pump shall be provided with mechanical seals.(Including taking necessary approval of complete fire fighting scheme from local fire authority before and after start of work) {Agency also has to submit characteristic curve of the pumps, model & other technical data for approval before placing the order}					
b	Squirrel cage AC induction motor suitable for operation of 415 V ,+/-10%, 3 phase 50 HZ, AC supply and of minimum 7.5 HP,1500 RPM for the above pump with flexible coupling as per specification and conforming to IS 325-1978 and shall be TEFC type only					
c	Common base plate fabricated from mild steel channel of castiron type					
d	1 No. 3 Phase, fully automatic DOL starter, type - II of 10 HP with thermal overload relay, contactor, Timer, Push Buttons and Auto-manual selector switch etc complete as required.					
e	Suitable cement concrete pump foundation with vibration damping arrangement with cushy foot mounting as required and having provision of suitable weather protection cover.					
	900LPM & 25 M head	31.0	set			
	SubTotal					

BILL OF QUANTITIES

OF

ELECTRICAL WORKS

SUMMARY OF BILL OF QUANTITY FOR ELECTRICAL WORKS OF CONSTRUCTION OF HOUSING COMPLEX FOR AIIMS LIKE INSTITUTION AT RAEBARELI UNDER PMSSY			
S.No.	Description	Amount In Figure (In Rs.)	Amount In Words (Rs.)
1	SUBHEAD 1: H.T. SUB STATION		
2	SUB HEAD 2: LT PANEL		
3	SUB HEAD 3 : DG SETS		
4	SUB HEAD 4 : MV PANELS		
5	SUB HEAD 5 - : MCB DISTRIBUTION BOARDS.		
6	SUB HEAD: 6 - WIRING		
7	SUB HEAD: 7 - LIGHT FIXTURE AND FANS		
8	SUB HEAD 8: TELEPHONE SYSTEM		
9	SUBHEAD -9 CONDUITING FOR TV OUTLETS		
10	SUB HEAD 10 : FIRE DETECTION AND		
11	SUB HEAD 11 : LIFTS		
12	SUB HEAD 12: LT CABLES		
13	SUB HEAD 13: EARTHING SAFETY		

14	SUB HEAD 14: LIGHTENING PROTECTION		
15	SUB HEAD 15: OUT DOOR LIGHTING		
	GRAND TOTAL FOR ALL ELECTRICAL		

BILL OF QUANTITY FOR THE ELECTRICAL WORKS OF CONSTRUCTION OF HOUSING COMPLEX FOR AIIMS LIKE INSTITUTION AT RAEBARELI UNDER PMSSY							
S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount	
1	2	3	4	5	6	7	
	SUBHEAD 1: H.T. SUB STATION						
1.00	SUBSTATION EQUIPMENTS						
	Note- 1) It is in the Scope /Responsibility of the contractor to Submit the Substation layout plan along with Technical Specifications on behalf of client to State Electricity Board/ Local Authority.						
	2) Before Submission of Substation Equipment drawing to HSCC/ Client Contractor shall got approved Substation layout plan from Chief Electrical Inspector / State Electricity Board/ Local Authority.						
	3) No Extra Claim will be made by the Contractor for Above work .						
1.01	SUBSTATION :33 KV HT PANEL						
	Note -Rating of CT's and PT's of incoming and Outgoing VCB Panels metering protection will be as per Approved By State Electricity Board / Local Authority/Chief Electrical Inspector.						
	Supply, erection, testing and commissioning of HT extendable type four section panel board suitable for outdoor installation for use on 33 KV 50 C/S earthed system having a symmetrical breaking capacity of 750 MVA for 1 Sec. at 33 KV comprising triple pole VCB. Panel equipped with following accessories						
	A INCOMER PANEL 1 Nos. Each having following:						
	1- Metal clad housing with truck having 1250 A TP integral VCB 750 MVA with manually/Electrically operated mechanism (spring charged motor - 230 VAC).						
	1 - Set of air insulated bus bar & chamber						
	1 - Set of isolating plug and receptacle.						
	1 - Set of Automatic safety shutter.						
	1 - Set of dual core CT's						
	1 - Set of braker control switch (TNC)						
	CT-I						
	Core I 400/200/5A class 5P-10 (15 VA) protection						
	Core II 400/200/5A class 0.5 (15 VA) metering						
	1- HT cable joint box for 3 Cx 400 sq.mm copper conductor XLPE cable (33 KV earthed)						
	3 - Nos. PT's 33/0.11 KV of (100 VA) cast resin type.						
	1 - No. Tripping coil & closing coil 24V DC/110V A.C.						
	1 - Set of ON/OFF/Trip & circuit healthy and phase indicating lights.						
	1-3 element O/C EF & SC relay (IDML & Hi-set)						

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	1- No. multifunction meter (load management & compatible with PLC/PC)					
	1- No. master trip relay					
	1 - No. lockout relay					
	1 - No. Circuit supervision relay.					
	1 -No Digital Power Factor Meter ,					
	1- No Frequency meter					
	Undervoltage and overvoltage relay.					
	Trivector meter					
B	COPPER BUS BAR OF SUIABLE RATING					
C	OUTGOING PANEL :3 Nos EACH COMPRISING OF:					
	1- Metal clad housing with truck having 630 A TP integral VCB 500 MVA Manually & Electrically operated mechanism (spring charged motor 230 V A.C.)					
	1- Set of air insulated bus bar.					
	1 - Set of isolating plug and receptacle.					
	1 - set of automatic safety shutters.Door interlock.Safety Shutters Locking of VCB in Isolated position .Trolleyb lever handle.					
	Aux Relay for transformer Protection ie. Oil temperture . Winding temperture and Bucholz relay.					
	Surge relay Restricted earth fault relay, Differential relay with PS Class CTs.					
	1 - set of braker control switches (TNC)					
	1 - Set of dual core CT's for measuring and protection					
	Core I 150/5 class 5 P - 10 (15 VA)					
	Core II 150/5 Class I (15 VA)					
	1- Shunt trip/closing coil 24V D.C. / 110V A.C.					
	1 - 33 kv end termination for 3 x 400 sq.mm Al. XLPE 33 KV cable					
	Trip circuit supervision relay					
	Master trip relay					
	1 no Annunciator					
	1 no Hooter					
	1 - Over current, S/C & EF relay (IDMTL & Hi-set)					
	SUBHEAD : 33 KV HT PANEL	set	1			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
1.02	33 KV BATTERY CHARGER					
	Supply, erection, testing and commissioning of 430V, 3 phase, 4 wire A.C. to 24 Volts DC 200 AH sealed maintenance free batteries with semiconductor/IGBT (full-wave rectifier) with auto manual/trickle boost facility battery charging units static type complete including one no. distribution board having 250 Amps DP MCCB as incomer and 12 Nos. 20/16A DP MCB's (D.C. duty) as outgoing complete as required and as per technical specifications.	No(s)	1			
1.03	11 KV HT PANEL IN GRID SUBSTATION:					
	Supply, erection, testing and commissioning of 17 panel Board, 630 A ,11kV, 3 Phase, 50 Hz., metal clad, dead front, 350 MVA rupturing capacity draw out type Vacuum Circuit Breaker Incoming & Outgoings as per Specification/ Drawing the detailed specifications and drawings including connections etc. including door interlocking and expendable as required.					
	Note: Supervision of Installation, testing & commissioning shall be done by the Manufacturer.					
	The switchboard shall be complete with all interconnections, labels wiring, etc as required					
	Rating of CT's and PT's of incoming and Outgoing VCB Panels metering will be as per Approved By State Electricity Board / Local Authority.					
	Earth bus is of copper material					
A	(a) INCOMING PANEL - 3Nos Each comprising of :					
	1-Metal clad housing with truck havin 1000 A TP integral VCB 350MVA with manual and electrical operated mechanism. (Spring charged motor - 220 V AC) with indication for spring charged & Trip CKT healthy.(Truck mounted with three position service,test and isolated)					
	1 -Sets of dual core CT's					
	Core I - 800/400\5 of Class 0.5 -15VA burden for Metering					
	Core II - 800/400/5 of Class 5P10 -15VA burden for Protection.					
	1 - Flush mounted ammeter, selector switch (Built-in)					
	3- Nos. PT's 11/0.11 KV of (15 VA) cast resin type (3 pohase 4 wire)					
	1- Shunt trip/closing coil - 24/110 V DC					
	1 -Set of ON/OFF/Trip & circuit healthy and phase indicating lamps. (RYB)					
	1 - Voltmeter with selector switch (built-in)					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	1 - No combined 3 element O/C & 1 element E/F and short ckt IDMTL relay microprocessor based numerical rely					
	1 - No. Trivector meter (compatible with PLC/PC)					
	-1 Set power factor and frequency meter					
	1 Set of undervoltage relay and Overvoltage relay					
	1 No. Master Trip relay					
	1 No. trip ckt supervision relay					
	1 No. phase reversal relay					
	1 no. Hooter					
	B BUSBARS :					
	11kV, 350 MVA, 1000 Amps Three Phase busbars of copper.					
	C Bus Coupler					
	2 No. VCB having following:					
	1 No. 630A, 11kV, 3 Phase, 50Hz., metal clad, dead front, 350 MVA rupturing capacity, Fully Drawout type, Vacuum Circuit Breaker (VCB)					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP, SPRING CHARGED, TRIP CIRCUIT HEALTHY					
	Push button for ON, OFF,TRIP&TRIP circuit healthy					
	D 12 - Nos OUTGOINGS each having :					
	1-Metal clad housing with truck having 11 KV 630A TP integral VCB 350 MVA with manual and electrical operated mechanism. (Spring charged motor - 230V AC).(Truck mounted with three position service,test and isolated)					
	3- Dual core CTs with rating 150/75/5/5A of 15VA burden and Accuracy class 1.0 for metering and class 5P10 for protection.					
	1 - Shunt trip closing coil 24V DC.					
	3 - Element IDMTL 2 high set over current ,earth fault relay & short Ckt microprocessor based numerical rely					
	1 - No. restricted earth fault relay					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	1 - Set ON/OFF & Trip indication					
	1 - Auxilary relay for temperature alarm and trip					
	1 - No. Ammeter with selector switch (Built-in)					
	1 Set of undervoltage relay and Overvoltage relay					
	Trip circuit supervision relay					
	1 No. Master Trip relay					
	8 window annunciator					
	1 no. Hooter					
	1- No. Set of terminal block with 20% extra terminal for connection with 2.5 sq.mm 4 core copper conductor PVC insulated PVC sheathed copper cable from panel to transformer					
	HT Panel AS MENTIONED ABOVE :	Set	1			
1.04	BATTERY CHARGER PANEL (For above H.T panels)					
	Supply, erection, testing and commissioning of battery charger panel with 24 V /110 V DC continuous out put for control supply of HT panel complete with battery, control cabling etc. as required. Capacity of battery charger panel should be suitable for above mentioned 11 KV Grid H.T. Panels.					
	Sealed Maintenance Free (SMF) battery of minimum 150 AH ampere hour capacity Etc. as required.					
	Boost and Trickle charger suitable for above items.					
	1 No. AC Voltmeter (0-500Volt), 1 No. DC Voltmeter & 1 No. DC Ammeter					
	1 set of AC and DC indicating lamps					
	1 No. DC Battery charging position indicator					
	DC distribution board suitable for above application to incoming & outgoing MCBs include tripping, closing and indication etc.					
	Control cabling between DC Distribution panel to the HT panel of the Substation with suitable core 1.5 sqmm copper cable	Each	1			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
1.05	Transformer 33/11 KV					
	Design, Manufacture, Supply, Delivery, Erection, testing & commissioning of 6000KVA, 33000/11000 volts Deta/Star, vector group DYN11, Outdoor mounting, oil cooled ONAF transformer with On Load Tap Changers (OLTC) having AVS relay and RTCC for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote manual operation of OLTC, suitable for incoming voltage variation of +7.5% to -15% in equal steps of 1.25% to give a constant secondary voltage. The transformer shall be provided with fittings, accessories, protection, first filling of oil etc. including Buchholz oil/winding temperature alarm/trip protection complete as per specifications and as required. The transformer shall be provided with arrangement to terminate XLPE cable on primary and secondary side.					
	<u>FITTINGS & ACCESSORIES :</u>					
	Rating Plate, Roller, Plain Oil level gauge and Conservator.					
	Drain Valve, Filter Valve, sampling valve with plug & Earthing Terminals.					
	Inspection Cover, Thermometer pocket & Lifting lugs.					
	Silicagel Breather.					
	Pressed Steel Radiators with Shut off Valve.					
	PRV or Explosion Vent, OTI & WTI with Alarm trip Contacts.					
	PT for Input & Output Voltage measurement and Relay sensing.					
	Remote Metering Panel & Marshalling Box.					
	Double float Bucholz Relay with Trip and Tripcontacts					
	Magnetic Oil Level Gauge with alarm Trip contacts only					
	33/11 kvCable Boxes at incoming/outgoing					
	Pressure Release Valve					
	On load Tapchanger Switch					
	Air Release Plug					
	Detachable Cooling Radiators fitted with shut off Valve					
	Differential protection CT class PS (Relay in 33kv pannel)					
	Transformer 33/11 KV as mentioned above	set	3			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
1.06	FOUR POLE STRUCTURE WITH METERING					
1.06.01	Supply, fabricate, install, testing and commissioning of 33KV Four pole structure as required to accommodate following. Fabrication shall include necessary welding of "I" beams, channels, angles, plates, etc.. Installation shall include necessary digging / excavation/ soft/hard rock for making foundation, etc..The complete structures with all accessories shall be with the coat of primer and two coat of final anticorrosive aluminium paint. (Steel Pole structure) and including cost of the following item .					
	i) To supply, install, test and commission of 3 sets of 33KV, 400Amps. Outdoor, triple pole off Load horizontal mounting gang operated air break switches with solid core insulators complete with all necessary accessories to mount on the 4-pole structure, operating rod, operating handle with pad locking facilities.					
	ii) To supply, install, test and commission of 3 sets of 33KV, 400 Amps. Outdoor, triple pole vertical mounting with 3 solid core insulators drop out fuses of approved make complete with all necessary hardware and fittings.					
	iii) To supply, install, test and commission of 3 sets 33KV pin type post insulators with hardware like standarder insulators and all other hardwares complete for making busbars etc for interconnection of incoming/outgoing I/C jumber connection etc complete as required					
	iv) To supply, install, test and commission 3 sets of 3 nos single pole lightning arrestors suitable for 33KV, 50Hz, complete with mounting brackets/hardware etc. Complete with all accessories as per specification with					
	v) To supply installation, testing and commissioning of H.T metering system with meter/relay etc complete as required by the State Electricity Board					
	Total above as required.	each	1			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
1.07	HT PANEL-1 For Residential Block					
	Supply, erection, testing and commissioning of 3 panel Board, 630 A ,11kV, 3 Phase, 50 Hz., metal clad, dead front, 350 MVA rupturing capacity draw out type Vacuum Circuit Breaker Incoming & Outgoings, suitable rating power pack unit with battery for each incoming and outgoing feeder as per the detailed specifications and drawings including connections etc. including door interlocking and expendable as required.					
	Note: Supervision of Installation, testing & commissioning shall be done by the Manufacturer.					
	The switchboard shall be complete with all interconnections, labels wiring, etc as required					
	Earth bus is of copper material					
A	(a) INCOMING PANEL 1 No Comprising of :					
	1-Metal clad housing with truck having 630 A TP integral VCB 350MVA with manual and electrical operated mechanism. (Spring charged motor - 220 V AC) with indication for spring charged & Trip CKT healthy.(Truck mounted with three position service,test and isolated)					
	1 -Sets of dual core CT's					
	Core I - 80/40/5 of Class 0.5 -15VA burden for Metering					
	Core II - 80/40/5 of Class 5P10 -15VA burden for Protection.					
	1 - Flush mounted ammeter, selector switch (Built-in)					
	3- Nos. PT's 11/0.11 KV of (15 VA) cast resin type (3 phase 4 wire)					
	1- Shunt trip/closing coil - 24/110 V DC					
	1 -Set of ON/OFF/Trip & circuit healthy and phase indicating lamps. (RYB)					
	1 - Voltmeter with selector switch (built-in)					
	1 - No combined 3 element O/C & 1 element E/Fand short ckt IDMTL relay microprocessor based numerical rely					
	1 - No. Trivector meter (compatible with PLC/PC)					
	-1 Set power factor and frequency meter					
	1 Set of undervoltage relay and Overvoltage relay					
	1 No. Master Trip relay					
	1 No. trip ckt supervision relay					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	1 No. phase reversal relay					
	1 no. Hooter					
B	BUSBARS :					
	11kV, 350 MVA, 630 Amps Three Phase busbars of copper.					
C	2 Nos OUTGOINGS Each Having :					
	1-Metal clad housing with truck having 11 KV 630A TP integral VCB 350 MVA with manual and electrical operated mechanism. (Spring charged motor - 230V/110V AC).(Truck mounted with three position service,test and isolated)					
	3- Dual core CTs with rating 40/20/5/5A of 15VA burden and Accuracy class 1.0 for metering and class 5P10 for protection.					
	1 - Shunt trip closing coil 24V DC.					
	3 - Element IDMTL 2 high set over current ,earth fault relay & short Ckt microprocessor based numerical rely					
	1 - No. restricted earth fault relay					
	1 - Set ON/OFF & Trip indication					
	1 - Auxilary relay for temperature alarm and trip					
	1 - No. Ammeter with selector switch (Built-in)					
	1 Set of undervoltage relay and Overvoltage relay					
	Trip circuit supervision relay					
	1 No. Master Trip relay					
	8 window annunciator					
	1 no. Hooter					
	1- No. Set of terminal block with 20% extra terminal for connection with 2.5 sq.mm 4 core copper conductor PVC insulated PVC sheathed copper cable from panel to transformer					
	HT PANEL 1 AS MENTIONED ABOVE:	Set	1			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
1.08	TRANSFORMER Supply, erection, testing and commissioning of 630 KVA , 11/0.433 kV, 3 Phase, 4 wire, 50 Hz., ON AN Transformer for outdoor duty with an -10% to +5% in the steps of 2.5% on-load tap changer with cable box at primary (HT side) and secondary end (LT side) shall be connected through cable, the transformer shall be complete with first filling of oil, with double float buchholz relay protection, high winding temperature sensors, complete with all fittings, interconnection of control cables and accessories as per CPWD General Specifications for Electrical Works, Part-IV Sub-Stations-2007.	Set	2			
1.09	HT PANEL -2 For Hostel Block Supply, erection, testing and commissioning of 3 panel Board, 630 A ,11kV, 3 Phase, 50 Hz., metal clad, dead front, 350 MVA rupturing capacity draw out type Vacuum Circuit Breaker Incoming & Outgoings, suitable rating power pack unit with battery for each incoming and outgoing feeder as per the detailed specifications and drawings including connections etc. including door interlocking and expendable as required. Note: Supervision of Installation, testing & commissioning shall be done by the Manufacturer. The switchboard shall be complete with all interconnections, labels wiring, etc as required					
	A Earth bus is of copper material					
	(a) INCOMING PANEL 1 No Comprising of :					
	1-Metal clad housing with truck having 630 A TP integral VCB 350MVA with manual and electrical operated mechanism. (Spring charged motor - 220 V AC) with indication for spring charged & Trip CKT healthy.(Truck mounted with three position service,test and isolated)					
	1 -Sets of dual core CT's					
	Core I - 200/100/5 of Class 0.5 -15VA burden for Metering					
	Core II - 200/100/5 of Class 5P10 -15VA burden for Protection.					
	1 - Flush mounted ammeter, selector switch (Built-in)					
	3- Nos. PT's 11/0.11 KV of (15 VA) cast resin type (3 phase 4 wire)					
	1- Shunt trip/closing coil - 24/110 V DC					
	1 -Set of ON/OFF/Trip & circuit healthy and phase indicating lamps. (RYB)					
	1 - Voltmeter with selector switch (built-in)					
	1 - No combined 3 element O/C & 1 element E/Fand short ckt IDMTL relay microprocessor based numerical rely					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	1 - No. Trivector meter (compatible with PLC/PC)					
	-1 Set power factor and frequency meter					
	1 Set of undervoltage relay and Overvoltage relay					
	1 No. Master Trip relay					
	1 No. trip ckt supervision relay					
	1 No. phase reversal relay					
	1 no. Hooter					
	B BUSBARS :					
	11kV, 350 MVA, 630 Amps Three Phase busbars of copper.					
	C 2 Nos OUTGOINGS Each having :					
	1-Metal clad housing with truck having 11 KV 630A TP integral VCB 350 MVA with manual and electrical operated mechanism. (Spring charged motor - 230V/110V AC).(Truck mounted with three position service,test and isolated)					
	3- Dual core CTs with rating100/50/5/5A of 15VA burden and Accuracy class 1.0 for metering and class 5P10 for protection.					
	1 - Shunt trip closing coil 24V DC.					
	3 - Element IDMTL 2 high set over current ,earth fault relay & short Ckt microprocessor based numerical rely					
	1 - No. restricted earth fault relay					
	1 - Set ON/OFF & Trip indication					
	1 - Auxilary relay for temperature alarm and trip					
	1 - No. Ammeter with selector switch (Built-in)					
	1 Set of undervoltage relay and Overvoltage relay					
	Trip circuit supervision relay					
	1 No. Master Trip relay					
	8 window annunciator					
	1 no. Hooter					
	1- No. Set of terminal block with 20% extra terminal for connection with 2.5 sq.mm 4 core copper conductor PVC insulated PVC sheathed copper cable from panel to transformer					
	HT PANEL -2 AS MENTIONED ABOVE:	Set	1			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
1.09 (a)	BATTERY CHARGER PANEL (For above H.T panels)					
	Supply, erection, testing and commissioning of battery charger panel with 24 V /110 V DC continuous out put for control supply of HT panel complete with battery, control cabling etc. as required. Capacity of battery charger panel should be suitable for above mentioned 11 KV Grid H.T. Panels.					
	Sealed Maintenance Free (SMF) battery of minimum 150 AH ampere hour capacity Etc. as required.					
	Boost and Trickle charger suitable for above items.					
	1 No. AC Voltmeter (0-500Volt), 1 No. DC Voltmeter & 1 No. DC Ammeter					
	1 set of AC and DC indicating lamps					
	1 No. DC Battery charging position indicator					
	DC distribution board suitable for above application to incoming & outgoing MCBs include tripping, closing and indication etc.					
	Control cabling between DC Distribution panel to the HT panel of the Substation with suitable core 1.5 sqmm copper cable	Each	2			
1.10	TRANSFORMER					
	Supply, erection, testing and commissioning of 1600 KVA , 11/0.433 kV, 3 Phase, 4 wire, 50 Hz., ON-AN Transformer for outdoor duty with an -10% to +5% in the steps of 2.5% on-load tap changer with cable box at primary (HT side) and secondary end (LT side) shall be connected through sandwich type bus duct, the transformer shall be complete with first filling of oil, with double float buchholz relay protection, high winding temperature sensors, complete with all fittings, interconnection of control cables and accessories as per CPWD General Specifications for Electrical Works, Part-IV Sub-Stations-2007.	Set	2			
1.11	BUS DUCTS					
	Supply, Installation, testing and commissioning of below mentioned phase and neutral TPN, 415 V, 3 Phase, 4 Wire, sandwich construction Aluminium Bus Duct including bends, flexible joints, earth bus (2 runs of aluminium strips), supports for installation, supporting arrangements, etc. complete as per technical specifications and as required.					
	i) 2500 Amp	Metre	40			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
1.12	H.T. CABLE					
1.12.01	Supply,of the following 3 core 33000 volt grade earthed type, armoured aluminium conductor XLPE cable					
	i) 400 Sq.mm	per m	1200			
1.12.02	Supplying and making following cable end termination heat shrinkable join kit complete with all accessories including lugs suitable for following size of 3 core XLPE aluminium conductor cable of 33 grade as required.					
	i) 400 Sq mm (Outdoor)	each	10			
	ii) 400 Sq mm (Indoor)	each	6			
	iii) 400 Sq mm straight through	each	1			
1.12.03	Laying and fixing of one number PVC insulated and PVC sheathed/XLPE power cable of grade exceeding 1.1 but not exceeding 33 KV of size exceeding 120 sq mm but not exceeding 400 sq mm direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.	per m	900			
1.12.04	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 33 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.					
	i) Above 120 sq. mm and upto 400 sq. mm	Metre	60			
1.12.05	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 33 KV grade of following size in the existing masonry open duct / cable trays required.					
	i) Above 120 sq. mm and upto 400 sq. mm	Metre	250			
1.12.06	Supplying of high voltage insulating mat as per IS 15652 : 2006 duly pasted on the floor complete as required and as under.					
	i) Insulating mat of 2.5 mm thick for upto 3.3 kV to 11 kV	Metre	90			
	ii) Insulating mat of 3.0 mm thick for upto 11 kV to 33 kV	Metre	60			
1.12.07	Supplying rubber gloves (33 kV rating)	each	2			
1.12.08	Supplying of HT meggar 33 kv complete with probes etc as required	Set	1			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	i) Supply of following sizes of 11 kV grade multicore aluminium conductor XLPE HT armoured power cable as per IS : 709					
	ii) 3 Core, 240 sq mm	Metre	300			
	iii) 3 Core, 185 sq mm	Metre	300			
1.12.09	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.					
	i) Above 120 sq. mm and upto 400 sq. mm	Metre	500			
1.12.10	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.					
	i) Above 120 sq. mm and upto 400 sq. mm	Metre	50			
1.12.11	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size in the existing masonry open duct / cable trays required.					
	i) Above 120 sq. mm and upto 400 sq. mm	Metre	50			
1.12.12	Supplying and making end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size 3 Core, XLPE aluminium conductor cable of 11kV grade as required.					
	i) 240 sqmm 3 core (Heat Shrunken Type) Indoor Type	Each	4			
	ii) 240 sqmm 3 core (Heat Shrunken Type) Outdoor Type	Each	2			
	iii) 185 sqmm 3 core (Heat Shrunken Type) Indoor Type	Each	4			
	iv) 185 sqmm 3 core (Heat Shrunken Type) Outdoor Type	Each	2			
1.12.13	Supplying and laying of 150 mm dia Double Walled Corrugated HDPE pipe as per IS 14930 with fittings and clamps etc as reqd.					
	ii) 150 mm dia	metre	30			
1.12.14	Providing, laying and fixing following dia RCC pipe NP2 class (light duty) in ground complete with RCC collars, jointing with cement mortar 1:2 (1 cement : 2 fine sand) including trenching (75 cm deep) and refilling etc as required.					
	i) 150 mm dia	metre	30			
	ii) 300 mm dia	metre	30			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
1.12.15	Cable Route Marker					
	Supply and making cable route marker with cement concrete 1:2:4(1 cement :2 coarse sand :4graded stone aggregate 20mm nominal size) of size 60cm X 60 cm at the bottem and 50 cm X 50 cm at the top with a thickness of 10 cm including inscription duly engraved as required	each	20			
1.13	Providing & Fixing of Safety Equipmet					
	i) Providing and fixing H.T. (11kV) danger notice plate of 250mmX150mm made of mild steel, atleast 2mm thick and vitreous enameled white on both sides and with inscription in signal red colour on front side as required.	Each	4			
	ii) Providing and fixing M.V. danger notice plate of 200mmX150mm made of mild steel, atleast 2mm thick and vitreous enamelled white on both sides and with inscription in signal red colour on front side as required.	Each	4			
	iii) Supply & erection of the following Safetyand testing Equipment including miscellanoes items like Clamps, nuts & Bolts , rawl plugs etc at suibe laces in the Substation building as required.					
	a Carbon Dioxide (Co2) type fire Extinguishers 4.5Kg Capacity Duly Charged confirming to IS 2828	Each	8			
	b Carbon Dioxide (Co2) type fire Extinguishers 9 Kg Capacity Duly Charged confirming to IS 2828	Each	3			
	c Dry Chemical Powder type Fire Extinguishers with Cylinders duly Charged of Capacity 4.5kg confirming to IS 2878 including fixing of M.S Clamps , Brackets etc. complete as required.	Each	8			
	d Supply and fixing of dry chemical powder (DCP) extinguishers, Portable type 10 kg capacity duly filled complete as required.	No	2			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
e	G.I buckets of 3 nos of 5 Litres Capacity duly painted white inside and red oxide paint outside and written 'FIRE' with white paint & Filled with Dry sand and mounted on M.S angle iron bracket of Size 50x50x6mm thick and 1200mm long including grouting in wall /floor etc as required .	Each	5			
f	Supplying, storing, handling and fixing in position First Aid Medical Box complete as per technical specifications as required.	Each	3			
g	Shock Treatment Chart duly glazed mounted on Aluminum Frame with Sheet Glass as required.	Each	3			
h	Supplying and laying of 12kV grade 1 metre wide anti skid chequered type rubber mat.	Metre	30			
i	Supplying and laying of 1.1kV grade 1 metre wide anti skid chequered type rubber mat.	Metre	30			
j	Supply rubber hand gloves 11kV grade as per I.S. Code.	set	2			
1.14	Supplying of digital Earth Tester complete with probes etc as required	Set	1			
1.15	Supplying of Telescopic folding Aluminium ladder folding double with sitting stand 6 M etc as required	Each	2			
1.16	Providing and fixing of M.S Slotted angle iron with fixing materials and painting for cable racks in trenches /on wall etc. as required	Kg	500			
1.17	Providing and fixing of M.S Slotted angle 'C' channel /Ladder type rack /tray includingn fixing material grouted in wall or haning with M.S rod hanger from ceiling including 2 coat synthetic enamel painting over 1 coat of res oxide primer etc. as required	Kg	1000			
1.18	Fabrication and Installing following size of preforted M.S Cable tray including Horizontal and vertical bends , reducers , tee, crossmembers and other accessories as required and duly Suspended from the ceiling with M.S 12mm rod suspenders and including painting etc. as required.					
i)	100mmwidth x 50mm depth x1.6mm thickness	metre	30			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	ii) 150mmwidth x 50mm depth x1.6mm thickness	metre	50			
	iii) 300mmwidth x 62.5mm depth x2 mm thickness	metre	80			
	iv) 450mmwidth x 62.5mm depth x2.0mm thickness	metre	30			
	v) 600mmwidth x 62.5mm depth x2.0mm thickness	metre	30			
	vi) 900mmwidth x 62.5mm depth x2.0mm thickness	metre	40			
	TOTAL FOR SUB HEAD 1: H.T. SUB STATION AS MENTIONED ABOVE					
2.00	SUB HEAD 2: LT PANEL					
2.01	MAIN L.T. PANEL: (Residential Block)					
	SLD will be submitted by the contractor for Approval to HSCC before submitting the LT PANEL Drawing. Based on approved SLD , Contractor will provide the GA Drawing of LT Panel.					
	Design, fabrication, assembly, wiring, supply, of front operated cubicle type compartmentalised as per form 3B, rear access free standing, dust and vermin proof with ingress protection IP 42 for Indoor & IP 54 for Outdoor applications for main switchboards extensible for both sides suitable for use at 415 volts, 3 phase 4 wire 50 Hertz system suitable for fault level of required value symmetrical at 415 volts, fabricated from 2 mm thick CRCA MS sheets with hinged, gasketted (metal based neoprene) and lockable doors having structural reinforcement with suitable angle/channel/T/flat sections.					
	Including GI earth strip of required size with 2 nos earthing terminals and including powder coated paint finish of approved shade over metal surface cleaned and treated with seven tank process complete with interconnections etc as per specifications, as required.					
	Note :					
	The Switchboard shall have provision for entry of all PVCA cables/bus duct from the top / bottom as required.					
	All live accessible parts shall be shrouded and all equipment shall be finger touch proof. The Busbars insulation shall be with heat shrinkable sleeves. SMC/DMC shrouds and busbar supports shall be used. Padlocking facility shall be provided on all outgoing feeders doors and switch handles shall be lockable in OFF position					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	All KA ratings indicates shall be Ics values					
	The cost shall include providing and fixing of 100 x 50 x 6 mm channels for switchboard support.					
	Short Circuit capacity for MCCB's shall be Icu values and Ics values shall not be less than 100% Icu					
	All incoming, Bus section and outgoing feeders shall have fault trip auxiliary contacts for wiring to annunciation fault trip indication panel.					
	Valid Partially Type Assembly test certificates(PTA CERTIFICATE) from Independent Temperature Rise test, Creepage ,Clearing, short circuit testing with One incomer of highest rating as given in BOQ and one outgoing highest rating given in BOQ tested in lab (CPRI).					
	All ACBs ratings are in panel capacities at 45°C ambient temperature.					
	All incomers and Bus coupler panel door should be different colour coded for identification and mimic diagram in front of panel should be marks by reflector paints					
	All ACBs shall have 5 NO + 5 NC contacts					
	All relays to operate at 240Volts, Single phase, 50Hz., AC supply through UPS. UPS is also in the scope of supply.Minimum 2 KVA UPS with battery will be supplied and connected through separate feeder.					
	Digital Multifunction metre Suitable for true RMS metering.Metre should measure line and phase voltage , current of all three phases and neutral, HZ, PF, KW, KWH, KVAR, KVARH, KVA, KVAH ,voltage and current including one set of CT. Metre should be EMI/ EMC compliant.					
	Provision shall be made in LT panel when state elctricity supply tripp/off , D.G mains on through D.G panel Automatically. When State supply restores , Mains of LT incomer automatically "ON" switching off D.G incomer.					
A.	INCOMER:					
	i) 2 No. ACB Panels each having following:					
	1 No.1000A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth Fault trip including under voltage release and over voltage release with communication through RS 485 compatible with PLC/PC lockable trip push button. ACB should have Icw=Ics = 50 KA for 1 sec and having follwoing equipment as required					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	01 No. 24V DC shunt release.					
	01 No. 230V A.C closing coil.					
	01 No. 415V A.C under voltage release.					
	01 No. Digital Voltmeter with selector switch					
	3 Nos. CTs 1000A/5A CI -1 15VA for metering					
	1 set potential Transformer 430/ rt 3/ 110 / rt 3, 100 VA					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	Push button to CLOSE the ACB.					
	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
	Restricted earth fault protection with one set of CT.					
	Digital multi function meter with one set of suitable CTs, CT shorting links, R/Y/B LED indicating lamps and 2A control SP MCBs with RS 485 port or load manager					
	One set of dual core dual ratio CT of 1000/5/5A for capacitor panel. For Power factor improvement.					
	ii) 1 No. MCCB Feeder each having following: for DG incomer					
	500 Amp 415 volts, 35 KA (Ics), Four Pole microprocessor based MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Multi-function metre with suitable CT's with RS 485 port					
	1 No. 0 to 500 V voltmeter with selector switch.					
	AMF panel Feeder for 320 KVA D.G Manual/Semiautomatic with AMF relay/Fully Automatic with PLC					
	AMF relay and PLC with selector switch and its allthe essential component / switchgears for AMF.					
	In one position only manual mode will select, In second position semiautomatic with AMF relay will select and in third position fully automatic with PLC will mode will select.					
	PROTECTION AND AMF COMPONENTS 320KVA DG set.					
	Auto/manual/test/off selector switch					
	2 Nos over voltage relay, 2 nos. reverse power relay and 2 nos. under voltage relay.					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	3 sets of current transformers 15 P 10 accuracy for protection and 15 VA class - I for metering					
	Indicating lamps for load on mains and load on set.					
	Fuse for instruments.					
	Battery charger, complete with transformer/rectifier, DC voltmeter and ammeter, selector switch for trickle, off and boost the current adjustment.					
	Main supply failure monitor.					
	Supply failure timer					
	Restoration timer.					
	Control unit with three impulse automatic engine start / stop and failure to start lockout.					
	Impulse counter with locking and reset facility.					
	On/Off/ Control circuit switch with indicator.					
	Indicating lamp for shutdown :					
	High stator temperature.					
	Low lubricating oil pressure					
	Engine over speed					
	Engine fails to start					
	Full load/ maximum load warning.					
	One Hour meter to indicate the number of hours set has operated					
	8 Window alarm annunciator panel with hooter, push buttons, aux. Contactors etc as required as per specification.					
	Mains supply voltage sensing relay.					
	Emergency stop push button.					
	Selector switch for engine control OFF/ON.					
	Restricted earth fault relay for rotor protection type CAG-14 or equivalent with PS class CT's and suitable rating stabilizing resistor.					
	Digital electronic KWH meter with metering class-I CT's.					
	Digital Electronic Frequency Meter.					
	Digital Electronic Kilowatt meter with metering class-I CT's.					
	ENCLOSURE :					
	Fabrication, PVC Sleeving, Control/Power Wiring and necessary electrical/ mechanical interlocking etc any other item required for proper functioning of the system complete as required.					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	Suitable rating of control wire from Main panel to D.G set including glanding and termination at both ends with suitable lugs.					
B.	BUSBARS :					
	i) 2000 Amps TPN busbars of aluminium.					
C.	BUS COUPLER :					
	i) 2 No. MCCB Feeder each having following: for DG					
	500 Amp 415 volts, 35KA (Ics), Four Pole microprocessor based MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release with 5 NO & 5 NC contacts					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
D.	OUTGOING.					
	i) 2 No.MCCB feeder Panels each having following: (For capacitor bank)					
	500 Amp 415 volts, 35 KA (Ics), TPNL microprocessor based MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	1 No. power factor digital meter					
	Multi-function metre with suitable Set of CT's					
	ii) 2 sets 200 KVAR capacitor Panel Feeder each having following					
	200 KVAR fully automatic microprocessor controlled capacitor panel with dielectric self healing type shunt capacitor 7% D-tuned harmonic filter with current limiting device discharge register accessories with connections..					
	1 No. power factor digital meter 1 No. APFC relay suitable for sequential operation of 12 Capacitor Banks					
	1 No. Digital Ammeter with selector switch and 3 NO. 500 /5A CTs					
	One Set of R, Y, B phase indicating light (LED type) with 2A , 3P MCB, 10KA					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	1x50 KVAR LT Heavy Duty APP type power capacitor banks with 1 No.50KVAR 5.67% D tuned harmonic block reactor and TSM (Thyristor Switch Module) mounted in sheet steel enclosure.					
	3x 25 KVAR LT Heavy Duty APP type power capacitor banks with 3 No.25KVAR 5.67% D tuned harmonic block reactor and TSM (Thyristor Switch Module) mounted in sheet steel enclosure.					
	2x 12.5 KVAR LT Heavy Duty APP type power capacitor banks with 2 No.12.5 KVAR 5.67% D tuned harmonic block reactor and TSM (Thyristor Switch Module) mounted in sheet steel enclosure.					
	5x 10 KVAR LT Heavy Duty APP type power capacitor banks with 5 No.12.5 KVAR 5.67% D tuned harmonic block reactor and TSM (Thyristor Switch Module) mounted in sheet steel enclosure.					
	1 Nos, 125Amps TPN MCCB, 35 KA, microprocessor controlled.					
	3 Nos. 63 Amps TPN MCCB, 25 KA, microprocessor controlled.					
	7 Nos. 32 Amps TPN MCCB, 16 KA, microprocessor controlled.					
	iii) 2 No.MCCB feeder Panels each having following:					
	500 Amp 415 volts, 35 KA (Ics), TPNL microprocessor based MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Multi-function metre with suitable Set of CT's					
	iv) 7 Nos. MCCB as per following details/ specifications:					
	400 Amp 415 volts, 25 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Multi-function metre with suitable Set of CT's					
	v) 2 Nos. MCCB as per following details/ specifications:					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	100 Amp 415 volts, 25 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Multi-function metre with suitable Set of CT's					
	vi) 5 Nos. MCCB as per following details/ specifications:					
	63 Amp 415 volts, 25 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Multi-function metre with suitable Set of CT's					
	vii) 6 no. 63 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	Emergency Feeder					
	i) 4 Nos.MCCB as per following details/ specifications:					
	320 Amp 415 volts, 25 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Multi-function metre with suitable Set of CT's					
	ii) 2 Nos.MCCB as per following details/ specifications:					
	160 Amp 415 volts, 25 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Multi-function metre compatible with PLC/PC with port. With suitable CT					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	Multi-function metre with suitable Set of CT's					
	iii) 5 Nos. MCCB as per following details/ specifications:					
	63 Amp 415 volts, 25 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Multi-function metre with suitable Set of CT's					
	Main LT Panel as mentioned above.	Set	1			
2.02	MAIN L.T. PANEL: (Hostel Block)					
	Design, fabrication, assembly, wiring, supply, of front operated cubicle type compartmentalised as per form 3B, rear access free standing, dust and vermin proof with ingress protection IP 42 for Indoor & IP 54 for Outdoor applications for main switchboards extensible for both sides suitable for use at 415 volts, 3 phase 4 wire 50 Hertz system suitable for fault level of required value symmetrical at 415 volts, fabricated from 2 mm thick CRCA MS sheets with hinged, gasketted (metal based neoprene) and lockable doors having structural reinforcement with suitable angle/channel/T/flat sections					
	Including GI earth strip of required size with 2 nos earthing terminals and including powder coated paint finish of approved shade over metal surface cleaned and treated with seven tank process complete with interconnections etc as per specifications, as required.					
	Note :					
	The Switchboard shall have provision for entry of all PVCA cables/bus duct from the top / bottom as required.					
	All live accessible parts shall be shrouded and all equipment shall be finger touch proof. The Busbars insulation shall be with heat shrinkable sleeves. SMC/DMC shrouds and busbar supports shall be used. Padlocking facility shall be provided on all outgoing feeders doors and switch handles shall be lockable in OFF position					
	All KA ratings indicates shall be Ics values					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	The cost shall include providing and fixing of 100 x 50 x 6 mm channels for switchboard support.					
	Short Circuit capacity for MCCB's shall be Icu values and Ics values shall not be less than 100% Icu					
	All incoming, Bus section and outgoing feeders shall have fault trip auxiliary contacts for wiring to annunciation fault trip indication panel.					
	Valid Partially Type Assembly test certificates(PTA CERTIFICATE) from Independent Temperature Rise test, Creepage ,Clearing, short circuit testing with One incomer of highest rating as given in BOQ and one outgoing highest rating given in BOQ tested in lab (CPRI).					
	All ACBs ratings are in panel capacities at 45°C ambient temperature.					
	GA drawings shall be got approved from Owners/ Architects/Consultants before fabrication.					
	All incomers and Bus coupler panel door should be different colour coded for identification and mimic diagram in front of panel should be marks by reflector paints					
	All ACBs shall have 5 NO + 5 NC contacts					
	All relays to operate at 240Volts, Single phase, 50Hz., AC supply through UPS. UPS is also in the scope of supply.Minimum 2 KVA UPS with batterywill be supplied and connected through separate feeder.					
	Digital Multifunction metre should be suitable for true RMS metering.Metre should measure line and phase voltage , current of all three phases and neutral, HZ, PF, KW, KWH, KVAR, KVARH, KVA, KVAH ,voltage and current including one set of CT. Metre should be EMI/ EMC compliant.					
	Provision shall be made in LT panel when state electricity supply tripp/off , D.G mains on through D.G panel Automatically. When State supply restores , Mains of LT incomer automatically "ON" switching off D.G incomer.					
A.	INCOMER:					
	i) 2 No. ACB Panels each having following:					
	1 No.2500A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth Fault trip including under voltage release and over voltage release lockable trip push button. ACB should have Icw=Ics = 65 KA for 1 sec and having following equipment as required					
	01 No. 24V DC shunt release.					
	01 No. 230V A.C closing coil.					
	01 No. 415V A.C under voltage release.					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	3 Nos. CTs 4000A/5A CI -1 15VA for metering					
	1 set potential Transformer 430/ rt 3/ 110 / rt 3, 100 VA					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	Push button to CLOSE the ACB.					
	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
	Restricted earth fault protection with one set of CT.					
	Digital multi function meter with RS 485 port with one set of suitable CTs, CT shorting links, R/Y/B LED indicating lamps and 2A control SP MCBs					
	One set of dual core dual ratio CT of 4000/5/5A for capacitor panel. For Power factor improvement.					
	Triping or Trip Free relays.					
	Reverse Power relays.					
	Trip Circuit Supervision relays.					
	ii) 1 No. ACB Panels each having following:					
	1 No.800A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth Fault trip including under voltage release and over voltage release lockable trip push button. ACB should have I _{cw} =I _{cs} = 50 KA for 1 sec and having following equipment as required					
	01 No. 24V DC shunt release.					
	01 No. 230V A.C closing coil.					
	01 No. 415V A.C under voltage release.					
	3 Nos. CTs 4000A/5A CI -1 15VA for metering					
	1 set potential Transformer 430/ rt 3/ 110 / rt 3, 100 VA					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	Push button to CLOSE the ACB.					
	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
	Restricted earth fault protection with one set of CT.					
	Digital multi function meter with RS 485 port with one set of suitable CTs, CT shorting links, R/Y/B LED indicating lamps and 2A control SP MCBs					
	One set of dual core dual ratio CT of 4000/5/5A for capacitor panel. For Power factor improvement.					
	Triping or Trip Free relays.					
	Reverse Power relays.					
	Trip Circuit Supervision relays.					
B.	BUSBARS :					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	i) 3200 Amps Phase TPN busbars of aluminium.					
C.	BUS COUPLER :					
	i) 1 No. ACB Panels each having following:					
	2500 A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit, Instantaneous & earth Fault trip including under voltage release and lockable trip push button and 8 NO + 8 NC auxiliary contact . The ACB should have Icw =Ics= 50KA for 1 sec.					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP.					
	Push button to CLOSE the ACB.					
	ii) 1 No. ACB Panels each having following:					
	800 A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit, Instantaneous & earth Fault trip including under voltage release and lockable trip push button and 8 NO + 8 NC auxiliary contact . The ACB should have Icw =Ics= 50KA for 1 sec.					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP.					
	Push button to CLOSE the ACB.					
D.	OUTGOING.					
	i) 2 No. ACB Panels each having following: (For capacitor bank)					
	1250 A, 415/500V, Fully Motorised, Fully Drawout type (EDO), TPN, Air Circuit Breaker with microprocessor based overload, short circuit, instantaneous & earth Fault trip including under voltage release and lockable trip push button. ACB should have Icw=Ics= 50 KA for 1 sec.					
	1 No. power factor digital meter 1 No. APFC relay suitable for sequential operation of 6 Capacitor Banks					
	24 V DC Shunt trip coil. - 1 Set					
	Breaker control switch - 1 Set					
	Three Phase Under voltage relay - 1 Set					
	Three Phase Over voltage relay - 1 Set					
	1 Set "ON /OFF" push button with 2A, 3P MCB, 10KA					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	Push button to CLOSE the ACB					
	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
	Multi-function metre with suitable Set of CT's					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	ii) 2 sets 500 KVAR capacitor Panel Feeder each having following					
	500 KVAR fully automatic microprocessor controlled capacitor panel with dielectric self healing type shunt capacitor 7% D-tuned harmonic filter with current limiting device discharge register accessories with connections..					
	1 No. power factor digital meter 1 No. APFC relay suitable for sequential operation of 10 Capacitor Banks					
	24 V DC Shunt trip coil. - 1 Set					
	Breaker control switch - 1 Set					
	Three Phase Under voltage relay - 1 Set					
	Three Phase Over voltage relay - 1 Set					
	1 Set "ON /OFF" push button with 2A, 3P MCB, 10KA					
	One Set of IDMT Relay.(3 Phase Over Current + Earth Fault) or equivalent.					
	1 No. Digital Ammeter with selector switch and 3 NO. 1250 /5A CTs					
	One Set Breaker ON/OFF/TRIP indicating lights with control MCB's.					
	One Set of R, Y, B phase indicating light (LED type) with 2A , 3P MCB, 10KA					
	2x100 KVAR LT Heavy Duty APP type power capacitor banks with 2 No.100 KVAR 5.67% D tuned harmonic block reactor and TSM (Thyristor Switch Module) mounted in sheet steel enclosure.					
	3x50 KVAR LT Heavy Duty APP type power capacitor banks with 3 No.50KVAR 5.67% D tuned harmonic block reactor and TSM (Thyristor Switch Module) mounted in sheet steel enclosure.					
	4x25 KVAR LT Heavy Duty APP type power capacitor banks with 4 No.25 KVAR 5.67% D tuned harmonic block reactor and TSM (Thyristor Switch Module) mounted in sheet steel enclosure.					
	5x 10 KVAR LT Heavy Duty APP type power capacitor banks with 5 No.10 KVAR 5.67% D tuned harmonic block reactor and TSM (Thyristor Switch Module) mounted in sheet steel enclosure.					
	2 Nos, 250 Amps TPN MCCB, 35 KA, microprocessor controlled.					
	3 Nos, 125 Amps TPN MCCB, 35 KA, microprocessor controlled.					
	4 Nos. 63 Amps TPN MCCB, 35 KA, microprocessor controlled.					
	5 Nos. 25 Amps TPN MCCB, 16 KA, microprocessor controlled.					
	iii) 6 Nos.MCCB as per following details/ specifications:					
	400 Amp 415 volts, 25 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Multi-function metre with suitable Set of CT's					
	iv) 2 Nos.MCCB as per following details/ specifications:					
	320 Amp 415 volts, 25 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Multi-function metre with suitable Set of CT's					
	v) 6 Nos.MCCB as per following details/ specifications:					
	250 Amp 415 volts, 25 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Multi-function metre with suitable Set of CT's					
	vi) 2 Nos. MCCB as per following details/ specifications:					
	200 Amp 415 volts, 25 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Multi-function metre with suitable Set of CT's					
	vii) 2 Nos. MCCB as per following details/ specifications:					
	100 Amp 415 volts, 25 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Multi-function metre with suitable Set of CT's					
	viii) 2 Nos. MCCB as per following details/ specifications:					
	63 Amp 415 volts, 25 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Multi-function metre with suitable Set of CT's					
	ix) 3 no. 63 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	Emergency Feeder					
	i) 10 Nos. MCCB as per following details/ specifications:					
	125 Amp 415 volts, 35 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Multi-function metre with suitable Set of CT's					
	ii) 3 Nos.MCCB as per following details/ specifications:					
	160 Amp 415 volts, 25 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Multi-function metre with suitable Set of CT's					
	iii) 5 Nos. MCCB as per following details/ specifications:					
	63 Amp 415 volts, 25 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Multi-function metre with suitable Set of CT's					
	Main LT Panel as mentioned above.	Set	1			
	TOTAL MAIN LT PANEL AS MENTIONED ABOVE					
3	SUB HEAD 3 : DG SETS					
	DG Set and Accessories					
3.01	SOUND PROOF DG SETS OF 320 KVA. (Residential Block)					
a)	Supply, installation, testing and commissioning of sound proof (silent type) Diesel Generating set having rated capacity of 320 KVA at 0.8 P.F., 1500 RPM. 4 stroke , multicylinder, self excited alternator coupled to brush less type 415 volts 50 cycle/second , 3 phase system , suitable bhp, water cooled radiator diesel engine- alternator set mounted on common base frame, return fuel cooler, battery & battery charger, Anti Vibration mounting pads, Engine alternator safeties, electronic governor ,24 volts chargeable battery including initial charging of batteries, control panel complete. the over load Capacity shall not be less than 110% of rated capacity for one hour in every 12 hrs and neutral CT of suitable ratio and Class PS accuracy for alternator reference protection for all three sets,including all accessories & their wiring as per technical specification. This includes the following:					
	Supplying and fixing of suitable sizes High class MS pipe for DG exhaust complete with bends, - elbow, flanges etc including silencer and catalytic convertor exhaust pipe for exhaust of DG sets including pollution control board norms and as required.					
	Supply and fixing of 50mm thick compressed mineral wool insulation (Rock wool) for D.G. - exhaust pipe with 22 gauge aluminum sheet cladding etc. as required for the under mentioned dia pipe.					
	Fabrication of supports for exhaust pipe, for any other purpose out of suitable M.S. structural steel - including supplying and applying of enamel paint of approved shade after one coat of steel primer of reputed company.					
	- Supplying and fixing of suitable capacity cable adapter box for alternator.					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	Factory assembled Sound proof Canopy as per pollution control board requirement to achieve noise level desired during night condition, with base frame, doors, inspection window, fresh air supply fans, light fixtures for illumination with switch, wiring for light fixtures and power sockets, etc.					
	Providing and fixing oil tank of 990 litres capacity complete with suitable M.S. fabricated MS stand oil level indicator gauge tank and stand duly painted, complete with float switches etc. as required.					
	Supply of suitable hand manual pump with 20 Meter Hard PVC pipe for filling the Oil from drum in D.G set					
	First filling of Full capacity of Diesel in D.G set after complete testing of D.G set at site. For commissioning of D.G set Diesel will provided by the contractor.					
	- Any other item required for completion of system above (D.G. set)					
	Initial Supply as well as first replacement of lube oil , fuel for 8 hrs for full load test run would be provided by vendor before handing over D.G Set to the Client.					
	DG Set (320 KVA) as mentioned above.	Set	1			
3.02	SOUND PROOF DG SETS OF 250 KVA (HOSTEL BLOCK)					
a)	Supply, installation, testing and commissioning of sound proof (silent type) Diesel Generating set having rated capacity of 250 KVA at 0.8 P.F., 1500 RPM. 4 stroke , multicylinder, self excited alternator coupled to brush less type 415 volts 50 cycle/second , 3 phase system , suitable bhp, water cooled radiator diesel engine- alternator set mounted on common base frame, return fuel cooler, battery & battery charger, Anti Vibration mounting pads, Engine alternator safeties, electronic governor ,24 volts chargable battery including initial charging of batteries, control panel complete. the over load Capacity shall not be less then 110% of rated capacity for one hour in every 12 hrs and neutral CT of suitable ratio and Class PS accuracy for alternator reference protection for all three sets,including all accessories & their wiring as per technical specification. This includes the following:					
	- Supplying and fixing of suitable sizes High class MS pipe for DG exhaust complete with bends, elbow, flanges etc including silencer and catalytic convertor exhaust pipe for exhaust of DG sets including pollution control board norms and as required.					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	Supply and fixing of 50mm thick compressed mineral wool insulation (Rock wool) for D.G. - exhaust pipe with 22 gauge aluminum sheet cladding etc. as required for the under mentioned dia pipe.					
	Fabrication of supports for exhaust pipe, for any other purpose out of suitable M.S. structural steel - including supplying and applying of enamel paint of approved shade after one coat of steel primer of reputed company. - Supplying and fixing of suitable capacity cable adapter box for alternator.					
	Factory assembled Sound proof Canopy as per pollution control board requirement to achieve noise level desired during night condition, with base frame, doors, inspection window, fresh air supply fans, light fixtures for illumination with switch, wiring for light fixtures and power sockets, etc.					
	Providing and fixing oil tank of 990 litres capacity complete with suitable M.S. fabricated MS stand oil level indicator gauge tank and stand duly painted, complete with float switches etc. as required.					
	Supply of suitable hand manual pump with 20 Meter Hard PVC pipe for filling the Oil from drum in D.G set					
	First filling of Full capacity of Diesel in D.G set after complete testing of D.G set at site. For commissioning of D.G set Diesel will be provided by the contractor.					
	- Any other item required for completion of system above (D.G. set)					
	Initial Supply as well as first replacement of lube oil , fuel for 8 hrs for full load test run would be provided by vendor before handing over D.G Set to the Client.					
	DG set as mentioned above	Set	2			
3.03	SYNCHRONISING-CUM-LOAD SHARING PANEL (for 2 nos. DG Sets mentioned above)					
	Supply, installation, testing and commissioning of Synchronising Panel, M.V. cubicle type, totally enclosed, free standing type, dust, damp and vermin proof Panel made up of 14 SWG CRCA sheet, complete with aluminium busbars, M.V. danger notice plate, interconnections with suitable capacity aluminum leads/solid aluminum strips/rods, powder coat painted and having incoming and outgoing switchgears as mentioned below and complete as required. Panels shall have IP-54 Protection.					
	Note :					
	1. All ACBs shall have 5 NO + 5 NC contacts					
	2. All relays to operate at 240Volts, Single phase, 50Hz., AC supply through UPS					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	3. Panel shall be suitable for manual synchronising & auto synchronising and automatic operation (AMF) for 3 nos. DG Set and shall be complete with 1 no. operator control & software with PC					
	A. INCOMER :					
	i) 2 Nos MCCB as per following details/ specification:					
	- 500 Amp 415 volts, 50 KA (Ics), Four Pole microprocessor based MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release with 5 NO & 5 NC contacts					
	- Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	- Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Digital Voltmeter with selector switch					
	- R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
	- Digital multi function meter with one set of 800/5A CTs, CT shorting links, R/Y/B LED indicating lamps and 2A cobntrol SP MCBs					
	-					
	ii) BUSBARS :					
	- 800 Amp FP busbars of aluminum					
	B. OUTGOING :					
	i) 1 Nos .ACB Panel consisting of the following					
	- 800 A, 415/500V, Fully Drawout type (EDO) (Breaking Capacity=50kA), Four Pole, Air Circuit Breaker with microprocessor based overload & short circuit release					
	- Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	- Push button for CLOSE and TRIP with lock & key arrangement					
	- R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	- Digital multi function meter with one set of 800/5A CTs, CT shorting links, R/Y/B LED indicating lamps and 2A cobntrol SP MCBs					
	C. SYNCHRONISING COMPONENTS :					
	Metering & Indication :					
	- Power and Energy Monitor					
	- Set running indicating lights : 230 volts AC-22mm dia					
	- Emergency stop push button 230 volts AC-22 mm dia					
	- Governor /AVR raise/lower joy stick					
	- 12 window annunciation with hooter, test accept & reset push button					
	- Motorised potential AVR					
	- Time Totalizer					
	D. Manual Synchronising :					
	- 144 mm sq. Double voltmeter(AC/DC)					
	- 144 mm sq. Double frequency meter					
	- 144 mm.sq. synchroscope					
	- Check Synchronizing relay					
	- Synchronizing switch					
	- Selector swtich					
	- Dark and Bright lamps					
	- Breaker Control Switch					
	- Mode selector switch (Manual/Auto/stand alone)					
	- Engine Cranking Relay.					
	- Main supply voltage monitor, alternator voltmeter monitor and Engine Starting Relays					
	- Auxillary relays, timer, push button and control fuses.					
	- Timer for AMF Circuit (2 sets)					
	- DG Start/stop push button					
	- Auxilliary relays for overspeed, low lub oil pressure (LLOP) & high water temperature					
	- 8 channel temperature controller for winding/bearing protection					
	- Pulsating cable required to connect field RTD's/PTC's to temperature scanners.					
	E. Auto Synchronizing with PLC control					
	- Voltage monitors for DG supply					
	- Voltage monitors for main supply					
	- Line synchronising module					
	- Windows based operator interface graphics software					
	- CPU (Allen Bradley/Siemens/ABB/Schnieder) with desk.					
	- EPROM (EP)					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	- On line synchronizing and Load sharing modules					
	- PLC Rack etc. & any other item required for proper functioning of the system.					
	- Digital I / O modules as required with sufficient spare for future provision					
	- Analog I / O modules as required with sufficient spare for future provision					
	- PL to PLC communication card					
	- PL to PLC communication cable					
	- Power supply module					
	- Auto load sharing and management relay					
	- 1kVA, Single phase input and single phase output, 240volts, 50 Hz., AC, Online UPS with inbuilt 30 minutes battery backup in form of sealed maintenance free batteries with power wiring to the control bus for power supply to relays. (To be installed inside the panel)					
	- PC with P-IV intel processor, 80GB hard disk, 1GB RAM, 15" TFT colour monitor, PCI-VGA card 2MB, DVD drive (reader & writer)					
	- Auxilliary relays for output command					
	- Set of Software for PLC in CD					
	- 1 Set mimic (SEM)					
	- Set of control MCBs					
	F. DG PROTECTION AND AMF COMPONENTS:					
	- Reverse power and Reactive power relay					
	- Over Voltage relay					
	- Under Voltage relay					
	- Over frequency relay					
	- Trip circuit supervision relay					
	- Master lockout relay					
	- Master trip/supervisory relay					
	- Battery charger (with trickle and boost charging).					
	- DC voltmeter and ammeter.					
	- DC ammeter.					
	- 8 window Alarm annunciator with separate hooter, accept, reset and rest push button.					
	- Hooter.					
	- Engine Cranking Relay.					
	- Main supply voltage monitor, alternator voltmeter monitor and Engine Starting Relays.					
	- Auxillary relays, timer, push button and control fuses.					
	- Phase sequence relay					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	G. ENCLOSURE :					
	- Fabrication, PVC Sleeving, Control/Power Wiring and necessary hardware for complete synchronisation and load sharing					
	SYNCHRONISING-CUM-LOAD SHARING PANEL as mentioned above	Set	1			
3.04	SOUND PROOF DG SETS OF 15KVA (Director Bunglow)					
a)	Supply, installation, testing and commissioning of sound proof (silent type) Diesel Generating set having rated capacity of 15 KVA at 0.8 P.F., 1500 RPM. 4 stroke , multicylinder, self excited alternator coupled to brush less type 415 volts 50 cycle/second , 3 phase system , suitable bhp, water cooled radiator diesel engine- alternator set mounted on common base frame, return fuel cooler, battery & battery charger, Anti Vibration mounting pads, Engine alternator safeties, electronic governor ,24 volts chargable battery including inital charging of batteries, control panel complete. the over load Capacity shall not be less then 110% of rated capacity for one hour in every 12 hrs. This includes the following:					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
-	Supplying and fixing of suitable capacity cable adapter box for alternator.					
	Supply of suitable hand manual pump with 20 Meter Hard PVC pipe for filling the Oil from drum in D.G set					
	First filling of Full capacity of Diesel in D.G set after complete testing of D.G set at site. For commissioning of D.G set Diesel will provided by the contractor.					
-	Any other item required for completion of system above (D.G. set)					
	Initial Supply as well as first replacement of lube oil , fuel for 8 hrs for full load test run would be provided by vendor before handing over D.G Set to the Client.					
	DG set as mentioned above	set	1			
B)	Supply installation testing and commissioning of AMF panel for 15 KVA DG SET with complete incomer, contactor, relay , Metering , Safety items and other necessary items to complete the item.					
	AMF panel for 15 KVA D.G set	set	1			
	TOTAL SUBHEAD 3: DG SETS					

S.No.		Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1		2	3	4	5	6	7
4.00		SUB HEAD 4 : MV PANELS					
		MV PANELS					
		Supply, installation, testing and commissioning of following M.V. cubicle type totally enclosed, free standing type, dust, damp and vermin proof, Distribution Board/Panel complete with busbars, M.V. danger notice plate, interconnections with suitable capacity aluminium leads/solid aluminium strips/rods, connection of incoming and outgoing cables with thimbles, powder coat painted and having following incoming and outgoing switchgears complete as required. Panel shall have IP-54 protection.					
4.01		EMERGENCY PANELS					
4.01.1	i	EDB-Guests House					
	a)	INCOMER:					
		160 Amp 415 volts, 25 KA (Isc), FP MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Multi-function metre with suitable Set of CT's					
		1 No. 0 to 500 V voltmeter with selector switch.					
	b)	BUSBARS:					
		300 Amp TPN Aluminium busbars					
	c)	OUTGOING:					
		5 No. 25 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		5 No. 40 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		EDB-Guests House as mentioned above	Set	1			
4.01.2	ii	EDB - Director's Bungalow					
	a)	INCOMER:					
		63 Amp 415 volts, 25 KA (Isc), FP MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					

S.No.		Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1		2	3	4	5	6	7
		Multi-function metre with suitable Set of CT's					
		1 No. 0 to 500 V voltmeter with selector switch.					
	b)	BUSBARS:					
		200 Amp TPN Aluminium busbars					
	c)	OUTGOING:					
		2 No. 25 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		2 No. 63 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		EDB-Director's Bunglow as mentioned above	Set	1			
4.01.3	iii	EDB-UG HOSTEL BLOCK 'A' & BLOCK 'C'					
	a)	INCOMER:					
		125 Amp 415 volts, 25 KA (Isc), FP MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Multi-function metre with suitable Set of CT's					
		1 No. 0 to 500 V voltmeter with selector switch.					
	b)	BUSBARS:					
		250 Amp TPN Aluminium busbars					
	c)	OUTGOING:					
		3 Nos.MCCB as per following details/ specifications:					
		63 Amp 415 volts, 25 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings.					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		4 No. 25 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		8 No. 32 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		EDB-UG HOSTEL BLOCK 'A' & BLOCK 'C' as mentioned above	Set	2			
4.01.4	iv	EDB- UG HOSTEL BLOCK B					
	a)	INCOMER:					
		100 Amp 415 volts, 25 KA (Isc), FP MCCB with thermal magnetic release having variable current settings .					

S.No.		Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1		2	3	4	5	6	7
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Multi-function metre with suitable Set of CT's					
		1 No. 0 to 500 V voltmeter with selector switch.					
	b)	BUSBARS:					
		200 Amp TPN Aluminium busbars					
	c)	OUTGOING:					
		3 Nos.MCCB as per following details/ specifications:					
		63 Amp 415 volts, 25 KA (Isc), FP MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		11 No. 25 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		EDB- UG HOSTEL BLOCK B as mentioned above	Set	1			
4.01.5	v	EDB- NURSING STUDENT BLOCK D & BLOCK E					
	a)	INCOMER:					
		125 Amp 415 volts, 25 KA (Isc), FP MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Multi-function metre with suitable Set of CT's					
		1 No. 0 to 500 V voltmeter with selector switch.					
	b)	BUSBARS:					
		200 Amp TPN Aluminium busbars					
	c)	OUTGOING:					
		3 Nos.MCCB as per following details/ specifications:					
		63 Amp 415 volts, 25 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		8 No. 32 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					

S.No.		Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1		2	3	4	5	6	7
		4 No. 25 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		EDB- NURSING STUDENT BLOCK D& BLOCK E as mentioned above	Set	2			
4.01.6	vi	EDB- PG HOSTEL					
	a)	INCOMER:					
		125 Amp 415 volts, 25 KA (Isc), FP MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Multi-function metre with suitable Set of CT's					
		1 No. 0 to 500 V voltmeter with selector switch.					
	b)	BUSBARS:					
		200 Amp TPN Aluminium busbars					
	c)	OUTGOING:					
		3 Nos.MCCB as per following details/ specifications:					
		63 Amp 415 volts, 25 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		8 No. 32 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		3 No. 25 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		EDB- PG HOSTEL as mentioned above	Set	4			
4.01.7	vii	EDB- DINNING HALL					
	a)	INCOMER:					
		63 Amp 415 volts, 25 KA (Isc), FP MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Multi-function metre with suitable Set of CT's					
		1 No. 0 to 500 V voltmeter with selector switch.					
	b)	BUSBARS:					
		100 Amp TPN Aluminium busbars					

S.No.		Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1		2	3	4	5	6	7
	c)	OUTGOING:					
		5 No. 25 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		EDB- DINNING HALL as mentioned above	Set	2			
4.02		NORMAL PANELS					
4.02.1	viii	NDB- UG HOSTEL BLOCK A & BLOCK C					
	a)	INCOMER:					
		250 Amp 415 volts, 35 KA (Isc), FP MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Multi-function metre with suitable Set of CT's					
		1 No. 0 to 500 V voltmeter with selector switch.					
	b)	BUSBARS:					
		400 Amp TPN Aluminium busbars					
	c)	OUTGOING:					
		3 No. 40 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		9 No. 63 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		NDB- UG HOSTEL BLOCK A & BLOCK C as mentioned above	Set	2			
4.02.2	ix	NDB- UG HOSTEL BLOCK B					
	a)	INCOMER:					
		200 Amp 415 volts, 35 KA (Isc), FP MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Multi-function metre with suitable Set of CT's					
		1 No. 0 to 500 V voltmeter with selector switch.					
	b)	BUSBARS:					
		400 Amp TPN Aluminium busbars					
	c)	OUTGOING:					
		10 No. 40 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		NDB- UG HOSTEL BLOCK B as mentioned above	Set	1			

S.No.		Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1		2	3	4	5	6	7
4.02.3	x	NDB- NURSING STUDENT BLOCK D& BLOCK E					
	a)	INCOMER:					
		250 Amp 415 volts, 35 KA (Isc), FP MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Multi-function metre with suitable Set of CT's					
		1 No. 0 to 500 V voltmeter with selector switch.					
	b)	BUSBARS:					
		400 Amp TPN Aluminium busbars					
	c)	OUTGOING:					
		3 No. 40 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		9 No. 63 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		NDB- NURSING STUDENT BLOCK D& BLOCK E as mentioned above	Set	2			
4.02.4	xi	NDB- DINNING HALL					
	a)	INCOMER:					
		320 Amp 415 volts, 35 KA (Isc), FP MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Multi-function metre with suitable Set of CT's					
		1 No. 0 to 500 V voltmeter with selector switch.					
	b)	BUSBARS:					
		500 Amp TPN Aluminium busbars					
	c)	OUTGOING:					
	i)	8 Nos. MCCB as per following details/ specifications:					
		63 Amp 415 volts, 35 KA (Ics), TPN MCCB with thermal magnetic release having variable current settings with overload, short ckt protection .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		1 No. 0 to 500 V Digital voltmeter with selector switch.					
		Digital ammeter with selector switch with one set of suitable C.Ts.					

S.No.		Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1		2	3	4	5	6	7
	ii)	2 No. 63 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
	iii)	4 No. 40 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		NDB- DINNING HALL as mentioned above	Set	2			
4.02.5	xii	NDB- PG HOSTEL (D1-2 nos, D2 & D3)					
	a)	INCOMER:					
		400 Amp 415 volts, 35 KA (Isc), FP MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Multi-function metre with suitable Set of CT's					
		1 No. 0 to 500 V voltmeter with selector switch.					
	b)	BUSBARS:					
		500 Amp TPN Aluminium busbars					
	c)	OUTGOING:					
		8 Nos.MCCB as per following details/ specifications:					
		100 Amp 415 volts, 16 KA (Isc), TPNL MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		3 No. 63 Amp 415 volts, Four Pole, MCB, with phase indicating lamps.					
		NDB- PG HOSTEL (D1-2 Nos, D2 & D3) as mentioned above	Set	4			
4.02.6		FEEDER PILLAR (Type-II) Normal					
		Supply, installation, testing and commissioning of following M.V. cubicle type totally enclosed, (IP 55)free standing type with locking arrangement, dust, damp and vermin proof, Outdoor Feeder pillar complete with busbars, M.V. danger notice plate, interconnections with suitable capacity aluminium leads/solid aluminium strips/rods, connection of incoming and outgoing cables with thimbles, powder coat painted and having following incoming and outgoing switchgears complete as required.					
	a)	INCOMER					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	400 Amp four pole, 35 KA 415/500 V MCCB with thermal magnetic release having variable current settings.					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 400 Amp Digital ammeter with selector switch with one set of 400/5A C.Ts.					
	b) BUSBARS					
	600 Amp. TPN Aluminium busbars					
	c) OUTGOINGS					
	3 nos. 250 amp, 35 KA four pole MCCB with thermal magnetic release having variable current settings and extended rotary operating mechanism with indicating lamps					
	FEEDER PILLAR (Type-II) Normal as mentioned above	set	3			
4.02.7	FEEDER PILLAR (Type-III) Normal					
	Supply, installation, testing and commissioning of following M.V. cubicle type totally enclosed, (IP-55) free standing type with locking arrangement, dust, damp and vermin proof, Outdoor Feeder pillar complete with busbars, M.V. danger notice plate, interconnections with suitable capacity aluminium leads/solid aluminium strips/rods, connection of incoming and outgoing cables with thimbles, powder coat painted and having following incoming and outgoing switchgears complete as required.					
	a) INCOMER					
	500 Amp four pole, 35 KA 415/500 V MCCB with thermal magnetic release having variable current settings .					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 500 Amp Digital ammeter with selector switch with one set of 500/5A C.Ts.					
	b) BUSBARS					
	800 Amp. TPN Aluminium busbars					
	c) OUTGOINGS					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	2 nos. 250 amp 35 KA four pole MCCB with thermal magnetic release having variable current settings and extended rotary operating mechanism with indicating lamps					
	1 nos. 63 amp 16 KA four pole MCCB with thermal magnetic release having variable current settings and extended rotary operating mechanism with indicating lamps					
	FEEDER PILLAR (Type-III) Normal as mentioned above	set	1			
4.02.8	FEEDER PILLAR (Type-IV & V) Normal					
	Supply, installation, testing and commissioning of following M.V. cubicle type totally enclosed, (IP-55) free standing type with locking arrangement, dust, damp and vermin proof, Outdoor Feeder pillar complete with busbars, M.V. danger notice plate, interconnections with suitable capacity aluminium leads/solid aluminium strips/rods, connection of incoming and outgoing cables with thimbles, powder coated painted and having following incoming and outgoing switchgears complete as required.					
	a) INCOMER					
	400 Amp four pole, 35 KA 415/500 V MCCB with thermal magnetic release having variable current settings .					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 400 Amp Digital ammeter with selector switch with one set of 400/5A C.Ts.					
	b) BUSBARS					
	630 Amp. TPN Aluminium busbars					
	c) OUTGOINGS					
	3 nos. 250 amp 35 KA four pole MCCB with thermal magnetic release having variable current settings and extended rotary operating mechanism with indicating lamps					
	FEEDER PILLAR (Type-IV & V) Normal as mentioned above	set	2			
4.02.9	EMERGENCY FEEDER PILLAR (TYPE II) :					
	a) INCOMER:					
	320 Amp 415 volts, 35 KA (Isc), four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings .					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 320 Amp Digital ammeter with selector switch with one set of 320/5A C.Ts.					
	b) BUSBARS:					
	500 Amp FP Aluminium busbars					
	c) OUTGOING:					
	i 4 Nos.MCCB as per following specifications:					
	125 Amp 415 volts, 25 KA (Isc), TP+NL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	EMERGENCY FEEDER PILLAR (TYPE II) : as mention Above	set	1			
4.02.10	EMERGENCY FEEDER PILLAR (TYPE III, TYPE IV & TYPE V) :					
	a) INCOMER:					
	320 Amp 415 volts, 35 KA (Isc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings .					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	b) BUSBARS:					
	500 Amp FP Aluminium busbars					
	c) OUTGOING:					

S.No.		Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1		2	3	4	5	6	7
	i	4 Nos.MCCB as per following specifications:					
		125 Amp 415 volts, 25 KA (Isc), TP+NL MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
		Digital energy metre with CT					
	ii	1 Nos.MCCB as per following specifications:					
		63 Amp 415 volts, 16 KA (Isc), TP+NL MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
		Digital energy metre with CT					
		EMERGENCY FEEDER PILLAR (TYPE III, TYPE IV & TYPE V) : as mention Above	set	1			
4.03		METER BOARDS NORMAL					
		Supply and installation, testing and commissioning M.V. cubical type totally enclosed /Floor wall mounting type, dust, dump and vermin proof meter panel complete with bus bars, M.V. danger notice plate, inter connection with suitable capacity copper leads/ solid copper strip/ rods, connection of incoming and out going cables with thimbles, stove enameled painted with lockable arrangement of each individual meters having following switchgear as required. Testing of these meters from local electricity board shall be in the contractor's scope.					
4.03.01	i	TYPE -II FLATS					
	a)	INCOMER					
		1No. 250 Amp 415/500 volts , Four pole MCCB with thermal magnetic release having variable current settings and extended rotary operating mechanism with incoming indicating lights.					
		1 Set of phase indicating lamp with 2A SP control MCBs					
	b)	BUSBAR					

S.No.		Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1		2	3	4	5	6	7
		400 A TPN busbar of alluminium alloy.					
	c)	OUTGOING					
		18 nos 10-40 A three phase digital KWH meter with 1 no FP (32-40) Amp MCB on out going of every energy meter. Energy meter duly tested and sealed by state electricity board, in individual lockable cubical					
		Meter board Type-II Flats as mentioned above	Each	6			
4.03.02	ii	TYPE- III FLATS					
	a)	INCOMER					
		1No. 320 Amp 415/500 volts , Four pole MCCB with thermal magnetic release having variable current settings and extended rotary operating mechanism with incoming indicating lights.					
		1 Set of phase indicating lamp with 2A SP control MCBs					
	b)	BUSBAR					
		500 A TPN busbar of alluminium alloy.					
	c)	OUTGOING					
		18 nos 10-40 A three phase digital KWH meter with 1 no FP (32-40) Amp MCB on out going of every energy meter. Energy meter duly tested and sealed by state electricity board, in individual lockable cubical					
		Meter board Type-III Flats as mentioned above	Each	1			
4.03.3	iii	TYPE- IV FLATS					
	a)	INCOMER					
		1No. 250 Amp 415/500 volts , Four pole MCCB with thermal magnetic release having variable current settings and extended rotary operating mechanism with incoming indicating lights.					
		1 Set of phase indicating lamp with 2A SP control MCBs					
	b)	BUSBAR					
		400 A TPN busbar of alluminium alloy.					
	c)	OUTGOING					
		12 nos 10-40 A three phase digital KWH meter with 1 no FP (32-40) Amp MCB on out going of every energy meter. Energy meter duly tested and sealed by state electricity board, in individual lockable cubical					
		Meter board Type-IV Flats as mentioned above	Each	2			

S.No.		Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1		2	3	4	5	6	7
4.03.4	iv	TYPE- V FLATS					
	a)	INCOMER					
		1No. 250 Amp 415/500 volts , Four pole MCCB with thermal magnetic release having variable current settings and extended rotary operating mechanism with incoming indicating lights.					
		1 Set of phase indicating lamp with 2A SP control MCBs					
	b)	BUSBAR					
		400 A TPN busbar of alluminium alloy.					
	c)	OUTGOING					
		12 nos 10-40 A three phase digital KWH meter with 1 no 63 Amp FP MCB on out going of every energy meter. Energy meter duly tested and sealed by state electricity board, in individual lockable cubical					
		Meter board Type-V Flats as mentioned above	Each	2			
4.04		METER BOARDS EMERGENCY					
4.04.1	i	TYPE-II, III, IV, V FLATS					
	a)	INCOMER					
		1No. 125 Amp 415/500 volts , Four pole MCCB with thermal magnetic release having variable current settings and extended rotary operating mechanism with incoming indicating lights.					
		1 Set of phase indicating lamp with 2A SP control MCBs					
	b)	BUSBAR					
		200 A TPN busbar of alluminium alloy.					
	c)	OUTGOING					
	i	Three phase digital KWH meter with 1 no 63 Amp FP MCB on out going of energy meter. Energy meter duly tested and sealed by state electricity board, in individual lockable cubical					
	ii	3 Nos 63 Amp 415 volts, Four Pole, Miniature circuit Breaker, with phase indicating lamps.					
	iii	10 Nos. 32 Amp 250 volts, Double Pole, Miniature circuit Breaker, with phase indicating lamps.					
		Meter board Type-II- 3nos,III,IV,V Flats as mentioned above	Each	6			
		TOTAL SUB HEAD 4 : MV PANELS					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	SUB HEAD 5 - : MCB DISTRIBUTION BOARDS.					
5.00	MCB DISTRIBUTION BOARD (PER PHASE ISOLATION D.B)					
5.01	Supplying & fixing following way, three pole and neutral, supply distribution with (PPI) Per Phase Isolation Horizontal DB with CRCA sheet steel, Powder coated, revision to mount 2P RCCB in each phase as subincomers equipped with colour coded wires, MCB distribution board, 415 volts, on recess/surface complete, terminal blocks, tinned copper busbar, neutral link, earth bar, Glazed Door, Door earthing, Insulated neutral bar, Cable Ties, Blank Plate & Ckt. identification levels, din bar, detachable gland plate, interconnections, phosphatized and powder painted including earthing etc. Before procurement of DB the contractor has to take approval of DB schedule/ drawing of each DB from the Electrical Engineer, HSCC, as per technical specifications and as required. (but without MCB & RCCB),					
	Note: 1/c - Four pole MCB & RCCB, Sub 1/C- 2 Pole RCCB, O/G- SP MCB					
	i) 4 +2 way (8+6+12), Double door	Each	265			
	ii) 6 +2 way (8+6+18), Double door	Each	207			
	iii) 8+2 way (8+6+24), Double door	Each	8			
5.02	Supplying & fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 volts, on recess/surface complete with loose wire box, terminal blocks, tinned copper busbar, neutral link, earth bar, din bar, detachable gland plate, interconnections, phosphatized and powder painted including earthing etc. Before procurement of DB the contractor has to take approval of DB schedule/ drawing of each DB from the Electrical Engineer, HSCC, as per technical specifications and as required. (but without MCB & RCCB),					
	i) 8 way Double door	Each	50			
5.03	VERTICAL D.B (VERTICAL TYPE)					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
5.04	Supplying and fixing following ways surface/ recess mounting, vertical type, (Modular I/C) 415 volts, TPN MCB distribution board of CRCA sheet steel, dust protected, duly powder painted, inclusive of 200 amps tinned copper bus bar, common neutral link, Door earthing, Glazed door, removable Gland plates & front plates insulated neutral bar earth bar, din bar for mounting MCB's, with provision of 100/160/200 amps TP 16 KA MCCB as incomer, interconnection between incomer MCCB and bus bars (but without MCB's/ MCCB) as required . (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.)					
	Note: Before procurement Contractor has take approval for make of Vertical type D,Bs)					
	i) 4 Way TP	Each	117			
	ii) 8 Way TP	Each	2			
5.05	Supplying and fixing 5 amps to 32 amps rating, 240/415 volts, B /C/D curve, miniature circuit breaker suitable for inductive load and lighting load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.					
	i) Single pole	Each	7246			
	ii) Triple pole (16A-32A)	Each	484			
	iii) Triple pole (63A)	Each	8			
	iv) Four pole MCCB 100AMP (16KA) TM	Each	33			
5.06	Supplying and fixing following rating, double pole, 240 volts, MCB (B/C/D/ Curve) in the existing MCB DB complete with connections, testing and commissioning etc. as required.					
	i) (10-32) amps	Each	50			
	ii) (40-63) amps	Each	4			
5.07	Supplying and fixing following rating, double pole, (single phase and neutral), 240 volts, residual current circuit breaker (RCCB), having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.					
	i) 25 amps (100 MA)	Each	50			
	ii) (40-63) amps (100 MA)	Each	1413			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
5.08	Supplying and fixing DP sheet steel enclosure on surface/ recess along with 25/32amps 240 volts "C" curve DP MCB complete with connections, testing and commissioning etc. as required.	each	6			
5.09	Supplying & fixing following rating, Four pole, 415 volts, Miniature Circuit Breaker (MCB),in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications and as required.					
	i) (20-32)Amps	Each	466			
	ii) (40-63) Amps	Each	5			
5.10	Supplying & fixing following rating, four pole, 415 volts,Residual Current Circuit Breaker (RCCB) having a sensitivity current upto 300 mA in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications and as required.					
	i) 25 (100-300 ma)	Each	466			
	ii) 40 (100-300 ma)	Each	10			
	iii) 63 Amps (100-300ma)	Each	5			
5.11	Supplying and fixing Single pole Blanking plate in the existing MCB DB complete as required.	Each	20			
	TOTAL SUB HEAD- : MCB DISTRIBUTION BOARDS AS MENTIONED ABOVE					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
6.00	SUB HEAD: 6 - WIRING					
	WIRING					
6.01	i Wiring for light point/fanpoint/ exhaust fan point/call bell point with 1.5 sq.mm. PVC insulated, fire retardant low smoke (FRLS) copper conductor cable, single core/ multi strand, in Heavy Duty Rigid UPVC conduit (Including supplying & recess laying of Heavy Duty Rigid UPVC conduit and accessories) including the following and complete as required.					
	ii Supplying and Fixing Modular type switches (modular Bell push in case of call bell points) in suitable size modular metal boxes, base plate & modular cover plates, space for fixing electronic fan regulator in case of fan point wiring & space for fixing 5A socket on the board etc.					
	iii Supplying & Fixing Ceiling Rose in case of Exhaust Fan Points etc.					
	Note :					
	i) Unless otherwise specified all the conduiting work to be done in recess					
	Point wiring Group A (For Type II, Type III & Hostels)	Point	14608			
	Point wiring Group B (For Type IV & Type V)	Point	2281			
	Wiring for secondary light point(Group point wiring / fan point/ exhaust fan point/ call bell point with 3x1.5 sq.mm FR PVC insulated, fire retardant low smoke (FRLS) copper conductor single core cable in surface / recessed Heavy Duty Rigid UPVC conduit, (looped from above primary point wiring and controlled by same modular switch .)etc as required.					
	Point wiring as mentioned above	Point	100			
6.02	i Wiring for twin control light points with 1.5 sq.mm. PVC insulated, FRLS copper conductor cable in Heavy Duty Rigid UPVC conduit (including supplying and recess laying of Heavy Duty Rigid UPVC conduit) including the following and complete as required.					
	ii Supplying and Fixing Modular type two numbers 2 Way switches in suitable size modular metal boxes, base plate & modular cover plates etc.					
	Note :					
	i) Unless otherwise specified all the conduiting work to be done in recess					
	Wiring for twin control light points as mentioned above	Point	560			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
6.03	Wiring for 5A light plugs with 1.5 sq.mm. PVC insulated, FRLS copper conductor cable including one number 1.5 sq.mm. PVC insulated, copper conductor cable for earthing in surface/recessed ISI marked Heavy Duty Rigid UPVC conduit (including supply and recess laying of ISI marked Heavy Duty Rigid UPVC conduit) as per technical specifications and as required.	Meter	45500			
6.04	Wiring for 2 nos 5 A Socket with one no 10 Amp Switch computer Power with 2X 2.5 sq.mm. PVC insulated, FRLS copper conductor cable including one number 2.5 sq.mm. PVC insulated, copper conductor cable for earthing in surface/recessed Heavy Duty Rigid UPVC conduit (including supply and recess laying of Heavy Duty Rigid UPVC conduit) as per technical specifications and as required.	Meter	100			
6.05	Wiring for 16 amp power plug with 2X4 sqmm PVC insulated, FRLS copper conductor, single core/multi strand cable in surface/recessed Heavy Duty Rigid UPVC conduit (including supply and recess laying of Heavy Duty Rigid UPVC conduit with all accessories) along with 4 sqmm PVC insulated, copper conductor, single core/multi strand cable for loop earthing etc per technical specifications & as required.	Meter	35500			
6.06	Wiring for 20/32 amp power plug with 2X6 sq.mm. PVC insulated FRLS copper conductor, multi strand cable in surface/recessed in Heavy Duty Rigid UPVC conduit (including supply and recess laying of Heavy Duty Rigid UPVC conduit with all accessories) along with 1X6 sqmm PVC insulated FRLS copper conductor for loop earthing, as per technical specifications & as required.	Meter	2450			
6.07	Wiring for Submain/circuit wiring with following size of PVC insulated FRLS copper conductor single core/multi strand cable in recessed Heavy Duty Rigid UPVC conduit (including supply & laying of recessed Heavy Duty Rigid UPVC conduit) as required.					
	i) 2X2.5 Sqmm with 1 No. 2.5 sqmm PVC insulated FRLS copper conductor for earthing.	Metre	28440			
	ii) 2X4 Sqmm with 1 No. 4 sqmm PVC insulated FRLS copper conductor for earthing	Metre	200			
	iii) 2X6 Sqmm with 1 No. 6 sqmm PVC insulated FRLS copper conductor for earthing	Metre	300			
	vi) 4X6 Sqmm with 2 No. 6 sqmm PVC insulated FRLS copper conductor for earthing	Metre	5300			
	v) 4X10 Sqmm with 2 No. 10 sqmm PVC insulated FRLS copper conductor for earthing	Metre	4140			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	vi) 4X16 Sqmm with 2 nos 16 sq mm PVC insulated FRLS copper conductor for earthing.	Metre	160			
6.08	Supplying and fixing suitable Module GI box on surface or in recess including providing and fixing 3 pin 5/6 amps. modular socket outlet with shutters and 5/6 amps. modular type switch with indicator type, base plate, modular cover plate, connections etc. and all civil works 'complete as required.	Each	4550			
6.09	Supplying and fixing suitable module modular GI box on surface or in recess including providing and fixing 6 pin 15/16 A modular socket outlet with shutters and 15/16 A modular switch with indicator, base plate, modular cover plate, connections, etc. and all civil works complete as required.	Each	3500			
6.10	Supply, Installation, Testing & Commissioning 63 Amps, TP+NL MCCB in a sheet steel enclosure with extended rotary operating mechanism complete with all accessories as required.	Each	40			
6.11	Supplying and fixing suitable Module metal box on surface or in recess including providing and fixing two nos 3 pin 5/6 amps. modular socket outlet with shutters and one no. 10 amps. modular type switch, base plate, modular cover plate, connections etc. and all civil works 'complete as required. (For TV Points & Computer points)	Each	357			
6.12	Supplying and fixing suitable module modular GI box on surface or in recess including providing and fixing 3 pin 25 A modular socket outlet with shutters and 20 to 32 AMP SP MCB, base plate, modular cover plate, connections, etc. and all civil works complete as required.(North -west Tiny Trip or equivalent as approved by HSCC	Each	250			
6.13	Supplying and fixing 3 pin 5/6 amp socket outlet on the existing modular plate and switch box including connections but excluding modular plates etc. as required	Each	200			
6.14	Supplying, providing & fixing musical bell of approved make complete as required.	Each	80			
6.15	Supplying and fixing Hexagonal fan Boxes with 3 mm thick hylem sheet covers in case of Fan Points	Each	2196			
	TOTAL SUBHEAD: 6- WIRING					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	SUB HEAD: 7 - LIGHT FIXTURE AND FANS					
7.00	LIGHT FIXTURES AND FANS					
7.01	Supply of following light fixture with high efficiency electronic/ dimmable ballast, starter, tubes/lamps, capacitor, reflector, diffuser, MS body/housing holder etc. complete with all fixing accessories as required.					
	i) 1X28 watt box type fluorescent light fixture (Philips Miroalta Slim T5 TMS540 HF or approved equivalent as per list of approved make) (136bw)	Each	2201			
	ii) 1XTL-5 28 watt box type fluorescent light fixture (Philips Tarang electronic TMC 090 HF or approved equivalent as per list of approved make) (136b)	Each	1618			
	iii) 1X36watt recess mounted fluorescent light fixture (Philips TCS 306 1XTLD36 W EBE or approved equivalent as per list of approved make) 136SMO1/ 136 RMO1	Each	48			
	iv) 2X36watt recess mounted fluorescent light fixture (Philips TCS 306 1XTLD36 W EBE or approved equivalent as per list of approved make) 236SMO1/RMO1	Each	106			
7.02	Supply of following compact fluorescent light fixture with electronic ballast, starter, capacitor, yellow light lamps, reflector, diffuser, MS body/housing holder etc. complete with all fixing accessories as required.					
	i) 1x9 watt Bulk Head light fixture (Philips FXC 101 1XPL-S/2P11 W ACO or approved equivalent as per list of approved make)	Each	250			
	ii) 2 X 18 watt surface mounted down light (Crompton Greaves DDSH218 EB /G or approved equivalent as per list of approved make) (Staircase)	Each	700			
	iii) 1X11 watt Mirror top light with frosted glass (Anchor 23527 or approved equivalent as per list of approved make)	Each	1080			
	iv) Surface mounted Batten holder (Plastic) with 13 watt CFL	Each	820			
	v) 2 X 18 watt surface mounted down light (Philips FCS 518 2XPLS/2P 11 W I 240 V or approved equivalent as per list of approved make) (211CFLRECT) (TOILETS DL-1)	Each	1400			

S.No.		Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1		2	3	4	5	6	7
	vi)	1X13 W wall bracket with frosted glass (Decon: PL-13W 05QW/ Anchor 92586 or approved equivalent as per list of approved make))	Each	1800			
	vii)	Recess ceiling light (Round) Cat number Anchor 92472 or approved Equilvalent as per list of approved make)	Each	180			
7.03		Supply of following ceiling fans complete with double ball bearing, motor, blades, downrod, canopies, capacitor, modular type electronic fan regulator, suitable for operation on 230 volts, 50 Hz., 1 phase, AC supply complete as required (minimum Three star rated fan shall be provided or approved by engineer incharge)					
	i	900 mm sweep	Each	50			
	i	1200 mm sweep	Each	2146			
7.04		Supply of 300 mm (Crompton Greaves Trans Air or approved equivalent) exhaust fan suitable for single phase 230 volts, 50 Hz., AC supply complete with motor, louvers/shutters etc. complete as required.	Each	1325			
7.05		Supply of 450 mm sweep, crompton greaves model high flow 18" wall mounted fan complete with double ball bearing, motor, blades, capacitor etc suitable for single phase 230 volts, 50 Hz., AC supply, complete as required.	Each	10			
7.06		Installation, testing and commissioning of prewired, fluorescent fittings of all types, complete with all accessories and tube etc. directly on ceiling/wall, including connections with 1.5 sq.mm. PVC insulated, FRLS copper conductor, single core/ multi strand cable etc. as required.	Each	3973			
7.07		Installation, testing and commissioning of prewired, compact fluorescent lamp fixture (CFL fixtures)of all types, complete with all accessories and lamp etc. directly on ceiling/wall, including connections with 1.5 sq.mm. PVC insulated, FRLS copper conductor, single core/ multi strand cable etc. as required.	Each	6230			
7.08		Installation, testing and commissioning of ceiling fan and modular type electronic fan regulator(Electronic regulator to be fixed in switch board) including wiring the down rod and connection with 1.5 sqmm FR PVC insulated, copper conductor single core/multi strand cable including providing & fixing phenolic laminated sheet cover on the fan box, etc. as required.	Each	2196			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
7.09	Installation, testing and commissioning of exhaust fan up to 450 mm sweep in the opening, including making the hole to suit the size of the above fan including , fixing of louvers/ shutters with frame making good the damages etc. as required.	Each	1335			
7.10	Installation, testing and commissioning of wall mounted fan up to 450 mm sweep including supply and fixing wall bracket arrangement complete as required.	Each	10			
7.11	Numbering of ceiling fan/Exhaust fan/Fluorescent fittings as required.	Each	2196			
	TOTAL SUBHEAD 7: LIGHT FIXTURE & FANS AS MENTIONED ABOVE					
	SUB HEAD 8: TELEPHONE SYSTEM					
8.00	TELEPHONE SYSTEM					
8.01	Supplying drawing, connecting and testing of 0.5mm dia annealed copper conductor PVC insulated PVC sheathed telephone Wire/cables in Existing M.S/ PVC conduit or a racks as required.					
	i) 1 pair Telephone cable. (0.5 sq mm)	Point	457			
	ii) 2 pair Telephone cable. (0.5sq mm)	point	20			
8.02	Supplying and fixing of following sizes of Heavy Duty Rigid UPVC conduit along with accessories in surface/recess in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.					
	i) 20 mm	Metre	3000			
	ii) 25 mm	Metre	1000			
	iii) 32 mm	Metre	100			
	iv) 40 mm	Metre	50			
8.03	Supply, fixing, connecting and testing of telephone modular sockets modular plate anodised MS box and blanking plate in surface / recessed including connectionetc as required.					
	i) Telephone socket outlet (RJ-11 telephone Jack Single with Shutter)	Each	457			
	ii) Telephone socket outlet (RJ- 11 telephone Jack double with Shutter)	Each	50			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
8.04	Supplying, Installation, testing and commissioning of following sizes of telephone distribution board in M.S. hinged type lockable box duly painted complete with Krone type tag block etc. including terminations of cable as required.					
	i 30 Pair	Each	6			
	ii 20 Pair	Each	6			
	iii 10 Pair	Each	6			
8.05	Supplying and drawing of following pairs .61 mm dia annealed bare copper conductor Polythene insulated, core twisted into pairs armoured telephone cable on surface/tray with saddels/ Existing Trench/ GI /Hume pipe etc. complete as required.					
	i 20 pair	Metre	400			
	ii 10 pair	Meter	300			
	TOTAL SUBHEAD 8: TELEPHONE SYSTEM AS MENTIONED ABOVE					
9.00	SUBHEAD -9 CONDUITING FOR TV OUTLETS					
9.01	Supply and fixing of following sizes of Heavy Duty Rigid UPVC ISI marked conduit alongwith the accessories in recess or cutting the wall and making good the same in case of recessed conduit as required					
	i 20 mm dia	Metre	3000			
	ii 25 mm dia	Metre	2000			
9.02	Supplying and fixing 2 module modular metal box in recess with modular cover plate including fixing 1 no. coaxial TV outlet connection and all accessories complete as required	Each	342			
9.03	Supply and drawing Coaxial TV Cable RG - 6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed steel/ PVC conduit as required.	Metre	5000			
	TOTAL SUB HEAD 9: CONDUITING FOR TV OUTLETS AS MENTIONED ABOVE					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	SUB HEAD 10 : FIRE DETECTION AND ALARM					
10.00	CONVENTIONAL FIRE DETECTION AND ALARM SYSTEM (MICROPROCESSOR BASED SYSTEM)					
10.01	Supply and drawing of following sizes of PVC insulated FRLS copper conductor single core cable in surface/recessed ISI marked MS conduit (including Supplying and fixing of ISI marked Conduit) complete as required.					
	i 2X1.5 sqmm	Metre	3000			
10.02	Supply, installation, testing and commissioning of the following Conventional type (Microprocessor based) fire detection and alarm accessories as per technical specification & complete with connections etc. as required.					
	i Optical type Smoke Detector with remote LED output + base ,Duel LED, Blinking Type	Each	60			
	ii Heat Detector	Each	20			
	iii Manual Break Glass Unit , 24 volt in MS enclosure, breakable glass, back Box, with chain and hammer	Each	110			
	iv Fire Alarm Bell / Hooter of suitable range to cover the complete floor, in MS enclosure.	Each	110			
	v Responce	Each	110			
10.03	Supply, Installation, testing and commissioning of 8 Zone main control fire alarm control panel , microprocessor based, LCD display, Battery Charger, Inbuilt battery box, with batterycomplete system as per technical specifications and requirement of Local Fire Authority and as required.	Set	4			
10.04	Supply, Installation, testing and commissioning of 12 Zone main control fire alarm control panel , microprocessor based, LCD display, Battery Charger, Inbuilt battery box, with batterycomplete system as per technical specifications and requirement of Local Fire Authority and as required.	set	11			
	TOTAL SUB HEAD 10 : FIRE DETECTION AND ALARM AS MENTIONED ABOVE					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	SUB HEAD 11 : LIFTS					
11.00	LIFT					
11.01	Design, manufacture, supply, installation, testing and commissioning of 8 passenger (544 kg) lift , with travel speed 1.5 MPS serving different floors in the lift shaft including lift well pressurization as per detailed specification/ drawing enclosed and as under:					
	Speed 1.0 MPS					
	Floors G+7 (Total eight floors)					
	Travel: As per architectural drawing.					
	Stops & opening: 8 stops & 8 opening					
	Controller: A.C. variable voltage & variable frequency					
	Automatic rescue device complete with dry maintenance free batteries as required.					
	Operation:Microprocessor based single automatic push button/ simplex selective collective/ duplex collective selective with / without attendant.					
	415 V, 3 phase, 50 Hz, 4 wire system					
	Type of doors: a) Car : A collapsible door with a single panel, single slide which slides horizontally. (b) Landing doors: A swinging type single panel door which is opened manually and closed by means of a spring closer when released with proper locking arrangement.					
	A hand rail not less than 600 mm long at 900 mm above floor level to be fixed adjacent to control panel in the lift car.					
	Mirror of suitable size to be fixed inside the lift car.					
	Voice announcement system in the car to announce the position of the elevator in the hoistway as the car passes or stops at a floor served by the elevator.					
	Intercom (Telephone system) in the lift car to be connected to the entrance of the block at ground floor.					
	Phase Reversal relay					
	Passenger Lift as mentioned above.	Each	22			
11.02	Design, manufacture, supply, installation, testing and commissioning of 8 passenger (544 kg) lift , with travel speed 1.0 MPS serving different floors in the lift shaft including lift well pressurization as per detailed specification enclosed and as under:.					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	Speed 1.0 MPS					
	Floors G+5 (Total Six floors)					
	Travel: As per architectural drawing.					
	Stops & opening: 6stops & 6opening					
	Controller: A.C. variable voltage & variable frequency					
	Automatic rescue device complete with dry maintenance free batteries as required.					
	Operation:Microprocessor based single automatic push button/ simplex selective collective/ duplex collective selective with / without attendant.					
	415 V, 3 phase, 50 Hz, 4 wire system					
	Type of doors: a) Car : A collapsible door with a sigle panel, single slide which slides horizontally. (b) Landing doors: A swinging type single panel door which is opened manually and closed by means of a spring closer when released with proper locking arrangement.					
	A hand rail not less than 600 mm long at 900 mm above floor level to be fixed adjacent to control panel in the lift car					
	Mirror of suitable size to be fixed inside the lift car.					
	Voice announcement system in the car to announce the position of the elevator in the hoistway as the car passes or stops at a floor served by the elevator.					
	Intercom (Telephone system) in the lift car to be connected to the enterance of the block at ground floor.					
	Phase Reversl Relay					
	Passenger Lift as mentioned above.	Each	8			
	TOTAL SUB HEAD 11: LIFTS AS MENTIONED ABOVE					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	SUB HEAD 12: LT CABLES					
12.00	LT CABLES					
12.01	Supply of following sizes of 1.1 kV grade multicore aluminium conductor armoured XLPE cable as per IS 7098 : (Actual cable length and rating of cable shall be jointly measured and verified by HSCC before procurement of cable.)					
	i 3.5 Core 25 Sqmm.	Metre	200			
	ii 3.5 Core 35 Sqmm.	Metre	100			
	iii 3.5 Core 50 Sqmm.	Metre	700			
	iv 3.5 Core 70 Sqmm.	Metre	200			
	v 3.5 Core 95 Sqmm.	Metre	2000			
	vi 3.5 Core 120 Sqmm.	Metre	200			
	vii 3.5 Core 150 Sqmm.	Metre	100			
	viii 3.5 Core 185 Sqmm.	Metre	50			
	ix 3.5 Core 240 Sqmm.	Metre	2400			
	x 3.5 Core 300 Sqmm.	Metre	5000			
	xi 3.5 Core 400 Sqmm.	Metre	590			
	xii 3 Core 4 Sq mm	Metre	700			
	xiii 4 Core 10 Sq mm	Metre	1000			
	xiv 4 Core 16 Sq mm	Metre	600			
	xv 4 Core 4 Sq mm	Metre	1400			
12.02	Supply , Laying,Testing and commissioning of Control cable of copper conductor PVC sheathed armoured cable complete with termination on both ends including brass glands,Lugs,thimbles complete as required.					
	i 2 core 2.5 Sq mm	meter	500			
	ii 4 core 2.5 Sq mm	meter	200			

S.No.		Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1		2	3	4	5	6	7
	iii	12 core 2.5 Sq mm	meter	200			
12.03		Laying of one number PVC insulated and PVC sheathed power cable 1.1kV grade direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required					
	i	Size not exceeding 25 sq.mm	Metre	1950			
	ii	Size exceeding 25 sq.mm but not exceeding 120 sq.mm	Metre	2240			
	iii	Size exceeding 120 sq.mm but not exceeding 300 sq.mm	Metre	5285			
	iv	above 400 Sqmm	Meter	413			
12.04		Laying of one number PVC insulated and PVC sheathed power cable 1.1kV grade direct in the existing RCC/ Hume/Stoneware/Metal pipe as required					
	i	Size not exceeding 25 sq.mm	Metre	1560			
	ii	Size exceeding 25 sq.mm but not exceeding 120 sq.mm	Metre	480			
	iii	Size exceeding 120 sq.mm but not exceeding 300 sq.mm	Metre	868			
	iv	Above 400 sqmm	Meter	89			
12.05		Laying of one number PVC insulated and PVC sheathed power cable 1.1kV grade on surface or on existing cable tray complete as required.					
	i	Size not exceeding 25 sq.mm	Metre	39			
	ii	Size exceeding 25 sq.mm but not exceeding 120 sq.mm	Metre	480			
	iii	Size exceeding 120 sq.mm but not exceeding 300 sq.mm	Metre	1133			
	iv	above 400 sqmm	Meter	89			
12.06		Supplying and making end termination with suitable size Copper lugs including double compression glands of following sizes of 1.1. kv grade multicore aluminium conductor PVC insulated and PVC sheathed					
	i	3.5 Core 25 Sqmm.	Each	60			

S.No.		Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1		2	3	4	5	6	7
	ii	3.5 Core 35 Sqmm.	Each	20			
	iii	3.5 Core 50 Sqmm.	Each	8			
	iv	3.5 Core 70 Sqmm.	Each	4			
	v	3.5 Core 95 Sqmm.	Each	16			
	vi	3.5 Core 120 Sqmm.	Each	2			
	vii	3.5 Core 150 Sqmm.	Each	2			
	viii	3.5 Core 185 Sqmm.	Each	4			
	ix	3.5 Core 240 Sqmm.	Each	24			
	x	3.5 Core 300 Sqmm.	Each	38			
	xi	3.5 Core 400 Sqmm.	Each	4			
	xii	3 Core 4 Sq mm	Each	6			
	xiii	4 Core 10 Sq mm	Each	6			
	xiv	4 Core 16 Sq mm	Each	8			
	xv	2 Core 10 Sq mm	Each	40			
		TOTAL SUB HEAD 12 : LT CABLES AS MENTIONED ABOVE					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	SUB HEAD 13: EARTHING SAFETY EQUIPMENT AND MISC. ITEMS					
	EARTHING, SAFETY EQUIPMENTS AND MISC. ITEMS					
13.01	Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	Set	12			
13.02	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	Metre	70			
13.03	Supplying and laying 25 mm X 5 mm copper strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer spaced at 50mm)	Metre	10			
13.04	Supplying and laying 25 mm X 5 mm G.I strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer spaced at 50mm)	Metre	70			
13.05	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	Metre	210			
13.06	Providing and fixing 25 mm X 5 mm copper strip in 40 mm dia G.I. pipe from earth electrode including connection with brass nut, bolt, spring, washer excavation and re-filling etc. as required.	Metre	36			
13.07	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	Metre	1400			
13.08	Providing and fixing 25 mm X 5 mm copper strip on surface or in recess for connections etc. as required.	Metre	240			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
13.09	Providing and laying of copper strip of 50 mm X 5 mm for earthing and connection etc. as required.	Metre	10			
13.10	Providing and laying of GI of 50 mm X 5 mm for earthing and connection etc. as required.	Metre	20			
13.11	Providing and fixing 8 SWG dai G.I wire on surface or in recess for earthing as required.	Meter	600			
13.12	Providing and fixing 6 SWG dai G.I wire on surface or in recess for earthing as required.	Meter	400			
	TOTAL SUB HEAD 13: EARTHING, SAFETY EQUIPMENT AND MISC. ITEMS AS MENTIONED ABOVE					
	SUB HEAD 14: LIGHTENING PROTECTION					
14.00	LIGHTENING PROTECTION					
14.01	Earthing with 600 mm X 600 mm X 6 mm thick GI plate including accessories, and providing masonary enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal or coke and salt) complete as required.	Set	60			
14.02	Providing and fixing of lightening conductor finial, made of 25mm. dia. 300mm., long GI tube, having single prong at top, with 85 mm. dia. 6 mm. thick GI base plate including holes etc. complete as required.	Each	40			
14.03	Providing and and fixing GI tape 25mm X 6 mm thick on parapet or surface of wall for lightning conductor as required. (For horizontal and vertical runs).	Metre	2000			
14.04	Providing and fixing testing joint, made of 25mmX6mm thick GI strip, 125 mm. long, with 4 no.'s of GI bolts, nuts, check nuts, bar shaddles, and spring washers etc. complete as required.	Each	64			
14.05	Providing and laying GI tape, 32 mm X 6 mm thick, from test joint upto earth electrode directly in ground as required.	Metre	300			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	TOTAL SUB HEAD 14: LIGHTENING PROTECTION AS MENTIONED ABOVE					
	SUB HEAD 15: OUT DOOR LIGHTING					
15.01	OUTDOOR LIGHTING					
	Supply, erection, testing and commissioning of external G.I Octagonal pole with following specifications & items :					
i	8.5 Mtr GI Octagonal Pole as per Dimension - Top Dia 70mm, Bottom Dia -140mm, section-1 (section length -8500 mm) Thick -3mm . Base Plate -240 mm X 240 mm x16mm ,J type Foundation Bolts - M20 X700 mmx4nos					
ii	1X250 watts street light fixture with 250watts high pressure sodium vapour (HPSV) lamp complete with control gear, toughened glass cover single piece pressure die Cast Al casting, IP66 Protection etc. As per Philips SGP438 1x SONT250W in Dimming Version 250-150W or approved equivalent including its wiring with 2X4 sq.mm. PVC insulated, FRLS copper conductor and earthing with 2.5 sqmm PVC insulated, FRLS copper conductor from control box complete as required.					
iii	Suitable size 32 A DP MS Control box with 2 no. incoming and outgoing terminals and 2 nos. tap-out terminal with 16A DP MCB complete as required - 1 Set					
iv	Suitable number(s) 40mm dia Class-B GI Pipe(s) from above control box to upto 0.5 metre below ground level for power cable entry					
v	Providing foundation including excavation, shuttering, alingment of poles, casting etc. including lean concrete at the bottom as per CPWD/ BIS specifications.					
vi	The above installations shall be completed as CPWD specifications and as required					
A	Street Octagonal Poles(9M) Single Arm with one set of light fixture as mention above	Set	110			
B	Street Octagonal Poles (9M) same as above but for Double Arm with two set of light fixtures as mention above	Set	58			
15.02	Supply, erection, testing and commissioning of external G.I Octagonal pole with following specifications & items :					
i	6 Mtr GI Octagonal Pole as per Dimension - Top Dia 70mm, Bottom Dia -130mm, section-1 (Section length -6000 mm) Thick -3mm . Base Plate -220 mm X 220 mm x12mm ,J type Foundation Bolts - M20 X600 mmx4nos					

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
ii	1X250 watts street light fixture with 250watts high pressure sodium vapour (HPSV) lamp complete with control gear, toughened glass cover single piece pressure die Cast Al casting, IP66 Protection etc. As per Philips SGP438 1x SONT250W in Dimming Version 250-150W or approved equivalent including its wiring with 2X4 sq.mm. PVC insulated, FRLS copper conductor and earthing with 2.5 sqmm PVC insulated, FRLS copper conductor from control box complete as required.					
iii	Suitable size 32 A DP MS Control box with 2 no. incoming and outgoing terminals and 2 nos. tap-out terminal with 16A DP MCB complete as required - 1 Set					
iv	Suitable number(s) 40mm dia Class-B GI Pipe(s) from above control box to upto 0.5 metre below ground level for power cable entry					
v	Providing foundation including excavation, shuttering, alignment of poles, casting etc. including lean concrete at the bottom as per CPWD/ BIS specifications.					
vi	The above installations shall be completed as CPWD specifications and as required					
A	Street Octagonal Poles(6M) Single Arm with one set of light fixture as mention above	Set	30			
15.03	Supply, installation, testing and commissioning of external post top lantern with following accessories and complete as required :					
i	4 Mtr GI Octagonal Pole as per Dimension - Top Dia 70mm, Bottom Dia -130mm, section-1 (section length -4500 mm) Thick -3mm . Base Plate -220 mm X 220 mm x12mm ,J type Foundation Bolts - M16 X500 mmx4nos					
ii	1 x 150 W Post top lantern with 70W HPSV lamp (Twinkle -TSL-830 H -150 W SV /MH E-40 or approved equivalent IRIS -L Decorative Fixture with cast / Aluminium boby , PMMA/PC diffuser , Post top mounting and suitable and its wiring with 2 x 2.5 sq.mm PVC insulated copper wire and 1.5 sqmm PVC insulated copper earth wire from control box					
iii	Suitable size 20A DP MS Control box with 2 no. incoming and outgoing terminals and 2 nos. tap-out terminal with 1 nos. 10A DP MCB complete 1 set.					
iv	Suitable number(s) 40mm dia Class-B GI Pipe(s) from above control box to upto 0.5 metre below ground level for power cable entry					
v	Providing 400x400x1000mm deep 1:3:6 ratio cement concrete including excavation shuttering alignment of poles casting etc. including 100mm thick lean concrete shall be provided at the bottom					
	Supply, installation, testing and commissioning of external post top lantern as mentioned above	Set	30			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
15.04	Supply, installation, testing and commissioning of bollard lamps 1X18 watts CFL (Philips HCS360 1XPL-C/2P 18W GR Sonara bollard in green color or equivalent) control box - 1 set.	Each	20			
15.05	Supply, installation, testing and commissioning of Post Top decorative luminaries Twinkle - TLS132-300PC or Approved Equivalent as per this Specifications Pluto Prismatic - Goles in Pc material wired with b-22d lamp holders ans suitable for CFL retrofit Lamp	Each	4			
15.06	Supply, installation, testing and commissioning of 50 watt "LED" based solar street light system as per Technical Specification . System should be comprised with PV Modular panel, tubler type low Maintenance battery,GI 6m pole, Cabling hardware , control electronic "LED " luminnarie with provision 50% dimming at midnight and switch 'ON' at dusk and 'OFF' at down and operating instnction/ maintenance manual as per Technical Specification including grouting the pole in CC with nut bolt and base plate etc as required complete set.					
	i) Supply, installation, testing and commissioning of single arm solar light pole as mentioned above	Set	40			
	ii) Supply, installation, testing and commissioning of solar light pole as mentioned above but for double arms.	Set	10			
	Specifications for Single Solar light only					
	i) SPV Module :12V/250W (125*2) MNRE approved	Set	1			
	ii) Low Maintenance Tubular Lead Acid Battery	set	1			
	iii) Battery Box (Polymer) with M.S Bracket & MS Belt for locking	No.	2			
	iv) M.S Module Mounting Structure Galvanised (tilting arrangement for 15 degree to 30 degree)	set	1			
	v) G.I bend pipe 32 mm (th 22mm) with MS clamp					
	vi) LED luminaries assembly 12v /50 w in aluminium die cast boby with charge controller and Dusk	No.	1			
	vii) GI pole B class Die 88.9 mm(thi3.2mm) Hieght -6mm	No.	1			
	viii) MS Foundation bolts 16mm dia length 1200mm	No.	4			

S.No.	Description.	Unit.	Qty.	Figures (in Rs.)	Rate in words (in Rs.)	Amount
1	2	3	4	5	6	7
	ix) with nuts & bolts and bottom plates 400X400X3	No.	1			
	x) Cables Set 2 core , 2.5 mm	Set	1			
15.07	Road Lighting Panel					
	Supply, installation, testing and commissioning of following outdoor type with canopy, M.V. cubicle type, powder coated totally enclosed, free standing type, dust, damp and vermin proof, MV Panel, bus bars, M.V. danger notice plate, interconnections with suitable capacity aluminum leads/solid aluminum strips/rods, connection of incoming and outgoing cables with thimbles and having following incoming and outgoing switchgears complete as required.					
	INCOMER:					
	1 No. 63 Amp 415 volts, FP MCCB with variable current setting, Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	1 Set of phase indicating lamp with HRC fuses					
	1 Set of timer & 100A TP contactor with neutral link (for street lights control) .					
	BUSBARS:					
	100 Amp TPN Aluminum busbars					
	OUTGOING:					
	10 Nos. 16 Amp 415 volts, DP MCB					
	Feeder Pillar as mention above	Set	4			
	TOTAL SUB HEAD 15: OUTDOOR LIGHTING AS MENTIONED ABOVE					
	GRAND TOTAL FOR ALL ELECTRICAL WORKS					

BILL OF QUANTITIES

OF

HVAC WORKS

<u>HOUSING COMPLEX (Dining & Director's Bungalow), AIIMS RAEBARELI</u>		
<u>SUMMARY SHEET FOR HVAC WORKS</u>		
SECTION	DESCRIPTION OF WORKS	AMOUNT (Rs.)
A	Total for HVAC Works	

BILL OF QUANTITIES (B.O.Q.) OF HVAC WORKS AT HOUSING COMPLEX (Dining & Director's Bungalow) , AIIMS - RAEBARELI

ITEM NO 1	DESCRIPTION OF ITEM 2	TOTAL Quantity 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
The prices are to be quoted in the below mentioned form and shall include the supply, installation, testing & commissioning at site of all the equipments, ancillary materials as specified and all such items what so ever which may be required to fulfill the intent and purpose as laid down in the specifications and or the drawings.						
The tenderer shall quote rates in figures and in words under column 5&6 and extend amount to column 7						
1.0	Supply , installation , testing and commisioning of air cooled Ductable split type unit with scroll compressors suitable for 3 Phase 50 Hz AC supply comprising of the following.					
	a) Outdoor condensing Units					
	b) Indoor Evaporative Units with fine filters.					
	c) Interconnecting Refrigerant and drain piping with insulation wherever required, refrigerant and oil. The unit shall include refrigerant piping, power cabling, fresh air intake arrangement and drain piping as required.					
	d) Safety and operational controls					
	e) The unit shall have advanced microcomputer controller with run time equalization, auto restart after power failure, fuzzy logic, self fault diagnostics . The controller shall have LED display, LED indicators and touch key pad. The controller shall have faults and alarm display and it shall be mounted in fire retardant box.					
1.1	Capacity : 17 TR	8	Nos.			
1.2	Extra Refrigerant Piping for 17 TR units	100	Rmt.			
1.3	Extra drain piping	50	Rmt.			
2.0	SPLIT AIR CONDITIONERS					
	Supply , installation , testing and commisioning of HI wall split air conditioner comprising of the following.					
	a) Outdoor condensing Units					
	b) Indoor Evaporative Units					
	c) Interconnecting Refrigerant and drain piping with insulation wherever required, refrigerant and oil. The unit shall include refrigerant piping, power cabling and drain piping.					
	c) Safety and operational controls					

ITEM NO 1	DESCRIPTION OF ITEM 2	TOTAL Quantity 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
	e) Hiwall splits shall be suitable for single phase power supply and complete with suitable rating voltage stablizer.					
	f) Mounting arrangement and structural supports for outdoor unit are included.					
	g) The units should have 3 star rating from BEE.					
2.1	Capacity : 1.5 TR	1	Nos.			
2.2	Capacity : 2.0 TR	1	Nos.			
2.3	Extra Refrigerant Piping	14	Rmt.			
2.4	Extra drain piping	10	Rmt.			
3.0	Window Air Conditioner					
	Supply , installation , testing and commisioning of Window Acs complete with transformer, electrical cabling as required along with mounting arrangement and Voltage stablizer. Complete in all respect as per specifications. The units should have 3 star rating from BEE.					
	Capacity					
3.1	2.0 TR	1	Nos.			
4.0	GSS DUCTING					
	Supply, installation, testing and balancing of G.S.S ducting of following thickness including necessary supports, hangers, nut bolts, gaskets, splitter dampers, vanes canvass connections etc. complete as per specifications & drawings:					
4.1	1.25mm (18 G) GSS	60	Sqm			
4.2	1.0 mm (20 G) GSS	60	Sqm			
4.3	0.80 mm (22 G) GSS	270	Sqm			

ITEM NO 1	DESCRIPTION OF ITEM 2	TOTAL Quantity 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
4.4	0.63 mm (24 G) GSS	620	Sqm			
5.0	VOLUME CONTROL DAMPERS					
	Supply, installation and testing of volume control dampers of GI sheet, box type to be provided in ducts complete with suitable links, levers and quadrants for manual control of air volume and air balancing as per specifications and drawings.	15	Sqm			
6.0	CEILING DIFFUSERS/LINEAR GRILLES					
6.1	Supply, Installation, testing and balancing of square/circular supply air diffusers of powder coated aluminium construction with attached volume control dampers as per specs. and drawings.	8	Sqm.			
6.2	Supply, installation, testing and balancing of square/circular return air diffusers of powder coated aluminium construction without volume control dampers as per specifications and drawings	8	Sqm.			
6.3	Supply, installation and balancing of air linear grilles of powder coated aluminium construction suitable for installation in walls/false ceiling, boxing etc as per specifications and drawings.	80	Sqm.			
7.0	DUCT INSULATION					
	Supply and fixing resin bonded fibre glass insulation on supply/return air ducts covered with polythene and finished as specified.					
7.1	25 mm thick insulation (For duct in AC area)	800	Sqm.			
8.0	DUCT LINING					
8.1	Supply and fixing resin bonded fibre glass hard board acoustic insulation in supply air ducting covered with tissue paper and perforated aluminium sheet as specified	96	Sqm.			
	TOTAL FOR HVAC WORKS					

END OF VOLUME - V