

**Corrigendum-01 - Vol-IV (Revised BOQ)30.04.13****PREAMBLE TO BILL OF QUANTITIES**

*(These preambles apply to all the sections of the Bill of Quantities. The Contract rates shall take into account all these provisions in addition to various provisions in other parts of the Contract document)*

<b>SI No.</b>	<b>DESCRIPTION</b>
<b>1</b>	This is an "Item Rate Tender". Rates shall include cost of materials, labour, plants & equipments taxes, duties and all necessary apparent services required for complete execution, and commissioning in accordance with relevant drawings and specification. The HLL/MoHFW decision on interpretation of bill of quantities and its preamble shall be final and binding on the contractor.
<b>2</b>	The quantities given in this Bill of Quantities are liable to variations. Such variations in quantities shall not, however, vitiate the contract in any way whatsoever and all quoted rates shall remain valid as per deviation limits provided in the contract. Contractor shall be paid for the actual measured quantities of work executed by him/them .
<b>3</b>	Rates quoted shall be firm and shall not be subject to any price variations except as specifically provided in the contract.
<b>4</b>	The contractor's quoted rate shall include surveying, making layout and demarcation of all services as required for completion of the works within the scope of this contract .
<b>5</b>	The words "as specified", "as described", "as shown", "as directed", or "as approved", shall mean as described in the specifications, Schedule of Quantities and other Contract documents as shown on the drawings or as directed by EIC.
<b>6</b>	The following notations as appearing in the Bill of Quantities and specifications shall mean : a) Cum = Cubic metre b) Sqm. = Square metre c) Rm/Mtr./ Metre = Running metre d) No./Nos./Each/Set = Numbers e) Kg. = Kilogram f) MT. = Metric Ton
<b>7</b>	For the general guidance of the bidders, tender drawings are available with the HLL/MoHFW which should be seen /consulted by the intending bidders before bidding. The detailed working drawings shall be issued to the successful bidder after start of work at site and during the execution of the work so as per requirement and progress chart prepared initially and /or modified subsequently by the contractors.
<b>8</b>	The bidders shall take into account all leads and lifts involved in transport of materials to site, erection and hire of T & P, sheds for materials, etc. while quoting the rates for various sub heads of the work. Similarly all taxes including Octroi, Toll or Sales Tax/VAT, Works Contract Tax or any other Taxes etc. as payable by the contractor at the time of submission of bids shall be taken in to account by the bidders before quoting their. Any claim in these matters whatsoever in this respect shall not be entertained.

<b>CONSTRUCTION OF NATIONAL INSTITUTE OF ALLIED HEALTH SCIENCES at DELHI</b>			
<b>FINANCIAL BID SUMMARY SHEET</b>			
<b>SL. No.</b>	<b>SUB-HEAD</b>	<b>Quoted Amount in Figures (Rs.)</b>	<b>Quoted Amount inWords (Rs.)</b>
1	CIVIL WORKS		
2	PLUMBING WORKS (INTERNAL)		
3	PLUMBING WORKS (EXTERNAL)		
4	ELECTRICAL		
5	FA, PA, CCTV, NCS		
6	HVAC		
7	FIRE FIGHTING		
8	STP		
9	ETP		
10	SOLAR WATER GENERATION SYSTEM		
11	HOT WATER GENERATION SYSTEM		
12	WTP & DRINKING WATER PUMPING SYSTEM		
13	BMS		
14	LIFTS		
	TOTAL		

<b>CONSTRUCTION OF NATIONAL INSTITUTE OF ALLIED HEALTH SCIENCES at DELHI</b>			
<b>FINANCIAL BID SUMMARY SHEET CIVIL WORKS</b>			
<b>Sl. No.</b>	<b>SUB-HEAD</b>	<b>Quoted Amount in Figures (Rs.)</b>	<b>Quoted Amount in Words (Rs.)</b>
1	EARTH WORK		
2	CONCRETE WORK		
3	REINFORCED CEMENT CONCRETE		
4	BRICKWORK		
5	STONE WORK & WALL CLADDING		
6	MARBLE & GRANITE WORK		
7	WOOD AND PVC WORK		
8	STEEL WORK		
9	FLOORING WORK		
10	ROOFING		
11	FINISHING WORK		
12	ALUMINIUM WORK		
13	WATER PROOFING WORK		
14	MISCELLANEOUS WORK		
15	HORTICULTURE & LANDSCAPING		
16	ROAD WORKS :		
17	RAIN WATER HARVESTING & TUBEWELLS		
	<b>TOTAL AMOUNT</b>		

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
1.0		<b>SUB HEAD-I :- EARTH WORK</b>					
1.1	1.1	Carriage of Materials by mechanical transport including loading, unloading and stacking					
	1.1.2	Earth- Lead upto 1KM	cum	11170			
1.2	2.1	Earth work in <b>surface excavation</b> not exceeding 30 cm in depth but exceeding 1.5 m in width as well as 10 sqm on plan including disposal of excavated earth upto 50 m and lift upto 1.5 m, disposed soil to be levelled and neatly dressed :					
	2.1.1	All kinds of soil	100 Sqm	394			
1.3	2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50m and lift upto 1.5m, disposed earth to be levelled and neatly dressed.					
	2.6.1	All kinds of soil	cum	22016			
1.4	2.8	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.					
	2.8.1	All kinds of soil.	cum	1317			
1.5	2.25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	cum	11851			
1.6	2.26	Extra for every additional lift of 1.5 m or part thereof in excavation /banking excavated or stacked materials.					
	a) 2.26.1	All kinds of soil	cum	6044			
	b) 2.26.2	Ordinary or hard rock	cum	562			
1.7	2.32	Clearing grass and removal of the rubbish upto a distance of 50 m outside the periphery of the area cleared.	100 sqm	291			
1.8	2.34	Supplying chemical emulsion in sealed containers including delivery as specified.					

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
	2.34.1	Chlorpyrifos/ Lindane emulsifiable concentrate of 20%	litre	519			
1.9	2.35	Diluting and injecting chemical emulsion for POST-CONSTRUCTIONAL anti-termite treatment (excluding the cost of chemical emulsion) :					
	2.35.1	Along external wall where the apron is not provided using chemical emulsion @ 7.5 litres / sqm of vertical surface of the substructure to a depth of 300 mm including excavation channel along the wall & rodding etc. Complete.					
	2.35.1.1	With Chlorpyrifos / Lindane E.C 20% with 1% concentration.	metre	2128			
	2.35.3	Treatment of soil under existing floors using chemical emulsion @ one litre per hole, 300 mm apart including drilling 12 mm diameter holes and plugging with cement mortar 1 : 2 (1 cement : 2 Coarse sand) to match the existing floor :					
	2.35.3.1	With Chlorpyrifos/Lindane E.C. 20% with 1% concentration.	sqm	10366			
1.10	2.27	Supplying and filling in plinth with Jamuna sand under floors including, watering, ramming consolidating and dressing complete.	cum	2281			
1.11	2.37	Supply and stacking of Fly ash conforming to IRC- 58 at site, including carriage, loading , unloading & stacking up to any lead (measured stacks will be reduced by 20% for payment).	cum	4146			
1.12	2.38	Filling with available fly ash and earth (excluding rock) in trenches or embankment in layers (each layer should not exceed 15 cm), with intermediate layer of compacted earth (Soil density of 98%) after every four layers of compacted depth of fly ash, sides & top layer of filling shall be done with earth having total minimum compacted thickness 30 cm or as decided by Engineer -in-charge, including compacting each layer by rolling/ ramming and watering, all complete as per drawing and direction of Engineer -in - charge.	cum	4146			
		<b>Earthwork Sub Head Total</b>					
<b>2.0</b>		<b>SUB HEAD-II :- CONCRETE WORKS</b>					
2.1	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :					
a)	4.1.3	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	cum	1229			
b)	4.1.8	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size)	cum	1185			
2.2	4.5	Providing and fixing up to floor five level precast cement concrete string or lacing courses, copings, bed plates, anchor blocks, plain window sills, shelves, louvers, steps, stair cases, etc., including hoisting and setting in position with cement mortar 1:3 (1 Cement : 3 coarse sand), cost of required centering complete.					
	4.5.2	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	cum	39			
a							

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
b	4.12	Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification.	per 50 kg cement	2898			
2.4	4.17	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cement:3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including finishing the top smooth.	sqm	1668			
2.5	4.19	Providing and laying in position ready mixed plain cement concrete, 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 plain cement concrete work, including pumping of R.M.C. from transit mixer to site of laying and curing, excluding the cost of centering, shuttering and finishing, including cost of curing, 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.					
		Note : 1) Excess/less cement used than specified in this item is payable/ recoverable separately.					
		2) Fly ash conforming to grade I of IS 3812 (Part-1) only be used as part replacement of OPC as per IS : 456. Uniform blending with cement is to be ensured in accordance with clauses 5.2 and 5.2.1 of IS: 456 -2000 in the items of BMC and RMC.					
		3) The above item shall be used judiciously where specified quality of Fly Ash is available for mixing in concrete. Also, the guidelines issued by CDO, CPWD, vide circular no. CDO/SE(RR)/Fly Ash (Main)/102 dated 9th April 2009 shall be followed in such cases.					
	4.19.1	All works upto plinth level.					
4.19.1.2	M-10 grade plain cement concrete (cement content considered @ 220 kg/cum ).	cum	1185				
		<b>CONCRETE WORK Sub Head Total</b>					
<b>3.0</b>		<b>SUB HEAD-III :- REINFORCED CEMENT CONCRETE WORK</b>					

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
3.1	5.1	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level :					
a )	5.1.1	1:1:2 (1 cement : 1 coarse sand : 2 graded stone aggregate 20 mm nominal size).	cum				
b )	5.1.2	1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size)	cum	209			
3.2	5.2	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. up to floor five level excluding cost of centering, shuttering, finishing and reinforcement :					
a )	5.2.1	1:1:2 (1 cement : 1 coarse sand : 2 graded stone 20 mm nominal size) aggregate	cum	238			
b )	5.2.2	1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size)	cum	238			
		<b>FORM WORK</b>					
3.3	5.9	Centering and shuttering including strutting, propping etc. and removal of form for :					
a )	5.9.1	Foundations, footings, bases of columns, etc. for mass concrete	sqm	4083			
b )	5.9.2	Walls (any thickness) including attached pilasters, butterses, plinth and string courses etc.	sqm	4257			
c )	5.9.3	Suspended floors, roofs, landings, balconies and access platform	sqm	36803			
d )	5.9.4	Shelves (Cast in situ)	sqm	179			
e )	5.9.5	Lintels, beams, plinth beams, girders, bressumers and cantilevers	sqm	22012			
f )	5.9.6	Columns, Pillars, Piers, Abutments, Posts and Struts	sqm	18009			
g )	5.9.7	Stairs, (excluding landings) except spiral-staircases	sqm	3479			
h )	5.9.16	Edges of slabs and breaks in floors and walls.					
	5.9.16.1	Under 20cms wide	metre	13283			
i )	5.9.19	Weather shade, chajjas, corbels etc. including edges.	sqm	1463			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
3.4	5.11	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)					
	5.11.1	Suspended floors, roofs, landing, beams and balconies (Plan area to be measured).	sqm	19227			
		<b>STEEL REINFORCEMENT</b>					
3.5	5.22 & 5.22A	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level and above plinth level..					
	5.22.6	Thermo-Mechanically Treated bars	kilogram	2604397			
		<b>Making expansion joints in suspended slab / wall as shown in the drawing with the following specifications</b>					
3.6	NSR	Providing and applying Expansion joints primer in expansion joint of approved make applied as per manufacturer's specifications etc. and as per direction of the Engineer-in-charge.	sqm	332			
3.7	NSR	Providing and fixing 75 mm thick bitumen impregnated fibre board of approved make as per manufacturer's specifications etc. complete in all respects as directed by Engineer-in-charge.	sqm	332			
3.8	NSR	Providing & fixing 80 mm dia polystyrene bond breaker. ( Bond breaker to fixed by pressure in 75 mm groove / gap) of approved make as per manufacturer's specification etc. complete in all respects as per direction of the Engineer-in-charge.	metre	502			
3.9	NSR	Providing & fixing 55 mm dia polystyrene bond breaker. of approved make as per manufacturer's specification etc. Complete in all respects as per direction of the Engineer-in-charge. ( Bond breaker to fixed by pressure in 75 mm groove / gap)	metre	502			
3.10	NSR	Providing & laying 75 x 12 mm Polysulphide expansion joints sealant of approved make applied with masking tape and grinding, etc. complete in all respects as per direction of the Engineer-in-charge.	metre	502			
3.11	NSR	Providing and fixing in position 25 mm thick bitumen impregnated fibre board including cost of primer etc. in expansion joints of approved make & fixed as per manufacturer's specification etc. complete in all respect & as directed by Engineer-in-charge.	sqm	17			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
3.12	NSR	Providing & laying 25 x 12 mm Polysulphide expansion joints sealant of approved make applied with masking tape and grinding, etc. complete in all respects as per direction of the Engineer-in-charge.	metre	56			
3.13	5.43	Providing and fixing in position Stainless steel Grade 304 plate-1.0mm thick as per design for expansion joints.					
	5.43.1	200 mm wide.	kg	789			
		Note :- The rate if this includes the cost fo making hiles including slotted holes of required size and fixing arrangements as approved by the Engineer-in-charge.					
3.14	5.30	Add for plaster drip course/ groove in plastered surface or moulding to R.C.C. projections.	metre	9566			
3.15	5.33	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.					
		(Note :- Cement content considered in this item is @ 330 kg/cum. Excess/less cement used as per design mix is payable/recoverable separately).					
a )	5.33.1	All works upto plinth level	cum	862			
b )	5.33.2	All works above plinth level upto floor V level	cum	981			
3.16	5.34	Extra for providing richer mixes at all floor levels.					
		Note : Excess/less cement over the specified cement content used is payable/recoverable separately).					
	5.34.1	Providing M-30 grade concrete instead of M-25 grade BMC/RMC. (Note : cement content considered in M-30 is @ 340kg/cum).	cum	1489			
3.17	5.35	Add for using extra cement in the items of design mix over and above the specified cement content therein.	Quintal	347			
3.18	5.38	Extra for R.C.C./B.M.C./R.M.C. work above floor V level for each four floors or part thereof.	cum	2594			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
3.19	5.40	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.					
		NOTE- 1) Cement content considered in this item is @ 330 kg/cum. Excess/ less cement used as per design mix is payable/ recoverable separately.					
		2) Fly ash conforming to grade I of IS 3812 (Part-1) only be used as part replacement of OPC as per IS 456. Uniform blending with cement to be ensured in accordance with clauses 5.2 and 5.2.1 of IS:456 -2000 in the items of BMC and RMC.					
		3) The above item shall be used judiciously where specified quality of Fly Ash is available for mixing in concrete. Also, the guidelines issued by CDO, CPWD, vide circular no. CDO/SE(RR)/Fly Ash (Main)/102 dated 9th April 2009 shall be followed in such cases.					
a)	5.40.1	All works up to Plinth level.	cum	6532			
b)	5.40.2	All works above plinth & up to floor V level.	cum	8282			
		<b>R.C.C.WORK Sub Head Total</b>					
	<b>4.0</b>	<b>SUB HEAD-IV :- BRICK WORK</b>					
4.1	6.1	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:					
	6.1.2	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	1291			
4.2	6.4	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in					
	6.4.2	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	2061			
4.3	6.34	Brick work with non modular fly ash lime bricks (FALG Bricks) conforming to IS:12894-2002, class designation 10 average compressive strength in super structure above plinth level up to floor V level in :					
	6.34.2	Cement mortar 1:6 (1 cement : 6 Coarse sand)	cum	8244			
4.4	6.5	Extra for brick work / AAC block masonry / Tile brick masonry in superstructure above floor V level, for each four floors or part thereof by mechanical means.	cum	269			
		<b>HALF BRICK MASONRY</b>					

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
4.5	6.45	Half brick masonry with non modular fly ash lime Gypsum bricks (FALG bricks) class designation 10, conforming to IS : 12894, in super structure above plinth and upto floor V level.					
	6.45.1	Cement mortar 1 : 3 (1 cement : 3 coarse sand)	sqm	3353			
4.6	6.13	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level.					
	6.13.2	Cement mortar 1:4 (1 cement :4 coarse sand)	sqm	3353			
4.7	6.14	Extra for half brick masonry in superstructure, above floor V level for every four floors or part thereof by mechanical means.	sqm	470			
4.8	6.15	Extra for providing and placing in position 2 Nos 6mm dia. M.S. bars at every third course of half brick masonry.	sqm	6706			
		<b>BRICK WORK Sub Head Total</b>					
5.0		<b>SUB HEAD-V :- STONE WORK &amp; WALL CLADDING</b>					
5.1	7.40	Providing and fixing dry cladding upto 10 metre heights with 30mm thick gang saw cut stone with (machine cut edges) of uniform colour and size up to 1mx1m, fixed to structural steel frame work and/or with the help of cramps, pins etc. and sealing the joints with approved weather sealant as per Architectural drawing and direction of Engineer-in-charge. (The steel frame work, stainless steel cramps and pins etc. shall be paid for separately).					
	7.40.2	White sand stone	sqm	3120			
5.2	7.27	Providing and fixing copper pins 7.5 cm long 6 mm diameter for securing adjacent stones in stone wall lining in cement mortar 1:2 (1 cement : 2 coarse sand) including making the necessary chases.	each	18722			
5.3	7.42	Providing and fixing adjustable stainless steel cramps of approved quality and of required shape and size adjustable with stainless steel nuts bolts and washer (total weight not less than 260 gms) for dry stone cladding fixed on frame work at suitable location including making necessary recesses in stone slab, drilling required holes etc complete as per direction of the Engineer-in-charge.	each	18722			
5.4	7.39	Extra for stone work for wall lining on exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.	sqm	1135			
5.5	NSR	Providing & applying water based approved brand protective sealing coat on frontside and resin based protective coat on backside of the processed / finished stone complete as per manufacturer specification & direction of Engineer-In-Charge.	sqm	3120			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
5.6	NSR	Providing & fixing 4mm thick aluminum composite panels (ACP) of approved make and shade made out of PVDF aluminum sheets (0.5mm+3.0mm+0.5mm) with matt finish panels on both sides at all heights, fixed over framework of aluminum section of required size approved make (to be paid separately) . The panels in desired shape & sizes are to be fixed with epoxy adhesive, screws etc. Complete as per drawings/manufacturer's specifications with grooves filled with silicon sealant, etc. complete in all respects as per direction of the Engineer-in-charge. ( The payment shall be made on the basis of face area provided)	sqm	893			
5.7	NSR	Providing and fixing Terracotta coloured pre-coated with silicon, brick faced tiles of size 230x75x14mm (Minimum) of approved make & fixed at all heights as per approved design for veneering work on wall and dado fixed with a grout of average 12 mm thick cement mortar 1:3 (1cement:3coarse sand) including pointing to matching shade complete in all respects as per direction of the Engineer-in-charge.	sqm	18722			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
5.8	NSR	Providing, stacking and fixing stone tile, at all heights, using 19 mm strips of gwalior mint /Jaisalmer /Sagar black/ Bansri Paharpur sand stone of various width ranging from 40 mm to 150mm bonded with 2 pack epoxy material to mesh substrata and to create a tile with irregular toothing on two edges and smooth surface along coursing lines as per sample approved by the Engineer-in-charge. The tiles should be fixed with a grout of average cement mortar 1:3 (1cement:3course sand) complete with pointing of grooves at all levels and locations.	sqm	9361			
5.9	NSR	Providing and fixing 40mm thick (minimum) cladding comprising of second Class kail wood framework using 25mx50mm sections at a maximum spacing of 600mm in any one direction (including adding members as required) covered with12mm thick BWP ply layered with 4mm thk. veneer on one side pasted and pressed with adhesive to give a uniform and smooth finish, including 4mm thk. S.S. strip framework of grade 304 on all sides of veneer panels with wooden member surround, top mouldings / margins, melamine polish etc. to finish the thickness, as shown complete in drawing. All members / ply etc. shall be treated with anti-termite solution as per norms. No extra shall be paid for making of openings, door / window frames and for making provisions for electric conduits. complete in all respects as per direction of the Engineer-in-charge. (FOR site rate inclusive of all taxes etc. for 4mm thk. veneer considered Rs. 125/- per Sft)	sqm	812			
5.10	NSR	Providing and fixing 38mm thick (minimum) cladding comprising of second class kail wood wooden framework using 25mx50mm sections at a maximum spacing of 600mm in any one direction (including adding members as required) covered with12mm thick BWP ply layered with 1 mm thk Laminare on one side pasted and pressed with adhesive to give a uniform and smooth finish, including top mouldings / margins, melamine polish etc. to finish the thickness, as shown complete in drawing. All members / ply etc. shall be treated with anti-termite solution as per norms. No extra shall be paid for making of openings, door / window frames and for making provisions for electric conduits. complete in all respects as per direction of the Engineer-in-charge.	sqm	750			
5.11	NSR	Providing and fixing 75mm thick(minimum) full height partitions comprising of second class teak wood framing using 50mx50mm sections at a maximum spacing of 600mm in any one direction (including adding members as required) covered with 12mm thick BWP ply on both sides duly screwed to wooden framework and finally layered with 1mm thick laminate pasted and pressed with adhesive on both sides to give a uniform and smooth finish, including top mouldings / margins melamine polish etc. to finish the 75mm thickness. Partition shall be anchored to floor with dash fasteners fixed directly to respective R.C.C. slabs. All members / ply etc. shall be treated with anti-termite solution as per norms. No extra shall be paid for making of openings, door / window frames and for making provisions for electric conduits. complete in all respects as per direction of the Engineer-in-charge.	sqm	719			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
		<b>STONE WORK &amp; WALL CLADDING Sub Head Total</b>					
<b>6.0</b>		<b>SUB HEAD-VI :- MARBLE &amp; GRANITE WORK</b>					
6.1	8.1	Marble work gang saw cut (polished and machine cut) of thickness 18mm for wall lining (vener work), backing filled with a grout of average 12 mm thick in cement mortar 1:3 (1 cement : 3 coarse sand) including pointing with white cement mortar 1:2 (1 white cement : 2 marble dust) with an admixture of pigment to match the marble shade: (To be secured to the backing by means of cramps, which shall be paid for separately).					
	8.1.1	Raj Nagar Plain white marble/Udaipur green marble					
	8.1.1.2	Area of Slab over 0.50sqm	sqm	1264			
6.2	8.2	Providing and fixing 18mm thick gang saw cut mirror polished pre moulded 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.					
	8.2.2	Granite of any colour and shade					
	a)	8.2.2.1 Area of slab upto 0.50 sqm	sqm	115			
	b)	8.2.2.2 Area of Slab over 0.50sqm	sqm	390			
6.3	8.3	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.					
	8.3.2	Granite work.	metre	1044			
6.4	8.4	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.	metre	952			
6.5	8.5	Extra for providing opening of required size & shape for wash basins/ kitchen sink in kitchen platform, vanity counters and similar location in marble/Granite/stone work including necessary holes for pillar taps etc. including rubbing and polishing of cut edges etc. complete.	each	547			
6.6	8.6	Mirror polishing on marble work / Granite work/ stone work where ever required to give high gloss finish complete.	sqm	440			
		<b>MARBLE &amp; GRANITE Sub Head Total</b>					

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
7.0		<b>SUB HEAD-VII :- WOOD AND PVC WORK</b>					
7.1	9.1	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 for separately).					
	9.1.1	Second class teak wood	cum	101			
7.2	9.129	Providing and fixing cup board shutters 25 mm thick, with Pre-laminated flat pressed three layer particle board or graded wood particle board IS: 12823 marked, exterior grade (Grade I Type II), having one side decorative lamination and other side balancing lamination, including IInd class teak wood lipping of 25 mm wide x12 mm thick with necessary screws and bright finished stainless steel piano hinges, complete as per direction of the Engineer-in-Charge	Sqm	1375			
7.3	2.35	Diluting and injecting chemical emulsion for POST-CONSTRUCTIONAL anti-termite treatment (excluding the cost of chemical emulsion) :					
	2.35.5	Treatment at points of contact of wood work by chemical emulsion Chlorpyrifos/ Lindane (in oil or kerosene based solution) @ 0.5 litres per hole by drilling 6 mm dia holes at downward angle of 45 degree at 150 mm centre to centre and sealing the same.	metre	7070			
7.4	9.21	Providing and fixing ISI marked flush door shutters conforming to IS: 2202 (Part I) non-decorative type, core of block board construction with frame of 1st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters :					
a)	9.21.1	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws.	sqm	3364			
b)	9.21.2	30 mm thick including ISI marked Stainless Steel butt hinges with necessary screws.	sqm	820			
7.5	9.23	Extra for providing lipping with 2nd class teak wood battens 25 mm minimum depth on all edges of shutters (over all area of door shutter to be measured) over item no. 9.20 and 9.21 (DSR)	sqm	3364			
7.6	9.24	Extra for providing vision panel not exceeding 0.1 sqm in all type of flush doors (cost of glass excluded) (overall area of door shutter to be measured) :					
	9.24.1	Rectangular or square.	sqm	3364			
7.7	9.33	Providing and fixing expandable fasteners of specified size with necessary plastic sleeves and galvanised M.S. screws including drilling holes in masonry work /CC/ R.C.C. and making good etc. complete.					

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
a)	9.33.1	25 mm long	each	1862			
b)	9.33.3	40 mm long	each	3722			
c)	9.33.4	50 mm long	each	3722			
7.8	9.79	Providing and fixing special quality bright finished brass cupboard or ward robe locks with four levers of approved quality including necessary screws etc. complete. (best make of approved quality)					
	9.79.2	50 mm	each				
7.9	9.40	Providing and fixing wooden moulded beading to door and window frames with iron screws, plugs and priming coat on unexposed surface etc. complete :					
	9.40.1	2nd class teak wood					
	9.40.1.2	50 x 20 mm	metre	7070			
7.10	9.114	Providing and fixing magnetic catcher of approved quality in cupboard / ward robe shutters, including fixing with necessary screws etc. complete.					
	9.114.2	Double strip (horizontal type)	each				
7.11	9.127	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					
	9.127.2	1.0 mm thick.	sqm	8370			
		<b>Providing and fixing hardware's for Door :</b>					
7.12	9.100	Providing and fixing aluminum handles ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade or powder coated( minimum thickness 50 micron aluminum)with necessary screws etc. complete :					
a)	9.100.1	125 mm	each	2240			
b)	9.100.2	100 mm	each	2541			
7.13	9.97	Providing and fixing aluminum 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 or powder coated( minimum thickness 50 micron aluminum)with necessary screws etc. complete :					

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
a )	9.97.2	250x10 mm	each	983			
b )	9.97.3	200x10 mm	each	262			
c )	9.97.4	150x10mm	each	3095			
7.14	9.101	Providing and fixing aluminum 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 or powder coated( minimum thickness 50 micron aluminum) with necessary screws etc. complete.					
	9.101.1	Single rubber stopper	each	1120			
7.15	9.96	Providing and fixing aluminum 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 or powder coated( minimum thickness 50 micron aluminum) with nuts and screws etc. complete :					
a )	9.96.1	300x16 mm	each	752			
b )	9.96.2	250x16mm	each	367			
7.16	9.83	Providing and fixing aluminum 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.	each	1378			
7.17	9.102	Providing and fixing Aluminum Casement stays, ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade or powder coated ( minimum thickness 50 micron aluminum)with nuts and screws etc. complete :	each	1548			
7.18	9.76	Providing and fixing bright finished 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).	each	163			
7.19	9.48	Providing and fixing M.S. grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete.					
a)	9.48.1	Fixed to steel windows by welding	kg	121			
b)	9.48.2	Fixed to openings /wooden frames with rawl plugs screws etc.	kg	2			
7.20	9.12	Extra for providing frosted glass panes 4mm thick instead of ordinary float glass panes 4mm thick in doors, windows& clerestory windows, shutters (Area of opening for glass panes excluding portion inside rebate shall be measured)	sqm	602			
7.21	9.27	Providing & Fixing 35 mm thick wire gauze shutters using galvanised MS wire gauze of average width of aperture 1.4 mm with wire of dia 0.63 mm for doors, windows and clerestory windows including ISI marked bright finished orland black enamelled MS butt hinges with necessary screws :					
	9.27.1	35 mm thick shutters.					
	9.27.1.1	with ISI marked M.S. pressed butt hinges bright finished of required size.					

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
	9.27.1.1.1	Second class teak wood.	sqm	96			
7.22	9.46	Providing and fixing curtain rods of 1.25mm thick chromium plated brass plate, with two chromium plated brass brackets fixed with c.p. Brass screws and wooden plugs, etc., wherever necessary complete					
	9.46.2	20 mm dia	metre	1432			
7.23	9.47	Providing and fixing nickel plated M.S.Pipe curtain rods, with nickel plated brackets.					
	9.47.2	25 mm dia (Heavy Type)	metre	920			
7.24	9.53	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)	each	7445			
7.25	9.119	Providing and fixing factory made PVC door frame of size 50 x 47 mm with a wall thickness of 5 mm, made out of extruded 5 mm rigid PVC foam sheet mitred at corners and joined with 2 nos. of 150 mm long brackets of 15x15 mm MS square tube, the vertical door profiles to be reinforced with 19x19 mm MS square tube of 19 gauge, EPDM rubber gasket weather seal to be provided through out the frame. The door frame to be fixed to the wall using MS screws of 65/100 mm size complete as per manufacturers specification and direction of Engineer in Charge.	metre	78			
7.26	9.120	Providing and fixing factory made panel PVC door shutter consisting of frame made out of M.S. tubes of 19 gauge thickness and size of 19mm x 19mm for styles and 15x15mm for top & bottom rails. M.S. frame shall have a coat of steel primers of approved make and manufacture . M.S. frame covered with 5mm thick heat moulded PVC 'C' channel of size 30mm thickness, 70mm width out of which 50mm shall be flat and 20mm shall be tapered in 45degree angle on both side forming styles; and 5mm thick, 95mm wide PVC sheet out of which 75mm shall be flat and 20mm shall be tapered in 45 degree on the inner side to form top and bottom rail and 115mm wide PVC sheet out of which 75mm shall be flat and 20mm shall be tapered on both sides to form lock rail. Top, bottom and lock rails shall be provided both side of the panel. 10mm (5mm x 2 ) thick, 20mm wide cross PVC sheet be provided as gap insert for top rail & bottom rail. paneling of 5mm thick both side PVC sheet to be fitted in the M.S. frame welded/ sealed to the styles & rails with 7mm (5mm+2mm) thick x 15mm wide PVC sheet beading on inner side, and joined together with solvent cement adhesive. An additional 5mm thick PVC strip of 20mm width is to be stuck on the interior side of the 'C' Channel using PVC solvent adhesive etc. complete as per direction of Engineer-in-charge. Manufacturer's specification & drawing.					
	9.120.1	30 mm thick plain PVC door shutters.	sqm	31			
7.27	21.18	Providing and fixing 12 mm thick frameless toughened glass door shutter of approved brand and manufacturer, including providing and fixing top & bottom pivot & spring type fixing arrangement and making necessary holes etc. for fixing required door fittings, all complete as per direction of Engineer-in-charge (Door handle, lock and stopper etc.to be paid separately).	sqm	430			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
7.28	NSR	Providing and fixing 12 mm thick frameless toughened glass door partitions of approved brand and manufacturer, including providing and fixing partitions at top & bottom with aluminum channel etc. all complete as per direction of Engineer-in-charge	sqm	430			
7.29		Providing and fixing approved brand and manufacturer SS 304 grade hardware's for Doors etc.					
a )	NSR	Providing and fixing approved brand and manufacturer SS 304 grade S.S Floor door spring fixed with SS screws etc. complete in all respects as per manufacturer's specifications & as directed by Engineer-in-charge.	nos	187			
b )	NSR	Providing and fixing approved brand and manufacturer SS 304 grade S.S Handles including lock (1200 mm) fixed with SS screws etc. complete in all respects as per manufacturers' specifications & as directed by Engineer-in-charge.	nos	19			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
c)	NSR	Providing and fixing approved brand and manufacturer SS 304 grade S.S Handles (450 mm) fixed with SS screws etc. complete in all respects as per manufacturers' specifications & as directed by Engineer-in-charge.	nos	358			
d)	NSR	Providing and fixing approved brand and manufacturer SS 304 grade S.S Handles (200 mm) fixed with SS screws etc. complete in all respects as per manufacturer's specifications & as directed by Engineer-in-charge.	nos	630			
e)	NSR	Providing and fixing approved brand and manufacturer SS 304 grade S.S door stopper fixed with SS screws etc. complete in all respects as per manufacturer's specifications & as directed by Engineer-in-charge.	nos	259			
f)	NSR	Providing and fixing approved brand and manufacturer SS 304 grade S.S dead lock fixed with SS screws etc. complete in all respects as per manufacturer's specifications & as directed by Engineer-in-charge.	nos	259			
g)	NSR	Providing and fixing approved brand and manufacturer SS 304 grade S.S tower bolt (300mm) fixed with SS screws etc. complete in all respects as per manufacturer's specifications & as directed by Engineer-in-charge.	nos	630			
h)	NSR	Providing and fixing approved brand and manufacturer SS 304 grade S.S tower bolt (150mm) fixed with SS screws etc. complete in all respects as per manufacturer's specifications & as directed by Engineer-in-charge.	nos	315			
i)	NSR	Providing and fixing approved brand and manufacturer SS 304 grade patch fittings L type for frameless doors fixed with SS screws etc. complete in all respects as per manufacturer's specifications & as directed by Engineer-in-charge.	Sets	187			
		<b>50MM THCK (minimum) WOODEN FIRE RATED DOOR OF 120 MINUTES FIRE RATING:</b>					
		<b>DOOR FRAME:</b> Supply and fixing of 2nd class teakwood (Ivory Coast) door frame of section Max. 120mm x 70mm with heat activated intumescent fire seal strip of section 10mm x 4mm 2 No. of approved make and one coat anti-termite fire retardant primer of approved brand.					

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
7.30	NSR	<b>DOOR SHUTTER:</b> Supply and fixing asbestos free composite <b>fire/smoke check wooden shutter</b> (minimum thickness 50mm but not more than 55mm) of 120 min. fire rating conforming to BS : 476 part 22 & IS : 3614 Part II as per the prototype tested and certified by CBRI Roorkee, suitable for mounting on the door frame as per item no. 5.04 comprising of two non combustible boards 12mm to 18 mm thick sandwiching 10 mm to 20 mm fire resistant insulation filler veneered with 3mm thick commercial ply on both faces and pasting of minimum 1 mm thick laminate over wooden fire comprising of two 12 mm thick calcium silicate board of approved brand a 100% without Asbestos, Bructile and merschaum, having density not more than 1150 kg/m3 and thermal conductivity 0.14 W/m K sandwiching 20m thick fire resistance insulation filler coated with	sqm	217			
		FR silicon sealant and face with 3mm thick commercial ply facing on both side and faced 1.5mm laminate on both sides with heat activated intumescent fire seal strip of size 20mm x 4mm of approved mounted in the grooves of teakwood lipping on all sides except bottom. The intumescent sealant is used to fill the gaps between board and internal wooden lipping. (The sample(s) of the fire door shall be collected out of the delivered doors, as per specifications, and shall get tested the door from CBRI Roorkee or any other laboratory approved by Engineer-in-Charge. The work shall be carried out as per specification and as per direction of Engineer-in-Charge.					
7.31		<b>Providing &amp; fixing following Hardware's for Fire Door of approved makes complete in all respect as directed by Engineer-in-charge</b>					
a)		Supply and fixing of 304 grade stainless steel ball bearing hinges of size 125 x 89 x 3mm of approved make as per direction of Engineer in Charge.	nos	669			
b)		Supply and fixing of Fire Rated Door Closers of approved make. The Door Closers are UL tested for fire doors, fire tested in accordance shall be tested with the fire doors for 2 hrs. Fire rating from the CBRI Roorkee or any other laboratory approved by Engineer-in-Charge.	nos	84			
c)		<b>PANIC EXIT DEVICES :</b> Supply and fixing of Fire Rated Panic Bars of approved make shall be tested successfully on fire door assemblies in accordance and shall be tested with the fire doors for 2hrs. Fire rating from the CBRI Roorkee or any other laboratory approved by Engineer-in-Charge.	nos	84			
d)		<b>MORTICE DEAD LOCK:-</b> Supply and fixing of Fire Rated Mortice Dead Lock of approved make with lock body, 80mm both side key cylinder tested to 100000 cycles alongwith the fire rated door for 2 hrs. fire rating from CBRI Roorkee/or any other laboratory approved by Engineer-in-Charge.	nos	84			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
e)		<b>FIRE RATED GLASS FOR FIRE RATED DOORS VISION PANEL:</b> Supply and fixing of minimum 11mm thick, Contraflame Door Lite Clear, 120 minutes rated (EW 120) Non Wired, Toughened Interlayered Glass toughened fire rated glass having light transmission 87% of approved make which can also withstand thermal shock upto 800 degree centigrade shall be used as a glazing (Vision Panel Top fixed glazing) and is to be fixed in between the glass beading by using ceramic fiber and fire rated acrylic sealant in accordance with BS : 476 Part 22, EN 1363 1364 for stability and integrity of size 300mm x 500mm (Clear size) and the manufacture should have tested the glass from CBRI Roorkee or any other laboratory approved by Engineer as per direction of Engineer-in-Charge (visible area of glass to be measured for payment)	nos	84			
f)		Supply and fixing of stainless steel 304 Grade D - Type pull handle of size 300mm long 22mm dia of approved made as per direction of Engineer-in-Charge.	nos	167			
g)		Supply & application of fire retardant paint of approved brand in three or more coats to provide Class I surface spread of flame as per IS 12777 and BS 476 Part 7 tested from CBRI Roorkee or any other Laboratory approved by Engineer-in-Charge.	Sqm	433			
		<b>WOOD AND PVC WORK Sub Head Total</b>					
<b>8.0</b>		<b>SUB HEAD-VIII :- STEEL WORK</b>					
8.1	10.1	Structural steel work in single section, fixed with or without connecting plate, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	kg	10868			
8.2	10.2	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete:	kg	2100			
8.3	10.25	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.					
	10.25.2	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	kg	19529			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
8.4	10.6	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.					
	10.6.1	80x1.25 mm M.S. laths with 1.25 mm thick top cover	sqm	74			
8.5	10.7	Providing and fixing ball bearing for rolling shutters.	each	20			
8.6	10.8	Extra for providing mechanical device chain and crank operation for operating rolling shutters.					
	10.8.1	Exceeding 10.00 sqm and upto 16.80 sqm in the area.	sqm	64			
8.7	10.9	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).	sqm	29			
8.8	10.11	Providing and fixing factory made ISI marked steel glazed doors, windows and ventilators side /top /centre hung with beading and all members such as F7D, F4B, K11 B and K12 B etc. complete of standard rolled steel sections, joints mitred and flash butt welded and sash bars tenoned and riveted, including providing and fixing of hinges, pivots, including priming coat of approved steel primer , but excluding the cost of other fittings, complete all as per approved design (sectional weight of only steel members shall be measured for payment).					
	10.11.1	Fixing with 15x3 mm lugs 10 cm long embedded in cement concrete block 15x10x10 cm of C.C. 1:3:6 (1 Cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)	kgs	23507			
8.9	10.12	Extra for providing and fixing steel beading of size 10 x 10 x 1.6 mm (box type), approved shape and section with screws instead of glazing clips and metal sash putty, in steel doors, windows, ventilators and composite units.	metre	42			
8.10	10.13	Providing and fixing T-iron frames for doors, windows and ventilators of mild steel Tee-sections, joints mitred and welded, including fixing of necessary butt hinges and screws and applying a priming coat of approved steel primer.					
	10.13.1	Fixing with 15x3 mm lugs 10 cm long embedded in cement concrete block 15x10x10 cm of C.C. 1:3:6 (1 Cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)	kgs	322			
8.11	10.26	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying a priming coat of approved steel primer.					
	10.26.1	M.S. tube.	kg	2017			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
8.12	10.28	Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and 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.).	kg	9137			
8.13	10.14	Providing and fixing pressed steel door frames conforming to IS: 4351 manufactured from commercial mild steel sheet of 1.60 mm thickness including hinges, jamb, lock jamb, bead and if required angle threshold of mild steel angle of section 50x25mm, or base ties of 1.60 mm pressed mild steel welded or rigidly fixed together by mechanical means, including M.S. pressed butt hinges, 2.5mm thick with mortar guards, lock strike-plate and shock absorbers as specified and applying a coat of approved steel primer after pre-treatment of the surface as directed by Engineer-in-charge:					
	10.14.1	Profile B					
a)	10.14.1.1	Fixing with adjustable lugs with split end tail to each jamb.	metre	1128			
	10.14.2	Profile C					
b)	10.14.2.1	Fixing with adjustable lugs with split end tail to each jamb.	metre	2821			
	10.14.3	Profile E					
c)	10.14.3.1	Fixing with adjustable lugs with split end tail to each jamb.	metre	1539			
8.14	10.27	Providing and fixing carbon steel galvanised ( minimum coating 5 micron ) dash fastener of 10 mm dia double threaded 6.8 grade (yield strength 480 N/mm <sup>2</sup> ), counter sunk head, comprising of 10 m dia polyamide PA 6 grade sleeve, including drilling of hole in frame , concrete/ masonry, etc. as per direction of Engineer-in-charge.					
a)	10.27.1	10 x60 mm	each	346			
b)	10.27.2	10 x80 mm	each	346			
c)	10.27.3	10 x120 mm	each	692			
8.15	10.30	Providing & fixing glass panes with putty and glazing clips in steel doors, windows, clerestory windows all complete.					
a)	10.30.1	With 4.0 mm thick glass panes.	sqm	1441			
b)	10.30.2	With 5.5 mm thick glass panes.	sqm	1441			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
		<b>STEEL WORK Sub Head Total</b>					
<b>9.0</b>		<b>SUB HEAD-IX :- FLOORING</b>					
9.1	11.3	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.					
	11.3.1	40mm thick with 20mm nominal size stone aggregate.	sqm	1778			
9.2	11.6	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.					
	11.6.1	18 mm thick.	sqm	155			
9.3	11.20	Chequered 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).					
	11.20.4	Ordinary cement without any pigment	sqm	993			
9.4	11.26	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) :					
	11.26.1	25mm thick	sqm	5903			
9.5	11.27	Kota stone slabs 20 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement: 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	sqm	596			
9.6	11.31	Extra for pre finished nosing in treads of steps of Kota stone/ sand stone slabs	metre	1684			
9.7	11.32	Extra for Kota stone/ sand stone in treads of steps and risers using single length up to 1.05 metre .	sqm	1795			
9.8	11.38	Providing and laying Ceramic glazed floor tiles 300x300 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in all colours, shades, except White, Ivory, Grey, Fume Red Brown laid on 20mm thick bed of Cement Mortar 1:4 (1 Cement : 4 Coarse sand) including pointing the joints with white cement and matching pigments etc., complete.	sqm	8911			
9.9	11.39	Providing and laying rectified Glazed Ceramic floor tiles of size 300x300 mm or more (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in colours White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement: 4 Coarse sand), including grouting the joints with white cement and matching pigments etc., complete.	sqm	2193			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
9.10	11.36	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.	sqm	10460			
9.11	11.41	Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS : 15622, of approved make, in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand), including grouting the joints with white cement and matching pigments etc., complete.					
a)	11.41.2	Size of Tile 600x600 mm	sqm	8122			
b)	11.41.3	Size of Tile 800x800 mm	sqm	158			
9.12	11.46	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)	11.46.2	Size of Tile 600x600 mm	sqm	1701			
b)	11.46.3	Size of Tile 800x800 mm	sqm	16			
9.13	NSR	Providing and laying Anti skid 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 in all respects as per direction of the Engineer-in-charge. Size of tile 600x600mm	sqm	2967			
9.14	NSR	Providing and laying Jointless 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 in all respects as per direction of the Engineer-in-charge. Size of tile to be 600x600mm	sqm	2670			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
		<b>Note:- The Vitrified tiles for the above items shall be from the double/multi charged range of tiles .</b>					
9.15	NSR	Providing and laying Laminate wooden flooring (Grade AC4, 8 mm thick Ambience Premium AC4 ), having a good backing layer made up of plastic laminate or melamine as specified by the manufacturer and approved by Engineer-in-charge.					
	a)	Flooring	sqm	356			
	b)	Skirting	sqm	36			
	c)	Floor strip on edges	metre	303			
9.16	NSR	Providing & laying Granite stone in flooring, treads & risers with 18mm thick granite stone of approved colour and shade (over 20mm(average) thick base of cement mortar 1:4 (1 cement :4 coarse sand) laid with joints treated with colour pigment at all heights complete in all respects as per direction of Engineer-in-charge.(sample of granite shall be approved by Engineer – In – Charge (FOR site rate inclusive of all taxes etc. for granite stone considered Rs. 200/- per Sft)	sqm	3777			
9.17	NSR	Extra for pre finished nosing to treads of steps of Granite stone.	metre	613			
9.18	NSR	Extra for Granite stone flooring in treads of steps and risers using single length up to 2.00 metre .	sqm	1140			
9.19	8.12 (S)	Providing and laying flamed finish Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing , curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge :					
		a) Flamed finish granite stone slab Jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	sqm	210			
9.20	NSR	Providing and fixing 18mm thick Granite stone work for wall lining at all height in 20mm thick average cement mortar 1:3 (1cement : 3 coarse sand) including pointing with white cement mortar with an admixture of pigment to match the granite shade complete as per direction of Engineer-in-charge.(FOR site rate inclusive of all taxes etc. for granite stone considered Rs. 200/- per Sft)	sqm	1000			
9.21	NSR	Providing and laying carpet flooring, seamless finish, made out of 4.3mm thick X 30m X 2m wide of Flotex or equivalent make laid over base with suitable adhesive etc. complete as per manufacturer's specifications complete as directed by Engineer-in-charge. The storage, precautions and laying of the flooring etc. shall be as per manufacturers specifications.	sqm	298			
9.22	NSR	Providing and laying an Epoxy based <b>Antistatic flooring</b> including preparing the surface of floor by etching ,cleaning etc. & providing and applying one coat of epoxy primer of approved make & then providing and applying one coat of Antistatic self leveling under coat of approved make having surface resistance in the range of $3 \times 10^3$ ohm - $9 \times 10^5$ ohm & over it providing and laying in Antistatic self leveling conductive top coat of approved make around 2mm thick as per manufacturer's specifications and directions of Engineer-in-charge.	sqm	263			
		<b>FLOORING Sub Head Total</b>					

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
10.0		<b>SUB HEAD-X :- ROOFING</b>					
10.1	12.22	Making khurras 45x45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) over P.V.C. sheet 1 m x1 m x 400 micron, finished with 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement, rounding the edges and making and finishing the outlet complete.	each	617			
10.2	12.21	Providing gola 75x75 mm in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 10 mm and down gauge), including finishing with cement mortar 1:3 (1 cement : 3 fine sand) as per standard design :					
	12.21.1	In 75 x75 mm deep chase	Rmt	2223			
10.3	12.55	Providing and fixing Heat Resistant Terrace Tiles (300 mm x 300 mm x 20 mm) with SRI (solar refractive index) > 78, solar reflection >0.70 and initial emittance >0.75 on waterproof and sloped surface of terrace, laid on 20 mm thick cement sand mortar in the ratio of 1:4 (1 cement : 4 coarse sand) and grouting the joints with mix of white cement & marble powder in ratio of 1:1, including rubbing and polishing of the surface upto 3 cuts complete, including providing skirting upto 150 mm height along the parapet walls in the same manner	Sqm	12329			
10.4	12.54	Providing and fixing GI Clip in Metal Ceiling System of 600x600 mm module which includes providing and fixing 'C' wall angle of size 20x30x20 mm made of 0.5 mm thick pre painted steel along the perimeter of the room with help of nylon sleeves and wooden screws at 300 mm center to centre, suspending the main C carrier of size 10x38x10 mm made of G.I steel 0.7 mm thick from the soffit with help of soffit cleat 37x27x25x1.6 mm, rawl plugs of size 38x12 mm and C carrier suspension clip and main carrier bracket at 1000 mm c/c. Inverted triangle shaped Spring Tee having height of 24 mm and width of 34 mm made of GI steel 0.45 mm thick is then fixed to the main C carrier and in direction perpendicular to it at 600 mm centers with help of suspension brackets. Wherever the main C carrier and spring T have to join, C carrier and spring T connectors have to be used. All sections to be galvanized @ 120 gms/sqm (both side inclusive), fixing with clip in tiles into spring 'T' with :					
	12.54.1	GI Metal Ceiling Clip in plain Beveled edge global white color tiles of size 600x600 and 0.5 mm thick with 25 mm height, made of G I sheet having galvanizing of 100 gms/sqm (both sides inclusive) and electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after bending.	sqm	2145			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
10.5	12.53	<p>Providing and Fixing 15 mm thick densified tegular edged eco friendly light weight calcium silicate false ceiling tiles of approved texture/pintone/cosmos / Hexa or equivalent of size 595 x 595 mm in true horizontal level, suspended on inter locking metal grid of hot dippedgalvanised steel sections (galvanising @ 120 grams per sqm including both side) consisting of main 'T' runner suitably spaced at joints to get required length and of size 24x38 mm made from 0.33 mm thick(minimum) sheet, spaced 1200 mm centre to centre, and cross "T"of size 24x28 mm made out of 0.33 mm (Minimum) sheet, 1200 mm long spaced between main'T' at 600 mm centre to centre to form agrid of 1200x600 mm and secondary cross 'T' of length 600 mm and size 24 x28 mm made of 0.33 mm thick (Minimum) sheet to be interlocked at middle of the 1200x 600 mm panel to from grid of size600x600 mm, resting on periphery walls /partitions on a Perimeter wall angle pre-coated steel of size(24x24X3000 mm made of 0.40mm thick (minimum) sheet with the help of rawl plugs at 450 mm Centre to centre with 25 mm long dry wall screws @ 230 mm interval and laying 15 mm thick densified edges calcium silicate ceiling tiles of approved texture (Spintone / Cosmos/hexa) in the grid, including, cutting/ making opening for services like diffusers, grills, light fittings,fixtures, smoke detectors etc., wherever required. Main 'T' runners tobe suspended from ceiling using G.I. slotted cleats of size 25x35x1.6mm fixed to ceiling with 12.5 mm dia and 50 mm long dash fasteners,4 mm G.I. adjustable rods with galvanised steel level clips of size 85x 30 x 0.8 mm, spaced at 1200 mm centre to centre along main 'T' ,bottom exposed with 24 mm of all T-sections shall be pre-painted with polyster baked paint, for all heights, as per specifications, drawings and as directed by engineer-in-charge.</p> <p>Note :- Only calcium silicate false ceiling area will be measured from wall to wall. No deduction shall be made for exposed frames/opening(cut outs) having area less than 0.30 sqm.The calcium silicate ceiling tile shall have NRC value of 0.50 (Minimum), light reflection &gt; 85%,non - combustible as per B.S. 476 part IV, 100% humidity resistance and also having thermal conductivity &lt;0.043 w/m 0 KC.</p>	sqm	1287			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
10.6	12.45	Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm, at 1200 mm centre to centre, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50mm long with 6mm dia bolts other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the rate of 1200 mm centre to centre to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre,					
		with 25mm long dry wall screws @ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound , jointing tapes , finishing with jointing compound in 3 layers covering upto 150 mm or both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting with :					
	12.45.1	12.5 mm thick tapered edge gypsum board conforming to IS: 2095- Part I.	sqm	1230			
10.7	12.52	Providing and fixing tiled false ceiling of approved materials of size 595x595 mm in true horizontal level suspended on inter locking metal grid of hot dipped galvanized steel sections ( galvanized @ 120 gsm/sqm, both side inclusive) consisting of main "T" runner with suitably spaced joints to get required length and of size 24x38mm made from 0.30mm thick (minimum) sheet, spaced at 1200mm center to center and cross "T" of size 24x25mm made of 0.30mm thick (minimum) sheet, 1200mm long spaced between main "T" at 600mm center to center to form a grid of 1200x600 mm and secondary cross "T" of length 600mm and size 24x25mm made of 0.30 mm thick (minimum) sheet to be interlocked at middle of the 1200x600mm panel to form grids of 600x600mm and wall angle of size 24x24x0.3 mm and laying false ceiling tiles of approved texture in the grid including, wherever, required, cutting/making, opening for services like diffusers, grills, light fittings, fixtures, smoke detectors etc. Main "T" runners to be suspended from ceiling using GI slotted cleats of size 27 x 37 x 25 x 1.6 x mm fixed to ceiling with 12.5 mm dia and 50 mm long dash fasteners, 4mm GI adjustable rods with galvanised butterfly level clips of size 85 x 30 x 0.8 mm spaced at 1200mm center to center along main T, bottom exposed width of 24 mm of all T-sections shall be pre-painted with polyester paint, all complete at all heights as per specifications drawings and as directed by Engineer-in-charge.					

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
	12.52.1	GI Metal Ceiling Lay in plain Tegular edge Global white color tiles of size 595x595 mm, and 0.5mm thick with 8mm drop; made of G I sheet having galvanizing of 100 gms/sqm (both sides inclusive) and electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after bending.	sqm	525			
10.8	NSR	Providing & fixing trap door in the false ceiling using 19 mm thk commercial ply laminated with approved finish 1mm thick laminate with necessary 2nd Class teak frame work of size 2" x 1.5", Oak wood mouldings as per Architect's drawing, brass hinges, latches etc. complete in all respect as directed by Engineer-in-charge.	sqm	629			
10.9	NSR	Providing and making 75mm deep suspended feature panel ceiling comprising of 19mm Thk. Commercial Board layered with 4mm Thk. Italian Veneer ply including all edge mouldings, melamine polish, suspension system etc. complete as per drawing & as directed by Engineer-in-charge.	sqm	526			
10.10	12.50	Providing and fixing precoated galvanised iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-charge) 0.50 mm + 0.05 %, total coated thickness with zinc coating 120 gsm as per IS: 277 in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches while transportation and should be supplied in single length upto 12 metre or as desired by Engineer-in-charge. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55mm) with EPDM seal, complete upto any pitch in horizontal/ vertical or curved surfaces excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.	sqm	420			
10.11	12.51	Providing and fixing precoated galvanised steel sheet roofing accessories 0.50 mm + 0.05 % total coated thickness, Zinc coating 120gsm as per IS: 277 in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns using self drilling/ self tapping screws complete :					
a)	12.51.1	Ridges plain (500 - 600mm).	metre	63			
b)	12.51.2	Flashings/ Aprons.( Upto 600 mm)	metre	126			
c)	12.51.6	Gutter (600 mm over all girth).	metre	63			
		<b>ROOFING Sub Head Total</b>					
<b>11.0</b>		<b>SUB HEAD-XI :- FINISHING WORK</b>					
11.1	13.1 13.1.2	12mm cement plaster of mix : 1:6 (1 cement : 6 fine sand)	sqm	39341			
11.2	13.2 13.2.2	15 mm cement plaster on the rough side of single or half brick wall of mix : 1:6 (1 cement : 6 fine sand)	sqm	39341			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
11.3	13.7 13.7.2	12 mm cement plaster finished with a floating coat of neat cement of mix : 1:4 (1 cement: 4 fine sand)	sqm	3425			
11.4	13.16.1	6 mm cement plaster of mix : 1:3 (1 cement : 3 fine sand)	sqm	33584			
11.5	13.26	Providing and Applying plaster of Paris putty of 2mm thickness over Plastered surface to prepare the surface even and smooth complete	sqm	96890			
11.6	13.37 13.37.1	White washing with lime to give an even shade: New work (three or more coats)	sqm	6271			
11.7	13.39 13.39.1	Colour washing such as green, blue or buff to give an even shade New work (two or more coats) with a base coat of white washing with lime	sqm	2014			
11.8	13.80	Providing and applying white cement based putty of avg. thickness 1mm avg. of approved brand and manufacturer e.g. J.K., Birla putty etc. or any equivalent over the plastered wall surface to prepare the surface even and smooth complete	sqm	9689			
11.9	13.52 a)	Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On steel work	sqm	1169			
	b)	NSR Antibacterial Paint: Providing & applying approved make Anti-Microbial Paint on wall surfaces as per manufacturer's specifications complete in all respect & as directed by Engineer-in-charge.	sqm	689			
11.10	13.44 13.44.1	Finishing walls with water proofing cement paint of required shade : New work (two or more coats applied @ 3.84 kg/10 sqm).	sqm	6668			
11.11	13.45 13.45.1	Finishing walls with textured exterior paint of required shade : New work (two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @ 2.20kg/10 sqm.	sqm	4519			
11.12	13.50 13.50.1	Applying Prime Coat: With ready mixed pink or grey primer of approved brand and manufacture on wood work (hard and soft wood)	sqm	2035			
11.13	14.61	Painting (one or more coats) with black Japan paint of approved brand and manufacture to give an even shade.	sqm	1138			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
11.14	13.81	Distemping 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.					
	13.81.2	Two coats	sqm	55590			
11.15	13.83	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.					
	13.83.2	Two coats.	sqm	50052			
11.16	13.84	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.					
	13.84.2	Two coats.	sqm	13723			
11.17	13.85	Applying priming coats with primer of approved brand and manufacture, having low VOC (Volatile Organic Compound ) content.					
a)	13.85.2	With ready mixed red oxide zinc chromatic on steel /iron works having VOC content less than 250 grams/litre.	sqm	13723			
b)	13.85.3	With water thinnable cement primer on wall surface having VOC content less than 50 grams/litre.	sqm	105642			
		<b>FINISHING WORK Sub Head Total</b>					
<b>12.0</b>		<b>SUB HEAD-XII :-ALUMINIUM WORK</b>					
12.1	21.1	Providing and fixing aluminum work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS : 1285, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt etc. Aluminum sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminum 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 and paneling to be paid for separately) :					
	21.1.1	For fixed portion					
	21.1.1.2	Powder coated aluminum (minimum thickness of powder coating 50 micron)	kg	6668			
12.2	21.1.2	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of PVC / neoprene gasket required (Fittings shall be paid for separately).					
	21.1.2.2	Powder coated aluminum (minimum thickness of powder coating 50 micron)	kg	2969			
12.3	NSR	Providing and fixing aluminum work for aluminum louvers with standard sections of approved make conforming to IS: 733 and IS : 1285, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with silicone sealant all complete as per architectural drawings complete in all respects as per direction of the Engineer-in-charge.					
		Powder coated aluminum (minimum thickness of powder coating 50 micron)	kg	9521			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
12.4	21.2	Providing and fixing 12mm thick prelaminated particle board flat pressed three layer or graded wood particle board conforming to IS: 12823 Grade I Type II, in paneling fixed in aluminum 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.					
	21.2.2	Pre-laminated particle board with decorative lamination on both sides.	Sqm	159			
12.5	21.3	Providing and fixing glazing in aluminum door, windows, ventilator shutters and partitions etc. with EPDM/ neoprene gasket etc. complete as per the architectural drawings and the directions of the Engineer-in-Charge. (Cost of aluminum snap beading shall be paid in basic item).					
a)	21.3.1	With float glass panes of 4.0mm thickness	sqm	298			
b)	21.3.2	With float glass panes of 5.50 mm thickness	sqm	288			
12.6	NSR	Providing and fixing in aluminum door, windows, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete as per the architectural drawings and the directions of the Engineer-in-Charge approved make Glazing of 8 mm thk Low reflective toughened glass complete in all respects as per direction of the Engineer-in-charge. Technical parameters of Low-e glass U value<1.77W/m2K, SHGC<0.36, VLT >62%	sqm	1548			
12.7	NSR	Providing and fixing over glass 1.5mm thick Etching strips (film) of approved make fixed as per manufacturer's specifications all complete as per direction of the Engineer-in-charge.	sqm	410			
12.8	21.8	Filling the gap in between aluminum frame & adjacent RCC/ Brick/ Stone work by providing weather silicon sealant over backer rod of approved quality as per architectural drawings and direction of Engineer-in-charge complete.					
	21.8.1	upto 5mm depth and 5 mm width	metre	1798			
12.9	21.10	Providing and fixing double glazed hermetically sealed glazing in aluminium windows, ventilators and partition etc. with 6 mm thick clear float glass both side, having 12 mm air gap, including providing EPDM gasket, perforated aluminium spacers, desiccants, sealant (Both primary and secondary sealant) etc. as per specifications, drawings and direction of Engineer-in-charge complete.	sqm	372			
12.10	21.14	Providing and fixing anodised aluminum (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 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).	kg	3598			
		<b>ALUMINIUM WORK Sub Head Total</b>					
<b>13.0</b>		<b>SUB HEAD - XIII - WATER PROOFING WORK</b>					

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
13.1	22.1	Providing and laying integral cement based treatment for waterproofing on horizontal surface at all depth below ground level for under ground structures as directed by Engineer in-Charge and consisting of : i) 1st layer of 22 mm to 25 mm thick approved and specified rough stone slab over a 25 mm thick base of cement mortar 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound conforming to IS:2645 in the recommended proportion over the leveling course (leveling course to be paid separately). Joints sealed and grouted with cement slurry mixed with water proofing compound. ii) 2nd layer of 25 mm thick cement mortar 1:3 (1 cement:3 coarse sand) mixed with water proofing compound in recommended proportions. iii) Finishing top with stone aggregate of 10 mm to 12mm nominal size spreading @ 8 cudm/sqm thoroughly embedded in the 2nd layer.					
	22.1.1	Using rough kota stone.	sqm	840			
13.2	22.2	Providing and laying integral cement based treatment for waterproofing on the vertical surface by fixing specified stone slab 22 mm to 25 mm thick with cement slurry mixed with water proofing compound conforming to IS:2645 in recommended proportions with gap of 20 mm (minimum) between stone slabs and the receiving surfaces and filling the gaps with neat cement slurry mixed with water proofing compound and finishing the exterior of stone slab with cement mortar 1:3 (1 cement : 3 coarse sand) 20 mm thick with neat cement punning mixed with water proofing compound in recommended proportion complete at all levels and as directed by Engineer-in-charge :					
	22.2.1	Using rough kota stone.	sqm	1534			
13.3	22.4	Providing and placing in position suitable PVC water stops conforming to IS:12200 for construction/expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc complete.					
	22.4.1	Serrated with central bulb (225mm wide,8-11mm thick)	metre	1198			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)	
13.4	22.5	Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound consisting of applying : a) First layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. This layer will be allowed to air cure for 4 hours. b) Second layer of slurry of cement @ 0.242 kg/sqm mixed with water proofing cement compound @ 0.126 kg/sqm. This layer will be allowed to air cure for 4 hours followed with water curing for 48 hours. The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.	sqm	2166				
13.5	22.7	Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of following operations: a) Applying a slurry coat of neat cement using 2.75 kg/sqm. of cement admixed with water proofing compound conforming to IS. 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls upto 300mm height including cleaning the surface before treatment. b) 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 conforming to IS : 2645 and approved by Engineer-in-charge to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs c) After two days of proper curing applying a second coat of cement slurry using 2.75kg/ 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 :						
	22.7.1	With average thickness of 120 mm and minimum thickness at khurra as 65 mm.	sqm	12916				
13.6	22.14	Grading roof for water proofing treatment with						
	22.14.1	Cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	cum	323				
13.7	NSR	Providing, compacting and laying brickbats filling in sunken portion of W.C. & kitchen at all heights as per direction of Engineer-in-charge.	cum	541				
		<b>WATER PROOFING WORK Sub Head Total</b>						
14.0		<b>SUB HEAD-XIV :- MISCELLANEOUS WORK</b>						

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
14.1	Derived from 5.43	Providing and fixing 2mm thk grade-304, SS Kick plate over flush door with suitable adhesives, screws etc. all complete as per direction of Engineer-In-Charge.	sqm	820			
14.2	14.2	Fixing chowkhats in existing opening including embedding chowkhats in floors or walls cutting masonry for holdfasts embedding hold fasts in cement concrete blocks with cement concrete 1:3:6 (1cement : 3coarse sand : 6 graded stone aggregate 20 mm nominal size) painting two coats of approved wood preservative to sides of chowkhats and making good the damages to walls and floors as required complete including disposal of rubbish to the dumping ground within 50 meters lead :					
	14.2.1	Door chowkhats	each	15			
14.3	19.16	Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS : 10910 on 12mm dia steel bar conforming to IS : 1786 having minimum cross section as 23 mmx25mm and over all minimum length 263 mm and width as 165mm 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 specifications and having manufacture's permanent identification 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	184			
14.4	19.19	Providing and fixing in position pre-cast R.C.C. manhole cover and frame of required shape and approved quality					
	19.19.1	LD- 2.5					
	a) 19.19.1.1	Rectangular shape 600x450mm internal dimensions	each	25			
	19.19.2	MD - 10					
	b) 19.19.2.1	Square shape 450mm internal dimension	each	20			
	19.19.3	HD - 20					
	c) 19.19.3.1	Circular shape 560 mm internal diameter	each	25			
14.5		<b>Doors and Fixtures for and related to Operation theatres</b>					
	a) NSR	Providing & fixing approved make Bumper Guard /Stretcher Guard Crash Rail System consisting of continuous aluminum retainer, impact absorbing strip (B-ABS), adjustable end cap/ corner joint, adjustable adaptor plate and high impact vinyl acrylic cover of desired shade to withstand impact and providing a cushioned surface with its integrated rubberized absorber complete as per manufacturer's specifications.	metre	600			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
b)	NSR	Providing & fixing approved make Wall Guard Grab Rail /Hand Rail System consisting of Continuous aluminum retainer, adjustable Rail mounting base (HRAM) adaptable to uneven wall surface, impact absorbing strip (B-ABS), end cap, corner joint, high impact vinyl acrylic snap- on cover desired shade to withstand impact and providing a cushioned surface with its integrated rubberized absorber complete as per manufacturer's specifications.	metre	300			
c)	NSR	Providing & fixing approved make Hermetically Sealed Sliding Automatic Door of Size 2100mm x 1500mm with vision panels, 300mm X 300 mm & to maintain sterility and the correct air pressure in the room, doors should be of the sliding, hermetically sealing type. The Track system and door blade guide system to be Automated and Manual Hand Operated with Hermetically Sealing Sliding Main Door on OT, of appropriate size, 2100mm (ht.) x 1500mm (wide)as per manufacturers specifications	Each	4			
d)	NSR	Providing & fixing approved make Hermetically Sealed Sliding Automatic Door of Size 2100mm x 900mm with vision panels, 300mm X 300 mm & to maintain sterility and the correct air pressure in the room, all doors into and out should be of the sliding, hermetically sealing type. The Track system and door blade guide system to be Automated and Manual Hand Operated with Hermetically Sealing Sliding Main Door on OT, of appropriate size, 2100mm (ht.) x 900mm (wide) as per manufacturers specification.	Each	3			
14.6	15.3	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer - in- charge.	cum	53			
14.7	15.7	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge.					
	15.7.4	In cement mortar	cum	53			
14.8	15.56	Dismantling old plaster or skirting raking out joints and cleaning the surface for plaster including disposal of rubbish to the dumping ground within 50 metres lead.	sqm	263			
14.9	15.59	Dismantling of flexible pavement (bituminous courses) by mechanical means and disposal of dismantled material up to a lead of 1 kilometre, as per direction of Engineer-in-charge.	cum	252			
14.10	15.60	Disposal of building rubbish / malba / similar unserviceable, dismantled or waste materials by mechanical means including loading, transporting, unloading to approved municipal dumping ground or as approved by Engineer-in-charge, beyond 50 m initial lead, for all loads including all lifts involved.	cum	420			
		<b>MISCELLANEOUS WORK Sub Head Total</b>					
<b>15.0</b>		<b>SUB HEAD-XV :- HORTICULTURE &amp; LANDSCAPING</b>					

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
15.1	23.1	Trenching in ordinary soil up to a depth of 60 cm including removal and stacking of serviceable materials and then disposing of surplus soil, by spreading and neatly leveling within a lead of 50 m and making up the trenched area to proper levels by filling with earth or earth mixed with sludge or/and manure before and after flooding trench with water (excluding cost of imported earth, sludge or manure).	cum	12557			
15.2	23.4	Supplying and stacking at site dump manure from approved source, including carriage complete (manure measured in stacks will be reduced by 8% for payment) :					
a)	23.4.1	Screened through sieve of I.S. designation 20 mm	cum	1046			
b)	23.4.2	Screened through sieve of I.S. designation 16 mm	cum	1046			
c)	23.4.3	Screened through sieve of I.S. designation 4.75 mm	cum	1046			
15.3	23.7	Fine dressing of the ground	100sqm	209			
15.4	23.8	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).	cum	3139			
15.5	23.9	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge..	cum	3139			
15.6	23.10	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 if needed shall be paid for separately).					
a)	23.10.1	In rows 5 cm apart in both directions	100 sqm	63			
b)	23.10.2	With grass Turf	100 sqm	63			
c)	NSR	Doobh grass	100 sqm	73			
15.7	23.13	Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20% : one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately).	cum	2351			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
15.8	23.14	Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any, with all leads and lifts (cost of manure, sludge or extra good earth if needed to be paid for separately) :					
	a)	23.14.1 Holes 1.2 m dia and 1.2 m deep.	each	237			
	b)	23.14.2 Holes 90 cm dia, and 90 cm deep.	each	158			
	c)	23.14.3 Holes 60 cm dia, and 60 cm deep.	each	158			
	d)	23.14.4 Holes 45 cm dia, and 45 cm deep.	each	210			
15.9	23.28	Preparation of mounds of various size and shape by available excavated / supplied earth in layers not exceeding 20 cm in depth, breaking clods, watering of each layer, dressing etc., lead upto 50 meter and lift upto 1.5 m complete as per direction of Officer-in-charge.;	cum	1046			
15.10	23.30	Providing Square Cement Concrete pots of specified size, cast with cement concrete of nominal mix 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 60 mm nominal size), reinforced with 7 nos. ( 3 nos horizontal & 4 nos vertical "U" shape) M.S. wires of 3.5 mm dia as per design, including required form work, finishing with cement punning on exposed surface, curing for specified period and stacking in required rows & height , all complete as per direction of Officer-in-charge					
	23.30.1	Top inner width 35 cm, outer bottom width 25 cm, total height 35 cm and wall thickness 25.4 mm	each	105			
15.11	23.16	Providing and fixing M.S. flat iron tree guard 60 cm dia and 2 m high, above ground consisting 4 nos 25 x 6 mm, 2.25 m long and 8 nos 25 x 3 mm 2 m long verticals M.S. flats, riveted to 3 nos 25 x 6 mm M.S. flat iron rings in two halves, fixing together at site with required six numbers of 8 mm dia. and 30 mm long bolts, including painting two coats with synthetic enamel paint of approved brand and manufacture over a coat of primer. 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 in any approved name etc. The tree guard shall be suitably fixed to the ground by embedding four legs of tree guard in pits of suitable dia and to a depth of 25 cm, refilling the pits with soil and ramming, complete in all respect as per satisfaction and direction of Engineer-in-charge.	each	105			
15.12	23.15	Half brick circular tree guard in bricks, internal diameter 1.25 metre and height 1.2 metre above ground and 0.20 m below ground, bottom two courses laid dry and top three courses in cement mortar 1:6 (1 cement : 6 fine sand) and the intermediate courses being in dry honey comb masonry as per design complete :					
	23.15.1	With common burnt clay F.P.S. (non modular) bricks of class designation 5	each	105			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
15.13	23.29	Providing Circular Cement Concrete pots of specified size, cast with cement concrete of nominal mix 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 6 mm nominal size), reinforced with 7 nos ( 3 nos horizontal & 4 nos vertical "U" shape) M.S. wires of 3.5 mm dia as per design, including required form work, finishing with cement punning on exposed surface, curing for specified period and stacking in required rows & height, all complete as per direction of Officer-in-charge.					
	23.29.1	Top inside dia 35 cm, outer bottom dia 25 cm, total height 35 cm with wall thickness of 25.4 mm	each	150			
15.14		Supply & Planting best quality trees inclusive of cultivation of trees bead to required depth. All trees / plants to be approved before planting including watering & maintenance for 180 days.					
a)	NSR	Alstonia Scholaris 'Milky pine' (1500-1800mm high)	each	150			
b)	NSR	Murraya Exotica 'Orange Jasmine' (1000mm high)	each	300			
c)	NSR	Plumeria Alba 'Champa' (3000mm high sapling, with 5 to 6 branches, 3Mtr. centre to centre.)	each	114			
d)	NSR	Lagerstroemia indica 'Crape-myrtle' (1500-1800mm high, 3-4 branches, 37-50mm dia trunk)	each	60			
e)	NSR	Nerium Oleander " Oleander" (750-1000mm high, 3-4 branches)	each	42			
f)	NSR	Rhapis Excelsa " Broadleaf Lady Palm (450-750mm high) Or Bamboo Palm" (7500-1800mm high, 3-4 branches, 37-50mm dia trunk)	each	30			
g)	NSR	Chrysalidocarpus lutescens 'Yellow butterfly palm' (minimum 750mm high)	each	60			
15.15		Supply & Planting best grown healthy ground cover plants inclusive of cultivation bead to required depth. All plants to be approved before planting including watering & maintenance for 180 days.					
a)	NSR	Wedelia Trilobata 'Yellow Dot'	sqm	2093			
b)	NSR	Ficus Microcarpa 'Ficus green island'	sqm	2093			
		<b>HORTICULTURE &amp; LANDSCAPING Sub Head Total</b>					
<b>16.0</b>		<b>SUB HEAD-XVI :- ROAD WORKS :</b>					
16.1	16.1	Preparation and consolidation of sub grade with power road roller of 8 to 12 tonne capacity after excavating earth to an average of 22.5 cm depth, dressing to camber and consolidating with road roller including making good the undulations etc. and re-rolling the sub grade and disposal of surplus earth with lead upto 50 metres.	sqm	6093			
16.2	16.2	Extra for compaction of earth work in embankment under optimum moisture conditions to give at least 95% of the maximum dry density (proctor density).	cum	5788			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
16.3	16.3	Supplying and stacking at site					
a)	16.3.1	90 mm to 45 mm size stone aggregate	cum	914			
b)	16.3.2	63 mm to 45 mm size stone aggregate	cum	914			
c)	16.3.6	Stone screening 13.2 mm nominal size (type A)	cum	457			
d)	16.3.7	Stone screening 11.2 mm nominal size (type A)	cum	457			
e)	16.3.10	Moorum	cum	183			
16.4	16.4	Laying spreading and compacting stone aggregate of specified sizes to WBM specifications including spreading in uni form thickness, hand picking, rolling with 3 wheeled road/vibratory roller 8-10 tonne in stages to proper grade and camber, applying and brooming requisite type of screening/binding material to fill up interstics of coarse aggregate watering and compacting to the required density.	cum	2742			
16.5	16.28	PRIME COAT Surface dressing one coat on new surface with bitumen of specified grade at a rate of 1.95 kg/sqm. of surface area with 1.5 cum. of stone chippings 13.2 mm nominal size per 100 sqm. of road surface including consolidation with road roller of 6 to 8 tonne capacity , etc. complete :					
	16.28.1	Using bitumen emulsion (minimum 50% bitumen content - RS grade conforming to IS : 8887).	Sqm	4265			
16.6	16.31	TACK COAT Providing and applying tack coat using bitumen emulsion conforming to IS: 8887, using emulsion pressure distributor including preparing the surface & cleaning with mechanical broom.					
	16.31.1.2	On bituminous surface @ 0.25kg/sqm.	Sqm	4265			
16.7	16.36	PREMIX CARPETING Providing and laying Bitumen Penetration Macadam with hard stone aggregate of quality, size and grading as specified, with bitumen of suitable penetration grade including required key aggregate as specified, spreading coarse aggregate with the help of self propelled / tipper tail mounted aggregate spreader and applying bitumen by a pressure distributor and then spreading key aggregate with the help of aggregate spreader complete including consolidation with road roller of minimum 8 to 10 tonne capacity to achieve specified values of compaction and surface accuracy :					
	16.36.1	For 50mm compacted thickness using coarse aggregate of size 50-20 mm graded @ 0.60 cum per 10 sqm key aggregate of size 12.5 mm graded @ 0.15 cum per 10 sqm. With paving asphalt grade VG - 10 @ 50 kg/10 sqm.	Sqm	4265			
		SEAL COAT.					

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
16.8	16.41	Providing and laying seal coat over prepared surface of road with bitumen heated in bitumen boiler fitted with the spray set spraying using 98 kg of bitumen of grade VG - 10 and blinding surface with 0.90cum of stone aggregate of 6.7 mm size (Passing 11.2mm sieve and retained on 2.36mm sieve) per 100 sqm of road surface including rolling and finishing with power road roller all complete.	Sqm	4265			
16.9	16.43	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 40mm 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 (10mm wide x 50mm 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)					
		<b>NOTE :-</b> Cement content considered in M-30 is @ 340 kg/cum. Excess/ less cement used as per design mix is payable/recoverable separately.					
16.10	16.43.1	Cement concrete prepared with batch mixing machine.	cum	366			
16.11	16.44	Extra for providing and mixing hardening compound of approved quality as per manufacturer's specification in cement concrete.	litre	183			
16.12	16.45	Providing & Fixing in position premoulded joint filler in expansion joint	per cm depth per cm width per m length	31353			
16.13	16.46	Providing and laying in position bitumen hot sealing compound for expansion joints etc.					
16.14	16.46.1	16.46.1 Using grade 'A' sealing compound.	per cm depth per cm width per m length	31353			
		<b>PAINTING ROAD / RUNWAY MARKING</b>					
16.15	16.47	Painting runway/taxi track/apron marking with adequate no. of coats to give uniform finish with road marking paint of superior make as approved by the Engineer-in-charge i/c cleaning the surface of all dirt, scales, oil, grease and other foreign material etc. and lining out complete					
	16.47.1	New work (Two or more coats)	sqm	1254			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
16.16	16.49	Making bell mouth opening/ entrance of size 100x50x50cm for drainage pipe under footpath including providing cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size) for shape of bell mouth including plastering providing and fixing precast R.C.C./ S.F.R.C. slab including plastering with cement mortar 1:3 (1 cement : 3 fine sand) of 6 mm thickness on exposed surface of the slab & bell mouth including centring, shuttering & neat cement punning inside the bell mouth etc. all complete.	each	40			
	16.59	Manufacturing, supplying and fixing retro reflective sign boards made up of 2 mm thick aluminum sheet, face to be fully covered with high intensity encapsulated type heat activated retro reflective sheeting conforming to type - IV of ASTM-D 4956-01 in blue and silver white or other colour combination including subject matter, message (bi-lingual), symbols and borders etc. as per IRC : 67.2001, pasted on substrate by an adhesive backing which shall be activated by applying heat and pressure conforming to class -2 of ASTM-D-4956-01 and					
16.17		fixing the same with suitable sized aluminum alloy rivets @ 20 cm c/c to back support frame of M.S. angle iron of size 25x25x3 mm along with theft resistant measures, mounted and fixed with 2 Nos. M.S. angles of size 35x35x5 mm to a vertical post made up to M.S. Tee section ISMT 50x50x6 mm welded with base plate of size 100x100x5 mm at the bottom end and including making holes in pipes, angles flats, providing & fixing M.S. message plate of required size, steel work to be painted with two or more coats of synthetic enamel paint of required shade and of approved brand & manufacture over priming coat of zinc chromate yellow primer (vertical MS-Tee support to be painted in black and white colours).Backside of aluminum sheet to be painted with two or more coats of epoxy paint over and including appropriate priming coat including all leads and lifts etc. complete as per drawing , specification and direction of Engineer--in-charge.					
a)	16.59.1	mandatory/regulatory sign boards of 900 mm diametre with part as length of 3750 mm	sqm	305			
b)	16.59.2	Cautionary /warning sign boards of equilateral triangular shape having each side of 900 mm with support length of 3650 mm	sqm	305			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
16.18	16.60	Manufacturing, supplying and fixing retro reflective overhead signage boards made up of 2mm thick aluminium sheet, face to be fully covered with high intensity and encapsulated lens type heat activated retro reflective sheeting conforming to type - III of ASTM-D-4956-01 as approved by Engineer-in-charge, letters, borders etc. as per IRC : 67-2001 in silver white with blue colour back ground and with high intensity grade, pasted on substrate by pressure sensitive adhesive backing which shall be activated by applying pressure conforming to class II of ASTM-D-4956-01 and fixing the same to the plate of structural frame work by means of suitable sized aluminium alloys, rivets or bolts & nuts @ 300 mm centre to centre all along the periphery as well as in two vertical rows along with theft resistant measures, including the cost of painting with two or more coats of epoxy paint in grey colour on the back side of aluminium sheet including appropriate priming coat. The rate includes the cost of rounding off the corners, lowering down the structural frame work from the gantry, fixing and erecting the same in position all complete as per drawings, specification and direction of the engineer-in-charge.(Structural frame work including M.S. plate to be provided separately. Rectangular area of the sheet only shall be measured for payment).					
	16.60.1	overhead informatory road signage	sqm	200			
16.19	16.68	Providing and laying 60mm thick factory made cement concrete interlocking paver block of M-30 grade made by block making machine with strong vibratory compaction and of approved size and design/shape laid in required colour and pattern over and including 50 mm thick compacted of coarse sand, filling the joints with coarse sand etc. all complete as per direction of engineer-in-charge.	sqm	3762			
16.20	16.69	Providing and laying at or near ground level factory made kerb stone of M-25 grade cement 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 sharp curve shall not be 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).	cum	113			
16.21	16.70	Providing and fixing G.I. chain link fabric fencing of required width in mesh size 50x50mm including strengthening with 2mm dia wire or nuts, bolts and washers as required complete as per the direction of Engineer-in-charge.					
	16.70.1	Made of G.I. wire of dia 4mm.	sqm	300			
16.22	16.75	Providing and laying C.C. pavement of mix M-25 with ready mixed concrete from batching plant. The ready mixed concrete shall be laid and finished with screed board vibrator, vacuum dewatering process and finally finished by floating, brooming with wire brush etc. complete as per specifications and directions of Engineer-in-charge. (The panel shuttering work shall be paid for separately). (Note:- Cement content considered in this item is @ 330 kg/cum. Excess/less cement used as per design mix is payable/ recoverable separately).	cum	183			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
16.23	19.6	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete :					
a)	19.6.4	300 mm dia. R.C.C. pipe	metre	408			
b)	19.6.5	450 mm dia. R.C.C. pipe	metre	245			
c)	19.6.7	600 mm dia. R.C.C. pipe	metre	25			
16.24	NSR	Providing placing & fixing Precast Concrete Grass Grid Pavers of 70 mm Thickness and appropriate size, laid over compacted earth and over 75 mm thick layer (average) of lamuna sand, manufactured by using M-30 grade of concrete by using vibro compaction process using accurately designed moulds. The Grass Grid pavers shall be suitably reinforced etc. complete in all respects as per direction of the Engineer-in-charge.	sqm	9415			
16.25	NSR	Providing and fixing factory made precast RCC perforated drain covers, having concrete of strength not less than M-25, of size 1000 x 450x50 mm, reinforced with 8 mm dia four no longitudinal & 9 nos cross sectional T.M.T. hoop bars, including providing 50 mm dia perforations @ 100 to 125 mm c/c, including providing edge binding with M.S. flats of size 50 mm x 1.6 mm complete, all as per direction of Engineer-in-charge.	each	167			
		<b>ROAD WORKS Sub Head Total</b>					
17		<b>RAIN WATER HARVESTING &amp; TUBEWELLS</b>					
17.1	24.1	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, upto 90 metre depth below ground level.					
	24.1.1	All types of soil					
	24.1.1.2	350 mm dia.	metre	1124			
17.2	24.2	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, beyond 90 metre & upto 150 metre depth below ground level.					
	24.2.1	All types of soil					
	24.2.1.2	350 mm dia.	metre	53			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
17.3	24.3	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer –in-charge.					
	24.3.2	150 mm nominal size dia.	metre	368			
17.4	24.4	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.					
	24.4.2	150 mm nominal size dia.	metre	525			
17.5	24.5	Supplying, filling, spreading & leveling stone boulders of size range 5 cm to 20 cm, in recharge pit, in the required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	cum	63			
17.6	24.6	Supplying, filling, spreading & leveling gravels of size range 5 mm to 10 mm, in the recharge pit, over the existing layer of boulders, in required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	cum	63			
17.7	24.7	Supplying, filling, spreading & leveling coarse sand of size range 1.5 mm to 2 mm in recharge pit, in required thickness over gravel layer, for all leads & lifts, all complete as per direction of Engineer –in-charge.	cum	126			
17.8	24.8	Gravel packing in tubewell construction in accordance with IS: 4097, including providing gravel fine/ medium/ coarse, in required grading & sizes as per actual requirement, all complete as per direction of Engineer-in-charge.	cum	90			
17.9	24.10	Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 410 mild steel screwed and socketed/ plain ended casing pipes of required dia, conforming to IS: 4270, of reputed & approved make, including painted with outside surface with two coats of anticorrosive paint of approved brand and manufacture, including required hire & labour charges, fittings & accessories, all complete, for all depths, as per direction of Engineer-in-charge.					
	24.10.3	200 mm nominal size dia having minimum wall thickness 5.40 mm	metre	158			
17.10	24.11	Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 410 plain slotted (having slot of size 1.6/3.2 mm) mild steel threaded and socketed / plain bevel ended pipe (type A) of required dia, conforming to IS: 8110, of reputed and approved make, having wall thickness not less than 5.40 mm, including painted with outside surface with two coats of anticorrosive bitumestic paint of approved brand and manufacture, including hire & labour charges, fittings & accessories, all complete, for all depths, as per direction of Engineer –in-charge.					
	24.11.3	200 mm nominal size dia.	metre	158			

Sl.No	DSR Code No_ 2012	Description	Unit	Total Qty.	Rate in Rs.	Amount in Rs. (in figures)	Amount in Rs. (in words)
17.11	24.12	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water samples & getting tested in approved laboratory, i/c disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	hour	76			
17.12	24.13	Providing and fixing suitable size threaded mild steel cap or spot welded plate to the top of bore well housing/ casing pipe, removable as per requirement, all complete for borewell of:					
	24.13.3	200 mm dia	each	3			
17.13	24.14	Providing and fixing M.S. clamp of required dia to the top of casing/ housing pipe of tubewell as per IS: 2800 (part I), including necessary bolts & nuts of required size complete.					
	24.14.3	200 mm clamp.	each	3			
17.14	24.15	Providing and fixing Ball plug/ Bottom plug of required dia to the bottom of pipe assembly of tubewell as per IS:2800 (part I).					
	24.15.3	200 mm dia	each	3			
17.15	NSR	Supply, Installation, Testing, Commissioning of submersible pumping set with 7.5 HP motor pump of approved make with Capacity of pump = 22000 lph at 58 mtr. head with 3x 6 sqmm submersible cable of length of 125meter, Panel Board for submersible pump Fitted with DOL starter ammeter, voltmeter single phase preventer, 40 Amp TPN MCB on off switch push bottom duly wired and made out of 16/18 SWG sheet complete in all respect as directed by Engineer-in-charge	each	3			
<b>RAIN WATER HARVESTING &amp; TUBEWELLS Sub Head Total</b>							

## Bill of Quantities of Internal Plumbing Works

Sl.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total	Rate (Rs.)	Amount (in figures)	Amount (in words) Rs.
1		<b>Internal Plumbing Works</b>					
1.a.		<b>Sanitary Fixtures</b>					
1	17.1	Providing and fixing water closet squatting pan (Indian type W.C. pan ) with 100mm 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 :					
	17.1.1	White Vitreous china Orissa pattern W.C. pan of size 580x440mm with integral type foot rests.	Each	76			
2	17.2	Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with seat and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever), conforming to IS : 7231, with all fittings and fixtures complete including cutting and making good the walls and floors wherever required :					
	17.2.1	W.C. pan with ISI marked white solid plastic seat and lid	Each	5			
3	17.3	Providing and fixing white vitreous china pedestal type water closet (European type) with seat and lid, 10 litre low level white vitreous china flushing cistern & C.P. flush bend with fittings & C.I.brackets, 40mm flush bend, overflow arrangement with specials of standard make and mosquito proof coupling of approved municipal design complete including painting of fittings and brackets, cutting and making good the walls and floors wherever required :					
	17.3.1	W.C. pan with ISI marked white solid plastic seat and lid.	Each	369			
4	17.80	Providing and fixing white vitreous china battery based infrared sensor operated urinal of approx. size 610 x 390 x 370 mm having pre & post flushing with water ( 250 ml & 500 ml consumption), having water inlet from back side, including fixing to wall with suitable brackets all as per manufacturers specification and direction of Engineer-in-charge..	Each	46			
5	8.1	Providing and fixing stone slab table rubbed, edges rounded and polished of size 75x50 cm deep and 1.8 cm thick fixed in urinal partitions by cutting a chase of appropriate width with chase cutter and embedding the stone in the chase with epoxy grout or with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 6 mm nominal size) as per direction of Engineer-in-charge and finished smooth					
	8.10.1	White Agarja Marble Stone.	Sqm	44			
6	17.7	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)	17.7.1	White Vitreous China Wash basin size 630x450 mm with a pair of 15 mm C.P. brass pillar taps.	Each	442			
b)	17.7.3	White Vitreous China Wash basin size 550x400 mm with a pair of 15 mm C.P. brass pillar taps.	Each	2			
c)	17.7.8	White Vitreous China Surgeon type wash basin of size 660x460 mm with a pair of 15 mm C.P. brass pillar taps with elbow operated levers.	Each	8			

7	17.10	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 :					
	17.10.1	Kitchen sink with drain board.					
a)	17.10.1.3	510x1040mm bowl depth 200mm	Each	51			
	17.10.2	Kitchen sink without drain board.					
b)	17.10.2.1	510x610mm bowl depth 200mm	Each	9			
8	17.71	Providing and fixing PTMT liquid soap container 109mm wide, 125mm high and 112mm 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	396			
9	17.73	Providing and fixing PTMT towel rail complete with brackets fixed to wooden cleats with CP brass screws with concealed fitting arrangement of approved quality and colour.					
	17.73.2	600mm long towel rail with total length of 645mm, width 78mm and effective height of 88mm, weighing not less than 190gms.	Each	367			
10	17.32	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)	17.32.2	Rectangular Shape 453x357mm	Each	248			
b)	17.32.3	Oval shape 450x350 mm (outer dia mentioned)	Each	26			
c)	17.32.4	Rectangular Shape 1500x450mm	Each	100			
11	17.34	Providing and fixing toilet paper holder					
	17.34.1	C.P. brass	Each	310			
12	18.53	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931 a) 15 mm nominal bore					
	18.53.1	15mm nominal bore	Each	1735			
13	NSR	Providing & fixing 15mm dia C.P. ablution health faucet with 1.0m long ss extension pipe with wall hookn and oprating knob complete in all respect.	Each	137			
14	17.70	Providing and fixing PTMT Bottle Trap for Wash basin and sink.					
a	17.70.1	Bottle trap 31mm single piece moulded with height of 270mm, effective length of tail pipe 260mm from the centre of the waste coupling 77mm breadth with 25mm minimum water seal, weighing not less than 260gms.	Each	452			
b	17.70.2	Bottle trap 38mm single piece moulded with height of 270mm, effective length of tail pipe 260mm from the centre of the waste coupling 77mm breadth with 25mm minimum water seal, weighing not less than 263gms.	Each	20			
15	17.78	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	4			

16	17.28	Providing and fixing P.V.C. waste pipe for sink or wash basin including P.V.C. waste fittings complete.					
	17.28.2	Flexible pipe					
	17.28.2.1	32 mm dia	Each	234			
17	NSR	Extra for providing & fixing C.P. brass single hole basin Mixer Tap with aerator complete in place of a pair of 15 mm. C. P. Brass Pillar Taps as required.	Each	429			
18	18.84	Providing & fixing chrome plated brass battery based infrared sensor operated pillar cock, having foam flow technology.					
	18.84.1	15 mm nominal bore	Each	4			
19	17.11	Providing and fixing white vitreous china laboratory sink with C.I. brackets, C.P. brass chain with rubber plug, 40 mm C.P brass waste and 40mm C.P. brass trap with necessary C.P. brass unions complete including painting of fittings and brackets, cutting and making good the wall wherever required					
	17.11.2	Size 600x450x200mm	Each	174			
20	NSR	Providing & fixing of C.P. brass Lab Sink mixer with C.P. wall flange, spout complete as required.	Each	174			
21	NSR	Providing & fixing of C.P. brass Kitchin Sink mixer with C.P. wall flange, spout complete as required.	Each	60			
22	NSR	Providing & fixing approved make two bay Stainless Steel Scrub Sink. Scrub stations for each operation theatre should have been designed to ensure that surgeons and staff can undergo a thorough aseptic scrub, whether using the count stroke or timed scrub methods. The Stainless Steel Scrub Sink shall be fabricated from 1.5 mm thick, SS Grade 304, stainless steel and with seamless welded construction polished to a satin finish. Hands free operations shall include infrared sensor with a built-in range of adjustment with user's definable settings of 3, 6, 12, 30 and 45 seconds, 1, 3, 5 and 10 minute. it shall also include provision to provide & fix a thermostatically controlled mixing valve automatically maintains water. It should have a foot operated facility also. the work shall be as per manufacturers specifications.	Each	4			
23	NSR	Providing & fixing in position storage type Hot Water electrical horizontal heaters with copper container, insulation, and stove enameled M.S. jacket, thermostatically controlled immersion heater, with pilot lamp, 15/20mm dia inlet with non return valve and 15/20mm dia outlet including making connections complete in all respects. (wall mounted with suitable M.S. bolts and nuts)					
	a)	Capacity 25 litres	Nos.	345			
	b)	Capacity 35 litres	Nos.	12			
24	18.21	Providing and fixing uplasticised PVC connection pipe with brass unions :					
	18.21.2	45 cm length					
	18.21.2.1	15 mm nominal bore	Each	1720			

25	18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank ISI : 12701 marked with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank	per litre	55000			
26	18.51	Providing and fixing C.P. brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms.					
	18.51.1	15 mm nominal bore	Nos.	445			
		<b>Sanitary Fixtures Subhead Total</b>					
<b>I.b.</b>		<b>Internal Drainage (Rainwater,Soil,waste &amp; Fittings)</b>					
27	18.58	Providing and fixing PTMT grating of approved quality and colour.					
	18.58.1	Circular type					
a)	18.58.1.1	100 mm nominal dia.	Each	468			
b)	18.58.1.2	125 mm nominal dia with 25 mm waste hole	Each	350			
28	12.41	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)	12.41.1	75 mm diameter	metre	1040			
b)	12.41.2	110 mm diameter	metre	900			
29	12.42	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.					
	12.42.1	Coupler					
a)	12.41.1.1	75 mm	Each	91			
b)	12.42.1.2	110mm	Each	124			
	12.42.2	Single Pushfit coupler					
c)	12.42.2.1	75 mm	Each	85			
d)	12.42.2.2	110mm	Each	129			
	12.42.3	Single tee with door					
e)	12.42.3.1	75X75X75 MM	Each	21			
f)	12.42.3.2	110X110X110 MM	Each	73			
	12.42.4	Single tee without door					
g)	12.42.4.1	75X75X75 MM	Each	43			
h)	12.42.4.2	110X110X110 MM	Each	68			
	12.42.5	Bend 87.5°					
i)	12.42.5.1	75 mm bend	Each	32			
j)	12.42.5.2	110 mm bend	Each	82			
	12.42.6	Shoe(plain)					
k)	12.42.6.1	75 mm Shoe	Each	22			
l)	12.42.6.2	110 mm shoe	Each	71			
30	12.43	Providing and fixing unplasticised -PVC pipe clips of approved design to unplasticised - PVC rain water pipes by means of 50x50x50mm 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)	12.43.1	75 mm	Each	168			
b)	12.43.2	110 mm	Each	341			

31	NSR	Providing and fixing, uPVC pipes 6 Kg/Cm <sup>2</sup> (IS: 4985 ) including all fittings (plain or door) e.g. bends, junction, offsets, access pieces, jointing with rubber ring/solvent cement joints including required supports, cutting chase or holes in walls and floors and making good where required as per direction of engineer incharge.					
		160 mm OD.	Mtrs.	688			
32	17.35	Providing and fixing soil,waste and vent pipes:					
	17.35.1	100 mm dia					
a)	17.35.1.2	Centrifugal cast (spun) iron socket & Spigot (S&S)pipe as per IS:3989	Mtrs.	9021			
	17.35.2	75 mm dia					
b)	17.35.2.2	Centrifugal cast (spun) iron socket & Spigot (S&S)pipe as per IS:3989	Mtrs.	1707			
33	17.36	Providing and filling the joints with spun yarn, cement slurry and cement mortar 1:2 ( 1 cement : 2 fine sand) in S.C.I./ C.I. Pipes :					
a)	17.36.1	75 mm dia	Each	700			
b)	17.36.2	100 mm dia	Each	3100			
34	17.37	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 10x10x10cm 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)	17.37.1	For 100mm dia pipe	Each	2400			
b)	17.37.2	For 75mm dia pipe	Each	860			
35	17.38	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.					
a)	17.38.1.1	100mm dia					
		Sand cast iron S&S as per IS - 3989	Each	390			
b)	17.38.2.2	75mm dia					
		Sand cast iron S&S as per IS - 3989	Each	55			
36	17.39	Providing and fixing plain bend of required degree.					
	17.39.1	100mm dia					
a)	17.39.1.2	Sand cast iron S&S as per IS : 3989	Each	1095			
	17.39.2	75mm dia					
b)	17.39.2.2	Sand cast iron S&S as per IS - 3989	Each	57			
36	17.42	Providing and fixing double equal plain junction of required degree.					
	17.42.1	100x 100x100x100 mm					
a)	17.42.1.2	Sand cast iron S&S as per IS -3989	Each	21			
	17.42.2	75x 75x75x75 mm					
b)	17.42.2.2	Sand cast iron S&S as per IS -3989	Each	8			
37	17.44	Providing and fixing single equal plain junction of required degree :					
	17.44.1	100x 100x100 mm					
a)	17.44.1.2	Sand cast iron S&S as per IS -3989	Each	2270			
	17.44.2	75x 75x75 mm					
b)	17.44.2.2	Sand cast iron S&S as per IS -3989	Each	165			
38	17.48	Providing and fixing single unequal plain junction of required degree					
	17.48.1	100x 100x75 mm					
	17.48.1.2	Sand cast iron S&S as per IS -3989	Each	75			
	17.57	Providing and fixing collar:					

39	17.57.1	100 mm					
	17.57.1.2	Sand cast iron S&S as per IS -3989	Each	590			
40	17.60	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					
	17.60.1	100 mm inlet and 100 mm outlet					
	a) 17.60.1.1	Sand cast iron S&S as per IS -3989	Each	765			
	17.60.2	100mm inlet and 75mm outlet					
b) 17.60.2.1	Sand cast iron S&S as per IS -3989	Each	36				
41	17.65	Painting sand cast iron/ centrifugally cast (spun) iron soil, waste vent pipes and fittings with two coats of synthetic enamel paint of any colour such as chocolate grey, or buff etc. over a coat of primer (of approved quality) for new work :					
	a) 17.65.1	100 mm diameter pipe	meter	5095			
	b) 17.65.2	75 mm diameter pipe	meter	1705			
42	18.28	Providing lead caulked joints to spun iron or C.I. pipes and specials including testing of joints but excluding the cost of pig lead :					
	a) NSR	75 mm diameter pipe	Each	1070			
	b) 18.28.1	100 mm diameter pipe	Each	3264			
43	18.29	Supplying pig lead at site of work	quintal	95			
	44	NSR	Providing & fixing in position floor drain of self cleaning design of following sizes for the embedded areas. Making proper connection with drip-seal joints, cutting chase / hole in floors /slabs and bringing the same in proper condition in cement concrete 1:2:4 mix complete as required. including cost of cutting and making good the walls and floors where required.				
		100 mm inlet and 50 mm outlet (Floor Drains only)	Each	595			
45	18.12	Providing and fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc.					
	a) 18.12.4	32mm	Mtrs.	1015			
	b) 18.12.6	50mm	Mtrs.	800			
46	NSR	Providing and fixing cast brass cleanout plug( Ceiling or Floor) with suitable inset keys for opening, male threaded joint with socket fixed to UPVC/SCI pipe complete in all respects.					
		100 mm nominal pipe size	Each	675			
47	NSR	Providing and fixing G.I. inlet fitting with maximum 3 inlets 32,40 or 50 mm size fabricated from 100/150 mm dia G.I. pipes and welded G.I. sockets, fixed to C.I. trap with lead caulked joint and set in cement concrete as per standard drawing complete.	Each	1145			
		<b>Internal Drainage Subhead Total</b>					
I.c.		<b>Internal Water supply</b>					

48	18.8	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.					
		<b>Concealed work</b> including cutting chases and making good the walls etc.					
a)	18.8.1	15 mm nominal outer dia pipes	Mtrs.	11580			
b)	18.8.2	20 mm nominal outer dia pipes	Mtrs.	5975			
c)	18.8.3	25 mm nominal outer dia pipes	Mtrs.	3750			
49	18.7	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.					
		<b>Internal work - Exposed on wall</b>					
a)	18.7.4	32 mm nominal outer dia pipes	Mtrs.	1515			
b)	18.7.5	40 mm nominal outer dia pipes	Mtrs.	1120			
c)	18.7.6	50 mm nominal outer dia pipes	Mtrs.	1780			
50	18.9	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings This includes jointing of pipes & fittings with one step CPVC solvent cement ,trenching ,refilling & testing of joints complete as per direction of Engineer in Charge.					
		<b>External Work</b>					
a)	18.9.7	62.50 mm nominal inner dia pipes	Mtrs.	405			
b)	18.9.8	75 mm nominal inner dia pipes	Mtrs.	335			
c)	18.9.9	100 mm nominal inner dia pipes	Mtrs.	670			
51	NSR	Providing & fixing nitrile rubber insulation for pipes on hot water pipes in side the building.					
a)	a	6mm thick (minimum) for pipes from 15mm- to 40mm	RM	1925			
b)	b	9mm thick (minimum) for pipes from 50mm- to 100mm	RM	1300			
52	18.10	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, i/c cutting and making good the walls etc.					
		<b>Internal work – Exposed on wall.</b>					
a)	18.10.4	32 mm dia	Mtrs.	30			
b)	18.10.6	50 mm dia	Mtrs.	60			
53	18.12	Providing and fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc.					
		<b>External work</b>					
a)	18.12.4	32 mm dia. nominal bore	Mtrs.	485			
b)	18.12.6	50 mm dia. nominal bore	Mtrs.	620			
54	18.40	Painting G.I. pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality :					
a)	18.40.4	32 mm diameter pipe	Mtrs.	485			
b)	18.40.6	50 mm diameter pipe	Mtrs.	620			

55	18.18	Providing and fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete					
a)	18.18.1	15 mm dia nominal bore	Nos.	70			
b)	18.18.2	20 mm dia nominal bore	Nos.	24			
c)	18.18.3	25 mm dia nominal bore	Nos.	24			
56	NSR	Providing and Fixing full way lever operated forged brass ball valve of brass body with forged brass hard chromeplated steel ball tested to a pressure not less than 15 kg/sqcm with threaded / flanged joints complete with nuts, bolts, gaskets, washers etc.					
a)		15 mm dia	Nos.	890			
b)		20 mm dia	Nos.	480			
c)		25 mm dia	Nos.	440			
d)		32 mm dia	Nos.	30			
e)		40 mm dia	Nos.	30			
f)		50 mm dia	Nos.	38			
57	18.20	Providing and fixing brass ferrule with C.I. mouth cover including boring and tapping the main					
	18.20.3	25 mm dia nominal bore	No.	2			
58	NSR	Providing & fixing butterfly valve tested to a pressure of 15 Kg/Sq.cm. Including rubber gasket, flanges, nuts, bolts, washers & painting complete as required.					
a)		65 mm dia	Nos.	10			
b)		80 mm dia	Nos.	16			
c)		100 mm dia	Nos.	26			
d)		150 mm dia	Nos.	3			
59	NSR	Providing and fixing in position of approved quality G.M. float valve with copper ball float and brass rods of required length suitable for pressure of 10 Kg/sqcm of the following sizes:					
		50 mm dia	Nos.	17			
60	18.19	Providing and fixing gun metal non- return valve of approved quality (screwed end) :					
a)	18.19.4.2	50 mm dia, Vertical	Nos.	18			
b)	NSR	100 mm dia, Vertical	Nos.	6			
61	NSR	Providing and fixing double flanged flexicon rubber expansion joint with unit control as per manufacturers specifications of standard length complete with all accessories tested to a pressure of 15 Kg./sqcm. Including rubber gaskets, flanges, nuts, bolts & washers complete as required.					
a)	a)	40 mm dia	Nos.	1			
b)	b)	50 mm dia	Nos.	1			
c)	c)	65 mm dia	Nos.	1			
d)	d)	80 mm dia	Nos.	1			
e)	e)	100 mm dia	Nos.	1			
62	NSR	Providing & fixing C.I. 'Y' Strainer (screwed/ flanged) with stainless steel fine wire mesh perforated sheet basket with necessary flange/ unions nuts, bolts and washers complete as required.					
a)	a)	100 mm dia	Nos.	4			

b)	b)	150 mm dia	Nos.	1			
		<b>Internal Water Supply Subhead Total</b>					
		<b>Miscellaneous Items</b>					
63	NSR	Providing and fixing suitable G.I. vent pipe upto 1m high Class-B (medium quality) with fittings complete as per drawing and as directed.					
		100mm Dia	Metre	24			
64	NSR	Providing and fixing gun metal foot valve with stainer of approved quality/model complete in all respect					
a)	a)	80 mm dia	Nos.	2			
b)	b)	100 mm dia	Nos.	2			
65	NSR	Testing Underground tank for water seepage 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	Set	1			
66	NSR	Providing and fixing M.S. puddle flanges fabricated out of 6 mm thick M.S. plate of size 400 x 400mm plus dia of pipe of 750 mm long pipe pieces to R.C.C. water tanks / R.C.C. walls with both ends screwed/ flanged. The entire fitting shall be hot dipped galvanised.					
a)	a)	250mm dia	Nos.	2			
b)	b)	150mm dia	Nos.	18			
67	NSR	Providing and fixing M.S. puddle flanges fabricated out of 6 mm thick M.S. plate of size 200 x 200mm plus dia of pipe of 750 mm long pipe pieces to R.C.C. water tanks / R.C.C. walls with both ends screwed/ flanged. The entire fitting shall be hot dipped galvanised.					
a)	a)	100mm dia	Nos.	44			
b)	b)	80mm dia	Nos.	28			
c)	c)	65mm dia	Nos.	44			
68	NSR	Providing and fixing M.S. puddle flanges fabricated out of 6 mm thick M.S. plate of size 150 x 150mm plus dia of pipe of 750 mm long pipe pieces to R.C.C. water tanks / R.C.C. walls with both ends screwed/ flanged. The entire fitting shall be hot dipped galvanised.					
		50mm dia	Nos.	42			

69	NSR	Providing and fixing M.S. puddle flanges fabricated out of 6 mm thick M.S. plate of size 100 x 100mm plus dia of pipe of 750 mm long pipe pieces to R.C.C. water tanks / R.C.C. walls with both ends screwed/ flanged. The entire fitting shall be hot dipped galvanised.					
		25mm dia	Nos.	31			
70	NSR	Providing and fixing approved make no touch operating hand drier of wall mounting type suitable for 230 V, single phase, 50 Hz, AC power supply. complete in all respect. The hand drier shall be fully hygienic, rated for continuous repeat use (CRU). The rating of hand drier shall be such that time required to dry a pair of hands up to wrists is approximately 30 seconds	Nos.	38			
		<b>Miscellaneous Items Subhead Total</b>					

**Total for Plumbing Internal Subheads**

## Bill of Quantities of External Plumbing Works

Sl.No.	DSR 2012 Item	Description	Unit	Quantity	Rate (in Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
II		<b>External Plumbing System</b>					
II. a		<b>External Water Supply</b>					
1	18.12	Providing and fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc.					
a)	18.12.4	32 mm dia. nominal bore	Mtr	430			
b)	18.12.6	50 mm dia. nominal bore	Mtr	560			
c)	18.12.7	65 mm dia. nominal bore	Mtr	430			
d)	18.12.8	80 mmdia. nominal bore	Mtr	415			
2	NSR	Providing and fixing G.I. Pipes complete with G.I. fittings and clamps, including cutting and making good the walls etc. (External work)					
		100 mm dia pipes	Mtr	1520			
3	18.33	Constructing masonry Chamber 60X60X75 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 100 mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with channel 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:					
	18.33.1	With F.P.S. bricks	Each	7			
4	18.34	Constructing masonry Chamber 90X90X100 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 100 mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with channel 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:					
	18.34.1	With F.P.S. bricks	Each	10			
5	18.18	Providing & fixing ball valve ( brass) of approved quality, High or low pressure, with plastic floats complete					
	18.18.3	25 mm dia nominal bore	Nos.	45			
6	18.32	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 100x100 x75 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), i/c necessary excavation, foundation concrete 1:5:10 ( 1 cement : 5 fine sand : 10 graded stone aggregate 40mm nominal size ) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12mm thick, finished with a floating coat of neat cement complete as per standard design :					

	18.32.1	With common burnt clay F.P.S.(non modular) bricks of class designation 7.5	Each	45			
7	2.1	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.					
	2.10.1	All kinds of soil					
a)	2.10.1.1	Pipes, cables etc. not exceeding 80 mm dia.	Mtr.	4480			
b)	2.10.1.2	Pipes, cables etc. exceeding 80 mm dia but not exceeding 300 mm dia.	Mtr.	1875			
8	2.11	Extra for excavating trenches for pipes, cables etc. in all kinds of soil for depth exceeding 1.5m, but not exceeding 3 m.(Rate is over corresponding basic item for depth up to 1.5 metre).	Mtr.	1145			
		<b>External Water Supply Subhead Total</b>					
<b>II b</b>		<b>External Sewer Drainage</b>					
9	19.1	Providing, laying and jointing glazed stoneware pipes class SP-1 with stiff mixture of cement mortar in the proportion of 1:1 (1 cement : 1 fine sand) including testing of joints etc. complete :					
a)	19.1.3	200 mm dia	Mtrs.	1750			
b)	19.1.4	250 mm dia	Mtrs.	900			
10	19.2	Providing and laying cement concrete 1:5:10 (1 cement:5coarse sand:10 graded stone aggregate 40mm nominal size) all-round S.W. pipes including bed concrete as per standard design.					
a)	19.2.3	200 mm dia	Mtrs.	1750			
b)	19.2.4	250 mm dia	Mtrs.	900			

11	19.4	Providing and fixing square-mouth S.W. gully trap class SP-1 complete with C.I. grating brick masonry chamber with water tight C.I. cover with frame of 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)	19.4.2	150x100 mm size P type with F.P.S. bricks of class designation 75.	Each	20			
b)	19.4.3	180x150 mm size P type with F.P.S. bricks of class designation 75.	Each	1			
a	19.9	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 cocreate 1:3:6 mix (1 cement :3 coarse sand : 6 graded staone aggregate 40 mm nominal size),and making necessary channel in cement concrete 1:2:4 (1 cement :2 coarse sand :4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement all complete as per standard design:					
b	19.9.1	0.91 m deep with S.F.R.C cover and frame (heavy duty HD-20 grade designation) 560 mm internal diameter conforming to I.S.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 20 mm nominal size) including centering shuttering all complete. (Excavation, foot rests and 12 mm thick cement plaster at the external surface shall be paid for separately):					
	19.9.1.2	With Sewer. bricks conforming IS:4885	Each	195			
13	19.10	Extra depth for circular type manhole 0.91 m internal dia (at bottom) with beyond 0.91m to 1.67m					
	19.10.2	With Sewer. bricks conforming IS:4885	Mtrs.	130			
14	19.11	Constructing brick masonry circular type manhole 1.22m 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 cocreate 1:3:6 mix (1 cement :3 coarse sand : 6 graded staone aggregate 40 mm nominal size),and making necessary channel in cement concrete 1:2:4 (1 cement :2 coarse sand :4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement all complete as per standard design:					

	19.11.1	1.68 m deep with S.F.R.C cover and frame (heavy duty HD-20 grade designation) 560 mm internal diameter conforming to I.S.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 20 mm nominal size) including centering shuttering all complete. (Excavation, foot rests and 12 mm thick cement plaster at the external surface shall be paid for separately):					
	19.11.1.2	With Sewer. bricks conforming IS:4885	Each	35			
15	19.12	Extra depth for circular type manhole 1.22 m internal dia (at bottom) with beyond 1.68m to 2.29m:					
	19.12.2	With Sewer. bricks conforming IS:4885	Mtrs.	30			
16	19.13	Constructing brick masonry circular type manhole 1.52m 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 40 mm nominal size),and making necessary channel in cement concrete 1:2:4 (1 cement :2 coarse sand :4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement all complete as per standard design:					
	19.13.1	2.30 m deep with S.F.R.C cover and frame (heavy duty HD-20 grade designation) 560 mm internal diameter conforming to I.S.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 20 mm nominal size) including centering shuttering all complete. (Excavation, foot rests and 12 mm thick cement plaster at the external surface shall be paid for separately):					
	19.13.1.2	With Sewer bricks conforming IS:4885	Each	4			
17	19.14	Extra depth for circular type manhole 1.52 m internal dia (at bottom) beyond 2.30 m :					
	19.14.1	With Sewer. bricks conforming IS:4885	Mtrs.	3			
18	19.15	Providing M.S. foot rest including fixing in manholes with 20x20x10 cm cement concrete blockes 1:3:6 (1 cement: 3 coarse sand:6graded stone aggregate 20 mm nominal size) as per standard design:					
	19.15.2	With 20 mm diameter bar	Each	150			
	<b>External Sewer Drainage Subhead Total</b>						

II c		External Rain Water Disposal					
19	19.6	Providing and laying non-pressure NP2 class (light duty) R.C.C.pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc complete:					
a)	19.6.2	150mm dia RCC pipe	Mtrs.	125			
b)	19.6.3	250mm dia RCC pipe	Mtrs.	400			
c)	19.6.4	300mm dia RCC pipe	Mtrs.	100			
d)	19.6.5	450mm dia RCC pipe	Mtrs.	50			
20	19.3	Providing and laying cement concrete 1:5:10 (1 cement:5coarse sand:10 graded stone aggregate 40mm nominal size) up to haunches of pipes including bed concrete as per standard design.					
a)	19.3.2	150mm dia SW pipe	Mtrs.	125			
b)	19.3.4	250mm dia SW pipe	Mtrs.	400			
c)	19.3.5	300mm dia SW pipe	Mtrs.	100			
d)	NSR	450mm dia SW pipe	Mtrs.	50			
21	19.21	Making connection of drain or sewer line with existing manhole , including breaking into & making good the walls ,floors with cement concrete 1:2:4 mix ( 1 cement :2 coarse sand :4 graded stone aggregate 20mm nominal size ) cement plastered on both sides with cement mortar 1:3 ( 1 cement :3 coarse sand ) finished with floating coat of neat cement & making necessary channels for the drain etc. complete.					
	19.21.3	For Pipes 350 to 450 mm diameter	Each	1			
22 (a)	19.7	Constructing brick masonry manhole in cement mortar 1:4(1 cement : 4 coarse sand)R.C.C.top slab with 1:2:4 mix ( 1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size),foundation concrete 1:4:8 mix (1 cement: 4 coarse sand: 8 graded stone aggregate 40 mm nominal size) inside plastering 12 mm thick with cement mortar 1:3 (1 cement: 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 mix (1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design:					
	19.7.1	Inside size 90x80 cm and 45 cm deep including C.I.cover with frame (light duty) 455x610 mm internal diameter, total weight of cover and frame to be not less than 38 kg (weight of cover 23kg and weight of frame 15 kg):					
	19.7.1.1	With F.P.S. bricks class designation 75	Each	2			
22 (b)	19.7.2	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):					

	19.7.2.1	With F.P.S. bricks class designation 75	Each	2			
23	19.8	Extra depth for manholes					
	19.8.1	Size 90x80 cm.					
a)	19.8.1.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Mtr.	1			
	19.8.2	Size 120x90 cm.					
b)	19.8.2.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Mtr.	1			
24	19.27	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 :					
	19.27.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	5			
25	19.16	Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS : 10910 on 12mm dia steel bar conforming to IS : 1786 having minimum cross section as 23 mmx25mm and over all minimum length 263 mm and width as 165mm 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 specifications and having manufacture's permanent identification 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	738			
		<b>Sub Head-Total</b>					
		<b>Total for Plumbing External Subheads</b>					

## SUMMARY SHEET

SUB HEAD	DESCRIPTION	AMOUNT in figure (In Rs.)	AMOUNT in Words (In Rs.)
I	HT Panel and Transformers		
II	11 KV Grid Work		
III	DG Sets & Auxillary Works		
IV	DG Synchronization Panels		
V	LT Panel ESS		
VI	MV Panels		
VII	LT Cables		
VIII	Circuit cum Point Wiring		
IX	Conduit & Wiring for LV System (Tel., Data)		
X	Supply of Light Fixtures		
XI	Fixing of Fan & Fixtures		
XII	Distribution Boards		
XIII	Earthing & Lightning Protection System		
XIV	UPS, Solar Energy System & EPABX		
XV	Safety Equipments		
XVI	External Lighting including Solar Lighting		
	<b>TOTAL (in Rs.)</b>		

Bill of Quantities for Electrical Items							
Sl.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
<b>Sub-Head-I : HT equipment &amp; Transformer</b>							
1	10.3	Supplying, and making Straight through cable jointing with Cast resin compound, including ferrule and other jointing materials, for following sizes of 3 core XLPE aluminum conductor cable of 11 KV grade as required.					
1.1	10.3.3	3Cx240 sq.mm. XLPE insulated Al. Ar. Cable	Each	1			
2	10.4	Supplying, and making Indoor cable end termination with Heat shrinkable jointing kit complete with all accessories, including lugs suitable for following sizes of 3 core XLPE aluminum conductor cable of 11 KV grade as required.					
<b>Indoor Type</b>							
2.1	10.4.3	3Cx240 sq.mm. XLPE insulated Al. Ar. Cable	Each	5			
3	10.5	Supplying, and making Outdoor cable end termination with Heat shrinkable jointing kit complete with all accessories, including lugs suitable for following sizes of 3 core XLPE aluminum conductor cable of 11 KV grade as required.					
<b>Outdoor Type</b>							
3.1	10.5.3	3C x 240 sq.mm. XLPE insulated Al. Ar. Cable	Each	4			
4	8.1	Laying of one no. PVC insulated & PVC sheathed/ XLPE power cable of 11 KV grade of following size direct in the ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.					
4.1	8.1.2	Above 120 sq.mm. and upto 400 sq.mm.	Metre	170			
5	8.2	Laying of one no. additional PVC insulated & PVC sheathed/ XLPE power cable of 11 KV grade of following size direct in the ground in the same trench in one tier horizontal formation including excavation, sand cushioning, protective covering and refilling the trench etc as required.					
5.1	8.2.2	Above 120 sq.mm. and upto 400 sq.mm.	Metre	50			
6	8.3	Laying of one no. PVC insulated & PVC sheathed/ XLPE power cable of 11 KV grade of following size direct in the existing RCC / Hume / Stoneware / Metal Pipe as required.					
6.1	8.3.2	Above 120 sq.mm. and upto 400 sq.mm.	Metre	10			
7	8.4	Laying of one no.PVC insulated & PVC sheathed/ XLPE power cable of 11 KV grade of following size in the existing masonry open duct as required.					
7.1	8.4.2	Above 120 sq.mm. and upto 400 sq.mm.	Metre	20			
8	14.14	Providing, laying and fixing of 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 (75cm deep) and refilling etc. as reqd.					
8.1	14.14.3	250 mm dia	Mtrs.	50			
9	12.34	Supplying & fixing of 32 mm dia x 2.00 metres long G.I. pipe (medium class) bracket for mounting of fluorescent/ HPMV/ HPSV street light fitting on pole including bending the pipe to the required shape, 2 nos 40 mm x 3 mm flat iron clamps with nuts, bolts and washer, painting the flat iron with primer and finish paint etc. as reqd.	Each	55			
<b>Main 11 KV HT Panel (3-panel Board HT Panel)</b>							
Supplying, Installation, testing and commissioning of HT three panel board suitable for indoor installation for use on 11 KV, 50 C/S earthed system having a symmetrical breaking capacity of 350 MVA for 1 Sec. at 11 KV comprising VCB circuit breaker Panel shall be equipped with following accessories etc complete as per schematic drawings /design /details /technical specifications and directions of Engineer-in-Charge.							
<b>INCOMING - 1 No. and shall be Comprising of</b>							

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
10.1	NSR	1No. - Metal Clad housing with having 630A Vacuum circuit breaker with Manual & Electric operated mechanism 1Set- Tripping coil & closing Coil 24V DC 1 - Set of Isolating plug and receptacle 1 - Set of Automatic safety shutter 1 - Set of breaker control switch (TNC) 1 - Set of dual core CT's as follows: Core I - 160-80/5-5A class 5P-10 (15 VA) Core II - 160-80/5-5A class -1 (15 VA) 1set of 11/ 3KV / 110/ 3 Volt, 100 VA burden & accuracy class 1, 3 nos. single phase construction, dry type cast resin PT 1 - Multifunction Meter with selector switch for per phase Current, Voltmeter, KW, KWH, Reactive & Active power & frequency. 1 - Set of ON/OFF/Trip/ Spring Charged & Trip circuit healthy and phase indicating lamps. 1 No.- H.T. Cable joint box suitable for 3C x 240 sq.mm aluminium conductor XLPE cable, 11 KV (E) 1 - set of IDMTL relay with 2 elements of O/C protection(50%-200%), instantaneous O/C protection (200%-800%) & 1 element of E/F protection (10%-40%). 1 no. O/V relay 1 no. Anti Pumping Relay 1 no. Trip Circuit supervision relay. 1 no. Negative phase sequence protection relay. 1 no. Master Trip relay. 1 no. 8 window Annunciation system for alarm & Trip status of relays, HT Breakers complete with acknowledgement & Reset Button. <b>Bus Bar :- 1 Set of 600 amps TP air insulated Cu. bus bar</b> <b>OUTGOING : 2 Nos. &amp; Each Shall be comprising of</b> 1 - Metal clad housing with having 630A Vacuum circuit breaker Manual & Electric operated mechanism (spring charged motor 230VAC) 1 - Tripping coil & closing Coil 24V DC 1 - Set of Isolating plug and receptacle 1 - Set of Automatic safety shutter 1 - Set of breaker control switch (TNC) Dual core CT's with Ammeter as given below for outgoing feeders respectively: Core I - 80A-40A/5-5A class 5P-10 (15VA) Core II - 80A-40A/5-5A class I (15VA) 1 - Multifunction Meter with selector switch for per phase Current, Voltmeter, KW, KWH, KVA, Reactive & Active power & Power factor. 1 - Set ON/OFF, Trip & Trip ckt healthy indication lamp 1 - H.T. cable joint box for 3C x 240 Sq.mm XLPE cable (11 KV earthed) 1 - set of IDMTL relay with 3 element of O/C protection(50%-200%), Instantaneous Over Current protection(200%-800% and 1 element of E/F protection (10%-40%) Restricted Earth Fault Relay with 2000/1A PS class CT to be mounted on neutral of Transformers.(CT to be provided by HT panel Vendor) 2 - Aux. relay 1 - Trip circuit supervision relay 1 - no. Anti Pumping Relay 1 - Master Trip relay 1 no. 8 window Annunciation system for alarm & Trip status of relays, HT Breakers complete with acknowledgement & Reset Button. <b>SITC for HT Panel as per specification &amp; as described above</b>	Set	1			

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.	
10.2	NSR	<b>Metering Panel</b>	Set	1				
		Supplying, Installation, Testing and Commissioning of Powder coated, 14 SWG CRCA sheet steel enclosed 11 KV H.T. <b>Metering Panel</b> complete with the following:						
		1 set of 11/ 3 KV/ 110/ 3 volt, 100 VA burden & accuracy class 0.5, three phase dry type cast resin PT.						
		3 Nos. of dual core 150-80/ 5A, 15 VA burden, accuracy class CL 0.5, 11 KV cast resin CTs .						
		One Set of Phase Indicating Lamps.						
		2 Sets of HRC fuses with fuse base (H.T. Fuse - 1A & LT fuse -6A).						
		2 Nos. indoor cable end box for suitable for 3C x 185 sq.mm. 11 KV, aluminium conductor XLPE Ar. cable (Incoming & Outgoing cable).						
		1 No. SEB approved digital Trivector meter with MDI in KVA of accuracy class - 0.5.						
<b>Note:</b> The contractor shall get the Trivector meter , CTs' & PT tested by SEB and the actual charges for the same will be reimbursed against receipt/authentic proof as per directed by EIC.								
<b>SITC for Metering Panel as described above</b>								
10.3	NSR	<b>11 KV RMU with HRC Fuse</b>	Set	1				
		Supplying, Installation, testing and commissioning of 11KV, 50Hz, 630A <b>Ring Main Unit</b> suitable for <b>indoor installation</b> , having 2 sets of three position Load break Switch and earthing switch as Incomer and 1 set of three position Load break Switch -Fuse Combination and earthing switch for Tee-off Outgoing Feeder complete with following ratings of HRC fuse & all interconnection with suitable sizes of Power & Cu. control cables as required, including following accessories etc. complete as per design /details /technical specifications and directions of Engineer-in-Charge.: (complete with civil works for foundation as per vendor's drawings)						
		i						3 - Set of ON/OFF and phase indicating lamps.
		ii						3 nos. H.T.cable joint box for 3C x 300 Sq.mm XLPE cable (11 KV earthed)
iii	1 set of 11 KV, <b>10A ~ 40A HRC Fuse</b> as reqd.							
11	NSR	Supply, erection, testing and commissioning of 230V, single phase 2 wire AC to 24V DC Batteries charger with semiconductor/IGBT fullwave rectifier with auto /manual float cum boost facility complete with 24V DC, 150 AH sealed maintenance free batteries including one no. distribution board having 63 Amps DP MCCB as incomer and 16 Nos. 20/16A DP MCB's (D.C. duty) as outgoing complete as required and as per technical specifications	Set	1				
		Flow rate : 6cum/hr						
		<b>Reg.time-10 hr.</b>						
12	NSR	Supplying, Installation, Testing and Commissioning of <b>1250 KVA</b> ONAN, Copper wound 11/0.433 KV, 50 C/S, Delta star connected, Dyn11 vector group, Oil immersed Outdoor transformer with On Load circuit Tap changer for Voltage regulation from -10% to +5% in steps of 1.25% on HV side complete with AVR and RTCC panel, including Bucholtz relay, MOC, OSR, Oil & Winding temperature alarm and trip contacts with wiring upto marshalling box, and all standard accessories as required, complete with Cable End box suitable for 3C x 240 sq.mm. 11 KV(E) XLPE insulated Al. Ar. Cable at HT side and 7R-3.5C x 300 sq.mm. XLPE Al. Ar. Cable (1100V grade) for LT side, including S/F of M.S. channel of size 100 x 50 x 6mm for foundation support for transformer, including Drying/filteration of oil of transformer and OLTC Enclosure.Connection with Tap Changing Mechanisem and RTCC Panel etc. as per specification and drawing. The above transformer shall follow GRIHA guidelines wrt losses etc. complete as per design /details /technical specifications and directions of Engineer-in-Charge.	Sets	2				

Sl.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
13	NSR	Supply of following size of aluminum conductor, XLPE insulated armoured and over all PVC sheathed, 11 KV (E) grade earthed cable as per technical specifications					
13.1		3Cx240 sq.mm. XLPE insulated Al. Ar. Cable	RM	200			
		<b>Total of Sub-Head-I : HT equipment &amp; Transformer</b>					
		<b>Sub-Head-II: 11 KV Grid Work</b>					
1	13.1	Supply & Erection of Galvanised stay set for 11 KV Overhead lines complete with 19/20 mm dia. X 1.8 metres long stay rod, anchor plate of size 45cm x 45cm x 7.5mm thick, thimble, stay clamps, turn buckle ( 20mm x 600mm), 7/4.0 mm dia. G.I. stay wire and 11 KV strain strain insulator etc. in cement concrete 1:3:6 foundation including excavation and refilling etc. as reqd.	Set	4			
2	13.7	Supply of two length of channels iron 75mm x 40mm x 6mm (7.14Kg/m) double cross arm for three wires 11 KV overhead line conductors complete with through bolts and nuts for clamping to poles, 50mm x 6mm MS flats welded on one side to the channel iron and with bolts& nuts to other side for tying the cross arms together, including drilling holes for insulator pins / fitting, bolts , nuts, washers etc and painting with primer and finish paint as required.	Set	2			
3	13.8	Supply & Erection of a set of cross bracing frame work for 11 KV overhead line double pole structure having four members fabricated out of 50mm x 50mm x 6mm angle iron to form a rectangle of minimum size of 1400mm width X 2500mm height complete with 50mm x 6mm MS flats iron clamps, bolts & nuts including drilling holes for insulator pins / fitting, bolts , nuts, washers etc and painting with primer and finish paint as required.	Set	1			
4	13.10	Supply & erection of 11 KV Pin Insulator complete with large steel head G.I. pin, nuts, washer etc as reqd.	Set	3			
5	13.11	Supply & erection of a set of three 11 KV Disc Insulator for 11 KV over head lines with galvanised insulator fitting, ball & socket type and complete with strain clamps, bolts, nuts, washer etc as reqd.	Set	1			
6	13.13	Suppply and erection of three piece non linear resistor type Lightning Arrestor suitable for 3 wire 11 KV overhead lines with rated voltage 9 KV (rms) with a nominal discharge current rating of 5 KA complete with galvanised clamping arrangement, G.I.bolts, nuts, washer etc as reqd.	Set	1			
7	12.39	Supply & fixing of light class G.I. pole of 100mm dia. (nominal) 3 meters length along the pole for protection of underground cables as reqd.	Each	2			
8	NSR	Supply, erection, testing and commissioning of Two Pole (double pole) structure in position complete with 12M long ISMB 200 and necessary anti climbing devices including painting with one coat of primer and two coats of aluminium paint as required. The poles to be erected shall be two meter deep in cement concrete foundation of 1:2:4 with collar including excavation in soil as per site condition and making good complete as required.	Set	1			

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
9	NSR	Supply, erection, testing and commissioning of 11 KV, 3 phase, 200 Amps gang operated switch complete with arcing horns, arcing contacts, vertical drop out fuses, 32 mm dia. G.I. down rod with operating handle and locking devices, necessary MS channel/angle iron brackets, clamps insulators & connections etc. and all hardware as required, complete with earthing of system & conforming to IS: 19813.	Set	1			
		<b>Total of Sub-Head-II: 11 KV Grid Work</b>					
		<b>Sub-Head-III : DG sets and its Auxiliary works</b>					
1	NSR	<p>Design, manufacture, supply, erection, testing &amp; commissioning of following rating of DG Sets in Acoustic Enclosure, having self excited &amp; self regulated 415 V, 3 Phase, 4-Wire, 50 Hz, 0.8 p.f. Alternator coupled with multi-cylinder, turbo-charged/ turbo-charged after cooled as called for, Diesel Engine capable to generate the power not less than the required BHP to achieve the alternator capacity as given below, with Air-cooled radiator, <b>Hospital grade silencers and Electronic governor</b> suitable for Synchronised Operation including providing of <b>1000A FP ACB</b> &amp; Engine control panel, &amp; quadrature Droop Kit for Reactive power balancing, 24V batteries of suitable rating, battery-charger with battery leads and complete with all standard accessories &amp; protection as required and as per specifications, including first filling of lube oil providing common base plate, anti vibration pads, drip trays, foundation bolts, nuts, bolts, cable termination/adopter box suitable to terminate upto 4 nos. of 3.5Cx300 sq.mm. XLPE cables, as required for a complete installation,</p> <p>including initial filling of fuel and lubricants required during trial run of DG sets on full load for 12 hours followed by 10% overload for one hour in any 12 hours duration, as per specifications &amp; drawings complete with RCC/PCC foundation for DG set as per the structural detail for Dynamic Load submitted by the Vendor and approved by the Consultant. The set shall be complete as per design /details /technical specifications and directions of Engineer-in-Charge with the following</p> <p>Base frame and radiator.                      Gerb or equivalent approved make antivibration pads.                      Hot air canopy from DG to outside in open.                      fuel tank with level markings inside the canopy                      All lockable doors having brass handles.                      Front shall have perspex sheet to indicate fuel guage &amp; ECP Panel along with one emergency push button out side canopy.                      Provision for Fuel piping from Fuel tank shall be brought Outside canopy &amp; connected for gravity feed from Day Oil tank.                      Lub oil drain arrangement.</p> <p>A suitable size blower inside Canopy for cooling as well as air combustion shall be provided . The size &amp; number for blower shall be approved by Consultant.</p> <p>Canopy shall be reducing the noise to 75 db at a distance of 1meter as per specifications &amp; ECBC.</p> <p>Canopy temperature shall not rise beyond 7<sup>o</sup> C above ambient and necessary temperature gauges will be installed.</p> <p>Provision in the canopy for taking out silencer, control cables &amp; power cables.                      Suitable self priming pump with engine (if inbuilt by the manufacturer).                      The exhaust system should have exhaust bellow just near to DG sets and before the exhaust silencer to accommodate the expansion in the exhaust system.</p> <p><b>625 KVA D.G.set with Synchronization Command Centre (PLC) (equi. To PCC 3.3 Controller as per approved makes)</b></p>	Sets	4			
		<b>Exhaust Piping</b>					

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
2	NSR	Supply, installation, testing & commissioning of Class 'C' M.S. pipe including bends, flanges, supports etc. as required complete with 75 mm dia fibre glass wool insulation with 26 swa aluminium sheet cladding.					
a)	NSR	125 mm dia pipe	Mtrs	15			
b)	NSR	200 mm dia pipe	Mtrs	120			
		<b>Fuel Day Oil Tank</b>					
3	NSR	Supply, fabrication, installation testing & commissioning of M.S. day oil tanks of following capacity fabricated out of min. 3mm thick sheet installed on steel frame with all associated accessories, filters, breathers and fittings including level indicator, complete as required, including level controller for automatic operation of pumps. The tank shall be suitably treated with anti corrosive treatment on inside & outside surface complete with PCC foundation 75mm thick (1:3:6) etc complete as per design /details /technical specifications and directions of Engineer-in-Charge.					
		990 Litre	Sets	4			
4	NSR	<b>Fuel Oil Piping</b>					
		Supply, installation, testing and commissioning of following 'C-class' M.S. piping conforming to IS:1239 for fuel piping complete with all necessary fittings and valves between day oil storage tanks & DG sets/ priming motor including jointing of pipes, painting of pipes with two coats of red oxide & two coats of black enamel paint etc complete as per design /details /technical specifications and directions of Engineer-in-Charge.					
a)	NSR	25 mm dia Pipe	Mtrs	150			
b)	NSR	20 mm dia Pipe	Mtrs	80			
c)	NSR	25 mm dia Ball valves	Nos.	8			
d)	NSR	20 mm dia Ball valves	Nos.	4			
e)	NSR	Y-strainer suitable for 25mm dia. pipe.	Nos.	2			
f)	NSR	Y-strainer suitable for 20mm dia. pipe.	Nos.	4			
5	NSR	Design, assemble, erection of suitable height Lattice structure fabricated from ISMB, ISMC & ISA section as required complete with providing of Iron & steel and all hardware as required for fixing including two coats of red oxide primer & epoxy painted with approved colour as required. (excluding foundation work but design & drg. of the foundation has to be provided by the vendor)	Kg.	20000			
		<b>Total of Sub-Head-III : DG sets and its Auxiliary works</b>					
		<b>Sub-Head-IV : Synchronization Panels</b>					
		Design, Fabrication, Supply, Erection, Testing and commissioning of Powder coated Main Distribution Panel fabricated out of 14 gauge CRCA sheet steel in cubical, compartmentalised, free standing floor /wall mounted, dust and vermin proof, with reinforcement of suitable size angle iron, channel, T-iron or flats as required. Cable gland plates shall be provided on top as well as bottom of the panels. Panels shall be treated with all anti-corrosive process before painting as per specification. Panels shall be suitable for 415V, 3-Phase, Four wire, 50 Hz supply complete with earth bus and lifting hooks as required in case of large panels etc complete as per design /details /technical specifications and directions of Engineer-in-Charge. Approval shall be taken for each panel before fabrication. (All hardwares like nuts and bolts used shall be Galvanized and Zinc passivated)					
		<b>Synchronization Panels</b>					
a	NSR	<b>INCOMER FOR GENERATORS (4 nos.-each 625 KVA)</b>					
i.		<b>Each Incomer for D.G. set shall be provided with the following:</b>					
ii.		1 no. 1000A TPN ACB (50 KA) with NIC (or FP EDO ACB as reqd. for approved make engine with Power command Controller for synchronization or equiv.) having programmable & variable trip setting for releases with the following microprocessor based integral protection:					
iii.		IDMTL protection for O/C, S/C & E/F					

Sl.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
iv.		Reverse power Protection.					
v.		Over-Voltage protection					
vi.		Master trip relay					
vii.		In addition to above relays shall be provided for the following protection:					
viii.		Anti Pumping device					
ix.		Trip circuit supervision relay					
x.		The ACB shall be complete with 3nos. 1000A/5A, 15VA, 5P10 CTs for protection .					
<b>b</b>		<b>Metering &amp; Indication</b>					
i.		1 set of R,Y,B phase indicating lamps with 3 nos. 2A SP MCBs.					
ii.		1 No. Load Analyser cum digital Multifunction Meter with 3 nos. 1000/5A, CL-1 CTs, as required.					
iii.		1 Set of Breaker ON-OFF-TRIP, Spring charged & Trip circuit healthy indication Lamps					
iv.		1 set of Indication Lamps for Neutral Isolation Contactor ON & OFF and Battery charger ON					
<b>c</b>		<b>BUS COUPLER</b>					
		1 Nos. 2000A FP (50 KA) EDO ACB with all accessories required.					
<b>d</b>		<b>INTERLOCKING</b>					
i.		Incomers from the D.G. sets & Bus couplers shall be electrically & mechanically interlocked.					
ii.		The Interlocking scheme shall be such that Bus Bar shall be fed individually by each D.G. sets under normal operation (No synchronisation) or both the bus bars shall be fed by any D.G.set in case of Synchronisation mode.The ACB shall be automatically Switched 'ON' & 'OFF' thru PLC.					
<b>e</b>		<b>BUS BARS</b>					
		2 Sets of 2500A, TPN Aluminum bus bars with colour coded PVC sleeves					
<b>f</b>		<b>OUTGOINGS</b>					
		2 Nos. 2000A FP/MDO ACB (50 KA)					
<b>g</b>		<b>Microprocessor based PLC Synchronisation Panel</b>					
		Design, manufacture, assembly, supply, Installation , Testing & Commissioning of PLC based Logic Control having following features:					
i		<b>Auto Star/ Stop operation</b> through Microprocessor including selector switch to Bypass the PLC for manual operation of D.G. sets					
ii		<b>Auto Synchronisation</b> system.					
		<b>Auto Load Management</b> among D.G. sets.					
		<i>The automatic operations to be incorporated in the panel are as follows:-</i>					
iii.		The system will directly accept Digital meter & voltmeter signals for Electrical parameter monitoring and control. Only 1 no. Phase Angle Transducer shall be provided for all the DG Set Synchronization.					
iv.		DG Panel's logic shall be able to automatically start generators when mains supply fails by closing the DG switchgear for generator supply. It shall also transfer the power from emergency to mains supply, when the main healthy voltage persists for more than two minutes.					
v.		The Transfer of load shall take place only when the generator output reaches 90% of its rated voltage and frequency.					
vi.		Automatic load transfer should take place within thirty seconds of mains fail.					
vii.		'B' checkup alarm of each D.G. set after 300 hours of running for proper maintenance.					
viii.		All parameters of individual D.G. set shall be monitored & necessary commands shall adjust the parameters of that D.G. Set feeding the bus bar of Main Panel.					
ix.		Auto synchronizing system shall verify the phase angle of D.G. sets and also compensate for 'Contactors' closing time by initiating closing of the breaker ahead of the actual predictable synchronism thereby ensuring a phase difference of zero degree.					
x.		System shall also monitor the slip frequency and the beat voltage of the machine or system.					

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
xi.		Neutral Isolation switch of Generator running in the system shall not trip until the Neutral Isolation switch of other Generator is closed in the event of shutting off of first Generator and starting the other.					
xii.		It shall be possible to alter sequence of D.G.set through manual selectors or through man-machine interface.					
xiii.		Active power shall be made equal on all the sets automatically with the help of ACTIVE LOAD BALANCING system through Governor Control.					
xiv.		Reactive power shall be balanced automatically with the help of quadrature droop kit already fitted on the machine.					
xv.		In the event of set failing to synchronize, alarm from Annunciator would invite attention of operator for manual intervention.					
xvi.		It shall be possible to alter crucial setting / time delays through MAN MACHINE INTERFACE. (through BMS Software)					
xvii.		Relays shall have compatibility for future interface with BMS Software graphic displays / report generation.					
xviii.		<b>The PLC system shall able to monitor the Load on the each Bus-section individually.</b>					
xix.		The Microprocessor (PLC) shall start DG sets in sequence as per the readings of KW/KVA meter provided on transformer & D.G. set incomers at the instant of power failure and the sequence of operation will be as specified.					
xx.		The PLC shall start the Master D.G. set and it will share the load of the all the four Bus if the total demand load on the four segment is below 90% of the capacity of the running D.G.set by closing the Bus-coupler.					
xxii.		If the Total/ Individual demand Load on Bus-section increases from the 90% capacity of the running D.G. sets then the PLC will start the other D.G. sets attached with the Bus segment having highest individual demand load and after synchronising with the system bus it will transfer the proportional load on the set by closing the Incomer of that set after opening the relevant Bus coupler.					
xxiii.		Similary during the reduction of Demand load the PLC will switch OFF the relevant D.G.sets attached with the Bus segment having lowest demand load, and close the relevant Bus coupler after opening the incomer of that set.					
xxiv.		On restoration of grid supply, Incomer Switches from D.G. sets and Bus coupler shall be switched 'OFF' in preset sequence and then switch ON the Incomer ACB of Transformer. DG Set shall continue to run for three minutes at reduced speed after DG Switch has been switched 'OFF' after that the D.G. set will be Switched Off.					
xxv.		<b>The PLC panel shall be provided with all the necessary protection switches, relays, potential free contacts , Anunciation windows, etc as required to achieve the above logic etc. complete as per design /details /technical specifications and directions of Engineer-in-Charge, with the following:</b>					
h.		<b>AUTO SYNCHRONIZING</b>					
		<b>1 No. PLC Comprising of:</b>					
i.		Main Processing unit					
ii.		Power Monitor 3000.					
iii.		Digital input Modules					
iv.		Digital output Modules					
v.		EPR0M for Main Processor					
vi.		Panel view 550					
vii.		Out of Step protection Relay					
viii.		Auto / Manual / Test Switch					
ix.		Master Selector Switch (5 way Selector switch )					
x.		Manual Overriding facility from Auto Synchronizing. (Synch/ Solo operation mode)					
xi.		Emergency Stop Push Button					
xii.		2 Nos. 16 windows Annunciator with hooter for status indicator for breakers.					
xiii.		Mimic with Led Indicator for Power supply Status					
xiv.		The PLC shall be complete with all necessary switches, fuses etc. as given below, to fulfill the desired application as required.					
xv.		Aux. Relays					
xvi.		Indicating Lights & Push Buttons					

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
xvii.		Control fuses/ MCBs					
i		<b>Load Analyser (Power monitor 3000)shall have following features: -</b>					
i.		Voltage, current, frequency, P.F., KVA, KVAR, KW, KVAH, KVARH, KWH measurement for single and three phase source.					
ii.		50 ms update rates for metering results					
iii.		Port for PC compatibility					
iv.		Output Control via control relays or PLC					
v.		Input monitoring via status inputs					
vi.		Time stamped data logging of system measurements and events					
vii.		Total Harmonic Distortion					
viii.		Configurable trend log, upto 45,000 records					
ix.		Firmware upgrades without removing module					
j		<b>D.G. control Panel with Manual Operation for Each D.G. set with the following:</b>					
		<b>Manual Operation system in Solo mode shall Comprising of:</b>					
i.		1 No. Digital Multifunction Meter					
ii.		1 No. D.C. Voltmeter for Battery					
iii.		1 No. D.C. Ammeter for Battery					
iv.		Push Button for D.G. Start					
v.		Push Button for D.G. Stop					
vi.		Emergency Stop Push Button					
vii.		16 windows Annunciator with hooter.					
viii.		Field Failure Relay					
k		<b>Annunciation Window for each Generator as follows:</b>					
i.		Electrical Fault					
ii.		Excitation Failure					
iii.		Reverse Power					
iv.		Emergency Shutdown					
v.		Over Speed					
vi.		Low Lube Oil Pressure					
vii.		High Water Temperature					
viii.		Engine Overheating					
ix.		Cooling Water Flow Failure					
x.		Bearing Temperature High					
xi.		Winding Temperature High					
xii.		Low Fuel Level					
xiii.		Spare- 4nos.					
l		<b>Annunciation Window for Synchronising (1 nos.)</b>					
i.		DG - 1 Fails to Start					
ii.		DG - 1 Fails to Synchronize					
iii.		DG - 1 Neutral Discrepancy					
iv.		DG - 1 ACB Fails to close					
v.		DG - 2 Fails to Start					
vi.		DG - 2 Fails to Synchronize					
vii.		DG - 2 Neutral Discrepancy					
viii.		DG - 2 ACB Fails to close					
ix.		DG - 3 Fails to Start					
x.		DG - 3 Fails to Synchronize					
xi.		DG - 3 Neutral Discrepancy					
xii.		DG - 3 ACB Fails to close					
xiii.		DG - 4 Fails to Start					
xiv.		DG - 4 Fails to Synchronize					
xv.		DG - 4 Neutral Discrepancy					
xvi.		DG - 4 ACB Fails to close					
xvii.		Bus coupler-1 fails to close					
xviii.		Bus coupler-2 fails to close					
xix.		Bus coupler-3 fails to close					
		Spare -5Nos.					
m		<b>For Power Supply Status Indicator (Mimic)</b>					
i.		DG - 1 Supply available					
ii.		DG - 1 Neutral "ON/ OFF"					
iii.		DG - 2 Supply available					

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
iv.		DG - 2 Neutral "ON/ OFF"					
v.		DG - 3 Supply available					
vi.		DG - 3 Neutral "ON/ OFF"					
vii.		DG - 4 Supply available					
viii.		DG - 4 Neutral "ON/ OFF"					
ix.		Bus coupler-1 "ON/ OFF"					
x.		Bus coupler-2 "ON/ OFF"					
xi.		Bus coupler-3 "ON/ OFF"					
xii.		Mains Supply-1 available					
xiii.		Mains Supply-2 available					
xiv.		Mains Supply-3 available					
xv.		Mains Supply-4 available					
		<b>Note:-</b>					
	1	All the above mentioned components like I/O ports, relay modules, synchronisation relay, annunciation window shall be housed in the Synchronisation Panel.					
	2	The PLC control panel shall be complete in all respect to accomplished the desired operation and the vendor shall supply all the necessary switches fuses, relays, CTs, Digital/ Analogue Input/Output racks for interface, 2x1 KVA UPS backup with SMF battery					
	3	Contractor shall provide the detail of NO & NC contacts required in the D.G.sets' control panel for AMF & Auto-synchronisation process which will be provided alongwith the motorised potentiometer with the D.G.set within the acoustic enclosure.					
		<b>Supply, , Installation, testing &amp; Commissioning for Microprocessor based Synchronisation Panel as described above</b>	Set	1			
		<b>Total of Sub-Head-IV : Synchronization Panels</b>					
		<b>Sub-Head-V : Main LT Panel</b>					
		Design, Fabrication, Supply, Erection,Testing and commissioning of Powder coated Main Distribution Panel fabricated out of 14 guage CRCA sheet steel in cubical, compartmentallised, free standing floor /wall mounted, dust and vermin proof, with reinforcement of suitable size angle iron, channel, T-iron or flats as required. Cable gland plates shall be provided on top as well as bottom of the panels. Panels shall be treated with all anti-corrosive process before painting as per specification. Panels shall be suitable for 415V, 3-Phase, Four wire, 50 Hz supply complete with earth bus and lifting hooks as required in case of large panels etc complete as per design /details /technical specifications and directions of Engineer-in-Charge.Approval shall be taken for each panel before fabrication. (All hardwares like nuts and bolts used shall be Galvanized and Zinc passivated)(For Lab Buildings)					
1	NSR	<b>MAIN L.T. Panel</b>					
a		<b>INCOMER FROM TRANSFORMERS (2 Nos. 1250 KVA Each)</b>					
		<b>Incomer from each transformer shall be provided with the following:</b>					
		1 nos. 2000 A FP EDO ACB having microprocessor based programmable & variable trip setting for releases with integral protection for the following:					

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
i)		<b>DOOR SHUTTER:</b> Supply and fixing asbestos free composite <b>fire/smoke check wooden shutter</b> (minimum thickness 50mm but not more than 55mm) of 120 min. fire rating conforming to BS : 476 part 22 & IS : 3614 Part II as per the prototype tested and certified by CBRI Roorkee, suitable for mounting on the door frame as per item no. 5.04 comprising of two non combustible boards 12mm to 18 mm thick sandwiching 10 mm to 20 mm fire resistant insulation filler veneered with 3mm thick commercial ply on both faces and pasting of minimum 1 mm thick laminate over wooden fire comprising of two 12 mm thick calcium silicate board of approved brand a 100% without Asbestos, Bructile and merschaum, having density not more than 1150 kg/m3 and thermal conductivity 0.14 W/m K sandwiching 20m thick fire resistance insulation filler coated with					
ii)		O/V protection					
iii)		Master trip protection					
		In addition of above the following relays shall be provided					
iv)		Anti Pumping device					
v)		Trip circuit supervision relay					
vi)		The ACB shall be complete with 3nos. 2000A/5A, 15VA, 5P10 CTs for protection .					
<b>b</b>		<b>METERING &amp; INDICATION</b>					
i)		1 set of phase indicating lamps					
ii)		1 set of Voltmeter (0-500V) with VSS with 3 nos. 2A SP MCBs each					
iii)		1 Nos. Load Analyser cum digital Multifunction Meter with 3 nos. 2000/5A, CL-1 CTs, as required.					
iv)		1 Set of Breaker ON-OFF-TRIP, Spring charged, Trip Ckt. Healthy Indication Lamps					
v)		1 no. of 2000/5A, 15 VA, class-1 CTs for APFC relay					
<b>c</b>		<b>INCOMER FROM Synchronization Panel (2 Nos. 2000A Each)</b>					
		<b>Each Incomer from Synchronization Panel shall be provided with the following:</b>					
i)		1 nos. 2000 A FP EDO ACB having microprocessor based programmable & variable trip setting for releases with integral protection for the following:					
ii)		IDMTL Protection for S/C, O/C & E/f protection					
iii)		O/V protection					
		Master trip protection					
iv)		In addition of above the following relays shall be provided					
v)		Anti Pumping device					
vi)		Trip circuit supervision relay					
vii)		The ACB shall be complete with 3nos. 2000A/5A, 15VA, 5P10 CTs for protection .					
<b>d</b>		<b>METERING &amp; INDICATION</b>					
i)		1 set of phase indicating lamps					
ii)		1 set of Voltmeter (0-500V) with VSS with 3 nos. 2A SP MCBs each					
iii)		1 Nos. Load Analyser cum digital Multifunction Meter with 3 nos. 2000/5A, CL-1 CTs, as required.					
iv)		1 Set of Breaker ON-OFF-TRIP, Spring charged, Trip Ckt. Healthy Indication Lamps					
v)		1 no. of 2000/5A, 15 VA, class-1 CTs for APFC relay					
<b>e</b>		<b>BUS COUPLER:-</b>					
i)		1 no. 2000 A FP EDO ACB					
ii)		1 Set of Breaker ON-OFF-TRIP, Spring charged indication Lamps					
<b>f</b>		<b>INTERLOCKING.</b>					

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
		Incomers from Transformer, Synchronization Panel & Bus couplers and 2 nos. 630A O/G MCCB shall be electrically & mechanically interlocked as per approved logic .					
g		<b>BUS BAR:-</b>					
		<b>2 Sets of 2500A, TPN Aluminum bus bars with colour coded sleeves.</b>					
h		<b>OUTGOINGS</b>					
i)		2 Nos. 1000A TP ACB (50 KA)					
ii)		3 Nos. 630A TPN MCCB (50 KA)					
iii)		4 Nos. 630A FP MCCB (50 KA)					
iv)		7 Nos. 400A FP MCCB (50 KA)					
v)		12 Nos. 250A/ 200A FP MCCB (50 KA)					
vi)		8 Nos. 160A/ 125A FP MCCB (50 KA)					
vii)		6 Nos. 63A/ 100A FP MCCB (50 KA)					
		<b>Supply, fixing, testing &amp; commissioning of LT Panel ESS-1 as described above</b>	Set	1			
2		<b>Capacitor Panel - (405 KVAR)</b>					
a)		<b>INCOMER</b>					
		1No. 1000A TPN Isolator					
b)		<b>METERING &amp; INDICATION</b>					
i)		1 set of phase indicating lamps					
ii)		1 No. (0-500V) Voltmeter with VSS with 3 nos. 2A SP MCB					
iii)		1 No. 8 steps APFC relay					
c)		<b>BUS-BAR</b>					
		1 Set of 1000A TPN Aluminium Bus Bar with colour coded PVC Sleeves					
d)		<b>OUTGOINGS</b>					
i)		1 No. of 250A TP MCCB (35 KA) with 265A TP contactor (AC-3 duty)					
ii)		5 Nos. of 125A TP MCCB (35 KA) with 140A TP contactor (AC-3 duty)					
iii)		2 Nos. of 63A TP MCCB (35KA) with 70A TP contactor (AC-3 duty)					
iv)		1 Nos. of 20A TP MCB with 25A TP contactor (AC-3 duty)					
v)		9 Sets self-Illuminated Red-Green (ON-OFF) push buttons.					
vi)		1 Nos. 100 (2x50) KVAR capacitor Bank with 7% detuned harmonic filter & discharge resistor.					
vii)		5 Nos. 50 (2x25) KVAR capacitor Bank with 7% detuned harmonic filter & discharge resistor.					
viii)		2 Nos. 25 KVAR capacitor Bank with 7% detuned harmonic filter & discharge resistor.					
ix)		1 Nos. 5 KVAR capacitor Bank with discharge resistor.					
		<b>Supply, fixing, testing &amp; commissioning of Capacitor panel as described above</b>	Sets	2			
3		<b>MDB-Hostel &amp; Res. (loc.-ESS)</b>					
a)		<b>INCOMER</b>					
		2 Nos. 630A FP MCCB (35 KA) with Shunt Trip					
b)		<b>METERING &amp; INDICATION</b>					
i)		2 sets. of R,Y,B phase indicating lamps					
ii)		2 Sets of Breaker ON-OFF-TRIP indication Lamps.					
iii)		2 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. Of 2A SP MCB & 3nos 600/5A CTs (400A/500V) rating					
c)		<b>BUS COUPLER:-</b>					
i)		1 No. 630A FP MCCB with all accessories required.					
ii)		1 Set of Breaker ON-OFF-TRIP indication Lamps .					
d)		<b>INTERLOCKING.</b>					
		Incomer-1, Incomer-2 & Bus coupler shall be electrically & mechanically interlocked.					
e)		<b>BUS BAR:-</b>					
		2 Sets of 600A, TPN Al bus bar with colour coded PVC sleeves					
f)		<b>OUTGOINGS</b>					
i)		2 Nos. 400A FP MCCB (35KA)					
ii)		1 Nos. 250A FP MCCB (35KA)					
iii)		2 Nos. 160A FP MCCB (35KA)					
iv)		4 Nos. 125A FP MCCB (35KA)					
		<b>Supplying, fixing, testing &amp; commissioning of Panel as described above</b>	Set	1			

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
4	NSR	<b>A/C Auxiliary panel</b>					
a)		<b>INCOMER</b>					
		1 No. 160A TPN MCCB (35 KA).					
b)		<b>METERING &amp; INDICATION</b>					
i)		1 set of R,Y,B phase indicating lamps					
ii)		1 No. (0-500V) Voltmeter with VSS with 3 nos. 2A SP MCB					
iii)		1 Nos Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. of 2A SP MCB & 3nos 160/5A CTs (160A/500V) rating					
c)		<b>BUS-BAR</b>					
		1 Set of 200A TPN Aluminium Bus Bar with colour coded PVC Sleeves					
d)		<b>OUTGOINGS</b>					
i)		2 Nos. of 63A TPN MCCB (25KA)					
ii)		3 Nos. 63A TPN MCB (10 KA) with provision of cubicle space for VFD or S/D starter.					
iii)		6 Nos. 32A TPN MCB (10 KA)					
iv)		3 Nos. DOL starter with self illuminated Push button for ON & OFF and suitable rating of contactor and O/L relays, suitable for 5 HP Motor.					
v)	2 Nos. DOL starter with self illuminated Push button for ON & OFF and suitable rating of contactor and O/L relays, suitable for 3 HP Motor.						
	<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>	Set	1				
5	NSR	<b>Pressurization Panel (Loc.-Terrace)</b>					
a)		<b>INCOMER</b>					
		1No. 63A TPN MCB (10 KA) .					
b)		<b>METERING &amp; INDICATION</b>					
i)		1 set of R,Y,B phase indicating lamps					
ii)		1 No. (0-500V) Voltmeter with Built-in VSS with 3 nos. 2A SP MCB					
iii)		1 No. (0-80A) Ammeter with ASS with 3 nos. 80/5A CT's					
c)		<b>BUS-BAR</b>					
		1 Set of 100A TPN Aluminium Bus Bar with colour coded PVC Sleeves					
d)		<b>OUTGOINGS</b>					
i)	1 Nos. 40A TPN MCB (10KA)						
ii)	3 Nos. 20A/32A TPN MCB (10KA)						
	<b>Supply, fixing, testing &amp; commissioning of Pressurization Panel as described above.</b>	Sets	4				
6	NSR	<b>Lift Panel (Loc.-Lift Machine room)</b>					
a)		<b>INCOMER</b>					
		1 No. 100A TPN MCCB .					
b)		<b>METERING &amp; INDICATION</b>					
i)		1 set of R,Y,B phase indicating lamps					
ii)		1 No. (0-500V) Voltmeter with Built-in VSS with 3 nos. 2A SP MCB					
iii)		1 No. (0-100A) Ammeter with ASS with 3 nos. 100/5A CT's					
c)		<b>BUS-BAR</b>					
		1 Set of 150A TPN Aluminium Bus Bar with colour coded PVC Sleeves					
d)		<b>OUTGOINGS</b>					
i)	3 Nos. 63A TPN MCB (10KA) .						
ii)	1 No. 25A DP MCB (10KA)						
	<b>Supply , fixing, testing &amp; commissioning of Lift Panel as described above</b>	Sets	2				
7	NSR	<b>MDB-Utility (Loc.-ESS)</b>					
a)		<b>INCOMER</b>					
		1No. 250A TPN MCCB (10 KA) .					
b)		<b>METERING &amp; INDICATION</b>					
i)		1 set of R,Y,B phase indicating lamps					
ii)		1 No. (0-500V) Voltmeter with Built-in VSS with 3 nos. 2A SP MCB					
iii)		1 No. (0-250A) Ammeter with ASS with 3 nos. 250/5A CT's					
c)		<b>BUS-BAR</b>					
		1 Set of 300A TPN Aluminium Bus Bar with colour coded PVC Sleeves					
d)		<b>OUTGOINGS</b>					

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
		8 Nos. 63A/ 100A FP MCCB (25KA)					
		Supply, fixing, testing & commissioning of Utility Panel as described above.	Set	1			
8		Supply, installation , testing and commissioning of UPS panel incoming MCCB Change over Switch (125A) as per specification complete as required.	Sets	7			
9		Supply, Design, fabrication, installation, testing & commissioning of DOL starters for Pumps in powder coated MS enclosure complete with suitable rating of Contactor & Over load relay suitable for upto 3 HP Motors. The starter shall have sufficient nos. of auxillary contacts for control thru BMS, FA panel etc. complete as per design /details /technical specifications and directions of Engineer-in-Charge.	Sets	27			
10		Supply, Design, fabrication, installation, testing & commissioning of DOL starters for Pumps in powder coated MS enclosure complete with suitable rating of Contactor & Over load relay suitable for upto 5 HP Motors. The starter shall have sufficient nos. of auxillary contacts for control thru BMS, FA panel etc. complete as per design /details /technical specifications and directions of Engineer-in-Charge.	Sets	9			
11		Supply, Design, fabrication, installation, testing & commissioning of DOL starters for Pumps in powder coated MS enclosure complete with suitable rating of Contactor & Over load relay suitable for upto 7.5 HP Motors. The starter shall have sufficient nos. of auxillary contacts for control thru BMS, FA panel etc. complete as per design /details /technical specifications and directions of Engineer-in-Charge.	Sets	4			
12		Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm, at 1200 mm centre to centre, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50mm long with 6mm dia bolts other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the rate of 1200 mm centre to centre to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre,	Sets	1			
		with 25mm long dry wall screws @ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound , jointing tapes , finishing with jointing compound in 3 layers covering upto 150 mm or both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting with : 12.5 mm thick tapered edge gypsum board conforming to IS: 2095- Part I.					
		Total of Sub-Head-V : Main LT Panel					
		<b>Sub-Head-VI : MV Panels</b>					

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
		Design, Fabrication, Supply, Erection, Testing and commissioning of Powder coated Main Distribution Panel fabricated out of 14 gauge CRCA sheet steel in cubical, compartmentalised, free standing floor /wall mounted, dust and vermin proof, with reinforcement of suitable size angle iron, channel, T-iron or flats as required. Cable gland plates shall be provided on top as well as bottom of the panels. Panels shall be treated with all anti-corrosive process before painting as per specification. Panels shall be suitable for 415V, 3-Phase, Four wire, 50 Hz supply complete with earth bus and lifting hooks as required in case of large panels etc complete as per design /details /technical specifications and directions of Engineer-in-Charge. Approval shall be taken for each panel before fabrication. (All hardwares like nuts and bolts used shall be Galvanized and Zinc passivated)					
<b>1</b>	<b>NSR</b>	<b>Panels for Admin &amp; Acadmic Block</b>					
<b>1.1</b>		<b>MDB Library &amp; Lecture Theatre</b>					
<b>a</b>		<b>INCOMER</b>					
		1 No. 125A FP MCCB (35 KA)					
<b>b</b>		<b>METERING &amp; INDICATION</b>					
<b>i)</b>		1 sets. of R,Y,B phase indicating lamps					
<b>ii)</b>		1 Sets of Breaker ON-OFF-TRIP indication Lamps.					
<b>iii)</b>		1 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. Of 2A SP MCB & 3nos 125/5A CTs (125A/500V) rating					
<b>c</b>		<b>BUS BAR:-</b>					
		1 Sets of 150A, TPN Al bus bar with colour coded PVC sleeves					
<b>d</b>		<b>OUTGOINGS</b>					
<b>i)</b>		6 Nos. 16A/20A/25A/32A FP MCB (10KA) as required					
<b>ii)</b>		5 Nos. 40A/63A FP MCB (10KA)					
<b>iii)</b>		1 Nos. 40A/63A DP MCB (10KA)					
<b>iv)</b>		1 Nos. 20A/32A DP MCB (10KA)					
<b>v)</b>		1 Nos. 63A/100A FP MCCB (25KA)					
	<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>	Set	1				
<b>1.2</b>	<b>NSR</b>	<b>MDB Block A (Typ. Block B)</b>					
<b>a</b>		<b>INCOMER</b>					
		1 No. 200A FP MCCB (35 KA)					
<b>b</b>		<b>METERING &amp; INDICATION</b>					
<b>i)</b>		1 sets. of R,Y,B phase indicating lamps					
<b>ii)</b>		1 Sets of Breaker ON-OFF-TRIP indication Lamps.					
<b>iii)</b>		1 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. Of 2A SP MCB & 3nos 200/5A CTs (200A/500V) rating					
<b>c</b>		<b>BUS BAR:-</b>					
		1 Sets of 250A, TPN Al bus bar with colour coded PVC sleeves					
<b>d</b>		<b>OUTGOINGS</b>					
<b>i)</b>		2 Nos. 16A/20A/25A/32A FP MCB (10KA) as required					
<b>ii)</b>		10 Nos. 40A/63A FP MCB (10KA)					
<b>iii)</b>		1 Nos. 40A/63A DP MCB (10KA)					
<b>iv)</b>		1 Nos. 20A/32A DP MCB (10KA)					
<b>v)</b>		1 Nos. 63A/100A FP MCCB (25KA)					
		<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>	Set	2			
<b>1.3</b>	<b>NSR</b>	<b>MDB Block C</b>					
<b>a</b>		<b>INCOMER</b>					
		1 No. 125A FP MCCB (35 KA)					
<b>b</b>		<b>METERING &amp; INDICATION</b>					
<b>i)</b>		1 sets. of R,Y,B phase indicating lamps					
<b>ii)</b>		1 Sets of Breaker ON-OFF-TRIP indication Lamps.					
<b>iii)</b>	1 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. Of 2A SP MCB & 3nos 125/5A CTs (125A/500V) rating						
<b>c</b>	<b>BUS BAR:-</b>						
	1 Sets of 150A, TPN Al bus bar with colour coded PVC sleeves						

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
d		<b>OUTGOINGS</b>					
j)		3 Nos. 16A/20A/25A/32A FP MCB (10KA) as required					
ii)		5 Nos. 40A/63A FP MCB (10KA)					
iii)		1 Nos. 40A/63A DP MCB (10KA)					
		<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>	Set	1			
<b>1.4</b>		<b>MDB Block D (Typ. Block E)</b>					
a		<b>INCOMER</b>					
		1 No. 160A FP MCCB (35 KA)					
b		<b>METERING &amp; INDICATION</b>					
i)		1 sets. of R,Y,B phase indicating lamps					
ii)		1 Sets of Breaker ON-OFF-TRIP indication Lamps.					
iii)	NSR	1 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. Of 2A SP MCB & 3nos 160/5A CTs (160A/500V) rating					
c		<b>BUS BAR:-</b>					
		1 Sets of 200A, TPN Al.bus bar with colour coded PVC sleeves					
d		<b>OUTGOINGS</b>					
j)		2 Nos. 16A/20A/25A/32A FP MCB (10KA) as required					
ii)		6 Nos. 40A/63A FP MCB (10KA)					
iii)		1 Nos. 40A/63A DP MCB (10KA)					
		<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>	Set	2			
<b>1.5</b>		<b>MDB UPS (Academic &amp; Admin)</b>					
a		<b>INCOMER</b>					
		1 No. 125A FP MCCB (35 KA)					
b		<b>METERING &amp; INDICATION</b>					
j)		1 sets. of R,Y,B phase indicating lamps					
ii)		1 Sets of Breaker ON-OFF-TRIP indication Lamps.					
iii)	NSR	1 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. Of 2A SP MCB & 3nos 125/5A CTs (125A/500V) rating					
c		<b>BUS BAR:-</b>					
		1 Sets of 150A, TPN Al.bus bar with colour coded PVC sleeves					
d		<b>OUTGOINGS</b>					
j)		6 Nos. 40A/63A/100A FP MCCB (25KA)					
		<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>	Set	1			
<b>1.6</b>		<b>SDB UPS (Academic)</b>					
a		<b>INCOMER</b>					
		1 No. 100A FP MCCB (35 KA)					
b		<b>METERING &amp; INDICATION</b>					
j)		1 sets. of R,Y,B phase indicating lamps					
ii)		1 Sets of Breaker ON-OFF-TRIP indication Lamps.					
iii)	NSR	1 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. Of 2A SP MCB & 3nos 100/5A CTs (100A/500V) rating					
c		<b>BUS BAR:-</b>					
		1 Sets of 150A, TPN Al.bus bar with colour coded PVC sleeves					
d		<b>OUTGOINGS</b>					
i)		3 Nos. 40A/63A DP MCB (10KA)					
ii)		3 Nos. 20A/32A DP MCB (10KA)					
		<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>	Set	5			
<b>2</b>		<b>Panels for Staff Residence</b>					
<b>2.1</b>		<b>MDB-1A (Typ. For 1B)</b>					
a		<b>INCOMER</b>					
		1 No. 125A FP MCCB (35 KA)					
b		<b>METERING &amp; INDICATION</b>					
i)		1 sets. of R,Y,B phase indicating lamps					
ii)		1 Sets of Breaker ON-OFF-TRIP indication Lamps.					

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
iii)	NSR	1 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. of 2A SP MCB & 3nos 125/5A CTs &125/5A CTs respectively.	Set	2			
c		<b>BUS BAR:-</b> 1 Sets of 150A, TPN Al bus bar with colour coded PVC sleeves					
d		<b>OUTGOINGS</b> 15 Nos. 40A/63A DP MCB (10KA) with provision Cubicle space for Sealaing of Energy Meter as reqd. by Client					
		<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>					
2.2	NSR	<b>MDB-2A (Typ. For 2B)</b>					
a		<b>INCOMER</b> 1 No. 160A FP MCCB (35 KA)					
b		<b>METERING &amp; INDICATION</b>					
i)		1 sets. of R,Y,B phase indicating lamps					
ii)		1 Sets of Breaker ON-OFF-TRIP indication Lamps.					
iii)		1 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. of 2A SP MCB & 3nos 160/5A CTs &160/5A CTs respectively.					
c		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 conforming to IS : 2645 and approved by Engineer-in-charge to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs c) After two days of proper curing applying a second coat of cement slurry using 2.75kg/ 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					

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
i)		1 Sets of 200A, TPN Al bus bar with colour coded PVC sleeves					
d		<b>OUTGOINGS</b>					
i)		6 Nos. 40A/63A FP MCB (10KA) with provision Cubicle space for Sealaing of Energy Meter as reqd. by Client					
ii)		1 Nos. 100A FP MCCB (25KA) with provision Cubicle space for Sealaing of Energy Meter as reqd. by Client					
		<b>Supply, fixing testing &amp; commissioning of Panel as described above</b>	Set	2			
<b>2.3</b>		<b>MDB-CS</b>					
a		<b>INCOMER</b>					
		1 No. 100A FP MCCB (35 KA)					
		1 No. 100A FP ATS (Auto Transfer Switch)					
b		<b>METERING &amp; INDICATION</b>					
i)		1 sets. of R,Y,B phase indicating lamps					
ii)		1 Sets of Breaker ON-OFF-TRIP indication Lamps.					
iii)	NSR	1 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. of 2A SP MCB & 3nos 100/5A CTs &100/5A CTs respectively.					
c		<b>BUS BAR:-</b>					
i)		1 Sets of 150A, TPN Al bus bar with colour coded PVC sleeves					
d		<b>OUTGOINGS</b>					
i)		4 Nos. 40A/63A FP MCB (10KA)					
ii)		1 Nos. 32A FP MCB (10KA)					
iii)		1 Nos. 32A DP MCB (10KA)					
		<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>	Set	1			
<b>2.4</b>	NSR	Providing, fixing, testing of 30A-40A single phase digital type Energy meter in the existing cubicle of the above Panel, including wiring & all necessary hardwares as reqd..	Nos.	28			
<b>2.5</b>	NSR	Providing, fixing, testing of 40A-63A Three phase digital type Energy meter in the existing cubicle of the above Panel, including wiring & all necessary hardwares as reqd..	Nos.	11			
<b>3</b>		<b>Panels for Hostel</b>					
<b>3.1</b>		<b>MDB-Boys Hostel</b>					
a		<b>INCOMER</b>					
		1 No. 400A FP MCCB (35 KA)					
		1 No. 125A FP MCCB (35 KA)					
		1 No. 125A FP C.O.S.(Online)					
b		<b>METERING &amp; INDICATION</b>					
i)		2 sets. of R,Y,B phase indicating lamps					
ii)		2 Sets of Breaker ON-OFF-TRIP indication Lamps.					
iii)	NSR	2 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. of 2A SP MCB & 3nos 400/5A CTs &125/5A CTs respectively.					
c		<b>BUS BAR:-</b>					
i)		1 Sets of 400A, TPN Al bus bar with colour coded PVC sleeves					
ii)		1 Sets of 150A, TPN Al bus bar with colour coded PVC sleeves					

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
d		<b>OUTGOINGS</b>					
j)		2 Nos. 16A/20A/25A/32A FP MCB (10KA) as required					
ii)		18 Nos. 40A/63A FP MCB (10KA)					
iii)		2 Nos. 20A/32A DP MCB (10KA)					
iv)		1 Nos. 63A/100A FP MCCB (25KA)					
		<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>	Set	1			
<b>3.2</b>		<b>MDB-Girls Hostel</b>					
a		<b>INCOMER</b>					
		1 No. 400A FP MCCB (35 KA)					
		1 No. 125A FP MCCB (35 KA)					
		1 No. 125A FP C.O.S.(Online)					
b		<b>METERING &amp; INDICATION</b>					
j)		2 sets. of R.Y.B phase indicating lamps					
ii)		2 Sets of Breaker ON-OFF-TRIP indication Lamps.					
iii)	NSR	2 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. of 2A SP MCB & 3nos 400/5A CTs &125/5A CTs respectively.					
c		<b>BUS BAR:-</b>					
j)		1 Sets of 400A, TPN Al bus bar with colour coded PVC sleeves					
ii)		1 Sets of 150A, TPN Al bus bar with colour coded PVC sleeves					
d		<b>OUTGOINGS</b>					
i)		2 Nos. 16A/20A/25A/32A FP MCB (10KA) as required					
ii)		22 Nos. 40A/63A FP MCB (10KA)					
iii)		2 Nos. 20A/32A DP MCB (10KA)					
		<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>	Set	1			
<b>4</b>		<b>Panels for Guest House</b>					
4.1		<b>MDB-Guest House</b>					
a		<b>INCOMER</b>					
		1 No. 125A FP MCCB (35 KA)					
b		<b>METERING &amp; INDICATION</b>					
j)		2 sets. of R.Y.B phase indicating lamps					
ii)		2 Sets of Breaker ON-OFF-TRIP indication Lamps.					
iii)	NSR	2 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. of 2A SP MCB & 3nos 125/5A CTs &100/5A CTs respectively.					
c		<b>BUS BAR:-</b>					
i)		1 Sets of 150A, TPN Al bus bar with colour coded PVC sleeves					
ii)		1 Sets of 100A, TPN Al bus bar with colour coded PVC sleeves					
d		<b>OUTGOINGS</b>					
j)		2 Nos. 16A/20A/25A/32A FP MCB (10KA) as required					
ii)		6 Nos. 40A/63A FP MCB (10KA)					
iii)		1 No. 20A/32A DP MCB (10KA)					
		<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>	Set	1			
<b>5</b>		<b>Panels for Hospital Block</b>					
5.1		<b>MDB A</b>					
a		<b>INCOMER</b>					
		1 No. 250A FP MCCB (35 KA)					
b		<b>METERING &amp; INDICATION</b>					
j)		1 sets. of R.Y.B phase indicating lamps					
ii)		1 Sets of Breaker ON-OFF-TRIP indication Lamps.					
iii)	NSR	1 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. Of 2A SP MCB & 3nos 250/5A CTs (250A/500V) rating					
c		<b>BUS BAR:-</b>					
		1 Sets of 300A, TPN Al bus bar with colour coded PVC sleeves					
d		<b>OUTGOINGS</b>					
i)		4 Nos. 16A/20A/25A/32A FP MCB (10KA) as required					
ii)		4 Nos. 40A/63A FP MCB (10KA)					

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
iii)		1 Nos. 40A/63A DP MCB (10KA)					
iv)		1 Nos. 20A/32A DP MCB (10KA)					
v)		5 Nos. 63A/100A FP MCCB (25KA)					
		<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>	Set	1			
5.2		<b>MDB B (Typ. For MDB C)</b>					
a		<b>INCOMER</b>					
		2 Nos. 400A FP MCCB (35 KA)					
b		<b>METERING &amp; INDICATION</b>					
i)		2 sets. of R,Y,B phase indicating lamps					
ii)		2 Sets of Breaker ON-OFF-TRIP indication Lamps.					
iii)		2 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. Of 2A SP MCB & 3nos 400/5A CTs (400A/500V) rating					
c		<b>BUS COUPLER:-</b>					
i)		1 No. 250A FP MCCB with all accessories required.					
ii)		1 Set of Breaker ON-OFF-TRIP indication Lamps .					
d		<b>INTERLOCKING.</b>					
		Incomer-1, Incomer-2 & Bus coupler shall be electrically & mechanically interlocked.					
e		<b>BUS BAR:-</b>					
		2 Sets of 500A, TPN Al bus bar with colour coded PVC sleeves					
f		<b>OUTGOINGS</b>					
i)		3 Nos. 16A/20A/25A/32A TPN MCB (10KA) as required					
ii)		11 Nos. 40A/ 63A FP MCB (10KA)					
iii)		6 Nos. 63A/ 100A FP MCCB (25KA)					
		<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>	Set	2			
5.3		<b>MDB D</b>					
A		<b>INCOMER</b>					
		1 No. 250A FP MCCB (35 KA)					
B		<b>METERING &amp; INDICATION</b>					
i)		1 sets. of R,Y,B phase indicating lamps					
ii)		1 Sets of Breaker ON-OFF-TRIP indication Lamps.					
iii)		1 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. Of 2A SP MCB & 3nos 250/5A CTs (250A/500V) rating					
C		<b>BUS BAR:-</b>					
		1 Sets of 300A, TPN Al bus bar with colour coded PVC sleeves					
D		<b>OUTGOINGS</b>					
i)		6 Nos. 16A/20A/25A/32A FP MCB (10KA) as required					
ii)		7 Nos. 40A/63A FP MCB (10KA)					
iii)		1 Nos. 20A/32A DP MCB (10KA)					
iv)		3 Nos. 63A/100A FP MCCB (25KA)					
		<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>	Set	1			
5.4		<b>MDB UPS (Critical)</b>					
A		<b>INCOMER</b>					
		2 Nos. 100A FP MCCB (35 KA)					
B		<b>METERING &amp; INDICATION</b>					
i)		2 sets. of R,Y,B phase indicating lamps					
ii)		2 Sets of Breaker ON-OFF-TRIP indication Lamps.					
iii)		2 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. Of 2A SP MCB & 3nos 100/5A CTs (100A/500V) rating					
C		<b>BUS COUPLER:-</b>					
i)		1 No. 100A FP MCCB with all accessories required.					
ii)		1 Set of Breaker ON-OFF-TRIP indication Lamps .					
D		<b>INTERLOCKING.</b>					
		Incomer-1, Incomer-2 & Bus coupler shall be electrically & mechanically interlocked.					
E		<b>BUS BAR:-</b>					
		2 Sets of 500A, TPN Al bus bar with colour coded PVC sleeves					
F		<b>OUTGOINGS</b>					

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
j)		14 Nos. 40A/63A DP MCB (10KA)					
ii)		2 Nos. 20A/32A DP MCB (10KA)					
		<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>	Set	1			
<b>5.5</b>		<b>SDB UPS-A (Hospital)</b>					
<b>A</b>		<b>INCOMER</b>					
		1 Nos. 100A FP MCCB (35 KA)					
<b>B</b>		<b>METERING &amp; INDICATION</b>					
j)		1 sets. of R,Y,B phase indicating lamps					
ii)		1 Sets of Breaker ON-OFF-TRIP indication Lamps.					
iii)		1 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. Of 2A SP MCB & 3nos 100/5A CTs (100A/500V) rating					
<b>C</b>		<b>BUS BAR:-</b>					
		1 Sets of 100A, TPN Al bus bar with colour coded PVC sleeves					
<b>D</b>		<b>OUTGOINGS</b>					
j)		4 Nos. 40A/63A DP MCB (10KA)					
ii)		4 Nos. 20A/32A DP MCB (10KA)					
		<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>	Set	1			
<b>5.6</b>		<b>SDB UPS-C (Hospital)</b>					
<b>A</b>		<b>INCOMER</b>					
		1 Nos. 100A FP MCCB (35 KA)					
<b>B</b>		<b>METERING &amp; INDICATION</b>					
j)		1 sets. of R,Y,B phase indicating lamps					
ii)		1 Sets of Breaker ON-OFF-TRIP indication Lamps.					
iii)		1 sets of Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. Of 2A SP MCB & 3nos 100/5A CTs (100A/500V) rating					
<b>C</b>		<b>BUS BAR:-</b>					
		1 Sets of 100A, TPN Al bus bar with colour coded PVC sleeves					
<b>D</b>		<b>OUTGOINGS</b>					
j)		3 Nos. 40A/63A DP MCB (10KA)					
ii)		3 Nos. 20A/32A DP MCB (10KA)					
		<b>Supply, fixing, testing &amp; commissioning of Panel as described above</b>	Set	1			
<b>7</b>		<b>ISOLATION PANEL</b>					
		Design, fabrication, supply, erection, testing & commissioning of surface/ recessed mounted 16 SWG Stainless steel body, compartmentalised with hinged door Isolation panel etc. complete as per design /details /technical specifications and directions of Engineer-in-Charge with the following:					
<b>7.1</b>		<b>Isolation panel - Type-1 (for ICUs, OTs &amp; Casualty)</b>					
<b>A</b>		<b>INCOMER</b>					
j)		1No. 63A DP MCB(10KA)					
ii)		1No. 63A DP ELCB(300mA)					
<b>B</b>		<b>METERING &amp; INDICATION</b>					
j)		1 set of ON /OFF indicating lamps					
ii)		1 No. (0-500V) Voltmeter (size-72 sq.mm.) with Built-in VSS with 2A SP MCB					
iii)		1 No. (0-50A) Ammeter					
iv)		Scale Selection Indicator (5mA-10mA) with selector switch for LIM					
v)		Green indication lamp for safe zone					
vi)		Red indication lamp for hazard zone					
vii)		1 No. Buzzer for Alarm					
<b>C</b>		<b>LINE ISOLATION MONITOR</b>					
		Solid state Line isolation monitor suitable for detecting 2-4 mA (adjustable) leakage current					
<b>D</b>		<b>TRANSFORMER</b>					
		1 no 7.5 KVA, Single Phase, air cooled, copper conductor, double wound core type Isolation transformer					
<b>E</b>		<b>OUTGOINGS</b>					
		12 Nos 6A /16A SP MCB (10KA)					
		<b>Supply, fixing, testing &amp; commissioning of Isolation Panel as described above</b>	Sets	10			

Sl.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
7.2	NSR	<b>Isolation panel - Type-2 (for NICU)</b>					
A		<b>INCOMER</b>					
i)		1No. 40A DP MCB(10KA)					
ii)		1No. 40A DP ELCB(300mA)					
B		<b>METERING &amp; INDICATION</b>					
i)		1 set of ON /OFF indicating lamps					
ii)		1 No. (0-500V) Voltmeter (size-72 sq.mm.) with Built-in VSS with 2A SP MCB					
iii)		1 No. (0-40A) Ammeter					
iv)		Scale Selection Indicator (5mA-10mA) with selector switch for LIM					
v)		Green indication lamp for safe zone					
vi)		Red indication lamp for hazard zone					
vii)		1 No. Buzzer for Alarm					
C		<b>LINE ISOLATION MONITOR</b>					
		Solid state Line isolation monitor suitable for detecting 2-4 mA (adjustable) leakage current					
D		<b>TRANSFORMER</b>					
		1 no 5 KVA, Single Phase, air cooled, copper conductor, double wound core type Isolation transformer					
E		<b>OUTGOINGS</b>					
	12 Nos 6A /16A SP MCB (10KA)						
	<b>Supply, fixing, testing &amp; commissioning of Isolation Panel as described above</b>	Sets	4				
		<b>Total of Sub-Head-VI : MV Panels</b>					
		<b>Sub-Head -VII : L.T Cables</b>					
1	7.1	Laying of one number PVC insulated & PVC sheathed/ XLPE Power cable of 1.1 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required.					
a)	7.1.1	Upto 35 sq.mm.	Meter	4500			
b)	7.1.2	Above 35 sq.mm. and upto 95 sq.mm.	Meter	150			
c)	7.1.3	Above 95 sq.mm. and upto 185 sq.mm.	Meter	300			
d)	7.1.4	Above 185 sq.mm. and upto 400 sq.mm.	Meter	1000			
2	7.2	Laying of one number additional PVC insulated & PVC sheathed/ XLPE Power cable of 1.1 KV grade of following size direct in ground in the same trench in one tier horizontal formation including excavation, sand cushioning, protective covering and refilling the trench etc. as required.					
a)	7.2.1	Upto 35 sq.mm.	Meter	500			
b)	7.2.2	Above 35 sq.mm. and upto 95 sq.mm.	Meter	2200			
c)	7.2.3	Above 95 sq.mm. and upto 185 sq.mm.	Meter	1125			
d)	7.2.4	Above 185 sq.mm. and upto 400 sq.mm.	Meter	11050			
3	7.5	Laying of one number PVC insulated & PVC sheathed/ XLPE Power cable of 1.1 KV grade of following size in the existing RCC/ Hume/ Metal pipe as reqd.					
a)	7.5.1	Upto 35 sq.mm.	Meter	1100			
b)	7.5.2	Above 35 sq.mm. and upto 95 sq.mm.	Meter	150			
c)	7.5.3	Above 95 sq.mm. and upto 185 sq.mm.	Meter	250			
d)	7.5.4	Above 185 sq.mm. and upto 400 sq.mm.	Meter	650			
4	7.6	Laying of one number PVC insulated & PVC sheathed/ XLPE Power cable of 1.1 KV grade of following size in the existing Masonary open duct as reqd.					
a)	7.6.1	Upto 35 sq.mm.	Meter	800			
b)	7.6.2	Above 35 sq.mm. and upto 95 sq.mm.	Meter	550			
c)	7.6.3	Above 95 sq.mm. and upto 185 sq.mm.	Meter	100			
d)	7.6.4	Above 185 sq.mm. and upto 400 sq.mm.	Meter	1200			
5	7.7	Laying & fixing of one number PVC insulated & PVC sheathed/ XLPE Aluminium conductor cable of 1.1 KV grade of following size on Wall surface as required.					
	7.7.1	Upto 35 sq.mm. (clamped with 1mm thick saddle)	Meter	500			

Sl.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
6	7.8	Laying & fixing of one number PVC insulated & PVC sheathed/ XLPE Aluminium conductor cable of 1.1 KV grade of following size on Cable Tray as required.					
a)	7.8.1	Upto 35 sq.mm. (clamped with 1mm thick saddle)	Meter	1100			
b)	7.8.2	Above 35 sq.mm. and upto 95 sq.mm. (clamped with 25 x 3mm MS flat clamp)	Meter	400			
c)	7.8.3	Above 95 sq.mm. and upto 185 sq.mm. (clamped with 25/40 x 3mm MS flat clamp)	Meter	200			
d)	7.8.4	Above 185 sq.mm. and upto 400 sq.mm. (clamped with 40 x 3mm MS flat clamp)	Meter	800			
7	7.1	Supplying and fixing cable route marker with 10cm x 10cm x 5mm thick G.I.plate with inscription there on, bolted/ welded to 35mm x 35mm x 6mm angle iron, 60 cm long and fixing the same in ground as reqd.	Each	80			
8	9.1	Supplying & making of Indoor end terminations with brass compression gland and Al. lugs for following sizes of PVC insulated and PVC sheathed/ XLPE Al. conductor cable of 1.1 KV grade as required.					
a)	9.1.1	2 x 6 sq.mm.	Each	58			
b)	9.1.7	3 x 10 sq.mm.	Each	6			
c)	9.1.8	3 x 16 sq.mm.	Each	2			
d)	9.1.12	3 x 70 sq.mm.	Each	8			
e)	9.1.21	3.5 x 35 sq.mm.	Each	2			
f)	9.1.22	3.5 x 50 sq.mm.	Each	4			
g)	9.1.23	3.5 x 70 sq.mm.	Each	6			
h)	9.1.24	3.5 x 95 sq.mm.	Each	24			
i)	9.1.25	3.5 x 120 sq.mm.	Each	10			
j)	9.1.26	3.5 x 150 sq.mm.	Each	4			
k)	9.1.27	3.5 x 185 sq.mm.	Each	12			
l)	9.1.29	3.5 x 240 sq.mm.	Each	52			
m)	9.1.30	3.5 x 300 sq.mm.	Each	128			
n)	9.1.20	3.5 x 25 sq.mm.	Each	8			
n)	9.1.33	4 x 16 sq.mm.	Each	58			
o)	9.1.32	4 x 10 sq.mm.	Each	90			
9	4.1	Supply and fixing of perforated hot dip galvanised G.I. cable tray of following sizes complete with bend/tee joints, coupling plate & nuts bolts etc. as required for fixing. Including 10mm dia G.I. threaded rod, MS support fabricated from ISA50 & ISMC75, Anchor fastner etc complete.					
a)	4.1.2	150 mm wide x 50 mm depth x 1.6mm thickness.	RM	100			
b)	4.1.4	300 mm wide x 50 mm depth x 1.6mm thickness.	RM	80			
c)	4.1.7	600 mm wide x 50 mm depth x 2mm thickness.	RM	150			
d)	4.1.13	900 mm wide x 62.5 mm depth x 2mm thickness.	RM	350			
10	NSR	Supply of following sizes of XLPE/ PVC insulated Aluminium/ Copper conductor strip/ wire Armoured, overall PVC sheathed 1.1 KV grade cables conforming to relevant IS code and technical specifications.					
10.1		<b>XLPE insulated Al. Ar.Cable</b>					
a)	NSR	3.5C x 300 sq.mm.	RM	7500			
b)	NSR	3.5C x 240 sq.mm.	RM	7500			
c)	NSR	3.5C x 185 sq.mm.	RM	1425			
d)	NSR	3.5C x 150 sq.mm.	RM	500			
e)	NSR	3.5C x 120 sq.mm.	RM	50			
f)	NSR	3.5C x 95 sq.mm.	RM	1150			
g)	NSR	3.5C x 70 sq.mm.	RM	1150			
h)	NSR	3.5C x 50 sq.mm.	RM	450			
i)	NSR	3.5C x 35 sq.mm.	RM	50			
j)	NSR	3.5C x 25 sq.mm.	RM	550			
k)	NSR	4C x 16 sq.mm.	RM	1200			
l)	NSR	4C x 10 sq.mm.	RM	1500			
m)	NSR	4C x 6 sq.mm.	RM	50			
n)	NSR	3C x 70 sq.mm.	RM	150			
o)	NSR	3C x 16 sq.mm.	RM	50			

Sl.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
	p)	NSR 3C x 10 sq.mm.	RM	150			
	g)	NSR 3C x 6 sq.mm.	RM	1000			
	r)	NSR 3C x 4 sq.mm.	RM	700			
	s)	NSR 2C x 16 sq.mm.	RM	1350			
	t)	NSR 2C x 10 sq.mm.	RM	700			
	u)	NSR 2C x 6 sq.mm.	RM	400			
	<b>10.2</b>	<b>NSR PVC insulated Cu. Ar. Cables</b>					
	a)	NSR 3C x 1.5 Sq.mm.	RM	100			
	b)	NSR 4C x 4 Sq.mm.	RM	250			
	c)	NSR 4C x 2.5 Sq.mm.	RM	250			
	d)	NSR 2C x 4 Sq.mm.	RM	100			
	e)	NSR 2C x 2.5 Sq.mm.	RM	100			
	f)	NSR 7C x 2.5 Sq.mm.	RM	100			
	g)	NSR 14C x 2.5 Sq.mm.	RM	200			
	h)	NSR 19C x 2.5 Sq.mm.	RM	250			
	<b>10.3</b>	<b>NSR Providing &amp; Laying of following PVC insulated Cu. Conductor unarmoured cable.</b>					
	a)	NSR 1C x 120 sq.mm.	RM	100			
	b)	NSR 1C x 50 sq.mm.	RM	100			
	c)	NSR 1C x 25 sq.mm.	RM	925			
	d)	NSR 1C x 16 sq.mm.	RM	470			
	e)	NSR 1C x 10 sq.mm.	RM	250			
	<b>10.4</b>	<b>NSR Supply and making End termination with brass Double compression gland including providing and crimping of aluminum/ copper solderless lugs/ ferrules for XLPE/ PVC insulated armoured power aluminum/ copper conductor cables 1.1 KV grade of following sizes:</b>					
	<b>10.4.1</b>	<b>NSR Termination for Al. Ar.Cable</b>					
	a)	NSR 4 x 6 sq.mm.	Each	2			
	b)	NSR 2 x 16 sq.mm.	Each	120			
	c)	NSR 2 x 10 sq.mm.	Each	60			
	d)	NSR 2 x 6 sq.mm.	Each	50			
	e)	NSR 3 x 4 sq.mm.	Each	40			
	<b>10.4.2</b>	<b>NSR Termination for Cu. Cable</b>					
	a)	NSR 4C x 4/2.5 Sq.mm.	Each	32			
	b)	NSR 2C x 4/2.5/ 3C x 1.5 Sq.mm.	Each	24			
	c)	NSR 7C x 2.5 sq.mm.	Sets	8			
	d)	NSR 14C x 2.5 sq.mm.	Sets	12			
	e)	NSR 19C x 2.5 sq.mm.	Sets	16			
	<b>11</b>	<b>NSR Supply and fixing of hot dip galvanised G.I. Raceway of following sizes complete with bend/tee joints, coupling plates, Junction Boxes with SS cover as required &amp; nuts bolts etc. for fixing. Including 10mm dia G.I. threaded rod, MS support fabricated from ISA50 &amp; ISMC75, Anchor fastner etc complete as per design /details /technical specifications and directions of Engineer-in-Charge.</b>					
	a)	NSR 150 mm wide x 50 mm depth x 2mm thickness.	Meter	100			
	b)	NSR 250 mm wide x 50 mm depth x 2mm thickness.	Meter	80			
		<b>Total of Sub-Head -VII : L.T Cables</b>					
		<b>Sub-Head-VIII : Circuit Cum Point Wiring</b>					
<b>1</b>	<b>1.3</b>	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface/ recessed steel conduit with modular switch modular plate suitable GI box and earthing the point with 1.5 sq.mm FR PVC insulated copper conductor single core cable etc.as required.					

Sl.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
	<b>1.3.3</b>	Group C	Point	3855			
<b>2</b>	<b>1.10</b>	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface/ recessed <b>PVC</b> conduit with modular switch modular plate suitable GI box and earthing the point with 1.5 sq.mm FR PVC insulated copper conductor single core cable etc.as required.					
	<b>1.10.1</b>	Group A	Point	3425			
	<b>1.10.2</b>	Group B	Point	500			
<b>3</b>	<b>1.4</b>	Wiring for twin control light point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface/ recessed <b>steel</b> conduit with 2 way modular switch modular plate suitable GI box and earthing the point with 1.5 sq.mm FR PVC insulated copper conductor single core cable etc.as required.	Point	52			
<b>4</b>	<b>1.11</b>	Wiring for twin control light point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface/ recessed <b>PVC</b> conduit with 2 way modular switch modular plate suitable GI box and earthing the point with 1.5 sq.mm FR PVC insulated copper conductor single core cable etc.as required.	Point	60			
<b>5</b>	<b>1.5</b>	Wiring for power plug points with 2 x 4 sq.mm. FR PVC insulated, Cu. Conductor, single core cable in surface/ recessed <b>steel</b> conduit along with 1 No. 4sq.mm. FR PVC insulated copper conductor single core cable etc. as required.	Metre	16400			
<b>6</b>	<b>1.12</b>	Wiring for light/power plug points with 2 x 4 sq.mm. FR PVC insulated, Cu. Conductor, single core cable in surface/ recessed <b>PVC</b> conduit along with 1 No. 4sq.mm. FR PVC insulated copper conductor single core cable etc. as required.	Metre	7000			
<b>7</b>	<b>1.6</b>	Wiring for light / power plug with 4 x 4 sq.mm. FR PVC insulated, Cu. Conductor, single core cable in surface/ recessed <b>steel</b> conduit along with 2 Nos. 4sq.mm. FR PVC insulated copper conductor single core cable etc. as required.	Metre	6150			
<b>8</b>	<b>1.13</b>	Wiring for light/ power plug points with 4 x 4 sq.mm. FR PVC insulated, Cu. Conductor, single core cable in surface/ recessed medium class <b>PVC</b> conduit along with 2 Nos. 4sq.mm. FR PVC insulated copper conductor single core cable etc. for loop earthing as required.	Metre	2700			
<b>9</b>	<b>1.7</b>	Wiring for circuit/ submain wiring alongwith earth wire with the following size of PVC Insulated copper conductor single core cable in surface/ recess <b>Steel</b> conduit as required.					
a)	<b>1.7.1</b>	2x 1.5 sqmm+ 1x 1.5 sqmm earth wire	Metre	24200			
b)	<b>1.7.2</b>	2x 2.5 sqmm+ 1x 2.5 sqmm earth wire for outlet on UPS	Metre	5700			
c)	<b>1.7.4</b>	2x 6 sqmm+ 1x 6 sqmm earth wire	Metre	3720			
d)	<b>1.7.5</b>	2x 10 sqmm+ 1x 10 sqmm earth wire (for 40A Industrial socket & SPN DB Submain)	Metre	680			
e)	<b>1.7.6</b>	2x 16 sqmm+ 1x 16 sqmm earth wire (for 63A Industrial socket & SPN DB Submain)	Metre	340			
f)	<b>1.7.7</b>	4x 2.5 sqmm+ 2x 2.5 sqmm earth wire for outlet on UPS	Metre	1400			
g)	<b>1.7.9</b>	4x 6 sqmm+ 2x 6 sqmm earth wire	Metre	1970			
h)	<b>1.7.10</b>	4x 10 sqmm+ 2x 10 sqmm earth wire for 40A Industrial socket	Metre	1895			
i)	<b>1.7.11</b>	4x 16 sqmm+ 2x 16 sqmm earth wire	Metre	1835			
<b>10</b>	<b>1.14</b>	Wiring for circuit/ submain wiring alongwith earth wire with the following size of FR PVC Insulated copper conductor single core cable in surface/ recess medium class <b>PVC</b> conduit as required.					
a)	<b>1.14.1</b>	2x 1.5 sqmm+ 1x 1.5 sqmm earth wire	Metre	25750			
b)	<b>1.14.2</b>	2x 2.5 sqmm+ 1x 2.5 sqmm earth wire for outlet on UPS	Metre	100			
c)	<b>1.14.7</b>	4x 2.5 sqmm+ 2x 2.5 sqmm earth wire for outlet on UPS	Metre	100			
d)	<b>1.14.4</b>	2x 6 sqmm+ 1x 6 sqmm earth wire	Metre	2200			

Sl.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
e)	1.14.9	4x 6 sqmm+ 2x 6 sqmm earth wire	Metre	900			
f)	1.14.10	4x 10 sqmm+ 2x 10 sqmm earth wire for 40A Industrial socket	Metre	520			
g)	1.14.11	4x 16 sqmm+ 2x 16 sqmm earth wire	Metre	1030			
11	1.17	Supply & drawing of following sizes of FR PVC insulated copper conductor, single core cable in the <b>existing</b> surface/ recessed steel/ PVC conduit as required.					
a)	1.17.1	1 x 1.5 sq.mm.for dedicated earth wire for outlet on UPS	Metre	8600			
b)	1.17.2	2 x 1.5 sq.mm.for dedicated earth wire for outlet on UPS	Metre	2050			
c)	1.17.3	3 x 1.5 sq.mm.	Metre	15600			
d)	1.17.11	2 x 2.5 sq.mm.for dedicated earth wire for Power outlet on UPS	Metre	2700			
e)	1.17.22	4 x 4 sq.mm.for Powering AHUs	Metre	1000			
f)	1.17.31	4 x 6 sq.mm.for Powering AHUs	Metre	1490			
12	1.31	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess including providing and fixing 3 pin 5/6 Amp modular socket outlet and 5/6 A modular type switch, connections painting etc. as reqd, for Light plug point.(For light plugs to be used in non residential buildings.)	Each	425			
13	1.32	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess including providing and fixing 6 pin 15/16 & 5/6 Amp modular socket outlet and 15/16 A modular type switch, connections painting etc. as reqd. (for power sockets)	Each	1126			
14	1.24.1	Supplying and fixing of 5/6 Amps switch on the existing modular plate & switch box including connections but excluding modular plate etc. as reqd.	Each	1620			
15	1.24.4	Supplying and fixing of 3 pin 5/6 Amps socket outlet on the existing modular plate & switch box including connections but excluding modular plate etc. as reqd.	Each	2515			
16	1.24.3	Supplying and fixing of 15/16 Amps switch on the existing modular plate & switch box including connections but excluding modular plate etc. as reqd.	Each	370			
17	1.24.5	Supplying and fixing of 6 pin 15/16 Amps Socket on the existing modular plate & switch box including connections but excluding modular plate etc. as reqd.	Each	325			
18	1.26	Supplying and fixing of modular Blanking plate on the existing modular plate & switch box including connections but excluding modular plate etc. as reqd.	Each	1350			
19	1.25	Supplying and fixing of Stepped type electronic fan regulator on the existing modular plate & switch box including connections but excluding modular plate etc. as reqd.	Each	1142			
20	1.27	Supply and fixing of following size/ modules, GI box along with modular base & cover plate for modular switch/ regulator in recess, including connection as required.					
a)	1.27.1	1or 2 module (75mmx 75mm)	Each	1142			
b)	1.27.3	4 module (125mmx 75mm)	Each	735			
c)	1.27.4	6 module (200mmx 75mm)	Each	610			
21	1.33	Supplying & fixing of 3 pin, 5 amp ceiling rose on the existing junction box/ wooden block including connection as required, for Exit signage.	Each	646			
22	1.34	Supplying & fixing of brass batten/ angle holder including connection as required.	Each	895			
23	1.38	Supply & fixing of Call bell/ Buzzer suitable for A.C. single phase, 230 volts complete as required.	Each	79			

Sl.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
24	2.18	Supplying and fixing 20 Amps. 240 Volts SPN industrial type socket outlet, with 2 pole and earth metal enclosed plug top along with 20 A 'C' series SP MCB in sheet steel enclosure, on surface or in recess with chained metal cover for the socket outlet complete with connections testing and commissioning etc. as reqd. for A.C. outlet.	Each	266			
25	NSR	Providing & fixing, testing & commssioning of 32A Moulded Plastic 3 pin Socket outlet and Top with 32A SP MCB in a suitable size of moulded PVC box (IP44), including earthing of third pin of the socket.	Each	42			
26	NSR	Providing & Fixing of 32A Moulded Plastic 5 pin Socket outlet and Top with 32A TPN MCB in a suitable size of moulded PVC box (IP44), including earthing of third pin of the socket.	Each	27			
27	NSR	Providing & Fixing of 40A Moulded Plastic 5 pin Socket outlet and Top with 40A TPN MCB in a suitable size of moulded PVC box (IP44), including earthing of third pin of the socket.	Each	12			
<b>Total of Sub-Head-VIII : Circuit Cum Point Wiring</b>							
<b>Sub-Head - IX : Conduits and Wiring for Tel., MATV &amp; Nurse Call System</b>							
1	1.21	Supply & fixing of following sizes of Medium Class PVC conduit along with accessories in surface / recessed including cutting the wall & making good the same in case of recessed conduit as required, for conduiting in Flat and from flat to LV shaft					
a)	1.21.1	20 mm dia.	Mtrs.	1125			
b)	1.21.2	25 mm dia.	Mtrs.	4900			
c)	1.21.3	32 mm dia.	Mtrs.	100			

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
2	1.20	Supplying and fixing of following sizes of steel conduit along with accessories in surface / recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required					
a)	1.20.1	20 mm dia.	Mtrs.	3050			
b)	1.20.2	25 mm dia.	Mtrs.	10100			
c)	1.20.3	32 mm dia.	Mtrs.	450			
3	1.22.6	Supply & Fixing surface metal box of following sizes (nomial size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including painting etc as required . Size: 200mm x 125mm x 60mm deep (LV Shaft for coupling of MS cond. to PVC cond).	Each	165			
4	1.19	Supply and drawing of Co-axial TV cable RG-6 grade, 0.7mm solid Cu. Conductor PE insulated, shielded with fine tinned Cu. Braid & protected with PVC sheath in existing surface / recessed steel/ PVC conduit as reqd.	Mtrs.	6750			
5	1.24.6	Supplying and fixing of modular Telephone socket outlet on the existing Modular plate & switch including connection but excluding modular plate etc. as required.	Each	442			
6	1.24.7	Supplying and fixing of modular TV antenna socket outlet on the existing Modular plate & switch including connection but excluding modular plate etc. as required.	Each	268			
7	1.27	Supply and fixing of following size/ modules, GI box along with modular base & cover plate for modular switch/ regulator in recess, including connection as required.					
	1.27.1	1or 2 module (75mmx 75mm)	Each	862			
8	14.13	Providing, laying and fixing following dia. GI pipe (medium class) in ground complete with G.I. fittings including trenching (75cm deep) and refilling etc. as required.					
a)	14.13.2	80mm dia	Mtrs.	140			
b)	14.13.3	100mm dia	Mtrs.	50			
9	14.14	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 (75cm deep) and refilling etc. as required.					
a)	14.14.2	150mm dia	Mtrs.	100			
b)	14.14.3	250mm dia	Mtrs.	30			
c)	14.14.4	300mm dia	Mtrs.	150			
10	1.18	Supplying & Drawing following pair 0.5 sqmm FR PVC insulated annealed cu.conductor, Unarmoured Tel. Cable in existing surface/recessed steel/ PVC conduit as required.					
	1.18.2	2 Pair	Mtrs.	7750			
11	NSR	Supply, installation, testing and commissioning of following krone type tag blocks enclosed in MS enclosure of suitable size with lockable cover.					
a)	NSR	200 pair Tag block	No	1			
b)	NSR	100 pair Tag block	No	1			
c)	NSR	80 pair Tag block	No	1			
d)	NSR	50 pair Tag block	No	1			
e)	NSR	40 pair Tag block	No	9			
f)	NSR	20 pair Tag block	No	5			
g)	NSR	10 pair Tag block	No	10			

Sl.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
12	NSR	Supply, laying, testing and commissioning of following size of 0.61mm dia copper conductor multi pair Armoured telephone cable as per suitable for indoor telephone wiring conforming for ITD S/WS - 113 C and S/WS - 114 (actual qty. may vary as per site) in existing conduit/ trench/ tray					
a)	NSR	5 pair Ar. Cable	RM	200			
b)	NSR	10 pair Ar.cable	RM	740			
c)	NSR	20 pair Ar. Cable	RM	50			
d)	NSR	25 pair Ar.cable	RM	890			
e)	NSR	40 pair Ar. Cable	RM	120			
f)	NSR	80 pairs Ar.cable	RM	200			
g)	NSR	100 pairs Ar. cable	RM	300			

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
13	NSR	Design, Fabrication, Supply, Erection, Testing and commissioning of Powder coated, Weather Proof Double door type <b>Feeder pillar</b> for following size of approved Tag blocks, fabricated out of 14 guage CRCA sheet steel in cubical, free standing, dust and vermin proof, with reinforcement of suitable size angle iron, channel, T-iron or flats as required. Feeder pillar shall be treated with all anti-corrosive process before painting as per specification. Feeder Pillar shall be suitable for mounting of Krone Tag blocks complete with lifting hooks as required in case of large panels etc complete as per design /details /technical specifications and directions of Engineer-in-Charge. Approval shall be taken for each panel before fabrication. (All hardwares like nuts and bolts used shall be Galvanized and Zinc passivated )					
		200 pair Tag block	Set	2			
14	NSR	Supplying, drawing, connecting & testing of 4 pair CAT-5(E) wire for Data Outlet in existing conduit	RM	3350			
15	NSR	Supplying, drawing, connecting & testing of 4 pair CAT-6 (E) wire for Data Outlet in existing conduit	RM	12800			
16	NSR	Supply, fixing, testing & commissioning of Modular RJ-45 with Single data outlet socket with grid & cover plate in suitable size of 16 SWG GI box.	Nos	452			
17	NSR	Supply, fixing, testing & commissioning of Modular RJ-45 with Duplex data outlet socket with grid & cover plate in suitable size of 16 SWG GI box.	Nos	35			
18	NSR	Supply of Line Amplifiers for TV signal Booster from 70db to 110db. Note:contractor shall submit the brochure for approval of the item.	Nos.	6			
19	NSR	Receiving, installation, testing and commissioning of Line Amplifiers.	Nos.	6			
20	NSR	Supply, erection, testing and commissioning of splitter/ Tap-off terminals for Co-axial cables in suitable size of G.I. Boxes with hinged lockable cover complete.					
a)	NSR	Two way Splitter(S2)	Nos.	36			
b)	NSR	4 way splitter	Nos.	10			
c)	NSR	1 way Tap-off Box.	Nos.	18			
d)	NSR	2 way Tap-off Box.	Nos.	57			
e)	NSR	3 way Tap-off box	Nos.	12			
f)	NSR	4 way Tap-off box	Nos.	16			
21	NSR	Supply, laying and connecting of RG11 Co-axial TV cable as per specifications in the existing conduit / raceways trays etc.	RM	625			
22	NSR	Installation, testing and commissioning with required connections of following bedside panel (to be mounted on the bedhead side of patients' bed) complete with cutting of chases & making good of the same and providing of all necessary hardware etc complete as per design /details /technical specifications and directions of Engineer-in-Charge as required for fixing(Panels shall be provided by the EIC).					
a)		Bedside panel Type-1 (Casualty, ICU, NICU)	Sets	54			
b)		Bedside panel Type-2 (General Ward)	Sets	106			
		<b>Total of Sub-Head - IX : Conduits and Wiring for Tel., MATV &amp; Nurse Call System</b>					
	NSR	<b>Sub-Head - X: Supply of Light Fixtures</b>					
		Supply of following fans & Light fittings with <b>Electronic Ballast (THD&lt;10%, HF-P)</b> , starter, control gears, lamps holder, transformer etc. as called for and flexible wires as required for fixing <b>including providing of Lamps</b> as required.					

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
1	NSR	1 x 28W Box type Fluorescent luminaire wall/surface mounted including providing of 28W T5 tube rod complete (Philips Cat. No. TMS 122 M 1xTL5-28W EBT or equivalent)	Each	1107			
2	NSR	1 x 28W Fluorescent Industrial luminaire wall/surface mounted including providing of 28W T5 tube rod complete (Philips Cat. No. TMS 122 M 1xTL5-28W EBT with GMS 128R or equivalent)	Each	42			
3	NSR	2 x 28W Fluorescent Industrial luminaire wall/surface mounted including providing of 2 Nos of 28W fluorescent tube rod complete (Philips Cat. No. TCS 350 2xTL5-28W EB C5 or equivalent)	Each	42			
4	NSR	2 x 28W Fluorescent Industrial luminaire wall/surface mounted including providing of 2 Nos. 28W T5 tube rod complete(Philips Cat. No. TMS 122 M 2xTL5-28W EBT with GMS 128R or equivalent)	Each	86			
5	NSR	2 x 28W Box type Fluorescent luminaire wall/surface mounted including providing of 2 Nos. 28W T5 tube rod complete (Philips Cat. No. TCS 150 2xTL5 28W MI EBT or equivalent)	Each	265			
6	NSR	Recessed mounted 2 x 28Watt Fl. luminaire including providing of 2 nos. 28W T5 tube complete.(Philips Cat. No. TBS 669 2xTL5 28W EB D6 or equivalent)	Each	10			
7	NSR	Recessed mounted 2 X 28 Watt fluorescent clean Room luminaire including providing of 2 Nos.2 X 28 Watt T5 Tube rod complete and suitable for access for lamps from bottom, as approved. (Philips Cat. No. TBS 670 2xTL5 28W-EB BO GT or equivalent)	Each	150			
8	NSR	Recessed type 2 x 28Watt CFL luminaire including providing of 2 nos. 28W CFL complete.(Philips Cat. No. FBS 440/236 D6 HF or equivalent)	Each	230			
9	NSR	Recessed type 2 x 28Watt CFL luminaire including providing of 2 nos. 28W CFL complete.(Philips Cat. No. FBS 450/236 M2 HF or equivalent)	Each	100			
10	NSR	Recessed type 2 x 18 Watt CFL luminaire including providing of 2 nos. 18W CFL complete.( Philips Cat. No. FBS 285/218 HF or equivalent)	Each	20			
11	NSR	Recessed type 2 x 18 Watt CFL luminaire including providing of 2 nos. 18W CFL complete.(Philips Cat. No. FBH 145/218 HF or equivalent)	Each	20			
12	NSR	Recessed type 2 x 13 Watt CFL luminaire including providing of 2 nos. 13W CFL complete.(Philips Cat. No. FBH 145/213 HF or equivalent)	Each	10			
13	NSR	Recessed type 1 x 13 Watt CFL luminaire including providing of 1 no. 13W CFL complete.(Philips Cat. No. FBH 145/113 HF or equivalent)	Each	10			
14	NSR	Recessed type 1 x 11 Watt CFL luminaire including providing of 1 nos. 11W CFL complete.( Philips Cat. No. FBH 145/111 HF or equivalent)	Each	10			
15	NSR	Surface type 2 x 36Watt CFL mirror optic luminaire including providing of 2 nos. 36W CFL complete.(Bajaj Cat. No. BASM 236 CFL WEB2 or equivalent)	Each	560			
16	NSR	Surface mounted 2 x 9 Watt CFL luminaire including providing of 2 nos. 9W CFL complete.(Philips Cat. No. FCS 518/209 or equivalent)	Each	179			
17	NSR	Surface mounted 2 x 18 Watt CFL luminaire including providing of 2 nos. 18W CFL complete.( Philips Cat. No. FCS 518/218 or equivalent)	Each	832			
18	NSR	Surface mounted 1 x 9 Watt Fl. luminaire including providing of 1 nos. 9W CFL complete.(Philips Cat. No. FMS 200/109 or equivalent) for Mirror Light	Each	331			

Sl.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
19	NSR	Wall mounted Bedhead 18W FTL light fitting including providing of 1 no.18W FL.tube lamp complete. (Wipro Cat. No. WVF 90118 or equivalent)	Each	20			
20	NSR	Decorative Bracket/ Picture Light with 13W CFL including providing of lamp complete, Bajaj Cat. No.-BJC111 or equiv.)	Each	225			
21	NSR	Bulk head light fitting including providing of 9 W CFL lamp complete(Philips Cat. No. FXC 101or equivalent)	Each	74			
22	NSR	Decorative Under water Light with 75W Reflector including providing of lamp complete.(Philips Cat. No. NHG 10 or equivalent)	Each	8			
23	NSR	Illuminated Double Sided 3W LED exit sign with battery backup of 2 Hrs. minimum. (Bajaj Cat. No. BESL 03 LED SSD WBB Red/ Green or equivalent)	Each	100			
24	NSR	Recessed type 1 x 70 Watt MH luminaire including providing of 1 nos. 70W CDMT Lamp complete. (Philips Cat. No. MBS 205 HF-R or equivalent)	Each	43			
25	NSR	Flood Light Luminaire with 150W MHN-TD lamp complete with mounting bracket. (Philips Cat. No.MWF 231 1xMHNTD-150W A or equivalent)	Each	12			
26	NSR	Decorative integral 150W CDMT Medium bay luminaire with prismatic diffusers, polycarbonate reflector & bottom cover with fixing ring complete with 1 no. 150W CDM-ET lamp (Bajaj Cat. No. BLRI 150 MH (E27) or equivalent)	Each	6			
27	NSR	1200mm sweep 3 blade Energy Saving Ceiling fan complete with assembling of blades, down rod, shackle insulator, canopy etc.	Each	867			
28	NSR	1400mm sweep 3 blade Energy Saving Ceiling fan complete with assembling of blades, down rod, shackle insulator, canopy etc.	Each	35			
29	NSR	Exhaust fan with louver and with 3 core flexible wire of make.					
a)	NSR	300mm 900 RPM	Each	320			
b)	NSR	450mm 1400 RPM	Each	165			
30	NSR	1 x 150 W Street light luminaire with pressure die cast aluminium housing having POT optics, including providing of 150W SON lamp complete ( Philips Cat. No. SGP401 GLA SON 150W(I) or equivalent)	Each	40			
31	NSR	Bollard Light including providing of 18W CFL as required. (Bajaj Cat. No. BECBL 03 118 CFL B or equivalent)	Each	20			
32	NSR	Post Top Lantern fitting Black ABS plastic spigot, spun aluminium canopy, with Clear acrylic diffuser and accessories, integral, Fedora hat with 18W CFL Lamp as required. (Bajaj Cat. No. BRPTCI 118 Clear or equivalent)	Each	75			
33	NSR	Eco Friendly outdoor decorative Novel Design lighting coloumn suitable for 70W MHDE lamp complete as required. (Bajaj Cat. No. BNRPRL 70 SV DE or equivalent)	Each	15			
		<b>Total of Sub-Head - X: Supply of Light Fixtures</b>					
		<b>Sub-Head-XI: Fixing of Fan &amp; Light Fixtures</b>					
1	1.41	Installation, testing & commissioning of pre-wired, fluorescent fitting / compact fluorescent fitting of all type, complete with all accessories & tubes etc. directly on ceiling / wall, including connection with 1.5 sq.mm. FRLS PVC insulated, copper condutor, single core cable and earthing etc. as required.	Each	3113			

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
2	1.45	Installation, testing & commissioning of ceiling fan including wiring the down rods of standard length ( upto 30 cm) with 1.5 sq.mm FRLS PVC insulated, copper conductor, single core cable, including providing and fixing phenolic laminated sheet cover on the fan box etc. as reqd.	Each	902			
3	1.50.1	Installation of Exhaust fan upto 450mm sweep in the existing opening , including making good the damage connection, testing commissioning etc. as required.	Each	485			
4	1.51	Extra for fixing the louvers/ shutters complete with frame for a exhaust fan of all sizes.	Each	485			
5	NSR	Installation, testing & commissioning of following pre-wired light fixtures including providing of all necessary hardwares like chian suspenders, anchor bolts, nuts & bolts etc. , as required for fixing. Including connection with 1.5 sq.mm FR PVC insulated, Cu. Conductor single core cable & earthing etc. complete as per design /details /technical specifications and directions of Engineer-in-Charge.					
a)	NSR	All type of Recessed CFL Downlighter.	Each	93			
b)	NSR	All type of Bulkhead/Indescent/Bracket light fittings.	Each	299			
c)	NSR	Mirror light suitable for 1 X 11/13W CFL lamp.	Each	331			
d)	NSR	All type of Recessed mounted Flourescent fitting in false ceiling	Each	160			
e)	NSR	All type of Recessed mounted CFL fitting in false ceiling	Each	370			
f)	NSR	Illuminated Double Sided 3W LED exit sign with battery backup of 2 Hrs. minimum complete.	Each	100			
g)	NSR	All type of Flood Light & Medium bay luminiare complete with control gear including providing and grouting of mounting brackets, hardwares etc. as required for fixing.	Each	18			
h)	NSR	All type of Post Top luminiare complete with controlgear on upto 4 Meter high poles etc. as required for fixing.	Each	90			
i)	NSR	All type of Street Light luminiare complete with controlgear on upto 7 Meter high poles etc. as required for fixing.	Each	105			
j)	NSR	All type of Bollard light complete with all fixing hardwares etc. as required for fixing.	Each	20			
k)	NSR	All type of Under water light complete with cutting of brick-work, grouting of box, and making good of the same with cement mortar plaster.	Each	8			
<b>Total of Sub-Head-XI: Fixing of Fan &amp; Light Fixtures</b>							
<b>Sub-Head-XII: Distribution Boards</b>							
1	2.3	Supplying and fixing following way, single pole and neutral, sheet steel MCB distribution board, 240 volts, on surface/ recess, complete with tinned copper busbars, neutral bus bars earth bar, dinbar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/solator)					
a)	2.3.6	2+6 way, Double door	Each	16			
b)	2.3.7	2+8 way, Double door	Each	11			
c)	2.3.8	2+12 way, Double door	Each	45			

Sl.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
2	2.4	Supplying and fixing following way, horizontal type three Pole and neutral, sheet steel MCB distribution board, 415 volts, on surface/ recess, complete with tinned copper busbars, neutral busbar, earth bar, dinbar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)					
a)	2.4.5	6 Way(4+18), Double door	Each	31			
b)	2.4.6	8 Way(4+24), Double door	Each	68			

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
3	2.6	Supplying& fixing following ways surface/ recessed mounting Vertical type 415V TPN MCB distribution board of sheet steel, dust protected, duly powder painted inclusive of 200 amps tinned Cu. Bas bar, neutral link, earth bar DIN bar for mounting MCBs with provision of 100 A TP 16KA MCCB as incomer, interconnection between incomer MCCB & bus bar of following ways( but without MCBs) as reqd.					
a)	2.6.1	4 ways TP	Each	3			
b)	2.6.2	8 ways TP	Each	5			
4	2.8	Supplying & fixing following prewired TPN MCB distribution board of sheet steel for 415 volts on Surface / recessed complete with loose wire box, terminal connectors for all incomer & outgoing circuits, duly prewired with adequate size of FR PVC insulated Cu. conductor upto terminal blocks tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as reqd. (but without MCB/RCCB/ Isolator).					
	2.8.8	12 Way (4+36) Double door	Each	21			
5	2.14	Supplying & Fixing of following rating double pole (single phase and neutral) 240 volts, Residual Current Circuit Breaker (RCCB), having a sensitivity current upto 300 milli-amperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.					
a)	2.14.1	25 Amps	Each	20			
b)	2.14.2	40 Amps	Each	243			
c)	2.14.3	63 Amps	Each	165			
6	2.15	Supplying & Fixing of following rating four pole (three phase and neutral) 415 volts, Residual Current Circuit Breaker (RCCB), having a sensitivity current upto 300 milli-amperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.					
	2.15.3	63A	Each	8			
7	2.10	Supplying & fixing 5 amps to 32 amps rating 240/ 415volts C series, Miniature Circuit Breaker suitable for inductive loads of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.					
a)	2.10.1	Single Pole	Each	2886			
b)	2.10.3	Double Pole	Each	17			
c)	2.10.4	Triple Pole	Each	27			
d)	2.10.5	Triple Pole & Neutral	Each	16			
8	2.2	Providing and fixing following rating and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc as required					
	2.2.1	100A, 16KA	Each	8			
9	2.11	Supply & fixing of single pole blanking plate in the existing MCB DB complete etc. as required	Each	132			
10	2.21	Providing & fixing of M.V. danger notice plate of 200 mm x 150 mm, made of mild steel, at least 2 mm thick, and vitreous enamelled white on both sides, and with inscription in single red colour on front side as required.	Each	28			
11	2.22	Providing & fixing of H.T danger notice plate of 250 mm x 200 mm, made of mild steel, at least 2 mm thick, and vitreous enamelled white on both sides, and with inscription in single red colour on front side as required.	Each	4			

Sl.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
12	NSR	Supplying & fixing 5 amps to 32 amps rating 240 volts C series, Miniature Circuit Breaker suitable for lighting loads of following poles in the existing MCB DB complete with connections, testing and commissioning etc complete as per design /details /technical specifications and directions of Engineer-in-Charge.					
a)	NSR	40A DP	Each	36			
b)	NSR	63A DP	Each	13			
c)	NSR	40A FP	Each	55			
d)	NSR	63A FP	Each	57			
13	NSR	Supplying & fixing following rating of Double/ Four Pole Contactor with 24 Hrs setting Timer in the existing MCB DB complete with connections, testing and commissioning etc complete as per design /details /technical specifications and directions of Engineer-in-Charge.					
a)	NSR	40A DP Contactor, AOM with Timer ( 24 Hrs.)	Each	6			
b)	NSR	40A TP Contactor, AOM with Timer ( 24 Hrs.)	Each	4			
		<b>Total of Sub-Head-XII: Distribution Boards</b>					
		<b>Sub-Head- XIII- Earthing and Lightning Conductor System</b>					
1	5.4	Earthing with G.I. earth Plate 600mm x 600mm x 6mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. of 2.7m long with charcoal or coke and salt as required.	Set	31			
2	5.6	Earthing with Cu. earth Plate 600mm x 600mm x 3mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. of 2.7m long with charcoal or coke and salt as required.	Set	20			
3	5.9	Supplying & laying of 25mm x 5 mm G.I. strip at 0.5 meter below ground as strip earth electrode including connection/ terminating with GI nut, bolt, spring, washer etc. as reqd. (Joining shall be done by overlapping & with 2 sets of GI nut bolt & spring washer spaced at 50mm).	Metre	310			
4	5.15	Providing and fixing 25mm x 5mm GI Strip on surface or in recess for connections etc. as required. (on existing cable tray)	Metre	1320			
5	6.14	Providing and laying 32mm x 6mm G.I. Tape from earth electrode directly in ground as required.	Metre	380			
6	5.14	Providing and fixing 25mm x 5mm copper Strip on surface or in recess for connections etc. as required.	Metre	50			
7	5.16	Providing and fixing 6SWG dia GI Wire on surface or in recess for loop earthing as required.	Metre	11920			
8	5.20	Providing and fixing of 50mm x 5mm copper strip on surface for connection etc. as required.	Metre	120			
9	6.1	Providing & fixing of lightning conductor finial made of 25mm dia. 300mm long, Cu tube, having single prong at top, with 85mm dia. 3mm thick Cu base plate including holes etc. complete as required.	Each	4			
10	6.2	Providing and fixing of 25mm dia., 300mm long G.I. tube lightning conductor finial having single prong at top, with 85mm dia. 6mm thick G.I. base plate including holes etc. complete with all hardwares as required for fixing.	Each	13			
11	6.7	Providing and fixing 20 mm x 3mm G.I strip on parapet or surface of wall for lightning conductor as required. (for horizontal run).	Metre	700			

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
12	6.8	Providing and fixing 20 mm x 3mm G.I. tape on parapet or surface of wall for lightning conductor as required. (for Vertical run).	Metre	365			
13	6.12	Providing and fixing of testing joint, made of 20mm x 3mm thick G.I. strip, 125mm long test joint with G.I. bolts, nuts, check nuts and spring washers etc. complete as required.	Each	17			
14	5.2	Earthing with G.I. earth pipe 4.5 mtr. long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal or coke and salt as required.	Set	19			
15	6.4	Reverting, sweating & soldering of copper / G.I. tape ( with another copper/ GI tape, base of the finial, or any other metallic object as required.	Each	396			
16	5.11	Providing and fixing 25mm x 5mm G.I Strip in 40mm dia GI Pipe from earth electrode including connections with G.I bolts, nuts, check nuts and spring washers, excavation & refilling etc. as required.	Metre	50			
		<b>Total of Sub-Head- XIII- Earthing and Lightning Conductor System</b>					
		<b>Sub-Head-XIV: Capital Items (Inverter, UPS, Solar Plant &amp; EPABX)</b>					
1	NSR	Supply, Installation, testing & commissioning of 230V, 2.5 KVA Inverter complete with Over-load protection relay, battery charger, 12V, 180 AH Lead Acid battery, Moulded Plastic Cabinet/rack for Battery & Inverter including interconnection wiring with suitable size of PVC insulated Copper wire from battery to Inverter.	Sets	10			
2	NSR	Supply, Installation, testing & Commissioning of high performance IGBT/PWM base true on line double conversion fully microprocessor controlled UPS System of following ratings complete with in-built solid state By-pass switch, complete including Sealed maintenance free Batteries for <b>30 minutes back up</b> , complete with battery racks, inter connection links, DC cable, inbuilt DC isolator with fuse protection.					
a)	NSR	40 KVA	Sets	2			
b)	NSR	30 KVA	Sets	2			
c)	NSR	20 KVA	Sets	3			
d)	NSR	10 KVA	Sets	1			
3	NSR	<p><b>Solar Plant</b></p> <p>Design, Manufacture, Supply, Installation, Testing &amp; Commissioning of 5 KW, 1Ph. 220V ± 5%, 50Hz. Solar Power Plant with Battery Bank of suitable rating including G.I. ISMC/ ISA support structure as required, with battery leads and complete with all standard accessories, Hardwares &amp; protection as required. The Solar Plant shall comprising of following:</p> <p>Mono/Multi crystalline silicon type interconnected <b>Photo-Voltaic solar cell panels</b> with mounting structure, arrangements and all the accessories, including protections with indications, solar charge controller, complete with copper conductor interconnecting links and earthing etc. as required.</p> <p><b>Panel Modules</b> shall be as per the standards to achieve rated power Output of 5 KW with efficiency not less than 90% .</p> <p><b>Batteries</b> shall be maintenance free valve regulated Lead Acid type of suitable capacity for 14Hrs. Back up complete with Interconnecting wires and MS Rack coated with Acid resistant Paint.</p> <p><b>Inverter/ UPS</b> of suitable rating complete with battery charger, necessary protections required, LCD display etc. complete with all accessories as required.</p> <p>Above Complete as per design /details /technical specifications and directions of Engineer-in-Charge.</p>	Set	6			

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
4	NSR	<b>EPABX</b> 500 ports EPABX equipped with Minimum of 200 extensions expandable to 400 extensions having 2 Nos PRI line, Digitel Telephone Instruments with in built voice guides, with minimum of 5 lines conference, Voice mail Interfacing, 2 Nos. PC Based Operator Console, call billing system, FCBC 48V / 6AH Batteries with one krone type 500 Pair MDF. Above complete as per design /details /technical specifications and directions of Engineer-in-Charge.	Set	1			
		<b>Total of Sub-Head-XIV: Capital Items (Inverter, UPS, Solar Plant &amp; EPABX)</b>					
		<b>Sub-Head-XV: Safety Equipment</b>					
1	NSR	Supplying and fixing of non-skid rubber mat 20mm thick and 900mm width as required including cutting to required lengths of approved make with Test Certificates suitable for 11 KV grade	Mtrs.	5			
2	NSR	Supplying and fixing of non-skid rubber mat 12mm thick and 900mm width as required including cutting to required lengths of approved make with Test Certificates suitable for 1100 Volt.	Mtrs.	123			
3	NSR	Supplying and fixing of shock treatment chart written in English and Hindi duly framed in as required.	Each	13			
4	NSR	Supplying and fixing of first aid box as approved complete with standard kit as prescribed by Indian Red Cross.	Each	7			
5	NSR	Supply of Hand gloves made out of rubber suitable for 1100 volt grade	Pairs	8			
6	NSR	Supply of Hand gloves made out of rubber suitable for 11000 volt grade	Pairs	2			
7	NSR	Supplying and fixing of a set of four nos. of fire bucket painted red and duly filled with sand conforming to IS: 2546-1974 complete with MS stand suitable for supporting four buckets (Pedestal type)	Each	1			
8	NSR	Supplying and fixing of 4.5 kgs. Capacity carbon dioxide type fire extinguisher of ISI approved make with wall mounting bracket as required.	Each	2			
9	NSR	Supplying and fixing of 5 kgs. Capacity ABC dry powder type fire extinguisher of ISI approved make with wall mounting bracket as required.	Each	2			
		<b>Total of Sub-Head-XV: Safety Equipment</b>					
		<b>Sub-Head-XVI : Poles for External Lighting</b>					
1	NSR	Supply of hot dipped galvanized (in single dip to average 70 micron) <b>3.0 meter high</b> , minimum dia.107mm at bottom & 75mm at top octagonal pole made of 4mm thick steel plate having base plate 200x200x12mm, Nipple / Reducer to install Post Top Lantern fitting, window and flush cover with locking arrangement at suitable height from base for cable termination block, pole suitably reinforced with welded steel section at window cut section to make the strength of pole unaffected, with 10/16A SP MCB and 3 way connector, including providing of 3x1.5 sq.mm. Cu. wire from JB to Light fittings as required,including template and anchor plate 240x240x3mm with 4 nos 450mm long, 16mm dia foundation bolts (EN8 grade) etc complete as per design /details /technical specifications and directions of Engineer-in-Charge.	Sets	75			

Sl.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
2	NSR	Supply of hot dipped galvanized (in single dip to average 70 micron) <b>7.0 meter high</b> , minimum dia.151mm at bottom & 75mm at top octoganal pole made of 4mm thick steel plate having base plate 240x240x16mm, window and flush cover with locking arrangement at suitable height from base for cable termination block, pole suitably reinforced with welded steel section at window cut section to make the strength of pole unaffected, with 10/16A SP MCB and 3 way connector, including providing of 3x1.5 sq.mm. Cu. wire from JB to Light fittings as required,including template and anchor plate 240x240x3mm with 4 nos 700mm long, 20mm dia foundation bolts (EN8 grade) etc complete as per design /details /technical specifications and directions of Engineer-in-Charge.	Sets	30			
3	NSR	Supply and fixing following street light pole bracket on existing pole made out of 50 mm dia MS "B" class pipe welded to 300 mm long MS pole canopy of suitable dia at a angle of 102.50 including having MS triangular stiffner of size 150 X 50 X 5 mm thick, making arrangement for tightening the bracket with pole by providing suitable size heavy duty nuts and bolts in canopy, painting with one coat of approved steel primer etc. as required.					
a)		Single Over Hang 1.0 metre Long	Sets	20			
b)		Double Over Hang 1.0 metre Long	Sets	10			

SL.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
4	NSR	Supply, Assembling and Erection of 30 meter High Winch Mast Polygonal Pole with 10 nos. Flood light fixtures & controlgear, fabricated from continuously tapered folded steel section of suitable size & thickness to withstand wind speed of 180 km/hr., complete with all standard accessories like winches, lantern carriage etc. including the cost of providing foundation and base pedestal of approved design incorporating a suitable cable looping box with terminal blocks, MCBs etc. and including Power tool consisting of 3 phase, 415 V,50 Hz, IP-55 and above reversible motor, suitable Chord connected control module to operate from appx 5 meter distance, protection interlocks and accessories as required, including providing of 80 mm dia. 'B' class G.I. pipe of suitable length for cable entry, 3x10/6 sq.mm. Al. Unar.cable as required from JB to Light fittings as required, including painting with 2 coats of Al.colour paint, & as per specs. including providing of 150W SON-T Flood Light Luminaires (Philips Cat No. MWF231) with lamps etc complete as per design /details /technical specifications and directions of Engineer-in-Charge.	Sets	3			
5	NSR	Supply and erection bracket for Gate light of 750mm long, 40mm dia. MS pipe with 300mm x 300mm x 6 mm thick MS base plate including grouted 300 mm deep with PCC in column of gate, grouting/fixing of suitable size of J.box with 10/16A SP MCB and 4way connector, 40 mm dia. 'B' class G.I. pipe of suitable length for cable entry, 3x1.5 sq.mm. Cu. wire from JB to Light fittings as required, complete with painting with 1 coat of primer and 2 coat of white enamel paint or approved colour complete with recieving, assembling and fixing of light fitting on the pole etc complete as per design /details /technical specifications and directions of Engineer-in-Charge.	Sets	4			
6	NSR	Street Light Solar Luminare with 12W LEDs including 75Ah Battery enclosed in MS Box with 75Wp Solar Panel with 6 Metre GI Pole complete with mounting bracket clamps etc. as required. (Bajaj Cat. No. BSZSL 12 LED or equivalent)	Each	30			
7	NSR	Supply, fixing testing & commissioning of Suitable size of Weather Proof J.box mounted on wall/ foundation/ MS angle etc complete as per design /details /technical specifications and directions of Engineer-in-Charge.	Nos.	20			
8	NSR	Supply & fixing of 4.0 Meter high Designer black painted galvanised pole in differnet cross section- gold coloured painted decorative cast Al. rings including centre pole mounting pipe assembly. (equivalent to Bajaj cat. no.- BJPL 01 400).	Sets	15			
9	NSR	<b>FEEDER PILLAR- Ext. Lighting</b> Design, Fabrication, Supply, Erection, Testing and commisioning of Powder coated Weather Proof Double door type Feeder pillar fabricated out of 14 guage CRCA sheet steel in cubical, free standing, dust and vermin proof, with reinforcement of suitable size angle iron, channel, T-iron or flats as required. Feeder pillar shall be treated with all anti-corrosive process before painting as per specification. Feeder Pillar shall be suitable for 415V, 3-Phase, Four wire, 50 Hz supply complete with earth bus and lifting hooks as required in case of large panelsetc complete as per design /details /technical specifications and directions of Engineer-in-Charge.Approval shall be taken for each panel before fabrication . (All hardwares like nuts and bolts used shall be Galvanized and Zinc passivated )					
	a)	INCOMER					
	i)	1No. 63A FP MCCB(10 KA)					
	ii)	1No. 70A FP Contactor, AOM switch & Astronomical Watch Timers for 24 Hrs. setting					
	b)	Metering & Indication					
		1 set of phase indicating lamps					
	c)	BUS-BAR					

Sl.No.	DSR 2012 ITEM CODE/NSR	Description	Unit	Total Quantity	Rate (in Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
c)		1 Set of 100A TPN Aluminium Bus Bar with colour coded PVC Sleeves.					
d)		OUTGOINGS					
i)		4 Nos. 20A FP MCB					
ii)		18 Nos. 20A DP MCB					
		<b>Supply, fixing, testing &amp; commissioning of FP-Ext. Lighting as described above</b>	Sets	2			
		<b>Total of Sub-Head-XVI : Poles for External Lighting</b>					
		<b>Total of all Subheads</b>					

## SUMMARY SHEET

SUB HEAD	DESCRIPTION	AMOUNT in figure (In Rs.)	AMOUNT in Words (In Rs.)
I	Fire Alarm System		
II	Conventional FA System		
III	Addressable FA System		
IV	Public Address System		
V	CCTV System		
VI	Nurse Call System		
<b>TOTAL (in Rs.)</b>			

**Bill of Quantities for Fire Alarm,PA, FA & CCTV System**

Sl.No.	DSR Item Code/NSR	Description	Unit	Qty.	Rate (Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
		<b>Subhead I - Fire Alarm System</b>					
1		Supply, and fixing of 16 gauge, MS conduits in following sizes including cost of junction boxes, bends, elbows, sockets, tees and MS flexible conduit to connect from ceiling to false ceiling etc. laying in slab, cutting chases and making good or surface mounted including all fixing hardware.					
a)	NSR	20 mm dia. (DSR-2012 1.20.1)	RM	1,750			
b)	NSR	25 mm dia. (DSR-2012 1.20.2)	RM	11,500			
2	NSR	Providing and drawing following sizes of FR P.V.C. insulated copper conductor cable in existing surface/recessed conduit as required. 2X1.5 sqmm (DSR-2012 1.17.2)	RM	2,290			
3	NSR	Supply and drawing of Co-axial TV cable RG-6 grade, 0.7mm solid Cu. Conductor PE insulated, shielded with fine tinned Cu. Braid & protected with PVC sheath in existing surface / recessed steel/ PVC conduit as reqd. (For CCTV) (DSR-2012 1.19)	RM	1,600			
		<b>Sub Total Fire Alarm System</b>					
		<b>Subhead II - Conventional FA System</b>					
1	NSR	Providing, fixing, testing and commissioning of Manual Break glass type call box made of 16 SWG CRCA Sheet and having chrome plated hammer 1. Providing, fixing, testing and commissioning of Manual Break glass type call box made of 16 SWG CRCA Sheet and having chrome plated hammer and chain etc. complete as specified.	Nos	44			
2	NSR	Providing, Installing, Testing and commissioning of electronic alarm sounders on the surface of wall or false ceiling connections etc. complete as specified.	Nos	22			

Sl.No.	DSR Item Code/NSR	Description	Unit	Qty.	Rate (Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
3	NSR	Providing, fixing testing and commissioning of Local Control panel of following number of zones, strictly as per IS-2189, without battery, without power supply. The operating supply to the local control panel system shall be fed from main control panel. Each and every zone shall have visual indications like – isolation, fire, open circuit in detector circuit short circuit in detector circuit, fire alarm acknowledged, additionally each and every zone shall have the following switches- isolation fire test, open circuit test, short circuit test, fire alarm acknowledge, fault alarm acknowledge, lamp test, panel system switch etc. as required. The panel shall be wall mounted, and enclosure shall be made of 16 SWG CRCA sheet steel and having front door lock and key etc. complete as specified					
b)		8 Zones	Nos	3			
		<b>Sub Total Conventional FA System</b>					

Sl.No.	DSR Item Code/NSR	Description	Unit	Qty.	Rate (Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
		<b>Subhead III - Addressable FA System</b>					
4		Providing, installing, testing and commissioning of the following items complete with junction boxes as per specifications & complete as required. Detectors below false ceiling shall have anchoring arrangement of the base with the false ceiling with use of a round /square plate 16 guage plate mounted above false ceiling to which the base shall be screwed.					
4.1	NSR	Analogue Addressable Photo Electric type Smoke Detector with mounting base etc. complete as required.	Each	100			
4.2	NSR	Analogue Addressable Photo Electric type Smoke Detector with Fault Isolator mounting base etc. complete as required.	Each	25			
4.3	NSR	Analogue Addressable Rate of Rise cum Fixed Temperature Heat Detector with mounting base etc. complete as required.	Each	10			
4.4	NSR	Analogue Addressable Multi criteria detector with Photo Electric and Rate of Rise type for both Smoke and heat applications, mounting base.	Each	400			
5	NSR	Addressable <b>Manual Call Box</b> made of polycarbonate with plastic break glass front. MCB shall be recessed in wall with size of 75 x 120. The MCB shall have "IN CASE OF FIRE BREAK GLASS" imprinted on the facia.	Each	14			
6	NSR	Water flow/damper supervisory switch with 2NO + 2NC auxiliary contact with Addressable Input Module for connecting to Switch	Each	16			
7	NSR	Control Module for tripping of AHU/ Dampers/ Fans as required.	Each	20			
8	NSR	Fault Isolator Unit	Each	10			

Sl.No.	DSR Item Code/NSR	Description	Unit	Qty.	Rate (Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
9	NSR	Supplying, fixing, testing and commissioning of Piezo electronic <b>Hooters/Sounders</b> of 90 dBA sound level at 10 feet from the device <b>with strobe including Control Module</b> (If required) complete with ceiling/ wall mounting arrangements	Each	16			
10	NSR	Response Indicator with twin transparent LED that shall glow red in case of fire	Each	325			
11	NSR	Providing, installing, connecting, testing and commissioning of micro processor based Logic driven Network (with Network card as required) on Peer to Peer Analogue Addressable of following no. of Loop (each loop accessing not less than 125 addressable detectors) Fire Alarm Control Panel. The Panel shall be able to give pin point location of all Fire/ Fault conditions of addressable units via the address codes for each unit. The Panel shall also be able to automatically switch off all Control Switches when ever any Alarm is triggered. The Panel shall be coupled to the PA System and have sealed maintenance free batteries of required capacity of 24 volts capable of running for a minimum of 24 hours with battery charger, rectifier, Loop cards, Keypad operation, LCD unit to indicate Fire /Fault Signal of individual unit, in built / external printer to log all incoming data etc. complete in all respects.					
		The Panel shall also have Logic hardware and software built into it for initiating specific AHU tripping, time delay operation of hooter, subsequent operation of speakers. Panel shall have provide data output on Modbus for Building management System Platform. One shall be able to read any Fire / Fault message from any Panel and any panel shall be able to read the data of any networked panel. However, configuring /programming shall be from the panel itself					
		6 Loop Panel	Set	1			

Sl.No.	DSR Item Code/NSR	Description	Unit	Qty.	Rate (Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
12	NSR	Providing, installing, testing and commissioning of <b>Networked Repeater Panel</b> for Fire Alarm System with piezo sounder, LCD alpha numeric character display with accept / reset buttons for alarm address of any sensor / field device. The Repeater Panel shall only provide field device address with number.	Set	2			
13	NSR	Providing, installing, testing and commissioning of Fire Alarm PC Station consisting of Pentium 4 processor, 17" colour LCD TFT monitor, 512 MB RAM, 80 GB Hard Disk, DVD Drive, USB Port, mouse, Windows XP based Software, Graphic (GUI) software including copy in CD ROM complete as required. PC Work Station shall include complete Fire Alarm Graphics Software including floor plans with location of detectors and other devices. All Floors shall be available as drawing files with location of detectors and devices complete with Loop number and other details as available on the Software.					
		The Software shall be customised to the Building and Fire Alarm layout of the building with location of detectors marked on floor drawings complete with detector address, detector condition etc. The PC and software shall allow for programming / re programming of detector addresses, addition or deletion of detectors with address change, condition of detectors, event logs for 1000 events complete. The Softwares shall be supplied complete with registered CD unit complete and site training.	Set	1			
14	NSR	Providing, fixing, testing & commissioning of Talk Back Handset Receiver with hands free dialling with speaker phone, push button digits DTMF type with Instruction Table etched on acrylic sheet and mounted on wall.	Each	8			
15	NSR	2 x 1.5 sqmm, Class 2 Annealed Copper conductor, Mica Glass (fire resistant) tape with low smoke zero halogen (LSZH) cross- linkable flame retardant insulation.	RM	10,000			
		<b>Sub Total Addressable FA System</b>					

Sl.No.	DSR Item Code/NSR	Description	Unit	Qty.	Rate (Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
		<b>Subhead IV - Public Address System</b>					
1	NSR	Supply installation testing and commissioning of Speakers equivalent to Philips cat No.LBD8353 ( <b>6 Watts Read Power</b> ) including linematching transformer ceiling recessed mounting in false ceiling with clamp complete as required.	Nos	60			
2	NSR	Supply installation testing and commissioning of Speakers equivalent to Philips cat No.LBD8353 ( <b>10 Watts Read Power</b> ) including linematching transformer Wall Mounted with clamp complete as required.	Nos	40			
3	NSR	Supply, installation, testing and commissioning of 3 X 250 W Amplifier with 2 Nos. CD Player and music Rack of suitable size with internal wiring, multiple 6A Socket outlets, Four channel Audio mixer with Goose neck microphone with all assoseries as required inside the Security room or in control room including zone through Selector Switch.	Set	1			
4	NSR	Wiring for PA system multi standard Signal wires as required in existing conduits.					
a)		24/0.2mm. Twin twisted PVC insulated Cu.Wire	RM	2,650			
		<b>Sub Total Public Address System</b>					

Sl.No.	DSR Item Code/NSR	Description	Unit	Qty.	Rate (Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
		<b>Subhead V - CCTV System</b>					
1	NSR	Supply, installation, testing and commissioning of outdoor 25X optical and 10X digital Pan/Tilt/Zoom cameras including integrated Housing, Connectors, Lens, Camera Mounts, Power Supply and all Ancillary Equipment & all accessories including Remote Receiver Unit and Pan Tilt Unit (including driver cables) as per specifications.					
		With Wall mounted outdoor housing with sunshield, heater and blower.	Nos	4			
2	NSR	12V DC, power supply with battery backup for cameras	Nos	19			
3	NSR	Supply, installation, testing and commissioning of 1/3 interline transfer CCD minidome Fixed indoor dome type with 2.8-10 mm lens,0.1 lux 530TVL, BLC, WDR, D\N camera Mounts, power supply and all Ancillary Equipment & all accessories as per specifications	Nos	15			
4	NSR	Supply, installation, testing and commissioning of DVR with built in multiplexer for 16 input real time, live monitoring and playback, 400 fps full frame recording with 2 video outputs and intelligent power failure recovery, The DVR should provide with remote monitoring software with Hard Disk facility recording (30 Days Backups) as per specifications	Nos	2			
5	NSR	Supply, installation, testing and commissioning of keyboard for controlling PTZ cameras	Nos	4			
6	NSR	Supply, laying, termination and testing of 21" CCTV colour TFT Monitor including all accessories	Nos	2			
7	NSR	Supply & laying of Cat 5e cable for communication in existing conduit	RM	350			
		<b>Sub Total CCTV System</b>					
		<b>Sub-Head VI - Nurse Call System</b>					

Sl.No.	DSR Item Code/NSR	Description	Unit	Qty.	Rate (Rs.)	Amount (in Figures) Rs.	Amount (in words) Rs.
1		Supply, Installation,testing & commissioning of Microprocessor controlled Nurse Call Station system as per specification.					
1.1	NSR	Master Nurse Call Station Console suitable for 6 Beds & 1 Toilet.	Sets	5			
1.2	NSR	Master Nurse Call Station Console suitable for 10 Beds & 4 Toilets.	Sets	1			
1.3	NSR	Master Nurse Call Station Console suitable for 30 Beds & 5 Toilets.	Sets	4			
2	NSR	Flow rate : 6cum/hr					
2.1	NSR	Req.time-10 hr.	Sets	160			
2.2	NSR	Hand Held Module consisting of Call & Cancel button & indication lamp including 2 meters of Cat-5 UTP cable with jack.	Sets	160			
2.3	NSR	Toilet Call Module consisting of Call & Cancel button.	Sets	29			
2.4	NSR	Double faced Corridor Indication Module	Sets	100			
		<b>Sub Total Nurse Call System</b>					
		<b>TOTAL OF ALL SUB HEADS (in Rs.)</b>					

<b>SUMMARY SHEET</b>			
<b>SUB HEAD</b>	<b>DESCRIPTION</b>	<b>AMOUNT in figure (In Rs.)</b>	<b>AMOUNT in Words (In Rs.)</b>
<b>I</b>	<b>High Side</b>		
<b>II</b>	<b>Low side</b>		
<b>TOTAL (in Rs.)</b>			

Bill of Quantities for HVAC							
Sl.No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
		<b>Section A: High Side</b>					
		<b>Screw Chilling Unit (Air Cooled)</b>					
1	NSR	Supply, installation, testing and commissioning of High Performance Screw type air cooled chilling unit of 140 TR actual capacity at the parameters indicated below. Complete with Energy efficient Semi-hermetic / hermetic Helical Rotary Screw double compressors, motor, insulated chiller, Air cooled condenser, vibration isolators, integral refrigerant piping and wiring, flow switches at chiller and condenser outlets, first charge of refrigerant and lubricant, microprocessor based control panel, accessories as required and called for, automatic and safety controls and all mounted on a steel frame as per specifications. Chillers should be BMS compatible. Condenser Fan Motor shall be constant speed. Motor shall be suitable for 415 ± 10% V, 50Hz, 3ph AC supply etc. complete as per manufacturer's Specifications & as directed by Engineer-in-charge.					
		<b>COP = 2.9 Minimum , IKW / Tr = 1.2 Maximum, IPLV = 3.16</b> Minimum and all performance requirements are at ARI 550/590 -1998 Test conditions.					
		<b>Chiller</b>					
		Chilled water in : 54° F					
		Chilled water out : 44° F					
		Chilled water flow rate: 336 USGPM					
		Fouling Factor : 0.0005 (FPS)	Nos.	3			
		(1 No. Standby chiller included in above quantity)					
2	NSR	<b>Pumps</b>					
		Supply, installation, testing and commissioning of End suction back pull out ( monoblock / split casing) pumps complete with motor, base frame, vibration isolators and other accessories (except suction and discharge shut off valves, suction strainer, discharge check valves and drain piping which are covered under separate item). Pumps shall have mechanical seal and Bronze Impeller. The pump motor shall be suitable for 415 Volts ± 10%, 50 cycles, 3 phase power supply with Eff 1 efficiency class. The quoted price shall include cost of thermal insulation and cladding for chilled water pumps as well as M.S base frame for mounting both pump and motor. Pumps shall be complete as per manufacturer's Specifications & as directed by Engineer-in-charge and compatible with BMS. It shall have operating parameters as given below:					

Sl.No.	DSR Code No./ NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
2.1	NSR	<b>Primary Chilled water pumps</b>					
		Water flow rate : 336 USGPM					
		Head : 40 ft					
		(1 No. standby pump included in above quantities)	Nos.	3			
2.2	NSR	<b>Secondary Chilled water pumps (with VFD &amp; Microprocessor Panel, sensor, transformer, controller etc.)</b>					
		Water flow rate : 672 USGPM					
		Head : 80ft					
		(1 No. standby pump included in above quantity)	Nos.	2			
2.3	NSR	<b>Hot water pumps for OTs</b>					
		Water flow rate : 20 USGPM					
		Head : 40 ft					
		(1 No. standby pump included in above quantities)	Nos.	2			
3	NSR	<b>Hot water Generator (Electric Type)</b>					
		Supply, installation, testing & commissioning of Electric Hot water Generator. The Hot water Generator shall be horizontal construction & shall have sufficient no.of flanges. HWG shall be duly insulated & cladded similar to pipe insulation as per drawing unit shall be factory assembled on mounting base with BMS compatibility. It should be complete as per manufacturer's Specifications & as directed by Engineer-in-charge					
3.1	NSR	Capacity : 100 KW for General Areas					
		(No standby HWG included in above quantities)					
		Water temp in at 45 deg.C & temp. out at 50 deg. C flow rate 100 USGPM.	Nos.	2			
3.2	NSR	Capacity : 20 KW for OTs					
		(1 No. standby HWG included in above quantities)					
		Water temp in at 45 deg.C & temp. out at 50 deg. C flow rate 20USGPM.	Nos.	2			
		<b>Total For Section A-High Side</b>				-	
		<b>Section B I: LOW SIDE</b>					
1	NSR	<b>Air Handling Units For OT Areas</b>					
		Supply, installation, testing and commissioning of double skin modular construction, draw through Sectional, Air Handling Units consisting of 0.8 mm Thick Al/SS sheet inside and 0.8 mm thick preplastized GSS Sheet from outside. AHU Shall be complete with DIDW Backward curved Centrifugal fan, Squirrel cage induction motor , cooling coil (Copper tubes and Aluminium fins 12-13 fin./inch), Heating Coil, pre-filter (Washable Synthetic fibre of efficiency 90% down to 10 micron), Filter frame Flange type, drain pan, V belt drive, fireproof double canvass connection and other accessories as per specifications (except water shut off valves, drain piping and pressure gauges which are covered under separate item). Motor shall be suitable for 415 ± 10% volts, 50 cycle, 3 Phase AC supply with Eff 1 efficiency class as indicated below. AHU shall include the cost of Fine and HEPA filter. Fine & HEPA Filters shall be installed in the Double skin plenum above AHU. All AHUs Shall be BMS compatible. It should be complete as per manufacturer's Specifications & as directed by Engineer-in-charge					
		<b>Air Conditioning Space</b>	<b>AHU</b>	<b>No. of Rows</b>	<b>Static Pressure</b>	<b>Filteration</b>	
			<b>CFM (TYPE)</b>	<b>(CHW+HW)/ TR</b>	<b>mm</b>		
<b>Ground Floor</b>							
1.1	NSR	Emergency OT	3000 (F.M.)	4+2 / 9.0	125	Pre /Fine / Hepa	No. 1

Sl.No.	DSR Code No./ NSR	Description					Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
<b>First Floor</b>											
1.2	NSR	OT 1	3500 (F.M.)	4+2 / 10.5	125	Pre /Fine / Hepa	No.	1			
1.3	NSR	OT 2	3500 (F.M.)	4+2 / 10.5	125	Pre /Fine / Hepa	No.	1			
1.4	NSR	OT 3	3500 (F.M.)	4+2 / 10.5	125	Pre /Fine / Hepa	No.	1			
1.5	NSR	Septic OT	3500 (F.M.)	4+2 / 31.0	125	Pre /Fine / Hepa	No.	1			
2	NSR	<b>Air Handling Units For ICU , PRE/POST &amp; other Critical Areas</b>									
		Supply, installation, testing and commissioning of double skin modular construction, draw through Sectional, Air Handling Units with 0.6 mmthick plain GSS from inside and 0.6 mm thick preplastisized GSS from outside. AHU shall be complete with imported DIDW Forward / Backward curved Centrifugal fan, Squirrel cage induction motor, cooling coil (Copper tubes and Aluminium fins 12-13 fin./inch), Heating Coil, pre-filter (Washable Synthetic fibre of efficiency 90% down to 10 micron), Filter frame Flange type, drain pan, V belt drive, fireproof double canvass connection and other accessories as per specifications (except water shut off valves, drain piping and pressure gauges which are covered under separate item). Motor shall be suitable for 415 ± 10% volts, 50 cycle, 3 Phase AC supply with Eff 1 efficiency class as indicated below. AHU shall include the cost of Fine filter. Fine filters shall be installed in the Double skin plenum above AHU. All AHUs Shall be BMS compatible. It should be complete as per manufacturer's Specifications & as directed by Engineer-in-charge.									
		<b>Air Conditioning Space</b>	<b>AHU</b>	<b>No. of Rows/TR</b>	<b>Static Pressure mm</b>	<b>Filtration</b>					
			<b>CFM (TYPE)</b>								
<b>First Floor</b>											
2.1	NSR	Pre & Post Operative ward	2500 (C.S)	6/6.0	50	Pre / Fine	No.	1			
2.2	NSR	ICU	3500(F.M.)	6/9.0	50	Pre / Fine	No.	1			
2.3	NSR	Post Natal, Septic & Clean Nursery & Baby Resu	4000(F.M.)	6/10.0	50	Pre / Fine	No.	1			
3	NSR	<b>Air Handling Units For General Areas</b>									
		Supply, installation, testing and commissioning of double skin modular construction, draw through Ceiling Suspended (CS) / Floor Mounted Horizontal type (FM) Air Handling Units of 0.6 mm thick Plain GSS Sheet from inside & 0.6 mm thick Preplasticized GSS Sheet from Outside. AHU Shall be complete with DIDW Centrifugal fan, Squirrel cage induction motor, cooling coil (Copper tubes and Aluminium fins), pre-filter (Washable Synthetic fibre of efficiency 90% down to 20 micron), drain pan, V belt drive, fireproof double canvass connection and other accessories as per specifications (except water shut off valves, drain piping, Thermometer and pressure gauges which are covered under separate item). Motor shall be suitable for 415 ± 10% volts, 50 cycle, 3 Phase AC supply with Eff 1 efficiency class as indicated below. All AHUs Shall be BMS compatible. It should be complete as per manufacturer's Specifications & as directed by Engineer-in-charge.									
		<b>Airconditioned</b>	<b>AHU</b>	<b>No. of</b>	<b>Static Pressure (mm)/ Phase</b>						

Sl.No.	DSR Code No./NSR	Description				Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
		Space	CFM (TYPE)	Rows/TR	Static Pressure (mm/H <sub>2</sub> O)					
<b>Ground Floor</b>										
3.1	NSR	Labs & Small Areas	10000 (F.M.)	4/ 21.0	50 /3	Nos.	2			
3.2	NSR	Waiting & Other Areas	5000 (C.S.)	4/ 11.0	45 /3	No.	1			
3.3	NSR	Path Lab	2000 (C.S.)	4/ 4.5	40 /3	No.	1			
<b>First Floor</b>										
3.4	NSR	Corridors & Other Areas	8000 (F.M.)	4/ 17.0	45 /3	No.	1			
3.5	NSR	Corridors & Other Areas	6000 (C.S.)	4/ 13.0	45 /3	No.	1			
3.6	NSR	Corridors & Other Areas	5000 (C.S.)	4/ 11.0	45 /3	No.	1			
<b>Second Floor</b>										
3.7	NSR	Corridors & Other Areas	7000 (F.M.)	4/ 15.0	45 /3	No.	1			
3.8	NSR	Board Room	2500 (C.S.)	4/ 5.5	40 /3	No.	1			
3.9	NSR	Medical Superintendent	2000 (C.S.)	4/ 4.5	40 /3	No.	1			
<b>Ground Floor (Academic &amp; Admin Block)</b>										
3.10	NSR	Library	6000 (C.S.)	4/ 13.0	45 /3	No.	1			
	NSR		2500 (C.S.)	4/ 5.5	40 /3	No.	1			
3.11	NSR	Cafeteria	4500 (C.S.)	4/ 9.5	45 /3	No.	1			
<b>First Floor (Academic &amp; Admin Block)</b>										
3.12	NSR	Lecture Hall	9000 (F.M.)	4/ 21.5	45 /3	No.	1			
3.13	NSR	Library	4500 (C.S.)	4/ 9.5	45 /3	Nos.	2			
4	NSR	<b>Variable Frequency Drive (VFD)</b>								
		Supply & Fixing of Variable Frequency Drive (VFD) with transducers, control wiring etc. complete as per manufacturer's Specifications & as directed by Engineer-in-charge								
4.1	NSR	5.5 KW				Nos.	4			
5	NSR	<b>Fan Coil Units (Ceiling Suspended type)</b>								
		Supply, installation, testing and commissioning of ceiling suspended type fan coil units complete with fan motor, cooling coil, filter plenum with filters, supports, etc. complete as per manufacturer's Specifications & as directed by Engineer-in-charge								
5.1	NSR	1200 CFM (3.0 TR)				Nos.	3			
5.2	NSR	1000 CFM (2.5 TR)				Nos.	4			
5.3	NSR	Flow rate : 6cum/hr				Nos.	1			
5.4	NSR	Reg.time-10 hr.				Nos.	10			
5.5	NSR	400 CFM (1.0 TR)				Nos.	1			
6	NSR	<b>Fan Coil Unit Controls</b>								
		Supply, installation, testing and commissioning of controls for fan coil units consisting of 2-way motorized spring return valves, wiring etc. complete as per manufacturer's Specifications & as directed by Engineer-in-charge.								
6.1	NSR	Water Flow Rate 7.2 GPM				Nos.	3			
6.2	NSR	Water Flow Rate 6.0 GPM				Nos.	4			
6.3	NSR	Water Flow Rate 4.8 GPM				Nos.	1			

Sl.No.	DSR Code No./ NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
6.4	NSR	Water Flow Rate 3.6 GPM	Nos.	10			
6.5	NSR	Water Flow Rate 2.4 GPM	Nos.	1			
7	NSR	<b>Air washer - Double Skin</b>					
		Supply, installation, testing and commissioning of double skin Air washer unit with 200 mm thick impregnated cellulose paper media (Celdek pads) of minimum 90% efficiency, factory assembled, distribution header, GI 'B' class piping, makeup, quickfill and drain connections, Butterfly/Gate valves for Pumps, make up, drain & quickfill connections of Sump, 2 Nos. pumps of suitable capacity (1W + 1 S), Y strainers and necessary fittings etc.. The quoted price shall also include GI frame and supporting structure for Celdek pads, washable synthetic fibre filters (of 90% efficiency down to 10 micron) and SS(16 gauge) sump, TEFC Motor (IP:55) Control panel complete with necessary Switchgear, Starters, metering, power and control wiring between Control panel and Motor/Pump etc. & drive unit complete with Pulley, Belts, Fresh air Louvers with bird screen(GI construction) as per specification Air Washer shall be compatible with BMS. It should be complete as per manufacturer's Specifications & as directed by Engineer-in-charge.					
7.1	NSR	<b>Duty : Kitchen Supply</b>					
		Air Quantity : 10000 CFM					
		Static Pressure : 40 mm wg	Nos.	2			
8	NSR	<b>Scrubber (Double Skin)</b>					
		Providing and fixing of Double skin kitchen scrubber having 18G G.I. sheet metal fan section, with powder coated 18G G.I. sheet enclosure, pre filter section for removal of oil grease, followed by intaks louvers, impingement plate section, high pressure water atomisation section, starter, mist eliminator and outlet cone section, expansion chamber, nozzles, strainer, belt drive with guard, gasket tight access door, eliminators, water circulation pump, isolation valve for pumps, vibration isolators for blower distribution panel etc. complete as per specifications and drawings. Scrubber shall be compatible with BMS. It should be complete as per manufacturer's Specifications & as directed by Engineer-in-charge.					
8.1	NSR	<b>Duty : Kitchen Exhaust</b>					
		Air Quantity : 12000 CFM					
		Static Pressure : 65 mm wg	No.	2			
9	NSR	<b>Heat Recovery Unit (HRU)</b>					
		Supplying, installing, testing and commissioning of Floor mounted type HEAT RECOVERY UNIT (HRU) with a Heat Recovery Wheel having equal efficiencies (both Sensible & Latent) greater than 75% & with 3 Angstorm Molecular Sieve to avoid cross contamination of double skin construction. The unit shall comprise of filter section, heat recovery wheel, fresh air inlet / exhaust air outlet, fan section with DIDW forward curve fans with motor suitable for 3 Phase 50 Hz 415 V ± 10 % and drive package etc. as required, with compatibility to BMS. It should be complete as per manufacturer's Specifications & as directed by Engineer-in-charge.					
		Fresh Air					
		Qty. - 3600 CFM (with 35mm WG external static pressure)					
		Exhaust Air					
		Qty. - 4200 CFM (with 35mm WG external static pressure)					
		Heat Recovery Unit Complete as above					
		Static Pressure : 65 mm	No.	2			
10	NSR	<b>Propeller Fans</b>					

Sl.No.	DSR Code No./ NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
		Supply, installation, testing and commissioning of direct driven Propeller fans for exhaust air as shown on drawings and as per specifications. Each fan shall be complete with permanent split capacitor or shaded pole motor, mounting plate, accessories like wire guard, bird screen and fixed louvers for weather protection as required. It should be complete as per manufacturer's Specifications & as directed by Engineer-in-charge. Fan capacities shall be as follows:					
10.1	NSR	<b>Duty : Store Exhaust</b> Air Quantity 1000 CFM	No.	1			
10.2	NSR	<b>Duty : Toilet Exhaust</b> Air Quantity 800 CFM	No.	3			
10.3	NSR	<b>Duty : Toilet</b> Air Quantity : 600 CFM	No.	1			
10.4	NSR	<b>Duty : Toilet/ Store Exhaust</b> Air Quantity 500 CFM	No.	2			
10.5	NSR	<b>Duty : Toilet Exhaust</b> Air Quantity 400 CFM	No.	18			
10.6	NSR	<b>Duty : Toilet Exhaust</b> Air Quantity 300 CFM	No.	6			
10.7	NSR	<b>Duty : Toilet Exhaust</b> Air Quantity 200 CFM	No.	7			
10.8	NSR	<b>Duty : Toilet Exhaust</b> Air Quantity : 100 CFM	No.	17			
11	NSR	<b>Centrifugal Fans</b>					
		Supply, Installation, Testing and commissioning of Single skin Fan Section as per specifications. Each unit shall be complete with casing (16G) DIDW centrifugal fan, belt drive, motor, louvers etc. Fan motor shall be suitable for 3 Phase, 415 ± 10% V, 50 Hz AC supply & shall be compatible with BMS. It should be complete as per manufacturer's Specifications & as directed by Engineer-in-charge.					
11.1	NSR	<b>Duty : Liftwell &amp; Lift Lobby Pressurization</b> Air Quantity : 10000 CFM Static Pressure : 50 mm wg	No.	1			
11.2	NSR	<b>Duty : Liftwell &amp; Lift Lobby Pressurization</b> Air Quantity : 6500 CFM Static Pressure : 40 mm wg	No.	1			
11.3	NSR	<b>Duty : Staircase Pressurization</b> Air Quantity : 3500 CFM Static Pressure : 40 mm wg	Nos.	3			
11.4	NSR	<b>Duty : Staircase Pressurization</b> Air Quantity : 2000 CFM Static Pressure : 40 mm wg	Nos.	2			

Sl.No.	DSR Code No./ NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
12	NSR	<b>Axial Flow Fans</b>					
		Supply, installation, testing and commissioning of direct driven Axial Flow Fans as shown in drawings and as per specifications. Each fan shall be complete with totally enclosed fan cooled motor (IP:55), motor mount and vibration isolators. Fan motor shall be suitable for 3 Phase, 415 +/- 10% V, 50 Hz AC supply. (Motor speed shall not exceed 1440 rpm) Fans shall be compatible to BMS. It should be complete as per manufacturer's Specifications & as directed by Engineer-in-charge.					
12.1	NSR	<b>Duty : Floor Smoke Extraction</b>					
		Air Quantity :5000 CFM					
		Static Pressure : 20 mm wg	Nos.	3			
12.2	NSR	<b>Duty : Floor Smoke Extraction</b>					
		Air Quantity :3000 CFM					
		Static Pressure : 20 mm wg	No.	7			
12.3	NSR	<b>Duty : Septic OT Exhaust</b>					
		Air Quantity :3000 CFM					
		Static Pressure : 20 mm wg	No.	1			
13	NSR	<b>Expansion Tank</b>					
		Providing and installation of expansion tank, fabricated out of 6 mm thick M.S. plate construction, duly insulated as per the specifications and shall be complete with 50mm dia outlets for system connection and overflow, make up connection, overflow connection, drain connection, drain valve, vent connections, valves and fittings as required. Expansion tank shall be complete with insulation as per manufacturer's Specifications & as directed by Engineer-in-charge					
13.1	NSR	SIZE : 1000 mm X 1000 mm X 1000 mm (high)	No.	1			
14	NSR	<b>CHILLED WATER PIPING / HOT WATER PIPING</b>					
		Providing and fixing MS pipes heavy class cut to required lengths and installed with all welded joints, providing and fixing in position necessary fittings like bends, elbows, tees, reducers, sockets, flanges etc fabricated to site duly insulated with rigid polyurethane foam complete as per Technical Specifications & as directed by Engineer-in-charge. Insulation having Minimum R value i.e.R-0.35 Sqm/W shall be used for chilled water & hot water piping.					
		<b>Description</b>	<b>Chilled water pipe Dia.</b>	<b>Thickness of Insulation</b>			
		Plant Room	Upto 250 mm dia.	30 mm			
		Plant Room	Above 300 mm dia.	50 mm			
		Other Areas	Upto 80 mm dia.	19 mm			
		Other Areas	Above 80 mm dia.	25 mm			
14.1	NSR	200 mm dia MS Pipes	Rmt	50			
14.2	NSR	150 mm dia MS Pipes	Rmt	75			
14.3	NSR	125 mm dia MS Pipes	Rmt	55			
14.4	NSR	100 mm dia MS Pipes	Rmt	150			
14.5	NSR	80 mm dia MS Pipes	Rmt	520			
14.6	NSR	65 mm dia MS Pipes	Rmt	260			
14.7	NSR	50 mm dia MS Pipes	Rmt	160			
14.8	NSR	40 mm dia MS Pipes	Rmt	160			
14.9	NSR	32 mm dia MS Pipes	Rmt	13			
14.10	NSR	25 mm dia MS Pipes	Rmt	190			
14.11	NSR	20 mm dia MS Pipes	Rmt	40			

Sl.No.	DSR Code No./ NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
15	NSR	Providing and fixing in position the following Cast Iron butterfly valves duly insulated and complete as per manufacturer's specifications & as directed by Engineer-in-charge.					
15.1	NSR	200 mm dia	Nos	4			
15.2	NSR	150 mm dia	Nos	12			
15.3	NSR	125 mm dia	Nos	2			
15.4	NSR	100 mm dia	Nos	6			
15.5	NSR	80 mm dia	Nos	2			
15.6	NSR	65 mm dia	Nos.	4			
15.7	NSR	50 mm dia	Nos.	18			
15.8	NSR	40 mm dia	Nos.	34			
16	NSR	Providing and fixing in position the following Gun Metal balancing valves duly insulated and complete as per manufacturer's specifications & as directed by Engineer-in-charge.					
16.1	NSR	200 mm dia	Nos	2			
16.2	NSR	150 mm dia	Nos	3			
16.3	NSR	125 mm dia	Nos	1			
16.4	NSR	100 mm dia	Nos	1			
16.5	NSR	80 mm dia	Nos.	2			
16.6	NSR	65 mm dia	Nos.	2			
16.7	NSR	50 mm dia	Nos.	9			
16.8	NSR	40 mm dia	Nos.	15			
17	NSR	Providing and fixing in position the following Dual plate Check valves of Cast Iron body duly insulated and complete as per manufacturer's specifications & as directed by Engineer-in-charge.					
17.1	NSR	200 mm dia	Nos.	3			
17.2	NSR	150 mm dia	Nos.	2			
18	NSR	Providing and fixing in position the following Y strainer fabricated out of MS Class C pipe duly insulated and complete as per manufacturer's specifications & as directed by Engineer-in-charge.					
18.1	NSR	200 mm dia	Nos.	3			
18.2	NSR	150 mm dia	Nos.	2			
18.3	NSR	65 mm dia	Nos.	2			
18.4	NSR	50 mm dia	Nos.	7			
18.5	NSR	40 mm dia	Nos.	14			
19	NSR	Providing and fixing in position the following Ball Valves of bronze forged body with Strainer duly insulated and complete as per manufacturer's specifications & as directed by Engineer-in-charge.					
19.1	NSR	32 mm dia	Nos.	5			
19.2	NSR	25 mm dia	Nos.	9			
19.3	NSR	20 mm dia	Nos.	11			
20	NSR	Providing and fixing in position the following Ball Valves bronze forged body without Strainer duly insulated and complete as per manufacturer's specifications & as directed by Engineer-in-charge.					
20.1	NSR	32 mm dia	Nos.	5			
20.2	NSR	25 mm dia	Nos.	9			
20.3	NSR	20 mm dia	Nos.	11			

Sl.No.	DSR Code No./ NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
21	NSR	Providing and fixing in position the following Flexible coupling (with control rods) for the chilled water pumps complete as per manufacturer's specifications & as directed by Engineer-in-charge.					
21.1	NSR	200 mm dia	Nos.	6			
21.2	NSR	150 mm dia	Nos.	4			
22	NSR	Providing and fixing in position the following Flow switch for chilling units & HWG complete as per manufacturer's specifications & as directed by Engineer-in-charge					
22.1	NSR	32 mm dia	Nos.	6			
23	NSR	Providing, Fixing, Testing & Commissioning of 2-way butterfly motorized valve ON/OFF with BMS compatible with/ without insulation and complete as per manufacturer's specifications & as directed by Engineer-in-charge.					
23.1	NSR	200 mm dia Valve	Nos.	4			
23.2	NSR	150 mm dia Valve	Nos.	3			
24	NSR	Providing and fixing in position industrial type Gun metal Pressure Gauges with necessary fittings & complete as per manufacturer's specifications & approved by Engineer-in-charge.	Nos.	110			
25	NSR	Providing and fixing in position stem type mercury-in-glass filled industrial thermometers.	Nos.	92			
26	NSR	Providing and fixing in position Dial type Thermometers (4" Dial ) with necessary fittings for the ease of operation and maintenance .	Nos.	8			
27	NSR	Providing & Fixing of Auto air vents of following sizes & accessories complete in all respects.					
27.1	NSR	32 mm dia.	Nos.	14			
27.2	NSR	25 mm dia.	Nos.	14			
28	NSR	Supply, installation, testing and commissioning of 2-way motorized valves suitable for Chilled water as well as hot water application complete with Electrical/Electronic actuator, necessary wiring and required accessories for proper operation and control of valves of following sizes. (Vendor to submit the Selection sheets of the Control Valves for all sizes individually).					
28.1	NSR	65 mm	Nos.	2			
28.2	NSR	50 mm	Nos.	7			
28.3	NSR	40 mm	Nos.	14			
28.4	NSR	32 mm	Nos.	5			
28.5	NSR	25 mm	Nos.	7			
28.6	NSR	20 mm	Nos.	11			

Sl.No.	DSR Code No./ NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
29	NSR	Supply, installation, testing and commissioning of cooling thermostats for various Air Handling Units and Fan Coil Units as per specifications including all accessories ,mountings,wiring between thermostat & unit, terminations etc.It should be complete as per manufacturer's specifications & as directed by Engineer-in-charge.					
29.1	NSR	Proportional thermostats for Air Handling Units	Nos.	28			
29.2	NSR	Snap acting thermostats for Fan Coil Units	Nos.	19			
30	NSR	Providing and fixing in position Gun metal Drain Valves <b>(For Drain)</b> duly insulataed complete as per manufacturer's specifications & as directed by Engineer-in-charge.					
30.1	NSR	25 mm dia	Nos.	96			
31	NSR	Providing and fixing in position Gun metal Purge Valves duly insulataed as per specifications and drawings complete as per manufacturer's specifications & as directed by Engineer-in-charge.					
31.1	NSR	25 mm dia	Nos.	50			
32	NSR	<b>DRAIN PIPING</b>					
		Providing and fixing in position the following GI medium class cut to required length and installed with screw joints including the necessary fittings (bends, tees, unions, sockets etc) duly insulated with 12 mm thick rigid polyurethane foam complete as per Technical /manufacturer's Specifications & as directed by Engineer-in-charge. Insulation having Minimum R value i.e.R-0.35 Sqm/W shall be used for drain piping.					
32.1	NSR	40 mm dia	Rmt	200			
32.2	NSR	25 mm dia	Rmt	340			
33	NSR	<b>Air Distribution</b>					
		Supply, fabrication, installation and testing of G.I. sheet metal ducts in accordance with the approved shop floor drawing complete with all accessories, bends, fittings, specials, chutes, vanes, necessary supports and joint/flange in sealed with 5 mm thick gasket & silicon sealant etc. complete as per manufacture's specifications & as approved by Engineer-in-charge.					
33.1	NSR	0.63 MM (24 gauge) Galvanized Sheet Steel Ducting	Sqm.	1608			
33.2	NSR	0.8 MM (22 gauge) Galvanized Sheet Steel Ducting	Sqm.	582			
34	NSR	Supply, fabrication, installation and testing of Aluminium ducts for OT's in accordance with the approved shop floor drawing complete with all accessories, bends, fittings, specials, chutes, vanes, necessary supports etc. complete as per manufacture's specifications & as approved by Engineer-in-charge.					
34.1	NSR	20 gauge Aluminium Ducting	Sqm.	300			
35	NSR	<b>Laminar Flow Diffuser</b>					

Sl.No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
		Supply, Installation, Testing and commissioning of laminar flow plenum as per specification. Plenum shall be of pre-coated GI sheets and openable from front and shall be made of 18 gauge Aluminium. It shall be insulated and have Aluminium volume control damper on each entry level. It shall have Aluminium perforated grills for air outlets. It should be complete as per manufacture's specifications & as approved by Engineer-in-charge.	Sqm.	66			
36	NSR	Supply, installation and testing of multiblade box type Galvanized Sheet Steel construction damper for ducts to be provided with suitable links and quadrants for control of volume of air.	Sqm.	9			
37	NSR	Supply, installation, testing and balancing of square shape ceiling diffusers with removable core.					
37.1	NSR	Extruded aluminium construction, powder coated with volume control damper	Sqm.	17			
37.2	NSR	Extruded aluminium construction, powder coated without volume control damper	Sqm.	16			
38	NSR	Supply, installation, testing and commissioning of extruded aluminium powder coated supply / return air grills of approved shade and make as per specifications including any framework required for fixing of grills.					
38.1	NSR	Extruded aluminium construction, single louvered, powder coated with volume control damper.	Sqm.	7			
38.2	NSR	Extruded aluminium construction, single louvered, powder coated without volume control damper for return air.	Sqm.	4			
39	NSR	Supply, installation, testing and commissioning of extruded aluminium powder coated supply / return air Linear grills of approved shade and make as per specifications including any framework required for fixing of grills.					
39.1	NSR	100 mm wide	Rmt	95			
40	NSR	Supply, installation, testing and commissioning of volume control damper for linear grills	Sqm.	2			
41	NSR	Supply, installation and balancing of extruded aluminium powder coated fresh / exhaust air louvers complete with aluminium wire mesh birdscreen.					
41.1	NSR	Fresh air louvers (with volume control dampers)	Sqm.	5			

Sl.No.	DSR Code No./ NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
41.2	NSR	<b>DOOR SHUTTER:</b> Supply and fixing asbestos free composite <b>fire/smoke check wooden shutter</b> (minimum thickness 50mm but not more than 55mm) of 120 min. fire rating confirming to BS : 476 part 22 & IS : 3614 Part II as per the prototype tested and certified by CBRI Roorkee, suitable for mounting on the door frame as per item no. 5.04 comprising of two non combustible boards 12mm to 18 mm thick sandwiching 10 mm to 20 mm fire resistant insulation filler veneered with 3mm thick commercial ply on both faces and pasting of minimum 1 mm thick laminate over wooden fire comprising of two 12 mm thick calcium silicate board of approved brand a 100% without Asbestos, Bructile and merschaum, having density not more than 1150 kg/m <sup>3</sup> and thermal conductivity 0.14 W/m K sandwiching 20mm thick fire resistance insulation filler coated with	Sqm.	7			
42	NSR	<b>Fire Dampers</b>					
42.1	NSR	Providing and fixing of motorised combination fire & smoke dampers of approved make of atleast 90 minutes fire rating and as per the specifications. The fire damper shall be complete with electronic temperature sensor and electrically operated actuator. The fire damper shall be located in the supply / return air ducts. The control panel will be such located that the reset can be done easily.	Sqm.	10			
43	NSR	<b>Accessories for fire dampers</b>					
43.1	NSR	Control panel actuator, including spring type actuator with smoke sensor and remote indication of fire damper position including Interconnection wiring between AHU and the dampers.	Nos.	12			
44	NSR	<b>Insulation</b>					
		Supply, Installation, Testing & Commissioning of external thermal insulation with closed cell cross-linked polythelene foam with self adhesive and density for insulation of ducts. It should be complete as per manufacture's specifications & as approved by Engineer-in-charge.					
44.1	NSR	20 mm thick (For insulation in Non conditioned space)	Sqm.	650			
44.2	NSR	12 mm thick (For insulation in Air-conditioned space)	Sqm.	1100			
45	NSR	Supply and fixing of Acoustic lining inside the ducts with resin bonded glass wool complete as per manufacture's specifications & as approved by Engineer-in-charge.					
45.1	NSR	25 mm thick	Sqm.	170			
46	NSR	Supply and fixing of Acoustic lining inside the AHU rooms with resin bonded glass wool complete as per manufacture's specifications & as approved by Engineer-in-charge.					
46.1	NSR	50 mm thick (32 kgs / cum)	Sqm.	300			
<b>Total For Section B Low Side</b>							
<b>TOTAL OF ALL SUB HEADS (in Rs.)</b>							

<b>SUMMARY SHEET</b>			
<b>SUBHEAD</b>	<b>DESCRIPTION</b>	<b>AMOUNT in figure (In Rs.)</b>	<b>AMOUNT in Words (In Rs.)</b>
A	PIPING, HYDRANTS & ACCESSORIES		
B	PUMPS AND ACCESSORIES		
	<b>Total Cost in Rs.</b>		

Bill of Quantities for Fire Fighting System							
Sl.No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (In figures) Rs.	Amount (In words) Rs.
<b>SUB HEAD-A : FIRE PUMPS &amp; EQUIPMENTS (WET RISER SYSTEM)</b>							
1	NSR	Supply, installation, testing and commissioning of electrically driven fire-pump & Sprinkler system suitable for automatic operation consisting of the following :					
a)		Horizontally mounted end suction centrifugal pump, suitable for operation on 415 volts $\pm$ 10%, 3 phase, 50 HZ A.C supply, complete with flexible coupling and coupling guard as required. Fire pump having C.I. body, bronze impeller and S.S. Shaft with mechanical seal, capable for delivering <b>2850Lpm</b> water at <b>75 mts</b> .head to ensure a minimum pressure of 3.5kg/cm2 at the farthest hydrant complete with necessary pressure gauge with gun metal shut off cock on delivery side. The pump should meet the norms of Local fire Authority. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.					
b)		Squirrel cage induction motor, TEFC type suitable for operation on 415 volts $\pm$ 10%, 3 phase 50 HZ A.C supply, for the above pump with synchronous speed of 2900 RPM.					
c)		Common base plate for (a) and (b) from M.S. Channel for required size.					
d)		Suitable cement concrete foundation with cement concrete plaster complete with antivibration arrangement of cushy foot mountings.	Set	2			
2	NSR	Supply, installation, testing and commissioning of Diesel Engine driven fire pump suitable for automatic operation comprising of the following :					
a)		Horizontally mounted end suction centrifugal pump, suitable for operation on 415 volts $\pm$ 10%, 3 phase, 50 HZ A.C supply, complete with flexible coupling and coupling guard as required. Fire pump having C.I. body, bronze impeller and S.S. Shaft with mechanical seal, capable for delivering <b>2850 LPM</b> of water at <b>75 mts</b> .head to ensure a minimum pressure of 3.5kg/cm2 at the farthest hydrant. Complete with necessary pressure gauge with gun metal shut off cock on delivery side. The pump should meet the norms of Local fire Authority. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.					

Sl.No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (In figures) Rs.	Amount (In words) Rs.
b)		Air Cooled Diesel engine of speed 1800 RPM for the above pump with automatic starting mechanism and other accessories including fuel tank (fabricated from 3mm MS sheet painting with two coats of synthetic enamel paint over a coat of primer) capacity 200 lts (fitted with Magnetic oil level indicator, MH with cover drain valve, Air vent hydraulic pumps including structural supports (painted with approved shade), 2 Nos. x 12 volt battery, heat ,180 AH ,Maintenance free , exchanger with necessary piping connections & fittings flexible coupling, coupling guard & exhaust pipe as per drawing complete as required. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.					
c)		Common base plate for (a) and (b) from M.S. channel of required size.					
d)		Suitable cement concrete foundation with plaster, Antivibration arrangement of cushy foot mountings.					
e)		24 volts, 180 AH Lead battery ( 12 volts-2 Nos) with boost / trickle charger for starting the engine automatically as required.	Set	1			
3	NSR	Supply, installation, testing and commissioning of jockey pump comprising of the following :					
a)		Horizontally mounted end suction centrifugal pump, suitable for operation on 415 volts $\pm$ 10%, 3 phase, 50 HZ A.C supply, complete with flexible coupling and coupling guard as required. Fire pump having C.I. body, bronze impeller and S.S. Shaft with mechanical seal, capable for delivering 280 LPM of water at 75 mts.head to ensure a minimum pressure of 3.5kg/cm <sup>2</sup> at the farthest hydrant. Complete with necessary pressure gauge with gun metal shut off cock on delivery side. The pump should meet the norms of Local fire Authority. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.					
b)		Squirrel cage induction motor TEFC type for operation on 415 V, 3 phase 50 HZ AC supply for the above pump with a synchronous speed of 2900 R.P.M. with flexible coupling and coupling guard etc. as required.					
c)		Common base plate for (a) and (b) from M.S. channel as required size.					
d)		Suitable cement concrete foundation with plaster, Antivibration arrangement of cushy foot mounting.	Set	1			

Sl.No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (In figures) Rs.	Amount (In words) Rs.
4	NSR	Providing, installation, testing and commissioning of pressure vessel (450 mm dia & 2000 mm height) for pressurization of fire system complete with pressure switches with isolation valves, pressure gauge with isolation valve, valves at outlet / drain to operate as per operating sequences including 25 mm dia drain valve, air release valve with stop cock on the top Duly painted from inside and outside complete as required. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Set	1			
5	NSR	Supply, installation, testing & commissioning of Fire Fighting Pump Panel					
A		INCOMER					
		1No. 400A TP&N MCCB(35 KA)					
B		METERING & INDICATION					
i)		1 set of phase indicating lamps					
ii)		1 set of Voltmeter (0-500V) with Built-in VSS with 3 nos. 2A SP MCB					
iii)		1 set Ammeter (0-500A) with ASS and 3 nos.500/5A, CT's					
C		BUS-BAR					
		1 Set of 630A TPN Aluminium Bus Bar with colour coded PVC Sleeves					
D		OUTGOINGS					
i)		3 Nos. 250A TP MCCB (35 KA)					
ii)		1 No. 63A TP MCB (10 KA) C curve					
iii)		2 No. 25A DP MCB (10 KA) C curve					
iv)		3 Nos. of S/D starter with self illuminated Push button for ON & OFF and suitable rating of contactor and O/L relays, suitable for Electric Driven Main Pump Motors.					
v)		2 No. DOL starter with self illuminated Push button for ON & OFF and suitable rating of contactor and O/L relays, suitable for Jockey Pump Motor.					
vi)		AMF Control & Startersuitable for Diesel Engine complete with Contactors, Fuses, MCBs & relays of suitable rating, as required.					
vii)		Connector Block/Strip of suitable no.of pairs complete with wiring upto all Starters, for parallel operation from control desk.					
viii)		Providing & Fixing level controllers, switches, wiring, cabling from level controller to panel etc. complete as required to operate the system automatic/manual and pump shall be protected against running dry.	Set	1			
		NOTE : The starters of Fire Fighting Pump shall be interlocked with the fire alarm panel & Axial flow fan to start these fans in case of fire Above panel shall be BMS Compatible as per requirement.					
		<b>SUB TOTAL of SUB HEAD: FIRE PUMPS &amp; EQUIPMENTS (WET RISER SYSTEM)</b>					
		<b>SUB HEAD-B: PIPING, HYDRANT AND ACCESSORIES &amp; SPRINKLER SYTEM</b>					

Sl.No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (In figures) Rs.	Amount (In words) Rs.
1	NSR	Providing, laying, jointing and testing of following sizes of pipes conforming to IS-1239 with all accessories like all fittings including tees, elbows, reducers, flanges, rubber gaskets, nuts bolts, washer and fixing the pipe on floor / wall /ceiling with suitable size clamps, hangers, structural steel supports as per specification. And G.I. pipe sleeve to be provided wherever the pipes are crossing the walls/floors and sealing the sleeves as per requirements including cutting holes and chases in brick, R.C.C work and making good the same to original conditions complete in all respects. Pipe shall be MS black as per IS-1239 heavy grade and fitting for 40 mm and below be of galvanised iron screwed fittings and above BW 'C' class fittings.It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.					
		For Fire System - M.S. 'C' Heavy class pipe					
a)	NSR	25 mm dia	Rmt	8740			
b)	NSR	32 mm dia	Rmt	240			
c)	NSR	40 mm dia	Rmt	2235			
d)	NSR	50 mm dia	Rmt	2750			
e)	NSR	65 mm dia	Rmt	1155			
f)	NSR	80 mm dia	Rmt	250			
g)	NSR	100 mm dia	Rmt	1220			
h)	NSR	150 mm dia	Rmt	2175			
2	NSR	Providing two coats of synthetic enamel paint of approved shade over a coat of primer on MS heavy class pipe including painting of legends both direction arrow as per directions of Engineer - in-charge.					
a)	NSR	25 mm dia	Rmt	8740			
b)	NSR	32 mm dia	Rmt	240			
c)	NSR	40 mm dia	Rmt	2235			
d)	NSR	50 mm dia	Rmt	2750			
e)	NSR	65 mm dia	Rmt	1155			
f)	NSR	80 mm dia	Rmt	355			
g)	NSR	100 mm dia	Rmt	1220			
h)	NSR	150 mm dia	Rmt	5270			
i)	NSR	200 mm dia	Rmt	10			
j)	NSR	250 mm dia.	Rmt	10			
k)	NSR	300 mm dia.	Rmt	10			
3	NSR	Providing, laying, jointing and testing in trenches the following sizes of M.S. class 'C' (heavy class) pipes conforming to IS:1239 with accessories like fittings including tees, elbows, reducers, flanges, rubber gaskets, G.I. nuts, bolts and washers and providing 150mm thick fine sand layer all around the pipe, including excavation in all kind of soil/ hard rock, refilling, ramming and removing the excavated surplus material and making good the same complete as required.and providing anti corrosive treatment (coating and wrapping) with 4 mm thick anti corrosive tape as per IS :10221 complete as required as per directions of Engineer-in-charge. (for external works)					
a)	NSR	80 mm dia	Rmt	105			
b)	NSR	150 mm dia	Rmt	3020			

Sl.No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (In figures) Rs.	Amount (In words) Rs.
4	NSR	Providing, fixing & testing of Chrome finish quartzoid bulb sprinklers of size 15mm dia to be Operated at 68 Deg C. Including two piece of adjustable C.P. Rosset complete as required. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.					
a)	NSR	Pendent through type	Nos.	1850			
b)	NSR	Upright through type	Nos.	1800			
c)	NSR	Side wall extended through type	Nos.	10			
d)	NSR	Conceled type	Nos.	5			
		Flow rate : 6cum/hr					
5	NSR	Reg.time-10 hr.	Set	1			
6	NSR	Providin, fixing & testing of Orifice plate made out of 8mm thick stainless plate for pipe to reduce pressure upto 3.5 kg/sqcm complete in all respects					
a)		150 mm dia	Nos.	110			
7	NSR	Providing and fixing gun metal ball valve suitable for pressure 15 Kg/Cm2 and confirming to IS: 778 of the following size including providing necessary union / flange. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.					
a)		25 mm dia	Nos.	68			
b)		50 mm dia	Nos.	27			
8	NSR	Providing & fixing of butterfly valve suitable for pressure 15 Kg/Sqcm. with flanges, nut bolts & gaskets complete required. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.					
a)		65 mm dia	Nos.	2			
b)		80 mm dia	Nos.	5			
c)		100 mm dia	Nos.	5			
d)		150 mm dia	Nos.	105			
e)		200 mm dia	Nos.	3			
f)		250 mm dia	Nos.	2			
9	NSR	Providing & fixing cast iron Slim seal dual Plate wefer type non-return valves (PN 16) complete with matching flanges, rubber insertion, nuts, bolts and washer complete as required.etc. of following sizes.It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.					
a)		80 mm dia	Nos.	1			
b)		150 mm dia	Nos.	13			
10	NSR	Providing & fixing installation Control Valve assembly comprising of vertical wet alarm valve, including butterfly valve, hydraulic alarm motor & gong , 15 mm dia .Test valve and all necessary trimming connections including 2 nos. pressure gauge.It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.					
a)		150 mm dia	Nos.	1			

Sl.No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (In figures) Rs.	Amount (In words) Rs.
11	NSR	Providing, fixing & testing of Air Cushion tank (Air - vessel) 250 mm dia x 1.0 M high with dished top made of minimum 6 mm thick M.S Sheet pipe/ plate complete with 25 mm dia brass. Air Valve (Ball type) 25 mm dia stopcock. Nipple tees. Elbows and all accessories as required including fixing brackets. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.					
		25 mm dia	Nos.	19			
12	NSR	Providing & fixing double flanged flexicon rubber expansion joint with unit control of standard length as per maufacturers specs. Tested to a pressure of 15Kg/Sqcm including rubber gaskets, flanges, nuts, bolts and washers complete as required. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.					
a)	NSR	65 mm dia	Nos.	2			
b)	NSR	80 mm dia	Nos.	2			
c)	NSR	100 mm dia	Nos.	1			
13	NSR	Providin, fixing & testing C.I. 'POT' strainer with bronze perforated sheet basket tested to a pressure of 15 Kg/sqcm including rubber gasket, flanges, nuts, bolts and washers, complete as required. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.					
a)		250 mm dia	Nos.	2			
14	NSR	Supply, Installation, Testing & Commissioning of Single headed, Gunmetal ISI marked oblique pattern hydrant landing valve with 80 mm dia flange inlet and 63 mm dia instantaneous type female out let complete with gunmetal cap and G.I chain twist release type plug and all accessories as per IS:5290-1983 (Type A). It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Each	110			
15	NSR	Providing & fixing swinging type First Aid hose reel in red colour with 36 mts long and 20 mm dia heavy duty rubber water hose, 20 mm dia globe valve stop cock, terminating with G.M. coupling & nozzle of 5mm outlet with shut off valve conforming to IS 8090-1976 complete with drum and brackets for fixing on wall, bolts & nuts conforming to IS:884-1969 complete as required. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Nos.	68			
16	NSR	Providing & fixing Controlled Percolating (CP) Hose ISI marked (IS:8423) 63mm dia x 15m long complete with instantaneous type gunmetal 63mm dia ISI marked Male & Female couplings (IS:903) bound and riveted to hose pipe with copper rivets and 1.5mm copper wire.brusting pressure not less than 22 Kg/Sqcm. (two nos. for each hydrant-valve). It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Each	84			

Sl.No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (In figures) Rs.	Amount (In words) Rs.
17	NSR	Providing & fixing Non per colating flexible hose (RRL type – A) ISI marked (IS:636 Type A) 63 mm dia x 15 m long complete with ISI marked Male and female coupling (IS:903) bound and riveted to hose pipe with copper rivets and 1.5 Sq.mm.copper wire. brusting pressure not less than 22 Kg/Sqcm. (two nos. for each hydrant-valve). It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Each	136			
18	NSR	Providing & Fixing Gun-metal 63 mm dia short size branch pipes with 20 mm dia nozzle with 63 mm instantaneous coupling ISI marked (IS:903). It should be complete as per manufacturer's specifications & as directed by Engineer-in-charge.	Each	110			
19	NSR	Providing and fixing standard firemans axe with heavy rubber handle.	Nos.	68			
20	NSR	Providing and fixing inlet breeching having C.I. body four way gun metal 63 mm dia instantaneous inlets conforming to IS 903 fitted with non return valves, 25 mm dia gun metal drain cock, blank cap, brass chains and 150 mm dia flanges with all accessories suitable for local fire tender complete as required. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Nos.	7			
21	NSR	Providing & fixing Gunmetal fire Bridge Suction hose coupling (Draw out Connection) with nut for female coupling as per IS:902-1974 complete with 100mm dia. 1 No C.I Foot valve flanged (to be connected to static water tank). It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Each	1			
22	NSR	Providing and fixing weather proof cabinet of size not less than 0.75 x 0.6 x 0.25 mtr made out of M.S. sheet not less than 1.5 mm thick having central opening and 4 mm thick glazed glass doors (Two nos.) suitably marked on the outside with the letters "FIRE HOSE" including necessary locking arrangement and painting in red colour suitable to accommodate, external yard hydrant valve, 2 nos 15 mtr long Hose pipe, branch pipe, nozzle and fire man's axe. It shall be mounted on boundary wall & should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Nos.	42			
23	NSR	Providing and fixing 4mm thick glass door of size 2.1m x 0.9m with anodized aluminium frame of size 0.10 x 0.05 M with centre opening for fire hose cabinet. Suitable marked on the outside with the letters "FIRE HOSE" including locking arrangement. All aluminium work to be in Red P.O. colour. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Nos.	68			

Sl.No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (In figures) Rs.	Amount (In words) Rs.
24	NSR	Providing and fixing suction & delivery headers of required length fabricated from 6mm thick M.S. rolled and welded pipe suitable for 15 Kg/Sqcm working pressure with end flange connections having inlet&outlet flanged connections as per drawing. 150 mm dia pressure gauge with stop cock. Including supports from wall, floors & ceiling complete as required. It should be complete as per manufacturer's specifications & as directed by Engineer-in-charge.					
a)		150 mm dia	RM	70			
b)		200 mm dia	RM	10			
c)		250 mm dia	RM	10			
d)		300 mm dia	RM	10			
25	NSR	Providing and laying Cement concrete for anchor / thrust blocks of 1:4:8 [1 cement : 4 fine aggregate : 8 coarse aggregate, 40mm nominal size as per standard design. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Cum	50			
26	NSR	Providing and fixing Fire Extinguishers complete with all accessories as per manufacturers specifications. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.					
a)		WATER TYPE					
	NSR	Capacity 9 Ltr	Nos.	4			
b)		DRY CHEMICAL TYPE					
	NSR	Capacity 4 kg	Nos.	2			
	NSR	Capacity 6 kg	Nos.	2			
c)		CO2 TYPE					
	NSR	Capacity 2 kg	Nos.	15			
	NSR	Capacity 4.5 kg	Nos.	10			
f)		ABC type					
	NSR	Capacity 2 kg	Nos.	80			
	NSR	Capacity 4 kg	Nos.	80			
	NSR	Capacity 10 kg	Nos.	27			
27	NSR	ISI marked (IS: 10204) portable fire extinguisher Mech. Foam type capacity 9 litres with gunmetal cap and nozzle and complete in all respects including initial fill and wall suspension as per directions of engineer-in-charge.	Each	10			
28	NSR	ISI marked (IS:2878)Trolley mounted carbon-dioxide type Extinguisher of capacity 22.5 Kg with Fire and wall suspension bracket. Flat base including valve, discharge hose of not less than 10mm dia 1m long complete in all respects including wheeled trolley, carrying handle and initial fill with CO2 gas as per IS: 307-1996 filled to a filling ratio of not more than 0.667. It should be complete as per Manufacturer's Specifications & as directed by engineer-in-charge.	Each	20			
29	NSR	Providing & fixing Electrically operated Flow indicating Switches with threaded connection for a minimum flow of 90 lpm for indicating water flow in sprinkler's branch line with necessary junction box installed complete with tee glands and other accessories as per Manufacturer's Specifications & as directed by engineer-in-charge.					
a)		150 mm dia	Nos.	14			

Sl.No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (In figures) Rs.	Amount (In words) Rs.
30	NSR	Providing, fixing, testing & commissioning of 25 mm dia inspection & testing assembly with gunmetal valve sight gas, valve & connected to drain line.	Nos.	14			
31	NSR	Providing and fixing dial type pressure gauge with isolation cock and copper pipe on main header Dial diameter 100 mm celebration 0-14 / sq. cm. complete as per Manufacturer's Specifications & as directed by engineer-in-charge.	Nos.	129			
32	NSR	Providing, fixing, testing & commissioning of 14 zone working + 3 standby Anunciation Panel for flow control switches providing Audio / Visual indication of actuation of automatic Sprinkler system or each zone complete as per specifications. The panel should have interface for connection to complete controlled building management system. It should be complete as per Manufacturer's Specifications & as directed by engineer-in-charge.	Set	1			
33	NSR	Approval of fire system from local fire authority at initial & various other stages of works, including preparation of report / drawings as per local fire authority. Contractor shall include cost of all liaison works which are not explicitly mentioned above but are mandatory to have fire authority approval.	L.S.	1			
34	NSR	Providing & fixing in the false ceilings, high pressure metallic hose with fittings (25 NB at one end for connection to pipe and 15 NB at the other end for the Sprinkler) for connecting the Sprinklers to Sprinkler piping system, Hose & Fittings to be UL listed or FM approved and installed in accordance with para 9.2.1.3.3 of NFPA-13 (2007 edition) Test Pressure 10.0 Kg/Sq.m. complete as per Manufacturer's Specifications & as directed by engineer-in-charge.					
a)	NSR	Length upto 700 mm	Nos.	850			
b)	NSR	Length upto 1200 mm	Nos.	1000			
<b>SUB TOTAL of SUB HEAD: PIPING, HYDRANT AND ACCESSORIES &amp; SPRINKLER SYTEM</b>							
<b>Total of all Subheads</b>							

## Bill of Quantities for Sewage Treatment Plant

Sl. No.	DSR Item Code/NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
		<b>SEWAGE TREATMENT PLANT, Capacity: 200 KLD.</b>					
1	NSR	<b>Sewage Treatment Plant</b>					
		Design, Supplying, Installing, Testing & Commissioning of Sewage Treatment Plant capacity 200 KLD.					
		The plant proposed shall be of 200 KLD capacity. The plant is proposed to be installed under-ground. It should be complete as per Manufacturer's Specifications & as directed by Engineer-in-charge.					
		<b>Preliminary Works</b>					
		<b>Shop Drawings.</b>					
		Detailed GA drawing, flow diagram, equipment list, power load requirement					
		Design, calculations of all elements of the plant, electrical and mechanical work to satisfy adequacy of design					
		Submission of detailed 'GOOD FOR CONSTRUCTION' stage architectural, structural, construction, electrical, mechanical and piping drawing for approval.					
		Contractor shall ensure submission of detailed GA drawings (Plan & Section), P & I diagram, schematic diagram for the above mentioned system and additional components such as inserts, puddle flanges, vent pipes etc. if so required for the complete work.					
		Nature of effluent - Domestic Sewage from Toilet use and kitchen waste,washing waste water.					
		Daily average flow - 200 Cum / Day					
		pH - 6.5 - 8.5					
		BOD - upto 250-450 Mg/L					
		S. Solids - 250 - 400 Mg/L					
		COD - upto 450-600 Mg/L					
		Oil & Grease - 50 Mg / L					
		<b>Effluent discharge standard after treatment</b>					
		pH - 6.5 - 8.5					
		BOD - Less than 30 Mg/L					
		S. Solids - Less than 10 Mg/L					
		COD - Less than 100 Mg/L					
		Oil & Grease - Nil					
		<b>Sewage treatment plant shall include the following items:</b>					
		Screen Chamber					
		Sewage equalization tank/sump					
		MBBR(FAB) Tanks					

Sl. No.	DSR Item Code/NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
		Settling/ Clarifier Tank					
		Clear Water tank					
		Softener Feed Pumps					
		Soft Water tank					
		Sludge Holding Tank					
		Plant Room Sump					
		Filtration through MGF & ACF,softner					
		Air Blowers, Pumps & equipment,filter press.					
		Piping, valves etc					
		Electrical Panel & Cabling					
		Common plant room adjacent to STP.					
		All piping, valves & level indicator/controller etc. within plant room.					
1.1	NSR	Supply, installation, testing & commissioning of 2 Nos Stainless Steel Bar Screen with suitable lifting arrangement (size 600 mm wide x 1200 mm high approx)	Nos	2			
1.2	NSR	Supply, installation, testing & commissioning of electronic type level indicator and controller for automatic operation of the system with high/low level alarm complete with auxiliary NO/NC contacts.	Set	1			
2	NSR	Supply, installation, testing & commissioning of non clogging type pumps, having C.I. casing & bronze impeller complete with all accessories, motor of required capacity. Delivery header with isolation valve, pressure gauge on delivery line with isolation cock level controller with wiring to control the level of sump automatically. Pump shall have following duty.					
2.1	NSR	Submersible Transfer Pumps (2 Nos. - One working & one standby) (Equalisation Tank to MBRR Tank)					
		(Solid handling Cap. 38 mm)					
		Flow rate (each) = 10 m <sup>3</sup> / hr					
		Head = 10-12 Mtr	Set	1			
2.2	NSR	Plant room sump pump 2 Nos (1 working + 1 standby) .					
		Flow rate = 2.0 cum/hr					
		Head = 10-12 Mtr	Set	1			
		(Solid handling size for this pump shall be 15 mm).					
2.3	NSR	Mono block non-submersible centrifugal Sludge Transfer Pumps (2 Nos. - One working & one standby (Settling tank to Sludge holding tank)	Set	1			
		(Solid handling cap. 10 mm)					
		Flow rate (each) = 10 m <sup>3</sup> / hr					

Sl. No.	DSR Item Code/NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
		Head = 8-10 Mtr Cost shall be inclusive of PVC flexible Hose pipe ( for piping submerged in effluent) with M S epoxy piping (for piping non-submerged in effluent) Provision of guide ropes to guide submersible pump from upper level to operational level in sump basin with channels / angle section of MSEP shall be made by the STP contractor.					
2.4	NSR	<b>Air diffusion system shall include the following:</b>					
		Twin type rotary air blowers (one working & one standby) capable of delivering 250 cum/hr (each) of free air at 0.5 kg/cm <sup>2</sup> driven through "V" belt or directly coupled through flexible coupling to a TEFC motor of suitable HP Suitable for 415 ± 10% volts, 3 phase, 50 cycles a/c supply.	Set	1			
2.5	NSR	Air piping shall comprise of pipes droppers/ laterals with M S (epoxy coated) Header complete with all fittings such as tees, crosses, plugs, sockets, elbows, reducers, supports & clamps, puddle flanges etc cutting chases & making good.	Lot	1			
2.6	NSR	Non clog type air dispersion system capable of handling 3-5 cfm of air with oxygen transfer efficiency of 3-4% per/meter water depth. Air dispersion grid shall be assembled in modular form so that they can be replaced / repaired					
		Fine bubble diffusers/ Coarse bubble diffusers					
a)		For equalization tank	Lot	1			
b)		For sludge holding tank	Lot	1			
c)		Reactor tanks	Lot	1			
2.7	NSR	Providing and fixing all piping (as described below) and isolation control valves for making the system complete.					
		SS 304 :Submerged air piping					
		MS with Epoxy coating : Air piping					
		PVC piping :Pumped effluent & tank overflow pipe line	Job	1			
2.8	NSR	Supply, installation, testing and commissioning of Fluidised Media for Aeration Tank (FAB Media) and PVC Tube deck media for settling tank.	cum	14			
2.9		<b>Feed Pumps</b>					

Sl. No.	DSR Item Code/NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
2.9.1	NSR	Supplying, installing, testing & commissioning of <b>centrifugal vertical / horizontal filter feed water pumps C.I.</b> Body, bronze impeller with mechanical seal along with motor. Pressure gauge with isolation cock, NRV, Isolation valve on delivery line. Isolation valve, strainer at suction. The pump shall be suitable for 415 ± 10% volts, 3 phase, 50 cycles a/c supply. Capacity :18 M3/hr. Head : 30 M Minimum efficiency Required :- 70%					
		No. of Pumps (1 working + 1 standby)	Set	1			
2.9.2	NSR	Supplying, installing, testing & commissioning of <b>centrifugal vertical / horizontal softener feed pumps C.I.</b> Body, bronze impeller with mechanical seal along with motor. Pressure gauge with isolation cock, NRV, Isolation valve on delivery line. Isolation valve, strainer at suction. The pump shall be suitable for 415 ± 10% volts, 3 phase, 50 cycles a/c supply. Capacity :6 M3/hr. Head : 30 M Minimum efficiency Required :- 70%					
		No. of Pumps (1 working + 1 standby)	Set	1			
	Note: for 2.9.1 & 2.9.2	Operation of pump shall be based on level controller proposed to be installed in tank as per site location. The contractor to ascertain the Head required for pumps as per site conditions and provide accordingly.					
2.9.3	NSR	<b>Regeneration Tank/Salt Dilution Tank</b> FRP construction of suitable capacity tank to store and measure brine for regeneration of softening plant. Tank to be complete with interconnecting MS/HDPE pipe and other assembly required for commissioning. Salt Dilution Tank shall be provided as per requirement. Salt Dilution Tank - 1000 litres capacity	Set	1			
2.10	NSR	Supplying, installing, testing and commissioning of MS <b>vessel filter,softner,filter press with frontal piping and associated valves and accessories.</b> Filter shall be suitable for a minimum working pressure of 3.0 kg / cm2 and shall include media, standard fittings like pressure tight manholes, initial charge of media, raw water distributor, under drain system, face piping, pressure gauges etc.,					

Sl. No.	DSR Item Code/NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
2.10.1	NSR	The Multi-grade filter shall be constructed of M.S material with Epoxy coating(6 mm inside and 8 mm out side)and other materials as per manufacturer's standards. The filter shall be provide with manhole cover, hand hole, flanged outlet for piping/valve connection and adequate tripod with skid self supporting structure for making the installation completed. The filter shall also be provided with vacuums breaking connection / accessories to avoid any collapse of internal lining. All filters shall be provided with lifting lugs and making the installation completed as					
		Flow rate : 18 cum/hr	Set	1			
2.10.2	NSR	The Activated Carbon filter shall be constructed of M.S material with Epoxy coating(6 mm inside and 8 mm out side)and other materials as per manufacturer's standards.The filter shall be provide with manhole cover, hand hole, flanged outlet for piping/valve connection and adequate tripod with skid self supporting structure for making the installation completed. The filter shall also be provided with vacuums breaking connection / accessories to avoid any collapse of internal lining. All filters shall be provided with lifting lugs and making the installation complete as required.					
		Flow rate : 18 cum/hr	Set	1			
2.10.3	NSR	The Softner shall be constructed of M.S. material with Epoxy coating(6 mm inside and 8 mm out side)and other materials as per manufacturer's standards, The filter shall be provide with manhole cover, hand hole, flanged outlet for piping/valve connection and adequate tripod with skid self supporting structure for making the installation completed. The filter shall also be provided with vacuums breaking connection / accessories to avoid any collapse of internal lining. All filters shall be provided with lifting lugs and making the installation completed as required.With SS salt-saturator & Motor (Soft water reqd. for Space heating for OTs)					
		Flow rate : 6cum/hr					
		Reg.time-10 hr.					
		(Incoming Hardness 300mg/lit (Approx))					
		Working Pressure 3.0 Kg/Cum					
		Outgoing hardness less than 50 ppm					
		Water Softening plant as described above	Set	1			

Sl. No.	DSR Item Code/NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
2.10.4		Supply, installation, testing and commissioning of Filter Press of plate size 30"x 30" x 35 Nos plate with screw feed pumps for required capacity (1Working+1Standby), with interconnecting piping system all complete.	Set	1			
		<b>UV System</b>					
2.11	NSR	Supply, installation, testing and commissioning of the UV unit shall be with reactor, cabinet housing, cabinet cooling, treatment chamber, electrical panel, temperature safety control, lamp-out alert, UV radiometer along with UV monitoring system and UV monitoring readout panel. The UV Dosage should be > 60,000 mW – Sec / sq.cm. The lamps should be selected based upon the flow requirement of respective unit. The unit shall be complete with temperature safety control, lamp out alert circuit & UV radiometer with 4 – 20 mA output. The treatment chamber shall be made of SS 316 .	Set	1			
<b>3</b>	NSR	<b>Electrical Installation</b>					
3.1		Design, fabrication, supply, installation, testing and commissioning of motor control centre fabricated out of 14 gauge CRCA sheet steel. Cable gland plates which shall be provided on top as well as at the bottom of the panels. Panels shall be treated with all anticorrosive process before painting as per specifications with 2 coats of red oxide primer and final approved shade of powder coated paint. 2 Nos. earthing terminals shall be provided for 3 phase, 4 wire, 50 Hz supply system. Lifting hooks shall also be provided in case of large panels. Approval shall be taken for each panel before fabrication. Quoted rates shall be inclusive of cables (in accordance to specification) with earthing from panel to each motor / equipment.					
		<b>Motor Control Centre</b>					
		<b>Incoming</b>					
		200 amps TPN MCCB with the following accessories:					
a)		0-500 volts 96 x 96 mm square electronic voltmeter with selector switch shall be protected by 2 amps TP MCB. 1 Set					
b)		0-100 amps 96 x 96 mm square electronic ammeter with selector switch and 100./5 amps 10 VA CL:1 CTs. 1 Set					
c)		Phase indicating lamps shall be protected by 2 amp SP MCB 3 Sets					
		<b>Bus Bar</b>					
		200 amps TPN (15 KA) copper bus bar with heat shrinkable insulation sleeves.					

Sl. No.	DSR Item Code/NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
a)		a. Required Nos of required capacity TPN MCB for direct on line starter/star delta starters and out going feeders to all the pumps/blowers etc. (including standbys). Each compartment shall contain auto / manual selector switch and indicating lamp with MCB's for 'ON/OFF/TRIP' status of motor					
b)		Spare MCB's of following capacities:					
i.		32 amps TPN MCB's 3 Nos.					
c)		Necessary cable alleys, internal / cabling, wiring, cabling from MCC to various pumps / equipment and interlocking, earthing for all equipment shall also included					
		<b>Notes :-</b>					
a)		All MCCBs / MCBs shall be of 15 KA breaking capacity and suitable for motor duty application.					
b)		All motor starters shall be provided with Automatic level controller					
c)		DOL starters shall be used for motors below 7.5 HP and Star-Delta Starters for other motors .					
d)		Provision shall be made for providing potential free contacts to all pumps starters					
		MCC for all STP equipments/pumps as described in sub head II	Job	1			
<b>4</b>		<b>Maintenance Contract</b>					
		To operate the entire STP and ETP for a period of 30 days on round the clock basis under first available load conditions as per availability during or after defect liability period .					
4.1	NSR	To provide services of contractors expert operating personal comprising of :					
a)		One Supervisor 4 hrs Three times a week.					
b)		One Plant operator one per shift in three shifts.					
c)		One helper for general maintenance and assistance. One per shift in three shifts.	Job	1			
4.2	NSR	Company's back up services of senior engineers and experts for any major problems, general check up and maintenance and advise. Once a week for 2 hours minimum or more if required.	Job	1			
4.3	NSR	All tools, equipment and testing devices to be provided by the contractor.	Job	1			
4.4	NSR	Consumable including lubricants and chemicals will be provided by Owners.	Job	1			
		<b>Total for Sewage Treatment Plant</b>					

## Bill of Quantities for ETP

Sl. No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
1	NSR	Supply, Fabrication, installation, testing and commissioning of effluent treatment plant with effluent handling capacity 50 m3 per day. <b>The entire plant will be constructed in MS (FRP coated, min. 3 mm).</b> The ETP shall be designed as water retaining structures, with necessary chemical dosing as required by the manufacturer's design. All the equipment, piping, pumps, air blowers and electrical panel to be housed in the ETP skid including M.S. puddle flange (Galvanised), inlet, outlet, overflow, vent, moving ladders & railing. The Plant shall be complete with a central Electrical Power and Control panel fully pre/site wired and with all power and control cables to all pumps and equipment including all instrumentation, level and other controls. The cost will also include any consequential civil work including making foundations for the structure, pumps, blowers etc. It should be complete as per manufacturer's specifications & as directed by Engineer-in-charge.					
		Effluent from OT Scrubs, blood bank, labs etc. Some solvent/ chemical waste originating typically from hospital complex shall also be discharged into the ETP. Design to take consideration of same.					
		Daily average flow : 50 Cum/Day					
		PH : 5.5 - 9.0					
		BOD : 250 - 600 mg/l					
		S. Solids : 200 - 650 Mg/l					
		COD : 600 - 1200 mg/l					
		Oil & Grease : 50-140 mg/L					
		Effluent discharge standard after treatment :-					
		PH : 7.0 - 8.5					
		S. Solids : Less than 400 mg/l					
		COD : Less than 100 mg/l					
		Oil & Grease : Less than 5 mg/l					
		BOD : Less than 30 Mg/L					
		The ETP shall consist of following units but not limited to these unit as may be required by the manufacturer's design. MS PVC coated rungs in all tanks & Platform for maintenance etc. complete as required.					
1.1	NSR	SS Perforated basket screen having provision for chain lifting arrangement etc. complete as required.	Set	1			
1.2	NSR	Collection cum Equalization tank including provision for aeration will be kept to avoid any smell problems in RCC Construction (Civil contractor's Scope)-12.5 Cum	Set	1			

Sl. No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
1.3	NSR	Reaction tank with air diffuser and piping complete of adequate capacity. Fine air bubble jet diffuser with EPDM seat minimum number of diffusers to be provided as per manufacturer's recommendations in MS (FRP) Construction. Min. 2 Cum	Set	1			
1.4	NSR	Secondary clarifier tank, hopper bottom type with arrangement of deep well, baffle wall, scum removal arrangement, outlet launders with arrangement of lifting sludge from the bottom etc. complete as required in MS (FRP) Construction. Min. 3 Cum	Set	1			
1.5	NSR	Sludge Holding Tank with suitable sludge disposal pump of suitable capacity with provision of air diffusion, supernatant withdrawal arrangement in RCC Construction (Sludge Holding Tank in Civil contractor's Scope)	Set	1			
1.6	NSR	Providing and fixing all piping (as described below) and isolation control valves, non return valves etc. for making the system complete.	Set	1			
a)		PVC piping (10kg/sqcm) - For all submerged waste water piping.					
b)		MS (C Class) - For all exposed air piping and flexible stainless steel pipe for submerged air piping.					
c)		GI (C class) for all other water piping.					
1.7	NSR	Providing and fixing all instrumentation eg. Pressure guages, level controllers, sensors, rotameters for air, water etc. for making the system complete.	Set	1			
1.8		<b>WASTE WATER PUMPS :</b> Providing, installation, testing & commissioning of Horizontal / vertical pumps solid handling (min. 50 mm) pumps. The pumps shall be made of CI casing, bronze Impellar, SS shaft & sleeve, Mechanical Seal are connected to a TEFC induction motor mounted on a common channel base frame with coupling guard, 150 mm dia pressure gauge with GM isolation cock, suitable vibration eliminator pads of approved design. Motor to be suitable for 400/440 V, 3 Phase, 50 cycles AC power supply, including all necessary piping, valves and other accessories and concrete foundation complete as required.					
1.8.1	NSR	Submersible transfer pump Capacity : 2.5 M <sup>3</sup> /hr @ Discharge Head 12 M head (1 Working + 1 Standby)(Equalization tank to Clarifier tank)	Set	1			
1.8.2	NSR	Non Submersible Mono block centrifugal Sludge Transfer Pumps (2 Nos. - One working & one standby(Recirculation pump) (Solid handling cap. 6 mm) Flow rate (each) = 12 m <sup>3</sup> / hr Head = 8-10 Mtr	Set	1			
1.9	NSR	Providing and fixing Chemical dosing system consisting of dosing pump (0-6 lph) with 100 l HDPE tanks including all piping from the dozer to the reaction tank etc. complete in all respects.	Set	3			

Sl. No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
1.10	NSR	Supply, installing, testing & commissioning of Electrical system including Electrical Panel for all the above including all switchgear, cables, control wiring, multi function multimeters etc., also including the complete automation of the plant with level controllers and sensors in the HDPE and the MS tanks,control cabling, complete in all respects as required as per IS specifications.	Set	1			
		<b>NOTE:</b>					
		Contractor shall include all electrical and mechanical items as required to operate the system automatically and also include in his rates any other components/tanks/ equipment/ etc. required to complete the job as required. Only main power supply with the earthing to be ETP main control panel shall be provided by the owner through other agencies. The electrical panle will also include all the required NO/NC contacts, contactors etc. required to provide BMS connectivity.					
		Bypass arrangement shall be provided such that equalization tank pump can be used to pump out sewage to external manhole incase of maintenance of ETP.					
		<b>Total for ETP</b>					

**Bill of Quantities for Solar Water Generation System**

Sl. No.	Code No.	Description	Unit	Qty	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
I	NSR	<b>SOLAR HOT WATER GENERATOR SYSTEM</b>					
		Supply, installation, testing and commissioning of solar water heating system panel,each panel capacity of 100 lpd with including comprising of ss-304 insulated storage tank with the required cap of buildings,with heat exchanger & heating element,Cu fin solar collectors with all required accessory to complet system work.The system will be non pressurized.	Nos	60			
		<b>Total for Solar Water Generation System</b>					

## Bill of Quantities for Hot Water Generator Sysytem

Sl. No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures)Rs.	Amount (in words)Rs.
<b>1</b>	<b>NSR</b>	<b>HOT WATER GENERATOR</b>					
a)	NSR	Supplying, installing, testing and commissioning of MS Vertical oil oprated type factory assembled hot water generators consisting of two closely wound, helical, concentric coils arranged to give three passes on flue gas side made of ERW tubes. Hot water Generator shall be capable on rated for delivery of 100,000 Kcal/hr with thermal efficiency 93+-2%, The unit sall be well factory insulated as per standards. (Hot water generators shall be IBR type). It should be complete as per Manufacturer's Specifications & as directed by Engineer-in-charge.	Nos.	2			
		<b>Hot water Circulation Pump</b>					
b)	NSR	Hot water primary Circulation pump, Centrifugal type with mechanical seal having flow rate of 0-250 LPM All interconnecting wiring / cabling between hot water generator and electrical panel	Set	2			
c)	NSR	Secondary circulation pump of flow175 LPM, 20 m head with all valves, gauges and allied accessories.( 1 W +1 S) alongwith All interconnecting wiring / cabling between hot water generator and electrical panel.	Set	2			
		Note: Hot Water System panel Shall be as per manufacture or as per system requirement. Technical approval for the same from the EIC.					
		Note: The HWG shall have an in-built facility to start / stop depending on variation in demand all different periods.					
<b>2</b>	<b>NSR</b>	<b>Providing and fixing MS class 'C' (heavy duty) pipes and fittings like Tees, Elbows, Junctions, Unions, Bends, Plugs, Flanges etc. Clamps, Structural support as required at site.</b>					
a)	NSR	25 mm dia	RMT	20			
b)	NSR	32 mm dia	RMT	50			
c)	NSR	40 mm dia	RMT	50			
d)	NSR	50 mm dia	RMT	350			
e)	NSR	65 mm dia	RMT	350			
f)	NSR	80 mm dia	RMT	10			
g)	NSR	100 mm dia	RMT	10			
h)	NSR	150 mm dia	RMT	5			
i)	NSR	200 mm dia	RMT	5			
j)	NSR	250 mm dia	RMT	10			
<b>3</b>	<b>NSR</b>	<b>Providing installing and testing CI Bucket type strainer with SS Screen (80 mesh)</b>					
a)	NSR	25 mm dia	Nos.	1			
b)	NSR	32 mm dia	Nos.	1			
c)	NSR	40 mm dia	Nos.	3			
d)	NSR	50 mm dia	Nos.	1			
e)	NSR	65 mm dia	Nos.	1			
f)	NSR	80 mm dia	Nos.	1			

Sl. No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures)Rs.	Amount (in words)Rs.
4	NSR	Providing and fixing forged brass ball valves of the following sizes: tested to 15 Kg per sq.mm pressure.					
a)	NSR	25 mm dia	Nos.	6			
b)	NSR	32 mm dia	Nos.	4			
c)	NSR	40 mm dia	Nos.	6			
d)	NSR	50 mm dia	Nos.	6			
e)	NSR	65 mm dia	Nos.	2			
e)	NSR	80 mm dia	Nos.	3			
5	NSR	Providing and fixing GM non return valve of the following sizes: screwed ends.					
a)	NSR	25 mm dia	Nos.	1			
b)	NSR	32 mm dia	Nos.	1			
c)	NSR	40 mm dia	Nos.	3			
d)	NSR	50 mm dia	Nos.	3			
6	NSR	Providing and fixing rubber hose suitable for HSD service at unloading point 3 meter length with coupling joints.					
a)	NSR	80 mm dia	No.	1			
7	NSR	Supply, testing and commissioning of automatic level controller with low level and high level cut off and alarm indication.					
a)		For Day oil tank	Set	2			
8	NSR	<b>FIRE PROTECTION EQUIPMENTS</b>					
a)	NSR	Providing and fixing of fire bucket (6 nos.) with stand having capacity of 9 liters conforming to relevant BIS specifications.	Nos.	6			
b)	NSR	Providing and fixing fire extinguisher mechanical foam type having capacity of 9 liters (for fighting oil fires) in accordance with OIS standard- 117	Nos.	6			
c)	NSR	Providing and fixing of 'No smoking and No Unauthorized Entry sign boards in English and Hindi.	Nos.	6			
9	NSR	<b>DAY TANK AND PUMP,:</b>					
		Supply, installation, testing and commissioning of 990 ltrs. Capacity day storage tanks for HSD day oil tank installed WTP room., The tanks shall be fabricated from 5mm thick MS Plates.Tank shall include float operated level indicator, flanged:connections for inlet, outlet,vent,drain etc.Tank shall be placed at 450 mm below finished floor level inside plant room. The tank shall be having 550mm dia manhole for easy access to all equipments/instruments inside the tank. All equipments/instruments inside or ,near this tank to be of flame proof construction.					
		HSD day tank 990 ltrs. (1000 x 1000 x 1000mm deep) with all accessories as above.	Set	2			
		<b>NOTE:-</b> Required piping, ball valves, NRV, strainers etc. are included in the above items of this BOQ.					
10	NSR	<b>ELECTRICAL WORKS</b>					
		<b>STARTER</b>					
	NSR	DOL starter panel in sheet metal enclosure (three phase) comprising of TPN MCB, overload relay with single phasing protection features, ON-OFF and trip indication lamps, contractors contacts for building automation system interlocking etc. suitable for 2 No. motors of motor of 2 HP each.	Set	1			

Sl. No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures)Rs.	Amount (in words)Rs.
11	NSR	Supply, installation, testing and commissioning of mushroom head emergency stop flame proof push buttons with NC contact in sheet metal enclosure suitable for outdoor use. Push button shall have the features push to lock and turn to release.	Sets	2			

Sl. No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures)Rs.	Amount (in words)Rs.
12	NSR	Supplying, installing, testing and commissioning of S.S. horizontal /vertical hot water storage tank (capacity 3500 lts) suitable for minimum 5 kg/cm <sup>2</sup> operating pressure. Tank shall be provided with flowmeter at inlet (approved by department of weights & measures), Inlet/outlet, overflow/drain connection with M.H. cover (550 mm I.D.), 6 mm thick M.S. dished ends, 8 mm thick MS shell, temperature and pressure relief valves, thermometers & pressure gauge at inlet/outlet. Tank shall be mounted on 450 mm high steel structural supports with access ladder & painted with 2 coats of red oxide paint. Tank shall be insulated with 50 mm thick resin bonded rock wool (density 48 Kg/cum) or 50mm thick fiberglass insulation (density 24 Kg/cum). Insulation shall be covered with 500 g polythene sheet & 24 gauge aluminium sheet cladding giving proper overlaps & sealing the joints with suitable adhesive compound. Tank shall be internally lined with 20 gauge SS-304 sheet including 15 mm dia testing spout with valve. (inlet temperature to hot water storage tank 75-80 degree C).					
		(Tank shall be fabricated as per unfired pressure vessel code IS 2825 - 1969, IS 226/IS 2062). CW inlet and HW outlet piping shall be done in such a way as to prevent stratification of water within the tank.					
		Note:					
		Cost of hot water storage tank shall include the following additional accessories :					
	a)	3 way modulating valve. - 1 No.(For Hot Water Storage Tank, to regulate Temperature in tank automatically)					
	b)	Pressure relief valve - 1 No.					
	c)	Dial type thermometer - 1 No.					
	d)	Safety Valve - 1 No.					
	e)	Thermowells for thermostat sensing elements.(3 Nos.)	Set	2			
13	NSR	Supplying, installing, testing & commissioning of plate type heat exchanger (water to water type) with plates & nozzles of SS-304. Heat exchanger shall be designed as per TEMA standard for Maximum working pressure of 5.0 kg/cm <sup>2</sup> for domestic hot water. Heat exchanger shall be provided with inlet / outlet connections with flanges, MS frame & all other standard accessories & fittings. Inlet hot water & outlet temperature from secondary circuit (domestic hot water ) shall be about 55/30 degree C complete. (Cost shall include 2 Nos pressure gauges, & 2 Nos. thermometers). PHE shall be provided with strainers on inlet of both primary and secondary circuits and shall be provided with isolation valves on both inlet and outlet of primary and secondary circuits.					
	a)	NSR For domestic water system net output 1,00,000 kcal / Hr	Set	2			
	b)	NSR For pre-heated water from solar 1,00,000 Kcal / Hr	Set	1			

Sl. No.	DSR Code No./NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures)Rs.	Amount (in words)Rs.
14	NSR	Supplying, installing, testing and commissioning of soft water tank (water holding cap. 2,000 Lts with 250 mm free board) for steam and Hot Water Generators installed on 2.5 m high red oxide coated steel structural frame including access ladder. Tank shall be fabricated out of 8mm thick MS plates and shall be insulated with 50 mm thick resin bonded rockwool (density 48 Kg/cum) or 50mm thick fiberglass insulation (density 24 Kg/cum). Insulation shall be covered with 500 g poly-thene sheet & 24 gauge aluminium sheet cladding giving proper overlaps & sealing the joints with suitable adhesive compound. Tank shall include 550mm ID manhole cover, inlets/ outlets, overflow, drain vent flanged connections including level controller, level indicator & solenoid valve with sensor having bypass piping & valves (Avcon or approved equal make) to control water level of tank					
	NSR	automatically. (Overflow shall be piped down to ground level from the tank). A gauge glass with isolation locks shall also be provided. A water flow meter approved by the department of weights and measures shall be provided on the cold water make-up line.	Set	1			
15	NSR	<b>Chimney</b> Supply , installation, testing and commissioning of M.S Chimney with suitable supports with hood on top and interconnecting ducting coated with red oxide with insulation within the boiler house .(Chimney Thickness 4 mm, Dia 350 mm, Height 40 mtrs.) Ducting with individual manual damper with limit switches(Thickness 3 mm, Length 3 mtrs., Dia 200 mm) .Chimney height & diameter shall be as per local statutory regulations and the same shall be in the scope of contractor including clearance from the statutory body.	No.	1			
16	NSR	Providing and fixing bronze safety valves of tight lift type with lever for manual blow off of the following sizes:					
	a)	NSR 32 mm dia	Nos.	2			
	b)	NSR 50 mm dia	Nos.	2			
		<b>Total for Hot Water Generator System</b>					

## Bill of Quantities for WTP &amp; Drinking Water Pumping System

Sl. No.	DSR Code No. / NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures)Rs.	Amount (in words)Rs.
		<b>WTP &amp; Drinking Water Pumping System</b>					
		<b>Pumps &amp; Equipments</b>					
		<b>Section-I Non DSR Items</b>					
1	NSR	Providing and fixing horizontal / vertical single/multistage centrifugal pumping set with CI connections, SS impeller, stainless steel shaft and induction motor mounted on common base frame, vibration eliminating pads accessories complete as per manufacturer's specifications and as directed by Engineer-in-charge. 415V+/- 10%, 3 phase 50 Hz. A/C supply.					
A)	NSR	<b>Filter Feed Pumps (1W +1S)= 1SET</b> Type of pump-Horizontal Multi-stage centrifugal pump with axial suction port and radial discharge port with a three phase motor, mounted on a common baseplate. <b>Location - Plant Room</b> Capacity - 420 LPM Head - 30 M. RPM - 2900 Minimum efficiency Required :- 70%	Set	1			
B)	NSR	<b>Flushing-Water transfer Pumps (1W +1S)= 1SET</b> <b>Location - STP Plant Room</b> Capacity - 150 LPM. Head - 30 M. RPM - 2900 USE- Hospital Flushing Water Supply Minimum efficiency Required :- 70%	Set	1			
C)	NSR	<b>Flushing water transfer PUMP</b> <b>Location - STP Plant Room (1W+1SB)= 1set</b> Capacity - 185LPM. Head - 50M. RPM - 2900 Minimum efficiency Required :- 70%	Set	1			
D)	NSR	<b>Irrigation water transfer PUMP</b> <b>Location - STP Plant Room (1W+1SB)= 1set</b> Capacity - 150LPM. Head - 20 M. RPM - 2900 Minimum efficiency Required :- 70%	Set	1			
2	NSR	Providing and fixing horizontal / vertical single/multistage centrifugal pumping set with CI connections, SS impeller, stainless steel shaft and induction motor mounted on common base frame, vibration eliminating pads accessories complete as per manufacturer's specifications and as directed by Engineer-in-charge. <b>Domestic Transfer Pump FOR(ALL OTHER BUILDINGS)</b> <b>Location - Plant Room (2W+1SB)= 1SET</b> Capacity - 210LPM. Head - 50M. RPM - 2900 Minimum efficiency Required :- 70%	Set	1			
3	NSR	<b>Hydropneumatic System</b>					
		Supply, Loading, unloading, shifting, Installation and providing assistance in Testing and Commissioning of Compact Self Contained Skid Mounted Hydropneumatic System As Follows. It should be complete as per manufacturer's specifications and as directed by Engineer-in-charge.					

Sl. No.	DSR Code No. / NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures)Rs.	Amount (in words)Rs.
a.		In-Line, Multisage, centrifugal pumps with SS-304 casing and impeller and SS-316 shaft, CI base & head TEFC motor (with mechanical seal)					
		(Vendor to submit performance curves and technical catalog of the proposed model for review & information)					
b.		The pump shall be selected for performance at best efficiency point. However, the pump selection shall be suitable for performance with set point @ + 20% of the rated head. Variable Frequency Drive, External Pump mounted or wall mounted microprocessor PID controller and frequency inverter integrated in a single body or as separate components with pressure sensor transmitter minimum two lined LCD display, diodes etc.as required. Quantity : 1 No.					
c.		Complete (Skid mounted wall mounted / floor mounted) electrical control panel comprising of all accessories such as PLCs, pressure switches, pressure transducers, control wiring and any other necessary imports etc. (list to be provided by the vendor)					
d.		Precharged diaphragm pressure vessel with food grade membrane, charging connection, connected to outlet header with necessary flanges, gaskets, isolating valves, nuts/bolts etc complete					
e.		Set of accessories such as pressure switches, pressure transducers, inter connecting power and control cabling etc. complete					
f.		Accessories like pressure gauge, MS base frame (Synthetic enamel painted over a coat of primer)					
		<b>Domestic Transfer Pump With VFD FOR( HOSPITAL)</b>					
		<b>Location - Plant Room (2W+1SB)= 1SET</b>					
		Capacity - 210LPM.					
		Head - 30M.					
		RPM - 2900					
		Minimum efficiency Required :- 70%	Set	1			
4	NSR	<b>Submersible Drainage Sump Pumps (1W +1S)=1set</b>					
		Sumersible drainage Pumps vertical stage S.S. pump with float type controller automatic operation required flow rate per hour,required head, submersible type, suitable for clear water drainage & 30 mm solid handling capacity complete with motor, control panel. It should be complete as per manufacturer's specifications and as directed by Engineer-in-charge					
A)	NSR	<b>Location - WTP plant room Drainage (1w+1SB)=1set</b>					
		Capacity - 115 LPM					
		Head - 16 M.					
		RPM - 2900					
		Minimum efficiency Required :- 70%	Set	1			

Sl. No.	DSR Code No. / NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures)Rs.	Amount (in words)Rs.
B)	NSR	<b>Location - Sewage (cutter type)Sump (1w+1SB)= 1 set</b>					
		Capacity - 150 LPM					
		Head - 12 M.					
		RPM - 2900					
		Minimum efficiency Required :- 70%	Set	1			
		<b>Note:</b>					
		The Motor HP to be confirmed by the manufacturer for the duty mentioned for each pump along with performance characteristic curve.					
		The Motor of pumps shall be suitable for operation with variable frequency drives system.					
5		The following Automation and instrumentation including supply, installation, testing and commissioning of all sensors, relays, level controller/switches, level indicators, Relays/Modules etc. and including wiring for completely functional system					
		Flow rate : 6cum/hr					
5.1	NSR	Req.time-10 hr.	Each	6			
5.2	NSR	Level Controller for Borewell pumps (four level float type) for Dry Run Prevention for each pump by providing Low level sensors.	Each	3			
		<b>Note:</b>					
		Regulation of Pumps includes cut in, cut-outs, switching ON-OFF pumps based on requirements.					
6	NSR	Water Level Indicator (for under ground sump)					
		Side mounted Magnetic float type with fluorescent indication properly protected & installed at suitable locations.	Each	6			
7	NSR	Flow switches for inter locking of Chlorine Dosing Pump with Hydropneumatic filter water supply pump.	Each	1			

Sl. No.	DSR Code No. / NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures)Rs.	Amount (in words)Rs.
8	NSR	Providing and fixing cast iron dual plate wafer type non-return valve (as per Technical specification) including nuts, bolts, 1.5mm thick CAF gasket sheets complete in all respects (PN 1.6)					
		40 NB	Each	4			
9	NSR	Providing and fixing Pressure Reduce valve from 6.kg/cm <sup>2</sup> to 4kg/cm <sup>2</sup> as per IS, including nuts and bolts complete in all respects.					
A)	NSR	32 dia	Each	2			
B)	NSR	40 dia	Each	1			
10	NSR	Providing and fixing standard dial type pressure gauge dia 100 mm with screwed inlet with isolation cock suitable for liquid gauge to show pressure upto:					
A)	NSR	(0-5) KG/Sq.cm	Each	4			
B)	NSR	(0-10) Kg/Sq.cm	Each	4			
11	NSR	<b>Water Filtration Units (Multi-grade)</b> The Multi-grad filter shall be constructed of M.S. material with Epoxy coating(6 mm inside and 8 mm out side) and other materials as per manufacturer's standards. The filter shall be provide with manhole cover, hand hole, flanged outlet for piping/valve connection and adequate tripod with skid self supporting structure for making the installation completed. The filter shall also be provided with vacuums breaking connection / accessories to avoid any collapse of internal lining. All filters shall be provided with lifting lugs and making the installation completed as required. <b>Flow Rate</b> :25.0 m3 / h FOR 10 hr.It should be complete as per manufacturer's specifications and as directed by Engineer-in-charge.	Set	1			
12	NSR	<b>Water Filtration Units (Activated carbon)</b> The Activated carbon filter shall be constructed of M.S. material withEpoxy coating(6 mm inside and 8 mm out side)and other materials as per manufacturer's standards. The filter shall be provide with manhole cover, hand hole, flanged outlet for piping/valve connection and adequate tripod with skid self supporting structure for making the installation completed. The filter shall also be provided with vacuums breaking connection / accessories to avoid any collapse of internal lining. All filters shall be provided with lifting lugs and making the installation completed as required. <b>Flow Rate</b> : 25.0 m3 / h FOR 10 hr..It should be complete as per manufacturer's specifications and as directed by Engineer-in-charge.	Set	1			
13	NSR	<b>Chemical Dosing Unit</b> Medium pressure synchronous motor type chemical dosing pump with noryl Plastic body and PVC parts, dispensing valves, foot valves, relief valves, mounting plate, chemical tank of 250 litre capacity complete.First fill in the contractor scope.It should be complete as per manufacturer's specifications and as directed by Engineer in-charge. Capacity 0-6 LPH at pressure head of 40 MWC	Set	1			
14	NSR	Providing & fixing solenoid valve with electrical control panel to operated 24 v ac,50 Hz solenoid valves,solenoid valves,float valve for overhead tanks.	Each	8			

Sl. No.	DSR Code No. / NSR	Description	Unit	Qty	Rate (Rs.)	Amount (in figures)Rs.	Amount (in words)Rs.
15	NSR	Providing & fixing butterfly valve tested to a pressure of 15 Kg/Sq.cm. Including rubber gasket, flanges, nuts, bolts, washers & painting complete as required.					
A)	NSR	65 mm dia	Each	5			
B)	NSR	80 mm dia	Each	5			
C)	NSR	100 mm dia	Each	10			
D)	NSR	150 mm dia	Each	15			
16	NSR	Providing & fixing cast Iron Slim seal dual type non-return valves (PN 16) complete with matching flanges, rubber insertion, nuts, bolts and washer complete as required etc. of following sizes.					
A)	NSR	65 mm dia	Each	5			
B)	NSR	80 mm dia	Each	5			
C)	NSR	100 mm dia	Each	6			
D)	NSR	150 mm dia	Each	2			
17	NSR	<b>Water Supply Pumps Panel</b>					
a)		<b>INCOMER</b>					
i)		1 No. 125A TPN MCCB (35 KA)					
b)		<b>METERING &amp; INDICATION</b>					
i)		1 set of R.Y.B phase indicating lamps					
ii)		1 No. (0-500V) Voltmeter with VSS with 3 nos. 2A SP MCB					
iii)		1 Nos Digital Multifunction meter for Voltage, Current & KW with selector switch. Each with 3nos. of 2A SP MCB & 3nos 125/5A CTs (125A/500V) rating					
c)		<b>BUS-BAR</b>					
i)		1 Set of 150A TPN Aluminium Bus Bar with colour coded PVC Sleeves					
d)		<b>OUTGOINGS</b>					
i)		15 Nos. 32A TPN MCB (10 KA)					
ii)		8 Nos. DOL starter with self illuminated Push button for ON & OFF and suitable rating of contactor and O/L relays, suitable for 5 HP Motor.					
iii)		4 Nos. DOL starter with self illuminated Push button for ON & OFF and suitable rating of contactor and O/L relays, suitable for 3 HP Motor.					
		<b>Supply, Receiving, fixing, testing &amp; commissioning of Panel as described above complete as per manufacturer's specifications and as directed by Engineer-in-charge.</b>	Set	1			
	1	<b>Note:</b> The rating of all switchgear must match the HP of all pumps quoted and 20% space for spare to be kept in the panel.					
	2	Item to be operated after confirmation from Project Manager					
18	NSR	<b>STP Panel</b>					
a)		<b>INCOMER</b>					
i)		1 No. 63A TPN MCCB (35 KA)					
b)		<b>METERING &amp; INDICATION</b>					
i)		1 set of R.Y.B phase indicating lamps					
ii)		1 No. (0-500V) Voltmeter with Built-in VSS with 3 nos. 2A SP MCB					
iii)		1 No. (0-60A) Ammeter with ASS with 3 nos. 60/5A CT's					
c)		<b>BUS-BAR</b>					
d)		1 Set of 100A TPN Aluminium Bus Bar with colour coded PVC Sleeves					
e)		<b>OUTGOINGS</b>					
i)		8 Nos. 32A TPN MCB (10 KA)					
ii)		2 Nos. DOL starter with self illuminated Push button for ON & OFF and suitable rating of contactor and O/L relays, suitable for 5 HP Motor.					
iii)		4 Nos. DOL starter with self illuminated Push button for ON & OFF and suitable rating of contactor and O/L relays, suitable for upto 3 HP Motor.					
		<b>Supply, Receiving, fixing, testing &amp; commissioning of Panel as described above</b>	Sets	1			
<b>Total for WTP &amp; Drinking Water System</b>							

<b>Bill of Quantities for BMS</b>							
Sl.No.	DSR Item code/NSR	Description	Unit	Qty.	Rate	Amount (in figures) Rs.	Amount (in words) Rs.
		<b>Building Management System (BMS)</b>					
1	NSR	BMS Workstation with minimum PC configuration Intel Core i7 processor , 2.8 GHz, 1 TB HDD, 8 GB RAM, 16X DVD drive, 21 " WLED colour monitor and Colour inkjet printer of A4 size. The system shall have 1000 VA UPS with 30 minutes run time.	No.	1			
2	NSR	<b>BMS Software with following requirement</b>					
a)		Network Management Tool - shall be compatible with Microsoft Windows XP Professional and a complete set of integrated LONWORKS network/ BACnet management tools for working with LONWORKS/ BACnet networks.	Set	1			
b)		Graphical Programming Software - A set of tools for the development of the DDC control logic, point management, global properties such as alarm, trend and scheduling with 15 user licenses.					
c)		System programming software & hardware provided shall comply with the current release version of the AX Niagara Framework platform.					
3	NSR	System Interface Controller (should be capable of connecting to TCP/IP network) and must provide hardware features as must provide the following hardware features as a minimum: a) One Ethernet Port -10 / 100 Mbps b) One RS-485 port c) One LONWORKS/BACnet/Modbus Interface Port – 78KB TP/FT-10 d) Battery Backup e) Flash memory for long term data backup (If battery backup or flash memory is not supplied, the controller must contain a hard disk with at least 1 gigabyte storage capacity) f) capable of Calendar functions,Scheduling, Trending,Alarm monitoring and routing,Time synchronization, Integration of LONWORKS controller data,Integration of BACnet MS/TP and BACnet IP controllers.	Set	1			
a)		Digital Electrical Meters Integration					
b)		Chiller Integration					
c)		DG Integration					
d)		FAS Integration					
4	NSR	BACnet/IP DDC Controllers with Enclosures panels and must provide hardware features as must provide the following hardware features as a minimum: a) shall have a minimum of 64K of Non-volatile Flash memory for control applications and 128K non-volatile flash memory for storage b) 16 bit A to D resolution c) Outputs shall have an adjustable range of 2 seconds to 15 minutes d) All controllers shall be BACnet/BTL/LONMARK Compliant e) Each controller shall be provided with a XIF file that is fixed from the manufacture & such XIF file shall be a part of the manufactures normal product offering.					

Sl.No.	DSR Item code/NSR	Description	Unit	Qty.	Rate	Amount (in figures) Rs.	Amount (in words) Rs.
<b>I</b>		<b>HVAC</b>					
a)	NSR	AHUs (Max.5 AHUs per DDC)	Lot	1			
b)	NSR	Ventilation System	Lot	1			
c)	NSR	Plant Room	Lot	1			
<b>II</b>		<b>Electricals</b>					
a)	NSR	Main LT & HT panel	Lot	1			
b)	NSR	DG's	Lot	1			
c)	NSR	Internal Lighting	Lot	1			
d)	NSR	External Lighting	Lot	1			
<b>III</b>		<b>Water Supply System &amp; Fire Fighting</b>	Lot	1			
<b>IV</b>		<b>Lifts</b>	Lot	1			
<b>5</b>	NSR	Field Equipments					
a)	NSR	Oil Level Transmitter	No.	1			
b)	NSR	Electro magnetic Type Flow Meter	No.	1			
c)	NSR	Flow Switch	Nos.	6			
d)	NSR	Immersion Type Temp Sensor	Nos.	6			
e)	NSR	Differential Pressure Air Flow switch for AHU runs status and Filter Status	Nos.	48			
f)	NSR	Differential Pressure Water Flow Switch for Pumps	Nos.	7			
g)	NSR	Duct Temperature Sensor	Nos.	24			
h)	NSR	Current Relay	Nos.	8			
i)	NSR	Level Switch with High/Low	Nos.	5			
j)	NSR	Pressure Transmitter for water	Nos.	5			
k)	NSR	LUX Sensor	Nos.	6			
l)	NSR	Occupancy Sensor	Nos.	10			
m)	NSR	Ambient Temp Sensor	No.	1			
n)	NSR	Ambient Humidity Sensor	No.	1			
o)	NSR	Voltage Transducer	No.	1			
<b>6</b>	NSR	Portable operator terminal	No.	1			
		<b>Cables &amp; conduit</b>					
<b>7</b>	NSR	Communication Cables CAT 5e/CAT 6 to interconnect all the controllers, to the intermediate Bus duct and to the work station.	RM	2000			

Sl.No.	DSR Item code/NSR	Description	Unit	Qty.	Rate	Amount (in figures) Rs.	Amount (in words) Rs.
8	4.1.2	Fabricating and installing following size of perforated M.S. cable trays including horizontal and vertical bends, reducers, tees, cross members and other accessories as required and duly suspended from the ceiling with M.S. suspenders and including painting with powder coating etc. as required.					
		150 mm width X 50 mm depth X 1.6 mm thickness	RM	150			
9	1.17.2	Supplying & drawing following sizes of FR PVC insulated copper conductor, single core cable in the existing surface / recessed steel / PVC conduit as required.					
		2 X 1.5 mm <sup>2</sup>	RM	2800			
10		Supplying & fixing of following sizes of PVC conduit along with accessories in surface / recess including cutting the wall & making good the same in case of recessed conduit as required.					
a)	1.21.1	20 mm Conduit	RM	75			
b)	1.21.2	25 mm Conduit	RM	2000			
		<b>BMS Subhead Total</b>					

Bill of Quantities for Lifts							
Sl. No.	DSR Code No. / NSR	Description	Unit	Qty.	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
1	NSR	<p>Supply, installation, testing and commissioning of 26 persons (1768kg) Bed Lift having speed of 0.5 m/sec serving different floors in the lift shaft as per CPWD specifications for electrical works (Lifts &amp; Escalators Part-III, 2003), conforming to latest lift Act and modern lift design with microprocessor controller AC variable voltage, variable frequency drive suitable to operate on 415 volts <math>\pm</math> 10%, 50Hz <math>\pm</math> 1, 3phases, 4 wire system, and technical data sheet enclosed. It should be complete as per Manufacturer's Specifications &amp; as directed by Engineer-in-charge.</p> <p>Location of Bed lifts: Hospital Block, (G+3)</p> <p>Speed 0.5 m/sec</p> <p>No. of Floors - 4</p> <p>No. of Stops and opening -4</p> <p>Car Inside Size: 1600 (W) x 2400 (D)</p> <p>Lift Well Size: 2400 (W) x 3000 (D)</p> <p>Car Height: 2.2 m</p> <p>Controller: AC variable voltage and variable frequency</p> <p>Automatic rescue device complete with dry maintenance free batteries as required.</p> <p>Operation: Microprocessor based single automatic push button /Simplex/ duplex selective collective / with attendant.</p> <p>Power - 415V, 3phase, 50Hz, 4 wires system</p> <p>Levelling Accuracy: High level accuracy with smooth jerk free stopping.</p> <p>Car doors: Power operated, center opening horizontal sliding stainless steel scratch proof with glass opening</p> <p>Landing doors:Stainless steel scratch proof doors with glass opening</p> <p>Strechler Impact protection at the 900mm height is to be provided</p> <p>Voice announcement system in the car</p> <p>Safety Features: Fire Man Switch, Emergency Light, Emergency Alarm Bell with Automatic Charging Device</p> <p><b>Sub Total</b></p>	Set	2			
2	NSR	<p>Supply, installation, testing and commissioning of 8 passenger (544kg) Gearless lift having speed of 1 m/sec serving different floors in the lift shaft as per CPWD specifications for electrical works (Lifts &amp; Escalators Part-III, 2003), conforming to latest lift Act and modern lift design with microprocessor controller AC variable voltage, variable frequency drive suitable to operate on 415 volts <math>\pm</math> 10%, 50Hz <math>\pm</math> 1, 3phases, 4 wire system, and technical data sheet enclosed. It should be complete as per Manufacturer's Specifications &amp; as directed by Engineer-in-charge.</p> <p>Location of lifts: Academic Block, (G+2)</p> <p>Speed 1 m/sec</p> <p>No. of Floors - 3</p> <p>No. of Stops and opening -3</p>					

Sl. No.	DSR Code No. / NSR	Description	Unit	Qty.	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
		Car Inside Size: 1300 (W) x 1100 (D)					
		Lift Well Size: 1900 (W) x 1900 (D)					
		Car Height: 2.3 m					
		Microprocessor Controller: AC variable voltage and variable frequency					
		Automatic rescue device complete with dry maintenance free batteries as required.					
		Operation: Microprocessor based single automatic push button / duplex selective colective / with attendant.					
		Power - 415V, 3phase, 50Hz, 4 wires system					
		Levelling Accuracy: High level accuracy with smooth jerk free stopping.					
		Car doors: Power opeated, center opening horizontal sliding stainless steel scratch proof with glass opening					
		Landing doors:Stainless steel scratch proof doors with glass opening					
		A hand rail of stainless steel mirror finish of not less than 1000 mm long and 900 mm above floor level to be fixed adjacent to control panel in the lift car					
		Voice announcement system in the car					
		Safety Features: Fire Man Switch, Emergency Light, Emergency Alarm Bell with Automatic Charging Device					
		<b>Sub Total</b>	<b>Set</b>	<b>2</b>			

Sl. No.	DSR Code No. / NSR	Description	Unit	Qty.	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
3	NSR	<p>Supply, installation, testing and commissioning of 13 passenger (884kg) Gearless lift having speed of 1 m/sec serving different floors in the lift shaft as per CPWD specifications for electrical works (Lifts &amp; Escalators Part-III, 2003), conforming to latest lift Act and modern lift design with microprocessor controller AC variable voltage, variable frequency drive suitable to operate on 415 volts <math>\pm</math> 10%, 50Hz <math>\pm</math> 1, 3phases, 4 wire system, and technical data sheet enclosed. It should be complete as per Manufacturer's Specifications &amp; as directed by Engineer-in-charge.</p> <p>Location of lifts: .Boys Hostel (G+7) Girls Hostel (G+7)</p> <p>Speed - 1 m/sec</p> <p>No. of Floors - 8</p> <p>No. of Stops and opening -8</p> <p>Car Inside Size: 2000 (W) x 1100 (D)</p> <p>Lift Well Size: 2500 (W) x 1900 (D)</p> <p>Car Height:2.3 m</p> <p>Microprocessor Controller: AC variable voltage and variable frequency</p> <p>Automatic rescue device complete with dry maintenance free batteries as required.</p> <p>Operation: Microprocessor based single automatic push button / duplex selective colective / with attendant.</p> <p>Power - 415V, 3phase, 50Hz, 4 wires system</p> <p>Levelling Accuracy: High level accuracy with smooth jerk free stopping.</p> <p>Car doors: Power opeated, center opening horizontal sliding stainless steel scratch proof with glass opening</p> <p>Landing doors:Stainless steel scratch proof doors with glass opening</p> <p>A hand rail of stainless steel mirror finish of not less than 1000 mm long and 900 mm above floor level to be fixed adjacent to control panel in the lift car</p> <p>Voice announcement system in the car</p> <p>Safety Features: Fire Man Switch, Emergency Light, Emergency Alarm Bell with Automatic Charging Device</p> <p><b>Sub Total</b></p>	Set	4			
4	NSR	<p>Supply, installation, testing and commissioning of 13 passenger (884kg) Gearless lift having speed of 1 m/sec serving different floors in the lift shaft as per CPWD specifications for electrical works (Lifts &amp; Escalators Part-III, 2003), conforming to latest lift Act and modern lift design with microprocessor controller AC variable voltage, variable frequency drive suitable to operate on 415 volts <math>\pm</math> 10%, 50Hz <math>\pm</math> 1, 3phases, 4 wire system, and technical data sheet enclosed. It should be complete as per Manufacturer's Specifications &amp; as directed by Engineer-in-charge.</p> <p>Location of lifts: Staff Accomodation (G+6)</p> <p>Speed 1 m/sec</p>					

Sl. No.	DSR Code No. / NSR	Description	Unit	Qty.	Rate (Rs.)	Amount (in figures) Rs.	Amount (in words) Rs.
		No. of Floors - 7					
		No. of Stops and opening -7					
		Car Inside Size: 2000 (W) x 1100 (D)					
		Lift Well Size: 2500 (W) x 1900 (D)					
		Car Height: 2.3 m					
		Microprocessor Controller: AC variable voltage and variable frequency					
		Automatic rescue device complete with dry maintenance free batteries as required.					
		Operation: Microprocessor based single automatic push button / duplex selective coelctive / with attendant.					
		Power - 415V, 3phase, 50Hz, 4 wires system					
		Levelling Accuracy: High level accuracy with smooth jerk free stopping.					
		Car doors: Power operated, center opening horizontal sliding stainless steel scratch proof with glass opening					
		Landing doors:Stainless steel scratch proof doors with glass opening					
		A hand rail of stainless steel mirror finish of not less than 1000 mm long and 900 mm above floor level to be fixed adjacent to control panel in the lift car					
		Voice announcement system in the car					
		Safety Features: Fire Man Switch, Emergency Light, Emergency Alarm Bell with Automatic Charging Device					
		<b>Sub Total</b>	<b>Set</b>	<b>2</b>			
		<b>Total for Subhead of Lifts</b>				-	