

**MINISTRY OF HEALTH & FAMILY WELFARE**

**GOVERNMENT OF INDIA, NEW DELHI**

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

**Request for Proposal (RFP)**

*for*

**Construction of Regional Institute of Allied Health Sciences (RIAHS)**

**At Bhubaneswar, Odisha**

**THE COMPLETE TENDER DOCUMENTS CONSIST OF THE FOLLOWING:**

- Volume- I (NIB & ITB)
- Volume-II (GCC & SCC)
- Volume-III (Tech. Specs)
- Volume-IV (BOQ)

**Volume – IV**

- **Bill of Quantities**



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(September, 2013)

## PREAMBLE TO BILL OF QUANTITIES

*(This preamble applies to all the sections of the Bill of Quantities. The Contract rates shall take into account all these provisions in addition to various provisions as given in other parts of the Contract document )*

SI No.	DESCRIPTION
<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.

Project: Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha			
FINANCIAL BID SUMMARY SHEET			
Sl. No.	Description	Quoted Amount (In Rs.) In Figures	Quoted Amount (In Rs.) In Words
<b>A</b>	<b>Subhead-Civil &amp; Plumbing</b>		
1	Civil Works		
2	Internal & External Plumbing & Sanitation Works		
	<b>Sub Total of Subhead A (In Rs.)</b>		
<b>B</b>	<b>Subhead -Services</b>		
1	Electrical works		
2	Low Voltage Works		
3	Lifts		
4	HVAC Works		
5	Fire Fighting Works		

6	IBMS		
7	Water Treatment Plant		
8	Sewage Treatment Plant		
9	Pumps & Machinaries Works		
10	Solar Hot Water System		
	<b>Sub Total of Subhead B (In Rs.)</b>		
	<b>GRAND TOTAL (SUBHEAD A+ SUBHEAD B) (In Rs.)</b>		

PROJECT: CONSTRUCTION OF REGIONAL INSTITUTE OF ALLIED HEALTH SCIENCES,BHUBANESHWAR, ODHISHA			
SUMMARY - CIVIL WORKS			
S. NO.	DESCRIPTION	QUOTED AMOUNT (Rs.) In Figure	QUOTED AMOUNT (Rs.) In Words
1	Carriage of Materials		
2	Earth Works		
3	Concrete work		
4	Reinforced Cement Concrete		
5	Brick Work		
6	Stone Work		
7	Marble and Granite Work		
8	Wood and PVC Work		
9	Steel Work		

S. NO.	DESCRIPTION	QUOTED AMOUNT (Rs.) In Figure	QUOTED AMOUNT (Rs.) In Words
10	Flooring		
11	Roofing		
12	Finishing		
13	Road Work		
14	Aluminium Work		
15	Waterproofing		
16	Horticulture and Landscaping		
17	Rainwater Harvesting and Tubewells		
	<b>TOTAL AMOUNT (In Rs.)</b>		

PROJECT: CONSTRUCTION OF REGIONAL INSTITUTE OF ALLIED HEALTH SCIENCES,BHUBANESHWAR, ODHISHA								
BOQ FOR CIVIL WORKS								
Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
1.0	1.0	<b>CARRIAGE OF MATERIALS</b>						
1.1	1.1	Carriage of materials by mechanical transport including loading, unloading and stacking						
1.1.1	1.1.2	Earth (upto 1KM)	CUM	3510				
		<b>Carriage of materials Sub Head Total</b>						
2.0	2.0	<b>EARTH WORK</b>						
2.1	2.1	Earth work in surface excavation not exceeding 30 cm in depth but exceeding 1.5 m in width as well as 10 sqm on plan including disposal of excavated earth upto 50 m and lift upto 1.5 m, disposed soil to be levelled and neatly dressed :						
2.1.1	2.1.1	All kinds of soil	100 Sqm	405				
2.2	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.						
2.2.1	2.6.1	All kinds of soil	CUM	15135				
2.3	2.7	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m and lift upto 1.5 m, disposed earth to be levelled and neatly dressed.						
2.3.1	2.7.1	Ordinary rock	cum	4559				
2.4	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 50M.						

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.4.1	2.8.1	A) All kinds of soil	CUM	5184				
2.5	2.9	Excavation work by mechanical means (Hydraulic excavator)/ manual means in foundation trenches or drains (not exceeding 1.5m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soils as directed, within a lead of 50 m.						
2.5.1	2.9.1	Ordinary Rock	CUM	3003				
2.6	2.10	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 :						
2.6.1	2.10.1	All kinds of soil.						
2.6.2	2.10.1.1	Pipes, cables, etc. not exceeding 80mm diafor all kinds of soil	Metre	6231				
2.6.3	2.10.1.2	Pipes, cables, etc. exceeding 80mm dia but not exceeding 300mm dia.	Metre	3302				
2.6.4	2.10.1.3	Pipes, cables etc. exceeding 300 mm dia but not exceeding 600 mm	Metre	1725				
2.7	2.11	Extra for excavating trenches for pipes, cables etc. in all kinds of soil for depth exceeding 1.5 m, but not exceeding 3 m. (Rate is over corresponding basic item for depth upto 1.5 metre).						
2.7.1	a)	Pipes, cables, etc. exceeding 80mm dia but not exceeding 300mm dia.	Metre	1156				
2.7.2	b)	Pipes, cables etc. exceeding 300 mm dia but not exceeding 600 mm	Metre	604				



Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.8	2.12	Extra for excavating trenches for pipes, cables, etc, in all kinds of soil for depth exceeding 3 m in depth, but not exceeding 4.5 m. (Rate is over corresponding basic item for depth upto 1.5 metre.)						
2.8.1		All kinds of soil						
2.8.1.1	a)	Pipes, cables, etc. exceeding 80 mm dia but not exceeding 300 mm dia.	RM	300				
2.8.1.2	b)	Pipes, cables etc. exceeding 300 mm dia but not exceeding 600 mm	RM	170				
2.9	2.13	Excavating trenches of required width for pipes, cables, etc, including excavation for sockets, depth upto 1.5 m, including getting out the excavated materials, returning the soil as required in layers not exceeding 20 cm in depth, including consolidating each deposited layers by ramming, watering etc., stacking serviceable material for measurements and disposal of unserviceable material as directed, within a lead of 50 m :						
2.9.1	2.13.1	Ordinary rock :						
2.9.1.1	2.13.1.2	Pipes, cables etc. exceeding 80 mm dia but not exceeding 300 mm dia	Metre	300				
2.9.1.2	2.13.1.3	Pipes, cables exceeding 300 mm dia but not exceeding 600 mm dia	Metre	170				
2.10	2.14	Extra for excavating trenches for pipes, cables, etc. in ordinary/hard rock exceeding 1.5 m in depth but not exceeding 3 m. (Rate is over corresponding basic item for depth upto 1.5 metre).						
2.10.1	a)	Pipes, cables etc. exceeding 80 mm dia but not exceeding 300 mm dia	Metre	170				
2.10.2	b)	Pipes, cables exceeding 300 mm dia but not exceeding 600 mm dia	Metre	100				
2.11	2.25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	CUM	19184				
2.12	2.26	Extra for every additional lift of 1.5 m or part thereof in excavation /banking excavated or stacked materials.						

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.12.1	2.26.1	All kinds of soil	CUM	637				
2.12.2	2.26.2	Ordinary or hard rock	CUM	2076				
2.13	2.27	Supplying and filling in plinth with river sand under floors including, watering, ramming consolidating and dressing complete.	CUM	4074				
2.14	2.32	Clearing grass and removal of the rubbish upto a distance of 50 m outside the periphery of the area cleared.	100 sqm	405				
2.15	NDSR	Providing and injecting chemical emulsion chlorophyriphos 20 % emulsifiable concentrates with 1% concentration or Lindane 20 % emulsifiable concentrates with 1 % concentration pre-constructional anti - termite treatment as per IS 6313 part-2 (2001) or latest eddition and creating a contineous chemical barrier under and alround the column pits, wall trenches, basements excavation, top surface of plinth filling, junction of wall and floor along the external perimeter of the of the building, expansion joints over the top surface of consolidated earth on which apron is to be laid, surroundings of pipes and conduits etc. complete . The work shall be carried out by approved specialised agency and shall carry a performance guarantee on stamp paper for 10 years by the bidder (Plinth area shall be measured for payment )	sqm	8477				
2.16	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	510				
2.17	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	510				
2.18	Derived from DSR 2.1.1	Collection, stacking, preservation, stockpiling for top soil within the compound at the location to be decided by the Engineer-in-charge and to be used for landscaping.	100 Sqms	100				
		<b>Earthwork Sub Head Total</b>						

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
3.0	4.0	CONCRETE WORK						
3.1	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 :						
3.1.1	4.1.3	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	CUM	200				
3.1.2	4.1.8	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size)	CUM	2160				
3.2	4.2	Providing and laying cement concrete in retaining walls, return walls, walls (any thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets, sunken floor etc., up to floor five level, excluding the cost of centering, shuttering and finishing :						
3.2.1	4.2.3	1:2:4 (1 Cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	CUM	82				
3.3	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.						
3.3.1	4.5.2	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	cum	49				
3.4	4.8	Providing and fixing up to floor five level precast cement concrete hollow block including hoisting and setting in position with cement mortar 1:3 (1 cement : 3 coarse sand), cost of required centering, shuttering complete.						
3.4.1	4.8.2	1:3:6 (1 Cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size).	cum	200				
3.5	4.10	Providing and laying damp-proof course 40 mm thick with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size).	SQM	201				

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
3.6	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	113				
3.7	4.13	Applying a coat of residual petroleum bitumen of grade of VG-10 of approved quality using 1.7 kg per square metre on damp proof course after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.	SQM	175				
3.8	4.14	Extra for concrete work in superstructure above floor V level for each four floors or part thereof.	Cum	6				
3.9	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	1059				
3.10	4.19	Providing and laying in position ready mixed plain cement concrete, <b>using fly ash</b> 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.						
3.10.1	4.19.1	All works upto plinth level.						
3.10.1.1	4.19.1.2	M-10 grade plain cement concrete (cement content considered @ 220 kg/cum ).	Cum	1030				

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		<b>Concrete work Sub Head Total</b>						
<b>4.0</b>	<b>5.0</b>	<b>REINFORCED CEMENT CONCRETE WORK</b>						
4.1	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 :						
4.1.1	5.1.1	1:1:2 (1 cement : 1 coarse sand : 2 graded stone aggregate 20 mm nominal size).	cum	<b>87</b>				
4.1.2	5.1.2	1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size)	cum	<b>87</b>				
4.2	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 :						
4.2.1	5.2.1	1:1:2 (1 cement : 1 coarse sand : 2 graded stone 20 mm nominal size) aggregate	cum	<b>87</b>				
4.2.2	5.2.2	1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size)	cum	<b>87</b>				
4.3	5.9	Centering and shuttering including strutting, propping etc. and removal of form for :						
4.3.1	5.9.1	Foundations, footings, bases of columns, etc. for mass concrete	SQM	<b>3894</b>				
4.3.2	5.9.2	Walls (any thickness) including attached pilasters, buttresses, plinth and string courses etc.	sqm	<b>6366</b>				

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
4.3.3	5.9.4	Shelves (Cast in situ)	SQM	52				
4.3.4	5.9.6	Columns, Pillars, Piers, Abutments, Posts and Struts	SQM	16835				
4.3.5	5.9.7	Stairs, (excluding landings) except spiral-staircases	SQM	1803				
4.3.6	5.9.15	Small lintels not exceeding 1.5 m clear span, moulding as in cornices, window sills, string courses, bands, copings, bed plates, anchor blocks and the like	SQM	2096				
4.3.7	5.9.16	Edges of slabs and breaks in floors and walls.						
4.3.7.1	5.9.16.1	Under 20cms wide	METRE	7286				
4.3.8	5.9.17	Cornices and mouldings	SQM	374				
4.3.9	5.9.18	Small surfaces such as cantilever ends, brackets and ends of steps, caps and bases to pilasters and columns and the like	SQM	150				
4.3.10	5.9.19	Weather shade, chajjas, corbels etc. Including edges.	SQM	3861				
4.3.11	5.9.20	Suspended floors, roofs, landings, balconies and access platform. with water proof ply 12 mm thick	SQM	36205				
4.3.12	5.9.21	Lintels, beams, plinth beams, girders, bressumers and cantilevers. with water proof ply 12 mm thick	SQM	31765				
4.4	5.10	Providing and fixing tie bolt, spring coil and plastic cone in wall shuttering complete as per the direction of Engineer-in-charge						

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
4.4.1	5.10.2	12 mm dia. & 150 mm length.	each	500				
4.4.2	5.10.3	20 mm dia. & 150 mm length.	each	1000				
4.4.3	5.10.4	20 mm dia. & 225 mm length.	each	500				
4.5	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)						
4.5.1	5.11.1	Suspended floors, roofs, landing, beams and balconies (Plan area to be measured).	sqm	15237				
4.6	5.13	Providing, hoisting and fixing up to floor five level precast reinforced cement concrete in small lintels not exceeding 1.5 m clear span up to floor five level, including the cost of required centering, shuttering but excluding the cost of reinforcement, with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size).	CUM	118				
4.7	5.22	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.						
4.7.1	5.22.6	Thermo Mechanically Treated bars	KG	454875				
4.8	5.22A	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level.						
4.8.1	5.22A.6	Thermo Mechanically Treated bars	KG	1949386				

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
4.9	5.30	Add for plaster drip course/ groove in plastered surface or moulding to R.C.C. projections.	METRE	650				
4.10	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.						
4.10.1	5.33.1	All works upto plinth level.	CUM	3742				
4.10.2	5.33.2	All works above plinth level upto floor V level	CUM	10869				
4.11	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).						
4.11.1	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	2746				
4.12	5.35	Add for using extra cement in the items of design mix over and above the specified cement content therein.	Quintal	155				
4.13	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	1330				
4.14	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.						



Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
		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.						
4.14.1	5.40.1	All works up to Plinth level.	cum	311				
4.14.2	5.40.2	All works above plinth & up to floor V level.	cum	311				
4.15	5.43	Providing and fixing in position Stainless steel Grade 304 plate-1.0 mm thick as per design for expansion joints, kick plate or similar location as per direction of Engineer-in-charge						
4.15.1	5.43.1	200 mm wide.	KG	3848				
4.16	5.44 (Spl.DSR)	Providing and fixing of expansion joint system related with floor location as per drawings and direction of Engineer-In-Charge. The joints system will be of extruded aluminum base members, self aligning / self centering arrangement and support plates etc. as per ASTM B221-02. The system shall be such that it provides floor to floor /floor to wall expansion control system for various vertical location in load application areas that accommodates multi directional seismic movement without stress to it's components. System shall consist of metal profiles with a universal aluminum base member designed to accommodate various project conditions and finish floor treatments.  The cover plate shall be designed of width and thickness required to satisfy projects movement and loading requirements and secured to base members by utilizing manufacturer's pre-engineered self-centering arrangement that freely rotates / moves in all directions. The Self -centering arrangement shall exhibit circular sphere ends that lock and slide inside the corresponding aluminum extrusion cavity to allow freedom of movement and flexure in all directions including vertical displacement. Provision of Moisture Barrier Membrane in the Joint System to have watertight joint is mandatory requirement all as per the manufactures design and as approved by Engineer -in-Charge . (Material shall confirm to ASTM 6063.)						
4.16.1	5.44.1	Floor Joint of 100 mm gap	METRE	232				
4.17	5.45 (Spl DSR)	Providing and fixing of expansion joint system related with wall joint (internal/external) location as per drawings and direction of Engineer-In- Charge. The joints shall be of extruded aluminum base members, self aligning / centering arrangement and support plates as per ASTM B221-02. The material shall be such that it provides an Expansion Joints System suitable for vertical wall to wall/ wall to corner application, both new and existing construction in office Buildings & complexes with no slipping down tendency amongst the components of the Joint System. The Joint System shall utilize light weight aluminum profiles exhibiting minimal exposed aluminum surfaces mechanically snap locking the multicellular to facilitate movement. (Material shall confirm to ASTM 6063.)						

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4.17.1	5.45.1	Wall Joint of 100 mm gap	METRE	164				
4.18	5.46 (Spl.DSR)	Providing and fixing of expansion joint system of approved make and manufactures for various roof locations as per approved drawings and direction of Engineer-In-Charge. The joints shall be of extruded aluminum base members with, self aligning and self centering arrangement support plates as per ASTM B221-02. The system shall be such that it provides watertight roof to roof/roof to corner joint cover expansion control system that is capable of accommodating multidirectional seismic movement without stress to its components. System shall consist of metal profile that incorporates a universal aluminum base member designed to accommodate various project conditions and roof treatments. The cover plate shall be designed of width and thickness required to satisfy movement and loading requirements and secured to base members by utilizing manufacturer's pre-engineered self-centering arrangement that freely rotates / moves in all directions. The Self centering arrangement shall exhibit circular sphere ends that lock and slide inside the corresponding aluminum extrusion cavity to allow freedom of movement and flexure in all directions including vertical displacement. The Joint System shall resist damage or deterioration from the impact of falling ice, exposure to UV, airborne contaminants and occasional foot traffic from maintenance personnel. Provision of Moisture Barrier Membrane in the Joint System to have water tight joint is mandatory requirement.						
4.18.1	5.46.1	Roof Joint of 100 mm gap	METRE	44				
4.19	NDSR	Providing & fixing in position of reinforcement bar of specified dia by drilling hole in concrete with specified drilling bit, cleaning of hole with air pump (manually), placing of reinforcement steel & injecting chemical in hole by using approved make or equivalent including cost of chemicals but excluding cost of reinforcement bars. The depth of hole to be minimum 15 times dia of rebar or as specified by vendor, as per direction of engineer-in-charge.						
4.19.1	a)	Dia 8mm	EACH	20				
4.19.2	b)	Dia 10mm	EACH	1000				
4.19.3	c)	Dia 12mm	EACH	1000				
4.19.4	d)	Dia 16mm	EACH	500				

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4.19.5	e)	Dia 20mm	EACH	300				
4.19.6	f)	Dia 25mm	EACH	20				
		<b>Reinforced Cement Concrete work Sub Head Total</b>						
<b>5.0</b>	<b>6.0</b>	<b>BRICK WORK</b>						
5.1	6.1	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:						
5.1.1	6.1.2	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	208				
5.2	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						
5.2.1	6.4.2	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	124				
5.3	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	573				
5.4	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.						
5.4.1	6.13.2	Cement mortar 1:4 (1 cement : 4 coarse sand)	sqm	2471				
5.5	6.14	Extra for half brick masonry in superstructure, above floor V level for every four floors or part thereof by mechanical means.	sqm	265				
5.6	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	23594				

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5.7	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 :						
5.7.1	6.34.2	Cement mortar 1:6 (1 cement : 6 Coarse sand)	CUM	6994				
5.8	6.45	Half brick masonry with non modular fly ash lime Gypsum bricks (FALG bricks) of class designation 10, conforming to IS : 12894, in super structure above plinth and upto floor V level.						
5.8.1	6.45.2	Cement mortar 1:4 (1 cement :4 coarse sand)	SQM	21124				
5.9	NDSR	Providing and laying good quality dressed laterite stone masonry work in cement mortar 1:6 (1 cement : 6 coarse sand) of approved size for compound walls, drains,etc., as per the directions of Engineers-in-charge. Laterite stones with minimum crushing strength of 35kg/cm2 shall be used. The stone should be well watered before use in construction, including necessary scaffolding, rackingout joints, curing etc.complete as per direction of Engineer-in-charge.						
		<b>Note:</b> Cement Mortar 1:6 (1 cement : 6 coarse sand) ratio properly mixed only. Raking of joints watering and curing etc complete. Cement of approved make only to be used.The sand used shall not contain silt and other minerals, chemicals and any other harmful ingredients.They shall not have chips,shells or pebbles and will not bulk or lump. Laterite stones, sand and cement shall be tested and verified as per relevant IS codes by Engineer in Charge and their decision shall be final. (River Sand only to be used.) Mixing of all materials shall be done on specifically mademixing platform having adequate working space,at the contractors cost and no payment whatsoever shall be made for the same. No extra payment will be given for grooves, strips, pattas, mouldings etc.	CUM	918				
5.9.1	NDSR	Dressing good quality laterite blocks excavated from site to uniform size of 300 x300 x600mm and laying good quality laterite stone masonry work in 1:6 cement mortar and in sizes as instructed for compound walls, drains,etc., as per direction of Engineer-in-charge. Laterite stones with minimum crushing strength of 35kg/cm2 shall be used. They should be well watered before use in construction, including necessary scaffolding, rackingoutjoints, curing etc.complete as per direction of Engineer-in-charge.	CUM	222				
		<b>Brick work Sub Head Total</b>						
6.0	7.0	<b>STONE WORK/External Cladding Work</b>						

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6.1	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 upto 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.)						
6.1.1	7.40.2	White sand stone (Dholpur or equivalent ).	Sqm	1976				
6.2	7.41	Providing and fixing structural steel frame (for dry cladding with 30 mm thick gang saw cut with machine cut edges sand stone) on walls at all heights using M.S. square/ rectangular tube in the required pattern as per architectural drawing, including cost of cutting, bending, welding etc. The frame work shall be fixed to the wall with the help of M.S. brackets/ lugs of angle iron/ flats etc. which shall be welded to the frame and embedded in brick wall with cement concrete block 1:2:4 (1 cement :2 coarse sand :4 graded stone aggregate 20 mm nominal size) of size 300x230x300 mm, including cost of necessary centring and shuttering and with approved expansion hold fasteners on CC/RCC surface, including drilling necessary holes. Approved cramps/ pins etc. shall be welded to the frame work to support stone cladding, the steel work will be given a priming coat of Zinc primer as approved by Engineerin- charge and painted with two or more coats of epoxy paint (Shop drawings shall be submitted by the contractor to the Engineer-in-charge for approval before execution). The frame work shall be fixed in true horizontal & vertical lines/planes. (Only structural steel frame work shall be measured for the purpose of payment, stainless steel cramps shall be paid for separately and nothing extra shall be paid).	Kg	28254				
6.3	7.42	Providing and fixing adjustable stainless steel cramps of approved quality, 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	9880				
6.4	NDSR	Providing and fixing Terracotta coloured precoat with silicon, brick faced tiles of size 230x 75mm and 17mm thick Exterior matt/ glazed ceramic body wall cladding tiles in approved shade with specially designed deep grooves on the backside of the tile for superior adhesion on exterior wall upto 10 ms. heights . Tiles should be fixed in rough plaster of minimum 12mm thick cement mortar 1:3 (1cement:3coarse sand) including pointing to matching shade of the tile complete in all respects as per direction of the Engineer-in-charge. Note that the tile colour could be one tone or two tone as approved by the Engineer-in-charge.	SQM	2696				
6.5	Derived from 7.39	Extra for stone work for wall lining/ dry cladding/ tile cladding on exterior walls of height more than 10 m from ground level for every additional height of 3 m or part there of.	SQM	3033				
		<b>Stone work Sub Head Total</b>						

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<b>7.0</b>	<b>8.0</b>	<b>MARBLE AND GRANITE WORK</b>						
7.1	Derived from DSR item 8.1	Granite work gang saw cut (mirror polished and machine cut and pre polished) of thickness 18 mm for wall lining (veneer work), backing filled with a grout of minimum 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 the granite shade (To be secured to the backing by means of cramps, which shall be paid for separately).						
7.1.1	8.1.1.2	Area of slab over 0.50 sqm	SQM	<b>774</b>				
7.2	8.2	Providing and fixing 18mm thick gang saw cut mirror polished premoulded and prepolished) machine cut for kitchen platforms, vanity counters, window sills , facias and similar locations of required size of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edge to give high gloss finish etc. complete at all levels.						
7.2.1	8.2.2	<b>Granite of any colour and shade</b>						
7.2.1.1	8.2.2.1	Area of slab upto 0.50 sqm	SQM	<b>320</b>				
7.2.1.2	8.2.2.2	Area of slab over 0.50 sqm	SQM	<b>306</b>				
7.3	8.3	Extra for providing edge moulding to 18mm thick marble stone counters, Vanities ect. Including machine polishing to edge to give high gloss finish ect. Complete as per design approved by Engineer - in Charge.						
7.3.1	8.3.2	Granite work	METRE	<b>1085</b>				
7.4	8.4	Extra for fixing marble / granite stone over and above corresponding basic item, in facia and drops of width upto 150mm with epoxy resin based adhesive including cleaning etc. complete.	METRE	<b>105</b>				
7.5	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 edge etc. complete.	EACH	<b>192</b>				
7.6	8.6	Mirror polishing on marble work / Granite work / stone work where ever required to give high finish complete.	SQM	<b>3071</b>				

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7.7	8.10	Providing and fixing stone slab with 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.						
7.7.1	8.10.2	Granite Stone of approved shade	SQM	55				
7.8	Derived from DSR item 11.23	Providing & laying Granite stone flooring 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 as per direction of Engineer-in-charge.	SQM	1525				
7.9	Derived from DSR item 11.24	Extra for pre finished nosing to treads of steps of Granite / Marble / kota stone.	METRE	3400				
7.10	8.11 (Spl DSR)	Providing and fixing machine cut, mirror / eggshell polished , Marble stone work for wall lining (vener work) including dado, skirting, risers of steps etc., in required design and pattern wherever required, stones of different finished surface texture, on 12 mm (average) thick cement mortar 1:3 (1 cement : 3 coarse sand) laid and jointed with white cement slurry @ 3.3 kg/sqm including pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing, polishing etc. all complete as per Architectural drawings, and as directed by the Engineer-in-Charge.						
7.10.1	a)	18 mm thick Italian Marble stone slab,Perlato, Rosso verona, Fire Red or Dark Emperadore etc.	SQM	20				
7.11	8.12 (Spl DSR)	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						
7.11.1	a)	Flamed finish granite stone slab Jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	SQM	4194				

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7.12	Derived from 8.11(Spl DSR)	Providing and laying flamed finish Granite stone for wall lining (veneer work) including dado, skirting, risers of steps etc., 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 12 mm (average) thick base of cement mortar 1:3 (1 cement : 3 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						
7.12.1	a)	Flamed finish granite stone slab Jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	SQM	1258				
		<b>Marble and Granite work Sub Head Total</b>						
<b>8.0</b>	<b>9.0</b>	<b>WOOD WORK</b>						
8.1	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 paid for separately).						
8.1.1	9.1.1	Second class teak wood	CUM	81				
8.1.2	9.1.2	Sal wood	CUM	4				
8.2	9.16	Providing and fixing 25 mm thick shutters for cup board etc. :						
8.2.1	9.16.1	Panelled or panelled and glazed shutters						
8.2.1.1	9.16.1.2	Second class teak wood including ISI marked nickel plated bright finished M.S. plano hinges with necessary screws	SQM	3151				
8.3	9.18	Providing and fixing Pre-laminated flat pressed 3 layer (medium density) particle board or graded wood particle board IS : 3087 marked, with one side decorative and other side balancing lamination Grade I, Type II exterior grade IS : 12823 marked, in shelves with screws and fittings wherever required, edges to be painted with polyurethane primer (fittings to be paid separately).						
8.3.1	9.18.1	18 mm thick	SQM	3857				
8.3.2	9.18.2	25 mm thick	SQM	2571				



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8.4	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 :						
8.4.1	9.21.1	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	SQM	2950				
8.4.2	9.21.2	30 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	SQM	38				
8.5	9.23	Extra for providing lipping with 2nd class teak wood battens 25 mm minimum depth on all edges of flush door shutters (over all area of door shutter to be measured).	SQM	105				
8.6	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) :						
8.6.1	9.24.1	Rectangular or square	SQM	75				
8.7	9.27	Providing and fixing wire gauge shutters using galvanized M.S. wire gauge of average width of aperture 1.4 mm in both directions with wire of dia 0.63 mm, for doors, windows and clerestory windows with hinges and necessary screws :						
8.7.1	9.27.1	35 mm thick shutters						
8.7.1.1	9.27.1.1	with ISI marked MS pressed butt hinges bright finished of required size.						
8.7.1.1.1	9.27.1.1.1	Second class teak wood	SQM	66				
8.8	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.						
8.8.1	9.33.1	25 mm long	EACH	200				
8.8.2	9.33.2	32 mm long	EACH	175				
8.8.3	9.33.3	40 mm long	EACH	150				

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8.8.4	9.33.4	50 mm long	EACH	125				
8.9	9.34	Providing and fixing 2nd class teak wood plain lining tongued and grooved, including wooden plugs complete with necessary screws and priming coat on unexposed surface.						
8.9.1	9.34.3	20 mm thick	SQM	25				
8.10	9.36	Providing and fixing specified wood frame work consisting of battens 50x25 mm fixed with rawl plug and drilling necessary holes for rawl plug etc. including priming coat complete.						
8.10.1	9.36.1	Kiln seasoned and chemically treated hollock wood	CUM	20				
8.11	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 :						
8.11.1	9.40.1	2nd class teak wood						
8.11.1.1	9.40.1.1	50x12 mm	METRE	7004				
8.11.1.2	9.40.1.2	50 x 20 mm	METRE	5603				
8.12	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 embedding in cement concrete block 30x10x15cm 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size)	EACH	350				
8.13	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.						
8.13.1	9.79.2	50 mm	EACH	1251				
8.14	9.80	Providing and fixing 50 mm bright finished brass cup board or wardrobe knob of approved quality with necessary screws.	EACH	2501				
8.15	9.83	Providing and fixing aluminium die cast body tubular type universal hydraulic door closer (having brand logo with ISI, IS : 3564, embossed on the body, door weight upto 35 kg and door width upto 700 mm), with necessary accessories and screws etc. complete.	EACH	1034				

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8.16	9.88	Providing and fixing chromium plated brass 100 mm mortice latch and lock with 6 levers and a pair of lever handles of approved quality with necessary screws etc. complete.	EACH	60				
8.17	9.89	Providing and fixing chromium plated brass night latch of approved quality including necessary screws etc. complete.	EACH	65				
8.18	9.97	Providing and fixing aluminium tower bolts, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868 ) transparent or dyed to required colour or shade, with necessary screws etc. complete :complete :						
8.18.1	9.97.2	250x10 mm	EACH	1962				
8.18.2	9.97.4	150x10 mm	EACH	2116				
8.19	9.100	Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete:						
8.19.1	9.100.1	125 mm	EACH	6300				
8.19.2	9.100.2	100 mm	EACH	36				
8.20	9.101	Providing and fixing aluminium hanging floor door stopper, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws etc. complete.						
8.20.1	9.101.2	Twin rubber stopper	EACH	1959				
8.21	9.103	Providing and fixing bright finished brass 100 mm mortice latch and lock, ISI marked, with six levers and a pair of anodised (anodic coating not less than grade AC 10 as per IS : 1868) aluminium lever handles of approved quality with necessary screws etc. complete.	EACH	1286				

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8.22	9.105	Providing and fixing partition upto ceiling height consisting of G.I. frame and required board, including providing and fixing of frame work made of special section power pressed/ roll form G.I. sheet with zinc coating of 120 gms/sqm(both side inclusive), consisting of floor and ceiling channel 50mm wide having equal flanges of 32 mm and 0.50 mm thick, fixed to the floor and ceiling at the spacing of 610 mm centre to centre with dash fastener of 12.5 mm dia meter 50 mm length or suitable anchor fastener or metal screws with nylon plugs and the studs 48 mm wide having one flange of 34 mm and other flange 36 mm and 0.50 mm thick fixed vertically within flanges of floor and ceiling channel and placed at a spacing of 610 mm centre to centre by 6 mm dia bolts and nuts, including fixing of studs along both ends of partition fixed flush to wall with suitable anchor fastener or metal screws with nylon plugs at spacing of 450 mm centre to centre, and fixing of boards to both side of frame work by 25 mm long dry wall screws on studs, floor and ceiling channels at the spacing of 300 mm centre to centre. The boards are to be fixed to the frame work with joints staggered to avoid through cracks, M.S. fixing channel of 99 mm width (0.9 mm thick having two flanges of 9.5 mm each) to be provided at the horizontal joints of two boards, fixed to the studs using metal to metal flat head screws, including jointing and finishing to a flush finish with recommended jointing compound, jointing tape, angle beads at corners (25 mm x 25 mm x 0.5 mm), joint finisher and two coats of primer suitable for board as per manufacture's specification and direction of engineer in charge all complete.						
8.22.1	9.105.2	75mm overall thickness partition with 12.5 mm thick double skin tapered edged plain Gypsum board conforming to IS: 2095: part I	SQM	125				
8.23	9.114	Providing and fixing magnetic catcher of approved quality in cupboard / ward robe shutters, including fixing with necessary screws etc. complete.						
8.23.1	9.114.2	Double strip (horizontal type)	EACH	2452				
8.24	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.						
8.24.1	9.127.2	1.0 mm thick	SQM	5937				
8.25		<b>50MM THICK (minimum) WOODEN FIRE RATED DOOR OF 120 MINUTES FIRE RATING:</b>						
8.25.1	NDSR	<b>DOOR FRAME:</b> Supply and fixing of 2nd class teakwood (Ivory Coast) <b>door frame</b> of section Max. 150mm x 75mm 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 make.	METRE	633				

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8.25.2	NDSR	<b>DOOR SHUTTER:</b> Supply and fixing asbestos free composite fire/smoke check wooden shutter (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, comprising of two non combustible boards 12mm mm thick sandwiching to 20 to 25 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 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 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. <b>Note:</b> (Both frame and shutter shall be fitted with fire & smoke intumescent seal of Viper or equivalent make of size 20 x 4mm on all the three sides except bottom. The pasting of the ply/veneer/laminate should be done using automatic machine and should be free from any nails or perforations. The board shall be Resistant to vermin, mould growth, minor impact, abrasion and short term water attack. The shutter shall be fixed with the frame with the help of SS 304 grade ball bearing hinges of size 100x76x3 mm (Payable seperately) with necessary screws and making cut out for vision panel. Provisions/reinforcement for fixing all fixtures shall be built in on the door prior to the supply.)	SQM	300				
		Providing & fixing following Hardware's for Fire Door of approved makes complete in all respect as directed by Engineer-in-charge						
8.25.3	NDSR	Supply and fixing of 304 grade stainless steel ball bearing hinges of size 100x 75 x 3mm of approved make as per direction of Engineer in Charge.	NOS	240				
8.25.4	NDSR	Providing and fixing of fire rated door closer tested in accordance with BS:476 Part 22 for fire rating) and BS EN 1154 with 10 year warranty as per direction of Engineer in Charge.	NOS	60				
8.25.5		<b>PANIC EXIT DEVICES :</b> Providing and fixing of UL listed fire rated single/double leaf panic exit devices tested in accordance with BS EN 1125: 1997 & BS EN 179: 1997, EN 1670 (Corrosion Resistant), & BS 476 Part 22 (for fire rating) with 5 years warranty as per direction of Engineer in Charge.						
8.25.5.1	NDSR	For Double Leaf door	NOS	70				
8.25.5.2		For Single Leaf door	NOS	10				
8.25.6	NDSR	<b>MORTICE DEAD LOCK:-</b> Providing and fixing 2 hrs, fire rated mortice lock with lever handle tested in accordance with BS:476 Part 22.with 5 year warranty.	NOS	40				

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8.25.7	NDSR	FIRE RATED GLASS FOR FIRE RATED DOORS VISION PANEL: 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	50				
8.25.8	NDSR	Supply and fixing of stainless steel 304 Grade D - Type pull handle of size 300mm long 22mm dia of approved make as per direction of Engineer-in-Charge.	NOS	150				
8.25.9	NDSR	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	30				
8.25.10.	NDSR	Providing and fixing door Co-ordinator for coordination of double leaf doors as manufactures specifications.	EACH	70				
8.25.11	NDSR	Providing of Openable locks / trims for Panic Bars (Becker Fire Solutions) to operate panic bar from outside with necessary screws as required.The lock and handle should be an amalgamated single motion piece from the same manufacturer as that of Panic Bar	EACH	70				
8.25.12	NDSR	<b>SHAFT LOCK:-</b> Providing and fixing 2 hrs, fire rated shaft lock of approved make with lever handle tested in accordance with BS:476 Part 22.with 5 year warranty.	NOS	20				
8.25.13	NDSR	Supply and fixing of Stainless Steel concealed Tower Bolt of 304 grade of size 10 mm dia rod and 250 mm long of approved make as per direction of Engineer in Charge.	EACH	30				
8.26	NDSR	Providing and fixing rubber buffer of approved quality & make with necessary screws etc. complete as per direction of Engineer-in-charge	EACH	1921				
8.27	NDSR	Designing, providing and installing toilet cubicles / cubicle rest room systems of approved pattern and make, made up of water and chemical resistant 12mm thick high pressure laminate (HPL) compact boards. The system shall consist of partitions, doors and related fittings and accessories. The partitions shall be held with heavy duty aluminium sections anchored to walls by mild steel wall brackets. Colour of partitions shall be as per direction of Engineer-in-charge. The vendor shall provide necessary shop drawings and get the same approved by the Engineer-in-charge before commencement of work. The item shall include the cost of all fittings, fixtures and accessories required for the cubicle system including support systems both at top and bottom all complete as per direction of Engineer-in-charge.	SQM	397				
		<b>Wood work Sub Head Total</b>						

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
9.0	10.0	<b>STEEL WORK</b>						
9.1	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	4105				
9.2	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	11897				
9.3	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.						
9.3.1	10.6.1	80x1.25 mm M.S. laths with 1.25 mm thick top cover	SQM	51				
9.4	10.7	Providing and fixing ball bearing for rolling shutters.	EACH	13				
9.5	10.8	Extra for providing mechanical device chain and crank operation for operating rolling shutters.						
9.5.1	10.8.1	Exceeding 10.00 sqm and upto 16.80 sqm in the area	SQM	51				
9.6	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	15				
9.7	10.16	Steel work in built up tubular ( round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete.						
9.7.1	10.16.1	Hot finished welded type tubes	KG	1530				

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9.8	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.						
9.8.1	10.25.1	In stringers, treads, landings etc. of stair cases, including use of chequered plate wherever required, all complete	KG	1530				
9.8.2	10.25.2	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	KG	23353				
9.9	10.26	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer.						
9.9.1	10.26.1	M.S. tube	KG	2044				
9.10	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/mm2), 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.						
9.10.1	10.27.1	10 x 60 mm	EACH	2239				
9.10.2	10.27.2	10 x 80 mm	EACH	1907				
9.10.3	10.27.3	10 x 120 mm	EACH	1601				
9.10.4	10.27.4	10 x 140 mm	EACH	1183				
9.11	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	16114				



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		<b>Steel work Sub Head Total</b>						
<b>10.0</b>	<b>11.0</b>	<b>FLOORING WORK</b>						
10.1	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.						
10.1.1	11.3.1	40 mm thick with 20 mm nominal size stone aggregate	SQM	<b>2549</b>				
10.2	11.6	Providing & applying Cement plaster skirting 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.						
10.2.1	11.6.1	18 mm thick	SQM	<b>150</b>				
10.3	11.20	Chequerred precast cement concrete tiles 22 mm thick in footpath & courtyard, jointed with neat cement slurry mixed with pigment to match the shade of tiles, including rubbing and cleaning etc. complete, on 20 mm thick bed of cement mortar 1:4 (1 cement: 4 coarse sand).						
10.3.1	11.20.4	Ordinary cement without any pigment	SQM	<b>28</b>				
10.4.1	Derived from DSR item 11.25; a)	Extra for marble / granite / kota stone flooring in treads of steps and risers using single length up to 2.00 metre .	SQM	<b>411</b>				
10.4.2	Derived from DSR item 11.25; b)	Extra for marble / granite / kota stone flooring in treads of steps and risers using single length up to 1.5 metre .	SQM	<b>617</b>				
10.5	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) :						

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10.5.1	11.26.1	25 mm thick.	SQM	13239				
10.6	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	1522				
10.7	11.34	38 mm thick wood block flooring of first class teak wood laid over 25 mm thick leveling layer of cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 10 mm nominal size) to be paid separately, coated with a thin layer of hot bitumen penetration 80/25 (blown type) @ 2.45 kg per sqm, including fixing blocks in position after dipping in hot bitumen (blown type) up to half depth, planed, levelled smooth and finished complete.	SQM	169				
10.8	11.36	Providing and fixing 1st quality <i>ceramic glazed wall tiles</i> conforming to IS : 15622 (thickness to be specified by the manufacture ) 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	11150				
10.9	11.37	Providing and laying Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand), including pointing the joints with white cement and matching pigment etc., complete.	SQM	156				
10.10	11.38	Providing and laying Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in all colours, shades, except White, Ivory, Grey, Fume Red Brown, laid on 20 mm 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	4823				
10.11	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.						
10.11.1	11.41.2	Size of Tile 600x600 mm	SQM	10021				
10.11.2	11.41.4	Size of Tile 1000x1000 mm	SQM	60				

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10.12	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.						
10.12.1	11.46.2	Size of Tile 600x600 mm	SQM	640				
10.12.2	11.46.4	Size of Tile 1000x1000 mm	SQM	7				
		<b>Note:-</b> The vitrified tiles for the above items shall be from the double/multi charged range of tiles.						
10.13	11.51 (Spl DSR)	Providing and laying machine cut, mirror polished, Italian Marble stone flooring laid in required pattern in linear portion of the building all complete as per architectural drawings, with 18 mm thick stone slab laid over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with white cement slurry @ 4.4 kg/sqm including pointing with white cement slurry admixed with pigment to match the marble shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.						
10.13.1		(a) 18 mm thick Italian Marble stone slab, Perlato, Rosso verona, Fire Red or Dark Emperadore etc.	SQM	124				
10.14	11.54 (Spl DSR)	Providing and fixing removable raised/false access flooring with system and its components of approved make for different plenum height with possible height adjustment upto 50mm, comprising of modular load bearing floor panels supported on G.I. rectangular stinger frame work and G.I. Pedestal etc. all complete, as per the architectural drawings, as specified and as directed by Engineer-in-charge consisting of :						
		(a) Providing at required spacing to form modular framework, pedestals made out of GI tube of thickness minimum 2 mm and 25mm outer diameter, fully welded on to the G.I. Base plate of size 100mmx100mmx3mm at the bottom of the pedestal tube, G.I. pedestal head of size 75mmx75mmx3.5mm welded with GI fully threaded stud 16mm outer diameter with two GI Check nuts screwed on the stud for level adjustment upto 50mm, locking and stabilizing the pedestal head in position at the required level. The pedestals shall be fixed to the subfloor (base) through base plate using epoxy based adhesive of approved make or the machine screw with rawl plug.						

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		(b) Stringers system in all steel construction hot dipped galvanized of rectangular size 570x20x30x0.80mm thick having holes at both ends for securing the stringers on to the pedestal head using fully threaded screws ensuring maximum lateral stability in all directions, the grid formed by the pedestal and stringer assembly shall receive the floor panel, this system shall provide adequate solid, rigid support for access floor panel, the system shall provide a minimum clear uninterrupted clearance between the bottom of the floor for electrical conduits and wiring etc. all complete as per the architectural drawings, as specified and as directed by the Engineer-in-charge.						
		(c) Providing and fixing Access Floor panel of 600x600x32 mm medium grade Filled Steel anti static high pressure Lamination of 800H grade (FS800H). Access Floor panel shall be steel welded construction with an enclosed bottom pan with uniform pattern of 64 hemispherical cones. The top and bottom plates of Steel Gauges: top 0.6 mm and bottom 0.7 mm fused spot welded together (minimum 64 welds in each dome and 20 welds along each flange). The panel should be Corroresist epoxy coated for lifetime rust protection and cavity formed by the top and bottom plate is filled with Pyrogrip non-combustible Portland cementitious core mixed with lightweight foaming compound. The access floor shall be factory finished with Anti-static High Pressure laminate with Non Warp technology upto 1mm thickness for superior adhesion and Surface flatness within 0.75mm. The panel is to withstand a Concentrated Load of 363 kgs applied on area 25mm x 25mm without collapse in the centre of the panel which is placed on four steel blocks. The panel will withstand and Uniformly Distributed Load (UDL) minimum 1250 kg/sqm and an impact load of 50kg all complete as per the approved manufacturers specification and as per the direction of Engineer-incharge. All specification must be printed on the side of the panel to ensure the quality of the product.						
10.14.1	11.54.1	300 mm Finished Floor Height	SQM	28				
10.15	NDSR	Providing and laying 100% synthetic carpet of density 1500 g/sqm and of approved shade as per manufacturer's specifications including matching and finishing joints etc., complete in all respects as per the drawing and the directions of the Engineer-in- Charge. The item include providing and laying 12 mm thk coir underlay, as per manufacturer's specifications, below the synthetic carpet. The item shall also include providing door profiles wherever required, all complete as per detail drawing, as specified and as per direction of Engineer-in-charge. The item shall also include supply and fixing of skirting profile and door profile to the flooring, providing of necessary beading and nosing and adhesive as per manufacture's specification and no extra will be paid for this. The nosing shall be SS 304 grade 25x25 L section 1mm thick.	SQM	707				
10.16	NDSR	Providing and fixing 8 to 9 mm thk Real Solid Laminated flooring (AC-4) of plank size 150 mm x 1200 mm (Approximately) of approved size with,, laid over underlay of polyurethane sheet and 2 mm foam complete with nosing and all accessories etc, complete including 100mm skirting all around as per direction of Engineer-in-charge. The item includes the cost of Flooring, Skirting, Foam, polyurethane sheet, necessary fixing materials as per manufactures specifications including Freight & cartage. The planks shall be with tongued & grooved joint and providing and fixing skirting board beading to match the flooring. The item shall also include providing door profiles wherever required, all complete as per detail drawing, as specified and as per direction of Engineer-in-charge. The item also includes supply and fixing of skirting profile and door profile to the flooring and no extra will be paid for this.	Sqm	64				

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		<b>Flooring work Sub Head Total</b>						
<b>11.0</b>	<b>12.0</b>	<b>ROOFING WORK</b>						
11.1	12.1	Providing corrugated G.S. sheet roofing including vertical / curved surface fixed with polymer coated J or L hooks, bolts and nuts 8 mm diameter with bitumen and G.I. limpet washers or with G.I. limpet washers filled with white lead, including a coat of approved steel primer and two coats of approved paint on overlapping of sheets complete (up to any pitch in horizontal/ vertical or curved surfaces), excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.						
11.1.1	12.1.1	1.00 mm thick with zinc coating not less than 275 gm/m <sup>2</sup> sqm	SQM	<b>207</b>				
11.2	12.21	Providing and laying gola 75x75mm in cement concrete M15 grade including finishing with cement mortar 1:3 (1 cement : 3 fine sand) as per standard design :						
11.2.1	12.21.1	In 75x75 mm deep chase.	METRE	<b>2113</b>				
11.3	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 1mx1mx400micron, finished with 12mm 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	<b>75</b>				
11.4	12.31	Providing 10 mm thick plaster of Paris (gypsum anhydrous) ceiling up to a height of 5 m above floor level, over first class kail wood strips 25x6 mm with 10 mm gap in between and reinforced with rabbit wiremesh fixed to wooden frame (frame work to be paid separately) :						
11.4.1	12.31.1	Flat surfaces	SQM	<b>303</b>				
11.4.2	12.31.2	Curved surfaces	SQM	<b>130</b>				
11.5	12.44	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter and weighing not less than 440 grams.	EACH	<b>66</b>				

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11.6	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 spacing of 1200 mm centre to centre, to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre, with 25mm long dry wall screws						
		@ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound, jointing tapes, finishing with jointing compound in 3 layers covering upto 150 mm on both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting with :						
11.6.1	12.45.1	12.5 mm thick tapered edge gypsum plain board conforming to IS: 2095- Part I	SQM	5258				
11.7	12.53	Providing and Fixing 15 mm thick densified tegular edged eco friendly light weight calcium silicate false ceiling tiles of approved texture spintone /cosmos / Hexa or equivalent of size 595 x 595 mm in true horizontal level suspended on inter locking metal grid of hot dipped galvanised 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 24x38mm made from 0.33 mm thick (minimum) sheet, spaced 1200mm centre to centre, and cross "T" of size 24x28mm made out of 0.33mm (Minimum) sheet, 1200mm long spaced between main 'T' at 600mm centre to centre to form a grid of 1200x600mm and secondary cross 'T' of length 600mm and size 24 x28mm made of 0.33mm thick (Minimum) sheet to be inter locked at middle of the 1200x 600mm panel to from grid of size 600x600mm, resting on periphery walls /partitions on a Perimeter wall angle pre-coated steel of size(24x24X3000 mm made of 0.40 mm thick (minimum) sheet with the help of rawl plugs at						

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		450mm centre to centre with 25mm long dry wall screws @ 230mm interval and laying 15mm 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 to be suspended from ceiling using G.I. slotted cleats of size 25x35x1.6mm fixed to ceiling with 12.5 mm dia and 50mm long dash fasteners, 4mm G.I. adjustable rods with galvanised steel level clips of size 85 x 30 x 0.8 mm, spaced at 1200mm centre to centre along main 'T', bottom exposed with 24mm of all T-sections shall be pre-painted with polyester baked paint, for all heights, as per specifications, drawings and as directed by engineer-in-charge. 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 > 85%, non - combustible as per B.S. 476 part IV, 100% humidity resistance and also having thermal conductivity < 0.043 w/m 0 KC.	SQM	4481				
11.8	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	7254				
11.9	NDSR	Providing, supplying and fixing 10 mm thick multi wall polycarbonate sheets of approved make and shade in desired shape on curved or plain profile roof sheeting with anodised aluminium beeding over structural steel members (structural steel members shall be paid under relevant item of work) fixed with GI bolts or EPDM quoted self tapping screw with EPDM ceiling washers with filling the gaps with silicon sealant, EPDM gaskets, sealing tape, aluminium profile and all necessary accessories complete as per architectural drawings and as directed by Engineer incharge. The item rate shall include the cost of plastic caps of approved colour of UV resistant, sealant where ever rerequired, overlapps, wastages etc complete. The item includes designing the complete system and supplying & getting approval from the Engineer-in-charge. The detailed shop drawings including supplying structural design calculations based on relevent codal provisions and carrying out water penetration test as per standards. The work shall be carried out for all heights with scaffolding, labour, tools etc without any extra cost.	Sqm	1050				
11.10	NDSR	Providing fixing thermal insulation of ceiling (under deck insulation) with 100 mm thick Resin Bonded Fibre glass wool insulation board conforming to IS: 8183, density 48 kg / m3, , factory laminated with polypropylene white facing, fixed against the true ceiling with Hilti make IDP- 6/8 polyamide fasteners (110 mm in length) or equivalent at 1200 mm x 600 mm centres, All the edges of the boards placed side by side to be sealed with 50 mm wide self-adhesive white HDP tape all complete as per directions of the Engineer-in-charge	SQM	3958				

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
		<b>Roofing work Sub Head Total</b>						
<b>12.0</b>	<b>13.0</b>	<b>FINISHING WORK</b>						
12.1	13.1	12 mm cement plaster of mix:						
12.1.1	13.1.2	1:6 (1 cement: 6 fine sand):	SQM	<b>60937</b>				
12.2	13.2	15 mm cement plaster on the rough side of single or half brick wall of mix:						
12.2.1	13.2.2	1:6(1 Cement : 6 Fine Sand).	SQM	<b>25912</b>				
12.3	13.11	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement : 5 coarse sand) finished with a top layer 6 mm thick cement plaster 1:6 (1 cement : 6 fine sand).	SQM	<b>24930</b>				
12.4	13.16	6 mm cement plaster of mix :						
12.4.1	13.16.1	1:3 (1 cement: 3 fine sand)	SQM	<b>23686</b>				
12.5	NDSR	Providing and fixing 24 gauge x 19 mm size galvanized chicken wire mesh to junctions of concrete and masonry work and other locations where ever required including cutting to required sizes, side laps of minimum 75 mm and fixing in position with necessary clips and U shaped galvanised wire nail etc.complete as per direction of Engineer -in Charge.	SQM	<b>6807</b>				
12.6	NDSR	Providing and applying Textured finish coating of approved make on interior wall at all level including one coat of sealer and two coats of primer on POP/Prepared levelled surface as per manufacturers specification and approved shade as per direction of Engineer-in-charge.	SQM	<b>726</b>				
12.7	13.26	Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete	SQM	<b>62027</b>				
12.8	14.70	Melamine polishing on wood work (one or more coat).	SQM	<b>2915</b>				
12.9	13.37	White washing with lime to give an even shade:						
12.9.1	13.37.1	New work (three or more coats)	SQM	<b>1865</b>				



Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
12.10	13.40	Distempering with dry distemper of approved brand and manufacture (two or more coats) of required shade on new work, over and including water thinnable priming coat to give an even shade.	SQM	1692				
12.11	13.41	Distempering with oil bound washable distemper of approved brand and manufacture to give an even shade :						
12.11.1	13.41.1	New work (two or more coats) over and including water thinnable priming coat with cement primer	SQM	102221				
12.12	13.44	Finishing walls with water proofing cement paint of required shade :						
12.12.1	13.44.1	New work (Two or more coats applied @ 3.84 kg/10 sqm)	SQM	3060				
12.13	13.45	Finishing walls with textured exterior paint of required shade :						
12.13.1	13.45.1	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	32655				
12.14	13.85	Applying priming coats with primer of approved brand and manufacture, having low VOC (Volatile Organic Compound ) content.						
12.14.1	13.85.2	With ready mixed red oxide zinc chromatic on steel /iron works having VOC content less than 250 grams/litre.	sqm	550				
12.14.2	13.85.3	With water thinnable cement primer on wall surface having VOC content less than 50 grams/litre.	sqm	112148				
12.15	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.						
12.15.1	13.83.2	Two coats.	SQM	10130				
12.16	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.						
12.16.1	13.84.2	Two coats.	SQM	17065				

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
12.17	Derived from DSR 9.34	Providing & fixing horizontal Wooden Band in 2nd class teak wood of 18 mm thk and 200mm wide including cutting, fixing, rounding the edge, polishing, , wooden plugs complete with necessary screws and priming coat on unexposed surface etc complete, as per drawing, specification and direction of Engineer-in-charge.	SQM	302				
12.18	NDSR	Providing and fixing of Black/White Soft Fibre Square edge 15 mm for Ceiling of size 595x595x15 mm is to be installed on GI framework. Which will comprise of NRC 0.95 base panel with humidity resistance of 90% RH with Leed points Green Performance certified. Soft Fiber Black Soft Fibre 15mm for Ceiling tile meet the stringent fire test required having Class 'A' rating for Flame Ignitability test as per ASTM-E-84, with complete framework of as per Installation details to be approved and as per direction of Engineer-in-charge.	SQM	1330				
12.19.	NDSR	Providing and Fixing Wood Wool Panel of size 1200x600x25 mm, having fiber width both side is 0.5 - 1 mm with having density 400 kg/m3 with Strut H-Spline, which will comprise to NRC 0.95 Gyptech Stuff Wood Wool Panel is to be installed on Gyptech Strut SC 48 framework and meet the stringent fire test required having Class 'P' rating for Ignitability test as per BS 476 part 5 and Class '1' rating as per BS 476 part 7 for Surface Spread of Flame test. Class 'P' and Class '1' are the highest rating. BS 476 part 6 Fire Propagation index and for Flaming ISO 1182 and Smoke density as per ASTM E 662 besides base panel conform to EN 13168 2000 with complete frame work as per Installation details.						
		Installation:- Wood Wool Panel is to be fixed on floor and ceiling channel & stud of G I section of prime quality cold rolled steel as per IS 513 hot dipped galvanized 120 gsm as per BS 2989 and zinc coating as per IS 277 of SC-48 wall channel and FC-50 floor and ceiling channel are to be fixed with nylon plastic sleeves and wooden screws to from the proper framework . The extra channel must be used at openings and junctions as required.The Polyester Weding 50 mm having density of 1000 gsm should be inserted in cavity of the framework for better insulation.The stud will come at every 600 centre to centre & H-Spline to be fixed perpendicular to the SC-48 channels with steel screws for fixing Panel then finally Acoustical Stuff of approved colour should be pasted on the panel in line & level as per the specification and direction of the Engineer-in-charge.	SQM	1400				
		<b>Finishing work Sub Head Total</b>						
<b>13.0</b>	<b>16.0</b>	<b>ROAD WORK</b>						
13.1	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	10631				

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
13.2	16.3	Supplying and stacking at site.						
13.2.1	16.3.1	90 mm to 45 mm size stone aggregate.	CUM	2392				
13.2.2	16.3.2	63 mm to 45 mm size stone aggregate.	CUM	1595				
13.2.3	16.3.3	53 mm to 22.4 mm size stone aggregate.	CUM	1000				
13.2.4	16.3.7	Stone screening 11.2 mm nominal size Type B .	CUM	500				
13.2.5	16.3.10	Moorum.	CUM	500				
13.3	16.4	Laying spreading and compacting stone aggregate of specified sizes to WBM specifications including spreading in uniform 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 interstices of coarse aggregate watering and compacting to the required density .	CUM	3535				
13.4	16.30	Providing and applying tack coat using hot straight run bitumen of grade VG - 10, including heating the bitumen, spraying the bitumen with mechanically operated spray unit fitted on bitumen boiler, cleaning and preparing the existing road surface as per specifications :						
13.4.1	16.30.1	On WBM @ 0.75 Kg/Sqm.	SQM	10631				
13.5	16.33	2.5 cm premix carpet surfacing with 2.25 cum and 1.12 cum of stone chippings of 13.2 mm and 11.2 mm size respectively per 100 sqm and 52 kg and 56 kg of hot bitumen per cum of stone chippings of 13.2 mm and 11.2 mm size respectively, including a tack coat with hot straight run bitumen, including consolidation with road roller of 6 to 9 tonne capacity etc. complete (tack coat to be paid for separately)						
13.5.1	16.33.1	With paving Asphalt grade VG - 10 heated and then mixed with solvent at the rate of 70 grams per kg of asphalt	SQM	10631				

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
13.6	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 0.90 cum of stone aggregate of 6.7 mm size (Passing 11.2 mm sieve and retained on 2.36 mm sieve) per 100 sqm of road surface, including rolling and finishing with power road roller all complete.	SQM	10631				
		<b>Note:</b> Seal coat items to be operated only with the prior approval of Engineer- in-Charge.						
13.7	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 50mm thick compacted bed of course sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge.	SQM	5974				
13.8	16.69	Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge).	cum	169				
13.9	16.71	Providing and fixing G.I. chain link fabric fencing of required width in mesh size 25x25 mm made of G.I. wire of dia 3 mm including strengthening with 2 mm dia wire or nuts, bolts and washers as required complete as per the direction of Engineer-in-charge.	RMT	194				
13.10.	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-incharge. (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	128				
13.11	NDSR	Providing placing & fixing Precast Concrete Grass Grid Pavers of approved make and pattern of 80mm thickness and appropriate size, laid over compacted earth and over 75mm thick layer (average) of river sand, manufactured by using M- 30 grade of concrete by using vibrocompaction 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	5092				
		<b>Road work Sub Head Total</b>						
14.0	21.0	<b>ALLUMINIUM WORK</b>						

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
14.1	21.1	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/appropriate Z sections and other sections of approved make conforming to IS: 733 and IS : 1285, 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. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. Glazing and paneling to be paid for separately) :						
14.1.1	21.1.1	For fixed portion.						
14.1.1	21.1.1.1	Anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868, Minimum anodic coating of grade AC 15)	KG	8878				
14.2	NDSR	Following shall be the window / ventilator single glass properties for various blocks in the campus:						
14.2.1	NDSR	Providing and fixing of single glass of 6mm thk having the following properties including cutting, wastage etc. as per direction of Engineer-in-charge(Glass Type 1 - VLT approx. 50%, SHGC=< 0.56)	SQM	1548				
14.2.2	NDSR	Providing and fixing of single glass of 6mm thk having the following properties including cutting, wastage etc. as per direction of Engineer-in-charge(Glass Type 2 - VLT approx. 50%, SHGC=< 0.25)	SQM	635				
14.2.3	NDSR	Providing and fixing of single glass of 6mm thk having the following properties including cutting, wastage etc.as per direction of Engineer-in-charge(Glass Type 3 - VLT approx. 40%, SHGC=< 0.25)	SQM	92				
14.3	21.1	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) :						
14.3.1	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 EPDM rubber / neoprene gasket required (Fittings shall be paid for separately)						
14.3.1.1	21.1.2.1	Anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868, Minimum anodic coating of grade AC 15)	KG	4781				

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
14.4	21.8	Filling the gap in between aluminium frame & adjacent RCC/ Brick/ Stone work by providing weather silicon sealant over backer rod of approved quality as per architectural drawings and direction of Engineer-in-charge complete.						
14.4.1	21.8.1	Upto 5mm depth and 5 mm width	METRE	13734				
14.5	21.14	Providing and fixing anodised aluminium (anodised transparent ordyed to required shade according to IS: 1868. Minimum anodiccoating of grade AC 15) sub frame work for windows and ventilatorswith extruded built up standard tubular sections of approved makeconforming to IS: 733 and IS: 1285, fixed with dash fastener ofrequired dia and size (Dash fastener to be paid for separately)	KG	4120				
14.6	NDSR	Providing and fixing Aerofoil Louver as described below and to be designed to with stand the design wind pressure of 125 Kg/sqm and the louvered system shall be made out of heavy duty aluminium anodised storm Louver / Aerofoil Profile extruded as of approved equivalant and anodised extruded louver blades having 2 mm thick and to profile and shape as per drawing. The blades shall be fixed at 45/30 deg angle with a pitch as specified below and the louver blades to be set in aluminium box frame plate of size as per drawing and direction of Engineer-in-charge. The louver shall be fixed on to the aluminium box frame as per approved drawings including fixing the Box frame into wall/RC surface using SS anchor fastners of approved make.						
		All aluminium sections shall be 63400 (H9) grade conforming to IS 8147, finished with AC25 grade Architectural quality electrolytic colour anodic coating conforming to IS 1868 of approved colour. The louver should be fitted into the aluminium box using SS screws including necessary accessories etc.complete as per direction of the Engineer in charge. Rate shall include for providing and fixing Aluminium anodised angle of size 25x 25 mm alround frame to protect the system from rain water entry through the sides, materials and labour involved to execute the work as described.If any sub structural support is necessiated to fix the louver system/assembly, the contractor shall provide on prior approval of the Engineer-in-charge and it shall be measured under respective item. Rate shall include for providing GI Flashing - 2mm thick bent to profile and to be provided around the openings and between the gap of frame and wall.						
		<b>Support system to fix the Louver:</b> Quote rate for complete system having colour anodised aluminium box rame, aluminium base plate and aluminium angles and support as specified above and the rate shall include fixing the frame with necessary structural supports.						
14.6.1	NDSR	Providing and fixing Aerofoil shape specially extruded Louver made out of extruded aluminium with anodosed finish and as specified above and to be fixed with a pitch not less than 75 mm and as shown in the drawing.	SQM	2719				

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
14.6.2	NDSR	Designing, Engineering, Furnishing, Fabricating, packaging and delivering to the site and Install Aerofoil louver System The system comprises of Fixed Louvers in all services areas of theBuilding. The system shall comprise of fixing subframe outside the RCC/brickwall (Projected out) as indicated in the drawing. The aluminium profiles of approved make and design are mechanically fixed onto the aluminium flat bars which in turn is mechanically fixed on to the projected subframe as indicated in the drawing and as per direction of Engineer-in-charge. The louver blades / profiles shall have provision for 50% air exchange. All aluminium sections shall be 6063 T6 alloy or BSH9 Conforming to IS 63400 for the louver section.All Exposed exterior aluminum surfaces shall be finished with PVDFcoated finish of 35microns (of approved Colour as per direction of Engineer-in-charge) and all concealed aluminium surfaces shall be anodised finish of 25 microns (of approved Colour as per direction of Engineer-in-charge).The Louver system shall be designed to withstand a wind pressure of 2 Kpa.						
		Rate shall include fixing of the subframes to the RCC surface at sill,head and jamb levels with necessary clamps, fastenning straps,nuts,bolts,washers and otherfastening material of stainless steel 316 grade and corrosion resistant as per direction of Engineer-in-charge	SQM	650				
14.7	NSR	Suspended Point Fixed Glazing with Glass fin and Spider fixing system with Swing / side hung openable doors:						
		Providing and fixing suspended PFF/Savex spider glazing façade of approved pattern with glass fins designed to withstand the wind pressure as per relevant BIS Code. The facade shall be held at bottom through " U " channel with minimum glass insertion of 40mm, top and other intermediate juncture shall be held with SS316 grade spiders and MS B brackets of approved make. The design shall accomodate floor movements, the front facade glass shall be of 12mm thick clear toughened glass and fins shall be of clear laminated toughened glass with thickness of approx. 15.52 mm with polished edges of approved make.The glass shall be insulated and free from any impurities or bubbles.						
14.7.1.		The size of glass and holes shall be as per the approved drawing, spiders shall be of material SS 316 with FHB M12 flat head fixed bolts and PFF 400 splice plates (if required), including Bi-metalic seperators like teflon / nylon, all fastners SS 316, anchor bolts of Hilti / Fisher or equivalent approved make as per direction of Engineer-in-charge. The whole system shall be designed and fixed as per manufacturer's specification and direction of Engineer -in-Charge. The spiders arms shall be curved in nature for better aesthetics.	SQM	150				
		Providing fixing and erecting at site of PT frameless glass pivoted door consisting of required diecast patch fitting with stainless steel cover and corner lock with euro profile cylinder. The fittings will be mounted on 12 mm toughened glass door with all necessary required accessories. The door will also consist of floor spring BTS-84 with all necessary glass mounting accessories for the self closing feature complete as per direction of Engineer-in-charge (The glass to be paid for separately Under spider glazing head).						
14.7.2.		a) Double door with side and upper panels (Consisting of PT 40 for over and side panels 2nos, PT 20 Upper patch 2 nos, PT 10 Bottom patch 2 nos, US 10 Floor Lock with cylinder 2 nos with strike plate , Floor spring 2 nos and Pull handle TGD1 350 2 pairs) of approved make and design as per direction of Engineer -in Charge.	SQM	20				

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
		<b>Aluminium work Sub Head Total</b>						
<b>15.0</b>	<b>22.0</b>	<b>WATER PROOFING WORK</b>						
15.1	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 :						
15.1.1	22.7.1	With average thickness of 120mm and minimum thickness at khurra as 65 mm.	SQM	<b>8382</b>				
15.2	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	<b>3743</b>				



Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
15.3.1	NDSR	Providing water proofing treatment by chemical injection grout process on horizontal surfaces like rafts, base slab & other similar locations using 25mm dia . G.I nozzles , minimum 1/4th thickness of raft 40mm(long) whichever is more, inside the raft fixed @ 1.5m c/c in both the directions. The injection grout which consist of injection cement slurries of different viscosities & expansive plasticizing agent (a non shrinkage compensating grout ) Flowcable 50 or equivalent is to be pumped in to the nozzles under pressure with a pump . The nozzles to be sealed off after the injection operation with suitable admixture. Providing & applying two coats of two component based elastomeric, cementitious coating Master Seal 551 or equivalent taking care that the subsequent coat is applied when the previous coat is touch dry, 20mm cement plaster of mix 1:4 (1 cement :4 coarse sand) mixed with liquid waterproofing admixture MasterPal 707 or equivalent & finally embedding with 12mm size stone aggregate @ 8cudm per sqm comcarried out for all heights with scaffolding, labour, tools etc without any extra cost.B.S. 476 part IV, 100% humidity resistance and also having thermal conductivity<0.043	SQM	306				
15.3.2	NDSR	Providing water proofing treatment by chemical injection grout process on vertical surfaces like walls & other similar locations using 25mm dia . M.S nozzles , minimum 1/4th thickness of wall or 40mm(long) whichever is more inside the walls fixed @ 1.5m c/c in both the directions and @ 0.75 m c/c along construction joints. The injection grout which consist of injection cement slurries of different viscosities & expansive plasticizing agent (a non shrinkage compensating grout )Flowcable 50 or equivalent is to be pumped in to the nozzles under pressure with a pump . The nozzles to be sealed off after the injection operation with suitable admixture. Providing & applying two coats of two component based elastomeric, cementitious coating Master Seal 551 or equivalent taking care that the subsequent coat is applied when the previous coat is touch dry , 20mm cement plaster of mix 1:4 (1 cement :4 coarse sand) mixed with liquid waterproofing admixture MasterPal 707 or equivalent complete as per manufacturer's specif system shall be designed to withstand a wind pressure of 2 Kpa. 1250 kg/sqm and an impact load of 50kg all complete as per the approved	SQM	230				
15.4	22.14	Grading roof for water proofing treatment with						
15.4.1	22.14.1	Cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	CUM	360				
		<b>Water Proofing work Sub Head Total</b>						
<b>16.0</b>	<b>23.0</b>	<b>HORTICULTURE &amp; LANDSCAPING WORK</b>						
16.1	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	8350				

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
16.2	23.2	Supplying and stacking of good earth at site including royalty and carriage complete (earth measured in stacks will be reduced by 20% for payment).	CUM	550				
16.3	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) :						
16.3.1	23.4.1	Screened through sieve of I.S. designation 20 mm	CUM	800				
16.3.2	23.4.2	Screened through sieve of I.S. designation 16 mm	CUM	800				
16.3.3	23.4.3	Screened through sieve of I.S. designation 4.75 mm	CUM	800				
16.4	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	2482				
16.5	23.9	Mixing earth and sludge or manure in the required proportion specified or directed by the Engineer-in-charge..	CUM	2482				
16.6	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).						
16.6.1	23.10.1	In rows 5 cm apart in both directions	100 sqm	139				
16.7	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	2039				

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
16.8	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) :						
16.8.1	23.14.1	Holes 1.2 m dia and 1.2 m deep	EACH	160				
16.8.2	23.14.2	Holes 90 cm dia, and 90 cm deep	EACH	115				
16.8.3	23.14.3	Holes 60 cm dia, and 60 cm deep	EACH	105				
16.8.4	23.14.4	Holes 45 cm dia, and 45 cm deep	EACH	190				
16.9	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 6mm 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 CPWD / PWD/ any other approved name. 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	40				
16.10.	23.26	Providing and fixing M. S. tree guard 45 cm square in plan, height member of the cage. One name plate of 1 mm thick M.S. sheet of size 250x100 mm shall be welded to the tree guard near the middle height and lettered CPWD / PWD/ any other approved name. The tree guard shall be fixed to the ground by making suitable holes and by embedding four corners leg in the ground, including refilling the earth, compaction etc. complete. The tree guard shall be painted with two or more coats of synthetic enamel paint of approved brand and manufacture over a coat of primer, complete in all respect. 1.20 metre above ground level and 0.40 metre below ground level. The vertical members shall consist of four nos angle iron of size 25x25x3 mm, 1.8 m long, one at each corner and 8 nos flat iron of size 25x3 mm, 1.2 m long. The vertical members shall be welded to 4 nos 25x6 mm M. S. flats placed horizontally around the vertical	Each	110				

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
16.11	23.27	Providing and fixing M. S. tree guard 50 cm square in plan, height 1.40 metre above ground level and 0.50 metre below ground level. The vertical members shall consist of four nos of angle iron of size 25x25x5 mm 1.9 long, one at each corner and 8 nos flat iron of size 25x5 mm 1.4 long. The vertical members shall be welded to 4 nos 25x6 mm M. S. flats placed horizontally around the vertical member of the cage. One name plate of 1 mm thick M.S. sheet of size 250x100 mm shall be welded to the tree guard near the middle height and lettered CPWD / PWD/ any other approved name. The tree guard shall be fixed to the ground by making suitable holes and by embedding four corners leg in the ground , including refilling the earth, compaction etc. complete. The tree guard shall be painted with two coats of paint of approved brand and manufacture over a coat of primer, complete in all respect.	Each	160				
16.12	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	105				
16.13	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.						
16.13.1	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	105				
16.14	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.						
16.14.1	23.30.1	Top inner width 35 cm, outer bottom width 25 cm, total height 35 cm and wall thickness 25.4 mm	EACH	255				
16.15	NDSR	Supply & Planting best quality trees inclusive of cultivation of trees bead to required depth. All trees / plants to be approved by Engineer-in-charge before planting including watering & maintenance for 180 days.						
16.15.1	i	Rhapis Excelsa ' Broadleaf Lady Palm Or Bamboo Palm'	EACH	102				
16.15.2	ii	DELONIX REGIA (GULMOHAR) ht 1800-2000mm	EACH	50				
16.15.3	iii	POLUALTHIA LONGIFOLIA (DEODAR) HT 1500-1800	EACH	50				

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
16.15.4	iv	MICHELIA CHAMPACA (GOLDEN CHAMPA) HT 3000MM	EACH	65				
16.15.5	v	AEGLE MARMELOS (BAEL) HT 2500-3000MM	EACH	5				
16.15.6	vi	EMBLICA OFFICINALIS (AMLA) HT 2500-3000MM	EACH	10				
16.16	NDSR	Supply & Planting best grown healthy ground cover plants inclusive of cultivation bead to required depth. All plants to be approved by Engineer-in-charge before planting including watering & maintenance for 180 days.						
16.16.1	i	Wedelia Trilobata 'Yellow Dot'	SQM	775				
16.16.2	ii	Ficus Microcarpa 'ficus green island'	SQM	575				
		<b>Horticulture &amp; Landscaping work Sub Head Total</b>						
<b>17.0</b>	<b>24.0</b>	<b>RAIN WATER HARVESTING &amp; TUBEWELL WORK</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.						
17.1.1	24.1.1	All types of soil						
17.1.1.1	24.1.1.1	300 mm dia	METRE	120				
17.2	24.1.2	Rocky strata including boulders						
17.2.1	24.1.2.1	300 mm dia.	METRE	900				

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
17.3	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.						
17.3.1	24.2.2	Rocky strata including boulders						
17.3.1.1	24.2.2.1	300 mm dia.	METRE	160				
17.4	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.						
17.4.1	24.3.2	150 mm nominal size dia.	METRE	625				
17.5	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.						
17.5.1	24.4.2	150 mm nominal size dia.	METRE	210				
17.6	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	37				
17.7	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	37				
17.8	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	37				
17.9	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	35				
17.10.	24.9	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 nos 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	525				

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
17.11	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.						
17.11.1	24.10.3	200 mm nominal size dia having minimum wall thickness 5.40 mm	METRE	110				
17.12	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.						
17.12.1	24.11.3	200 mm nominal size dia.	METRE	110				
17.13	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.	HOURL	72				
17.14	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:						
17.14.1	24.13.3	200 mm dia	EACH	3				
17.15	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.						
17.15.1	24.14.2	150 mm clamp	EACH	4				

Sl.NO	DSR 2012 ITEM NO / NDSR	DESCRIPTION	UNIT	TOTAL QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
17.15.2	24.14.3	200 mm clamp	EACH	3				
17.16	24.15	Providing and fixing Bail plug/ Bottom plug of required dia to the bottom of pipe assembly of tubewell as per IS:2800 (part I).						
17.16.1	24.15.2	150 mm dia	EACH	3				
		<b>Rain Waterharwesting &amp; Tubewell work Sub Head Total</b>						



<b>PROJECT: CONSTRUCTION OF REGIONAL INSTITUTE OF ALLIED HEALTH SCIENCES,BHUBANESHWAR, ODHISHA</b>			
<b>SUMMARY - INTERNAL &amp; EXTERNAL PLUMBING &amp; SANITARY WORKS</b>			
<b>SI. NO.</b>	<b>DESCRIPTION</b>	<b>QUOTED AMOUNT (Rs.) In Figure</b>	<b>QUOTED AMOUNT (Rs.) In Words</b>
1	Sanitary Installation		
2	Water Supply		
3	Drainage Work		
4	Garden Irrigation System		
	<b>TOTAL AMOUNT (In Rs.)</b>		

**PROJECT: CONSTRUCTION OF REGIONAL INSTITUTE OF ALLIED HEALTH SCIENCES,BHUBANESHWAR, ODHISHA**  
**BOQ FOR PLUMBING WORKS**

SI.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
1	17	<b>Sanitary Installation</b>						
1.1	12.40	Providing, fixing and embedding sand cast iron accessories for rain water pipes in the masonry surrounded with 12 mm thick cement mortar of the same mix, as that of masonry (lead caulking will be paid for separately) :						
1.1.1	12.40.1	Sand cast iron plain shoes :						
1.1.2	12.40.1.1	150 mm diameter	Each	<b>180</b>				
1.2	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 :						
1.2.1	17.1.1	White Vitreous china Orissa pattern W.C. pan of size 580x440mm with integral type foot rests.	Each	<b>5</b>				
1.3	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 :						
1.3.1	17.2.1	W.C. pan with ISI marked white solid plastic seat and lid	Each	<b>5</b>				

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
1.4	Derived from DSR 17.7	Providing and fixing wash basin with C.I. brackets, with spring loaded self closing type 15mm dia. C.P. brass pillar cock with aerator (Flow rate : 6 Ltr per minute) and C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require:						
1.4.1	Derived from DSR 17.7.4	White Vitreous China Flat back Wash basin size 550x400 mm with spring loaded self closing type 15mm dia. C.P. brass pillar cock with aerator (Flow rate : 6 Ltr per minute)	Each	31				
1.5	DSR 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 :						
1.5.1	DSR 17.7.4	White Vitreous China Flat back wash basin size 550x400 mm with single 15 mm C.P. brass pillar tap.	Each	2				
1.6	Derived from DSR 17.7	Providing and fixing wash basin with C.I. brackets, with spring loaded self closing type 15 mm C.P. brass Single lever hot and cold mixer with aerator (Flow rate : 6 litre per minute) and C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require:						
1.6.1	Derived from DSR 17.7.4	White Vitreous China Flat back Wash basin size 550x400 mm with spring loaded self closing type 15 mm C.P. brass Single lever hot and cold mixer with aerator (Flow rate : 6 litre per minute)	Each	47				

SI.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
1.7	NDSR	Providing & fixing first quality vitreous china Oval wash basin 550x450mm for under counter mounting, with 15 mm C.P. brass <b>spring loaded self closing type 15 mm dia C.P brass pillar cock</b> with aerator (Flow rate : 6 litre per minute), specially fabricated C.I./M.S. brackets, painted with two or three coats of enamel paint of approved shade over a coat of primer, 32 mm C.P. brass waste and C.P.brass cast bottle trap and pipe to wall with C.P. brass flange and rubber adopter for waste connection complete including filling gap between counter and wash basin with approved type poly sulphide sealant, cutting and making good the walls wherever required.	Each	272				
1.8	NDSR	Providing & fixing first quality vitreous china Oval wash basin 550x450mm for under counter mounting, with 15 mm C.P. brass <b>single pillar tap</b> long neck with aerator (Flow rate : 6 litre per minute), specially fabricated C.I./M.S. brackets, painted with two or three coats of enamel paint of approved shade over a coat of primer, 32 mm C.P. brass waste and C.P.brass cast bottle trap and pipe to wall with C.P. brass flange and rubber adopter for waste connection complete including filling gap between counter and wash basin with approved type poly sulphide sealant, cutting and making good the walls wherever required.	Each	2				
1.9	NDSR	Providing & fixing first quality vitreous china Oval wash basin 550x450mm for under counter mounting, with 15 mm C.P. brass <b>Single lever hot and cold basin mixture</b> (Flow rate : 6 litre per minute, Specially fabricated C.I./M.S. brackets, painted with two or three coats of enamel paint of approved shade over a coat of primer, 32 mm C.P. brass waste and C.P.brass cast brass bottle trap and pipe to wall with C.P. brass flange and rubber adopter for waste connection complete including filling gap between counter and wash basin with approved type poly sulphide sealant, cutting and making good the walls wherever required.	Each	24				
1.10	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 :						

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
1.10.1	17.10.1	Kitchen sink with drain board						
1.10.1.1	17.10.1.3	510x1040 mm bowl depth 200mm.	Each	51				
1.10.2	17.10.2	Kitchen sink without drain board						
1.10.2.1	17.10.2.1	610x510 mm bowl depth 200mm.	Each	30				
1.11	17.11	Providing and fixing white vitreous china laboratory sink with C.I. brackets, C.P. brass chain with rubber plug 40mm 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 :						
1.11.1	17.11.2	laboratory sink Size: 600x450x200	Each	150				
1.12	17.28	Providing and fixing P.V.C. waste pipe for sink or wash basin including P.V.C. waste fittings complete P.V.C. waste fittings complete.						
1.12.1	17.28.2.2	40 mm dia	Each	81				
1.13	17.31	Providing and fixing 600x450 mm beveled edge mirror of superior glass (of approved quality) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete.	Each	78				

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
1.14	NDSR	Providing & fixing bevelled edge mirror 5.5 mm thick of superior quality glass of approved quality and required shape and size with frame made out of 50 mm x15 mm 1st class teak wood of approved design with 6 mm thick hard wood backing and fixed with PVC rawl plugs, cleats with C.P. brass screws and washers etc complete as per direction of Engineer -in charge.	SQM	296				
1.15	17.33	Providing and fixing 600x120x5mm glass shelf with edges round of supported on anodised aluminium angle frame with C.P. brass brackets and guard rail complete fixed with 40 mm long screws, rawl plugs etc., complete.	Each	47				
1.15.1	17.34	Providing and fixing toilet paper holder :						
1.15.1.1	17.34.1	C.P. Brass	Each	411				
1.16	17.35	Providing and fixing soil, waste and vent pipes :						
1.16.1	17.35.1	100 mm dia.						
1.16.1.1	17.35.1.2	Centrifugally cast (spun) iron socket & spigot (S&S) pipe as per IS: 3989.	Metre	5213				
1.16.2	17.35.2	75mm dia.						
1.16.2.1	17.35.2.2	Centrifugally cast (spun) iron socket & spigot (S&S) pipe as per IS: 3989.	Metre	254				
1.17	NDSR	Providing and fixing soil, waste and vent pipes, Centrifugally cast (spun) iron socket & spigot (S&S) pipe as per IS: 3989 of approved make including all labour, materials, scaffolding etc complete as per direction of Engineer - in -Charge.						

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
1.17.1	NDSR	50 mm dia.	Metre	200				
1.18	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. :						
1.18.1	17.37.1	for 100 mm dia pipe	Each	963				
1.18.2	17.37.2	for 75 mm dia pipe	Each	88				
1.18.3	12.38.2	for 150 mm dia pipe	Each	500				
1.19	17.38	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete						
1.19.1	17.38.1	100 mm						
1.19.1.1	17.38.1.2	Sand cast iron S&S as per IS - 3989	Each	141				
1.20	17.39	Providing and fixing plain bend of required degree.						
1.20.1	17.39.1	100 mm						

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
1.20.1.1	17.39.1.2	Sand cast iron S&S as per IS : 3989	Each	602				
1.20.1.2	derived from DSR 17.39.1.2	150 mm Sand cast iron S&S as per IS : 3989	Each	180				
1.21	NDSR	Providing & fixing plain bend of required degree of sand cast iron S&S as per IS:3989 of approved make including all labour, material, scaffolding etc. complete as per direction of Engineer-in-charge						
1.21.1	NDSR	50mm dia	Each	26				
1.22	17.40	Providing and fixing heel rest sanitary bends						
1.22.1	17.40.1	100 mm						
1.22.1.1	17.40.1.2	Sand cast iron S&S as per IS - 3989	Each	73				
1.23	17.41	Providing and fixing double equal junction of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete :						
1.23.1	17.41.1	100 x 100 x 100x100 mm						
1.23.1.1	17.41.1.2	Sand cast iron S&S as per IS - 3989	Each	10				



Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
1.24	17.42	Providing and fixing double equal plain junction of required degree.						
1.24.1	17.42.1	100 x 100 x 100x100 mm						
1.24.1.1	17.42.1.2	Sand cast iron S&S as per IS - 3989	Each	10				
1.25	17.43	Providing and fixing single equal junction of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.						
1.25.1	17.43.1	100 x 100 x 100 mm						
1.25.1.1	17.43.1.2	Sand cast iron S&S as per IS - 3989	Each	206				
1.26	17.44	Providing and fixing single equal junction of required degree.						
1.26.1	17.44.1	100 x 100 x 100 mm						
1.26.1.1	17.44.1.2	Sand cast iron S&S as per IS - 3989	Each	383				
1.26.2	17.44.2	75 x 75 x75 mm						
1.26.2.1	17.44.2.2	Sand cast iron S&S as per IS - 3989	Each	38				
1.27	17.49	Providing and fixing double equal plain invert branch of required degree:complete.						

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
1.27.1	17.49.1	100 x 100 x 100 mm						
1.27.1.1	17.49.1.2	Sand cast iron S&S as per IS - 3989	Each	15				
1.28	17.56	Providing and fixing terminal guard						
1.28.1	17.56.1	100 mm						
1.28.1.1	17.56.1.2	Sand cast iron S&S as per IS - 3989	Each	73				
1.28.2	17.56.2	75 mm						
1.28.2.1	17.56.2.2	Sand cast iron S&S as per IS - 3989	Each	12				
1.29	17.57	Providing and fixing collar :						
1.29.1	17.57.1.2	100mm collar (Sand cast iron S&S as per IS - 3989)	Each	150				
1.29.1.1	17.57.2.2	75mm collar (Sand cast iron S&S as per IS - 3989)	Each	90				
1.30	17.58	Providing lead caulked joints to sand cast iron / centrifugally cast (spun) iron pipes and fittings of diameter.						
1.30.1	12.39.2	150 mm	Each	1000				

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
1.30.2	17.58.1	100 mm	Each	5440				
1.30.3	17.58.2	75 mm	Each	125				
1.30.4	17.58.3	50 mm	Each	230				
1.31	17.59	Providing and fixing M.S. stays and clamps for sand cast iron / centrifugally cast (spun) iron pipes of diameter.						
1.31.1	17.59.1	100 mm	Each	73				
1.31.2	17.59.2	75 mm	Each	12				
1.32	17.6	Providing and fixing trap of self cleasing design with or without vent arm complete, including cost of cutting and making good the walls and floors.						
1.32.1	17.60.1	100 mm inlet and 100 mm outlet						
1.32.1.1	17.60.1.1	Sand cast iron S&S as per IS: 3989	No.	518				
1.33	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 :						
1.33.1	17.65.1	100 mm diameter pipe	Metre	5213				

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
1.33.2	17.65.2	75 mm diameter pipe	Metre	254				
1.33.3	derived from DSR17.65.2	50 mm diameter pipe	Metre	200				
1.34	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 4/8 ltr.), including seat cover, and cistern fittings, nuts, bolts and gasket etc complete.	Each	406				
1.35	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 per flush 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	99				
1.36	NDSR	Providing and fixing single unequal plain junction of required degree, sand cast iron S&S as per (IS 3989) of approved make including all labour, material, scaffolding etc. complete as per direction of Engineer-in-charge						
1.36.1	NDSR	75x75x50 mm dia.	Each	20				
1.37	NDSR	Providing and fixing single unequal plain junction of required degree, sand cast iron S&S as per (IS 3989) of approved make including all labour, material, scaffolding etc. complete as per direction of Engineer-in-charge						
1.37.1	NDSR	100x100x50 mm dia.	Each	26				

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
1.38	NDSR	Painting sand cast iron / centrifugally cast (spun) iron soil, waste vent pipes and fittings with two coats of synthetic enamel paint of approved make and colour such as chocolate, grey, or buff etc. over a coat of primer (of approved quality) for new work as per direction of Engineer-in-Charge.						
1.38.1	NDSR	150 mm diameter pipe	Metre	840				
1.39	NDSR	Providing and fixing soil, waste, vent and rain water pipes, Centrifugally cast (spun) iron socket & spigot (S&S) pipe as per IS: 3989 of approved make including all labour, materials, scaffolding etc complete as per direction of Engineer - in - Charge..						
1.39.1	NDSR	150 mm dia	Metre	840				
		<b>Sanitary Installation Sub Head Total</b>						
2	18	<b>Water Supply</b>						
2.1	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.						
		Concealed work, including cutting chases and making good the walls etc.						
2.1.1	18.8.1	15 mm nominal outer dia Pipes	Metre	3050				
2.1.2	18.8.2	20 mm nominal outer dia Pipes	Metre	5968				

SI.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.2	18.10	Providing and fixing GI pipes complete with GI fittings and clamps including cutting and making the wall good etc.						
		<b>Internal work – Exposed on wall</b>						
2.2.1	18.10.1	15 mm dia. nominal bore	Metre	1175				
2.2.2	18.10.2	20 mm dia. nominal bore	Metre	2569				
2.2.3	18.10.3	25 mm dia. nominal bore	Metre	1500				
2.2.4	18.10.4	32 mm dia. nominal bore	Metre	1030				
2.2.5	18.10.5	40 mm dia. nominal bore	Metre	967				
2.2.6	18.10.6	50 mm dia. nominal bore	Metre	1032				
2.2.7	derived from DSR item no. 18.10.6	65 mm dia. nominal bore	Metre	1310				
2.2.8	derived from DSR item no. 18.10.6	80 mm dia. nominal bore	Metre	1030				
2.2.9	derived from DSR item no. 18.10.6	100 mm dia. nominal bore	Metre	1650				
2	18.12	Providing and fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc.						
		<b>External work :</b>						
2.3.1	18.12.3	25 mm dia. nominal bore	Metre	80				

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.3.2	18.12.4	32 mm dia. nominal bore	Metre	115				
2.3.3	18.12.5	40 mm dia. nominal bore	Metre	180				
2.3.4	18.12.6	50 mm dia. nominal bore	Metre	140				
2.3.5	18.12.7	65 mm dia. nominal bore	Metre	50				
2.3.6	18.12.8	80 mm dia. nominal bore	Metre	5				
2.3.7	derived from DSR item no. 18.10.8	100 mm dia. nominal bore	Metre	975				
2.3.8	derived from DSR item no. 18.10.8	150 mm dia. nominal bore	Metre	975				
2.4	18.13	Making connection of G.I. distribution branch with G.I. main of following sizes by providing and fixing tee,including cutting and threading the pipe etc. complete						
2.4.1	18.13.2	50 to 80 mm nominal bore	Each	5				
2.5	18.19	Providing and fixing gun metal non- return valve of approved quality (screwed end) :						
2.5.1	18.19.4	50 mm nominal bore						
2.5.1.1	18.19.4.1	Horizontal	Each	1				

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.5.1.2	18.19.4.2	Vertical	Each	1				
2.6	18.20	Providing and fixing brass ferrule with C.I. mouth cover including boring and tapping the main :						
2.6.1	18.20.1	15 mm nominal bore	Each	1				
2.6.2	18.20.2	20 mm nominal bore	Each	2				
2.6.3	18.20.3	25 mm nominal bore	Each	1				
2.7	18.21	Providing and fixing uplasticised PVC connection pipe with brass unions :						
2.7.1	18.21.1	30 cm length						
2.7.1.1	18.21.1.1	15 mm nominal bore	Each	350				
2.7.2	18.21.2	45 cm length						
2.7.2.1	18.21.2.1	15 mm nominal bore	Each	732				
2.8	18.22	Providing and fixing C.P. brass shower with 15 or 20 mm inlet :						
2.8.1	18.22.2	150 mm diameter	Each	262				



SI.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.9	18.31	Providing and fixing C.I. sluice valves (with cap) complete with bolts, nuts, rubber insertions etc. (the tail pieces if required will be paid separately) :						
2.9.1	18.31.1.2	100 mm. dia. Class II	Each	10				
2.9.2	18.31.3.2	150 mm. dia. Class II	Each	10				
2.10	18.36	Constructing masonry Chamber 60x60x75 cm, inside in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for fire hydrants, with C.I. surface box 350x350 mm. top and 165 mm deep ( inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) , i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand:10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design :						
2.10.1	18.36.1	With common burnt clay F.P.S.(non modular) bricks of class designation 7.5.	Each	60				
2.11	18.40	Painting G.I. pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality :						
2.11.1	18.40.1	15 mm diameter pipe	Metre	275				
2.11.2	18.40.2	20 mm diameter pipe	Metre	2169				
2.11.3	18.40.3	25 mm diameter pipe	Metre	1352				

SI.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.11.4	18.40.4	32 mm diameter pipe	Metre	<b>1030</b>				
2.11.5	18.40.5	40mm diameter pipe	Metre	<b>967</b>				
2.11.6	18.40.6	50 mm diameter pipe	Metre	<b>1032</b>				
2.11.7	18.40.7	65 mm diameter pipe	Metre	<b>860</b>				
2.11.8	18.40.8	80mm diameter pipe	Metre	<b>230</b>				
2.11.9	derived from DSR no. 18.40.8	100 mm diameter pipe	Metre	<b>700</b>				
2.12	18.41	Providing and filling sand of grading zone V or coarser grade all-round the G.I. pipes in external work.						
2.12.1	18.41.3	25 mm dia. nominal bore	Metre	<b>80</b>				
2.12.2	18.41.4	32 mm dia. nominal bore	Metre	<b>115</b>				
2.12.3	18.41.5	40 mm dia. nominal bore	Metre	<b>180</b>				
2.12.4	18.41.6	50 mm dia. nominal bore	Metre	<b>140</b>				
2.12.5	18.41.7	65 mm dia. nominal bore	Metre	<b>50</b>				
2.12.6	18.41.8	80 mm dia. nominal bore	Metre	<b>5</b>				
2.12.7	18.41.9	100 mm dia. nominal bore	Metre	<b>975</b>				
2.12.8	18.41.10	150 mm dia. nominal bore	Metre	<b>975</b>				

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.13	18.46	Providing and fixing G.I. Union in G.I. pipe including cutting and threading the pipe and making long screws etc. complete (New work)						
2.13.1	18.46.1	15 mm nominal bore	Each	229				
2.13.2	18.46.2	20 mm nominal bore	Each	125				
2.13.3	18.46.3	25 mm nominal bore	Each	190				
2.13.4	18.46.4	32 mm nominal bore	Each	92				
2.13.5	18.46.5	40mm nominal bore	Each	42				
2.13.6	18.46.6	50 mm nominal bore	Each	38				
2.13.7	18.46.7	65 mm nominal bore	Each	56				
2.13.8	18.46.8	80mm nominal bore	Each	7				
2.14	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	242000				
2.15	18.49	Providing and fixing C.P. brass bib cock of approved quality confirming to IS 8931 :						
2.15.1	18.49.1	15 mm nominal bore	Each	14				
2.16	18.51	Providing and fixing C.P brass long body bib cock of approved quality confirming to IS standards and weighing not less than 690 grms.						

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.16.1	18.51.1	a) 15 mm nominal bore	No.	81				
2.17	18.53	Providing and fixing C.P. brass angle valve for basin, sink, mixer and geyser points of approved quality conforming to IS:8931						
2.17.1	18.53.1	15mm nominal bore	Each	1525				
2.18	18.80	Disinfecting C.I. water mains by flushing with water containing bleaching powder @ 0.5 gms per litre of water and cleaning the same with fresh water, operation to be repeated three times including getting the sample of water from the disinfected main tested in the municipal laboratory.						
2.18.1	18.80.2	100 mm diameter C.I. pipe	Per 100 mtr	975				
2.18.2	18.80.3	150 mm diameter C.I. pipe	Per 100 mtr	975				
2.19	NDSR	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	5				
2.20	NDSR	Providing and fixing of C.P brass concealed type single lever shower mixer for hot and cold of approved design and make for spout and overhead shower including all fittings and fixtures, cutting and making good the walls etc complete as per direction of Engineer-in-Charge. Flow rate : 6 litre per minute	Each	262				

SI.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.21	NDSR	Providing and fixing of 15 mm dia. C.P brass bath spout including wall flange, of approved make, design and type including all fittings and fixtures, cutting and making good the walls etc complete as per direction of Engineer-in-Charge. Flow rate : 6 litre per minute	Each	262				
2.22	NDSR	Providing and fixing of 15 mm dia brass single lever sink mixer spout with connecting legs & wall flangs, of approved make, design and type including all fittings and fixtures, cutting and making good the walls etc complete as per direction of Engineer-in-Charge. Flow rate : 6 litre per minute						
2.22.1	NDSR	Type : Floor Top Mounted	Each	12				
2.22.2	NDSR	Type : Wall Mounted	Each	69				
2.23	NDSR	Providing & fixing 15 mm C.P. brass table mounted elbow action laboratory sink single lever hot and cold Mixing fitting with swinging spout, 450 mm copper pipes and brass nuts complete including cutting & making good the walls where required as per direction of Engineer-in-Charge. Flow rate : 6 litre per minute	Each	150				
2.24	NDSR	Providing and fixing 32 mm C.P. cast brass bottle trap with unions, complete including cutting and making good the walls and floors, etc all complete as per direction of Engineer-in- Charge.	Each	80				
2.25	NDSR	Providing and fixing C.P. brass hand held ablution fitting (health faucet) with spring action lever with one metre long flexible tube and wall hook, all complete of approved make, design and type including all fittings and fixtures, cutting and making good the walls etc complete as per direction of Engineer-in-Charge. Flow rate : 6 litre per minute	Each	411				

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.26	NDSR	Providing & fixing corner Glass Shelf (size approx. 8"X8"X11") with brackets of approved make and design etc. complete in all respects, including cutting and making good the wall wherever required as per direction of Engineer-in-Charge.	Each	70				
2.27	NDSR	Providing & fixing C. P. Brass double coat hook fixed to wall/door with plastic rawl plugs and SS screws including cutting and making good the walls wherever required as per direction of Engineer-in-Charge.	Each	617				
2.28	NDSR	Providing & fixing C. P. Brass Towel Rail 300 mm long and 20 mm dia. of approved make fixed on the wall with plastic rawl plugs and SS screws including cutting and making good the walls wherever required as per direction of Engineer-in-Charge.	Each	262				
2.29	NDSR	Providing & fixing stainless steel SS 304 manual wall mounted liquid soap dispenser, 800 ml soap holding capacity, and 1 ml drop options, approximate size 100 x 178 x 57 mm complete in all respects including cutting and making good the wall wherever required as per direction of Engineer-in-Charge.	Each	136				
2.30	NDSR	Providing & fixing fully automatic "NO TOUCH" satin finish stainless steel wall mounted hand drier of approved make and design suitable to operate on 220 volts, single phase 50 hz, A.C. power supply as per direction of Engineer-in-Charge. , ( rated power 2500W, 9000 rpm automatic infrared sensing device, approximate blowing volume 270 cum/hr, drying time <10 sec. or as per Manufacturer's specifications as per direction of Engineer-in-Charge.	Each	22				
2.31	NDSR	Providing & fixing C.P. brass Soap Dish, fixed to wall including cutting and making good the walls wherever required as per direction of Engineer-in-Charge.	Each	262				

SI.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.32	NDSR	Providing & fixing storage type electric hot water heater of approved make and design made out of heavy gauge steel jacket finished with rust proof baked-on glossy white enamel paint, inside glass lined heavy gauge copper tank, 25 mm thick polyurethane foam insulation, thermostatically controlled immersion heater with pilot neon lamp, replaceable magnesium anode bar, suitable for 8.0 bar maximum working pressure, cold water inlet and hot water outlet pipe, suitable length of electrical cable and 15 amp 3 pin plug top, complete in all respect including testing etc. complete as per direction of Engineer-in-Charge. (Horizontal/Vertical)						
2.32.1	NDSR	15 ltr Capacity.	Each	41				
2.32.2	NDSR	25 ltr Capacity.	Each	70				
2.33	NDSR	Providing and fixing in position, the following G.I. medium class Waste Pipes (IS:1239) of approved make with all necessary specials complete, cutting and chasing walls, floors, etc. and making good the same including painting the pipes with two coats of anti-corrosive paint as per direction of Engineer-in-Charge.						
2.33.1	NDSR	a) 32 mm dia pipe	Metre	584				
2.33.2	NDSR	b) 40 mm dia pipe	Metre	197				
2.33.3	NDSR	c) 50 mm dia pipe	Metre	1489				

SI.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.34	NDSR	Providing and fixing floor trap Extension Piece made out of 100 mm dia G.I. pipe of required length with one or multiple side inlets suitable for 32, 40 and 50 mm side connections, including the cost of jointing with floor trap with lead caulked jointas per direction of Engineer-in-Charge.	Each	518				
2.35	NDSR	Providing and fixing floor drain points formed out of 100 X 50 mm dia reducing elbow with suitable extension piece including cost of cutting and making good the walls and floors wherever required as per direction of Engineer-in-Charge.	No.	464				
2.36	NDSR	Providing and fixing 120 mm dia round <b>stainless steel rotate lock type grating with frame and ABS Plastic cockroach trap</b> of approved make, embedded in floor, etc. complete as per direction of Engineer-in-Charge.	No.	518				
2.37	NDSR	Providing, fixing, installation, jointing and testing CP brass clean out plug made out of CI bend , G.I. socket GI pipe piece, suitable insert keys for opening, including making joint to CI line as required complete in all respects as per direction of Engineer-in-Charge.						
2.37.1	NDSR	100 mm dia	Each	250				
2.38	NDSR	Providing and fixing 200x200 mm sand cast Iron grating for rain water mouth of approved make and design including cutting, grouting etc. complete as per direction of Engineer-in-Charge.	Each	180				
2.39	NDSR	Providing and fixing full bore nickle plated brass Gun Metal Ball valve with chrome plated brass ball, renewable PTFE seat, teflon gland packing, aluminium painted handle, screwed female threads, body and seat test pressure 20 bar. Complete in all respects. (for general water supply) as per direction of Engineer-in-Charge.						



Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.39.1	NDSR	a) 15 mm dia	Each	229				
2.39.2	NDSR	b) 20 mm dia	Each	125				
2.39.3	NDSR	c) 25 mm dia	Each	160				
2.39.4	NDSR	d) 32 mm dia	Each	80				
2.39.5	NDSR	e) 40 mm dia	Each	42				
2.39.6	NDSR	f) 50 mm dia	Each	38				
2.40	NDSR	Providing and fixing <b>Cast Iron butterfly valve</b> as per IS: 13095 of <b>Class PN 10</b> , having epoxy coated disc, carbon steel shaft, EPDM / nitrile rubber field replaceable body lining and of approved make. including a set of MS flanges, required nos. of nut & bolts all complete as per direction of Engineer-in-Charge.						
2.40.1	NDSR	a) 65 mm dia with lever	Each	56				
2.40.2	NDSR	b) 80 mm dia with lever	Each	7				

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.40.3	NDSR	c) 100 mm dia with lever	Each	12				
2.41	NDSR	Providing and fixing insulation to hot water piping with closed cell chemically cross-linked polyethylene ( XLPE) preformed pipe sleeves of specified wall thickness using propriety adhesive and self adhesive tapes, all as per the manufacturer's specifications and as per direction of Engineer-in-Charge.						
2.41.1	NDSR	a) 15 mm dia - 9 mm thickness	Metre	3400				
2.41.2	NDSR	b) 20 mm dia - 9 mm thickness	Metre	875				
2.41.3	NDSR	c) 25 mm dia - 13 mm thickness	Metre	900				
2.41.4	NDSR	d) 32 mm dia - 13 mm thickness	Metre	650				
2.42	NDSR	Providing & fixing schedule puddle flanges made of heavy class M.S. pipe minimum 700 mm long, both side threading upto 50 mm dia pipe and one side threaded and other side flanged for 63dia and above sizes with epoxy coating. M.S. Plate 230 x 230 x 6 mm shall be used for pipe size upto 50 mm dia, 300 x 300 x 6 mm M.S. plate shall be used upto 80 mm dia pipe, 400 x 400 x 6 mm M.S. plate shall be used upto 250 mm dia pipe, 450 x 450 x 6 mm M.S. plate shall be used upto 350 mm dia pipe. (Length of pipe shall be increase in some cases) complete as per direction of Engineer-in-Charge.						

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.42.1	NDSR	25 mm dia	Each	8				
2.42.2	NDSR	40 mm dia	Each	3				
2.42.3	NDSR	50 mm dia	Each	3				
2.42.4	NDSR	80 mm dia	Each	2				
2.42.5	NDSR	100 mm dia	Each	5				
2.42.6	NDSR	150 mm dia	Each	8				
2.42.7	NDSR	200 mm dia	Each	2				
2.43	NDSR	Providing and fixing <b>C.I. "Y" suction strainer</b> of approved make, with stainless steel perforated sheet screen, bolted cover, flanged ends installed outside water tanks including necessary union, nut, bolts and washer etc. complete as per direction of Engineer-in-charge.						
2.43.1	NDSR	100 mm dia	Each	2				
2.43.2	NDSR	150 mm dia	Each	2				
2.43.3	NDSR	200 mm dia	Each	2				

SI.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
2.44	NDSR	Providing and fixing Gun Metal <b>foot valve</b> of approved make, with 2 Piece design with Synthetic rubber O'ring having Integral seat, strainer, gasket, threaded / flanged ends, having test pressure 300Psig. Hyd as per direction of Engineer-in-charge.						
2.44.1	NDSR	100 mm dia	Each	<b>3</b>				
2.45	NDSR	Providing and fixing 25 mm dia gunmetal fitting for water level indicator gauge with isolation cock at top and bottom heavy gauge transparent polyethylene tube of upto 2.5 M length, 100 mm wide x 20 mm thick teak wood indicating board painted with level indications in cms and litres as per direction of Engineer-in-charge.	Each	<b>3</b>				
2.46	NDSR	Providing and fixing Gun Metal Globe Valve for flow control of hot water return line screwed female threads, body and seat test pressure 15 bar. Complete in all respects as per direction of Engineer-in-charge.						
2.46.1	NDSR	a) 15 mm dia	Each	<b>60</b>				
2.46.2	NDSR	b) 20 mm dia	Each	<b>12</b>				
2.46.3	NDSR	c) 25 mm dia	Each	<b>3</b>				
		<b>Water Supply Total Sub Head Total</b>						
3	19	<b>Drainage Work</b>						

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
3.1	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 :						
3.1.1	19.1.1	100 mm diameter	Metre	100				
3.1.2	19.1.2	150 mm diameter	Metre	500				
3.1.3	19.1.3	200 mm diameter	Metre	900				
3.2	19.2	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) around S.W./ C.I./ R.C.C pipes including bed concrete as per standard design :						
3.2.1	19.2.1	100 mm diameter S.W. pipe	Metre	100				
3.2.2	19.2.2	150 mm diameter S.W. pipe	Metre	500				
3.2.3	19.2.3	200 mm diameter S.W. pipe	Metre	900				
3.3	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 300 x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design :						

SI.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
3.3.1	19.4.2	150 x 100 mm size P type.						
3.3.2	19.4.2.1	With F.P.S. bricks class designation 75	Each	50				
3.4	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.						
3.4.1	19.6.1	100 mm dia. R.C.C. pipe	Metre	50				
3.4.2	19.6.2	150 mm dia. R.C.C. pipe	Metre	260				
3.4.3	19.6.3	250 mm dia. R.C.C. pipe	Metre	740				
3.4.4	19.6.4	300 mm dia. R.C.C. pipe	Metre	1105				
3.4.5	19.6.5	450 mm dia. R.C.C. pipe	Metre	900				
3.4.6	19.6.6	500 mm dia. R.C.C. pipe	Metre	550				
3.4.7	19.6.7	600 mm dia. R.C.C. pipe	Metre	200				

SI.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
3.5	19.7	Constructing brick masonry manhole in cement mortar 1:4 ( 1 cement : 4 coarse sand ) with R.C.C. top slab with 1:2:4 mix (1 cement : 2coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size), inside plastering 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement complete as per standard design :						
3.5.1	19.7.1	Inside size 90x80 cm and 45 cm deep including pre cast RCC manhole cover with frame (light duty LD-2.5) 450x600 mm internal dimensions :						
3.5.1.1	19.7.1.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	75				
3.6	19.8	Extra for depth for manholes.						
3.6.1	19.8.1	Size 90x80 cm						
3.6.1.1	19.8.1.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Metre	15				

SI.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
3.7	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 concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40mm nominal size), and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :						
3.7.1	19.9.1	0.91 m deep with S.F.R.C. cover and frame (heavy duty, HD-20 grade designation) 560mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182kg., fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately) :						
3.7.1.1	19.9.1.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	86				
3.8	19.10	Extra depth for circular type manhole 0.91 m internal dia ( at bottom ) with beyod 0.91m to 1.67m						
3.8.1	19.10.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Metre	30				
3.9	19.11	Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement :4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 (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 :						



SI.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
3.9.1	19.11.1	1.68 m deep with SFRC 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) :						
3.9.1.1	19.11.1.2	With Sewer bricks conforming IS : 4885	Each	25				
3.10	19.12	Extra depth for circular type manhole 1.22 m internal dia (at bottom) beyond 1.68 m to 2.29 m :						
3.10.1	19.12.2	With Sewer bricks conforming IS : 4885	metre	10				
3.11	19.13	Constructing brick masonry circular manhole 1.52 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 (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 :						
3.11.1	19.13.1	2.30 m deep with SFRC 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) :						

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
3.11.1.1	19.13.1.2	With Sewer bricks conforming IS : 4885	Each	20				
3.12	19.14	Extra depth for circular type manhole 1.52 m internal dia (at bottom) beyond 2.30 m :						
3.12.1	19.14.2	With Sewer bricks conforming IS : 4885	Each	8				
3.13	19.16	Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS : 10910, on 12 mm dia steel bar conforming to IS : 1786, having minimum cross section as 23 mmx25 mm and over all minimum length 263 mm and width as 165 mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per 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	600				
3.14	19.19	Providing and fixing in position pre-cast R.C.C. manhole cover and frame of required shape and approved quality						
3.14.1	19.19.2	M D - 10						
3.14.1.1	19.19.2.2	Circular shape 500 mm internal diameter	Each	50				
3.14.2	19.19.3	H D - 20						

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
3.14.2.1	19.19.3.1	Circular shape 560 mm internal diameter	Each	50				
3.15	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 :						
3.15.1	19.27.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	107				
		<b>Drainage Work Sub Head Total</b>						
4		<b>Garden Irrigation System</b>						
4.1	NDSR	Providing and fixing upvc pipes of approved make in trenches including jointing with solvent welded conforming to is:4985:2000 and suitable for the respective working pressures as per direction of Engineer-in-charge.						
4.1.1	NDSR	upvc pipe 75 mm x 6 kg/cm <sup>2</sup>	M	36				
4.1.2	NDSR	upvc pipe 63 mm x 6 kg/cm <sup>2</sup>	M	1632				
4.1.3	NDSR	upvc pipe 50 mm x 6 kg/cm <sup>3</sup>	M	420				

SI.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
4.1.4	NDSR	upvc pipe 40 mm x 6 kg/cm <sup>3</sup>	M	3330				
4.2	NDSR	Providing and fixing of pop-up/shrub rotary type sprinkler of heavy duty plastic / non-corrosive & uv resistant body suitable for a throw of approx. 10 to 15 m radius at operating pressure of approx. 1.5 to 4 kg/cm <sup>2</sup> , with adjustable type full / part circle with inlet filter screen, adjustable arm complete as per requirement and direction of Engineer-in-charge.	NOS.	92				
4.3	NDSR	Providing and fixing of 3/4" pop up connecting assembly. the tubing shall be made of polyethylene having wall thickness of 2.3mm, a working pressure of 5.5 kg/cm <sup>2</sup> at 43°C and a surge pressure of 16.6 kg/cm <sup>2</sup> . the fittings shall be made of uv resistant thermo plastic of approved make etc. complete as per direction of Engineer-in-charge.	NOS.	75				
4.4	NDSR	Providing and fixing of pop up spray head having variable arc nozzle capable of covering 2.40 - 5.7m at 1-2.1bars with a discharge rate of 0.007-0.017 lps.the overall pop-up height shall be 4 inch upto the centre of nozzle. the spray head body, stem, nozzle and screen shall be constructed of heavy-duty, ultraviolet resistant plastic. it shall have a heavy- duty stainless steel retract spring for easy alignment of the pattern. the spray head shall have a soft elastomer pressure- activated comolded wiper seal for cleaning debris from the pop-up stem as it retracts into the case to prevent the spray head from sticking up to minimize "flow-by." etc. complete as per direction of Engineer-in-charge.	NOS.	474				
4.5	NDSR	Providing and fixing of 1/2" pop up connecting assembly. the tubing shall be made of polyethylene having wall thickness of 2.3mm, a working pressure of 5.5 kg/cm <sup>2</sup> at 43°C and a surge pressure of 16.6 kg/cm <sup>2</sup> . the fittings shall be made of uv resistant thermo plastic etc. complete as per direction of Engineer-in-charge.	NOS.	478				

SI.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
4.6	NDSR	Providing and fixing of shrub/hedges spray nozzles with adjustable arc, made of abs engineering plastic, having discharge of 0.001 lps - 0.34 lps at the operating pressure of 1.0 kg/cm2 - 2.5 kg/cm2 and radius of throw 1.7 m - 5.7 m can be mounted on astm risers with nozzle adaptors etc. complete as per direction of Engineer-in-charge.	NOS.	88				
4.7	NDSR	Providing and fixing of side strip pattern nozzles fixed arc, corner and centered patterns, made of abs engineering plastic, having discharge of 0.03 lps - 0.09 lps at the operating pressure of 1.0 kg/cm2 - 2.5 kg/cm2 and throw pattern (1.2 m x 4.2 m) - (1.5 m x 9.0 m) can be mounted on astm risers with nozzle adaptors etc. complete as per direction of Engineer-in-charge.	NOS.	162				
4.8	NDSR	Providing and fixing of astm risers (sch.-40) of 1/2" x 42" (depend upon height of shrubs/hedges) to mount the nozzles as per direction of Engineer-in-charge.	NOS.	254				
4.9	NDSR	Providing and fixing of astm risers (sch.-40) of 3/4" x 42" (depend upon height of shrubs/hedges) to mount the nozzles as per direction of Engineer-in-charge.	NOS.	20				
4.10		Providing and fixing of pvc service saddles of respective sizes to connect the nozzles from sub mains by risers/swing joints as per direction of Engineer-in-charge.						
4.10.1	NDSR	Service saddle 63 mm x 1" with astm riser for arv	NOS.	5				
4.10.2	NDSR	Service saddle 63 mm x 3/4"	NOS.	28				
4.10.3	NDSR	Service saddle 50 mm x 3/4"	NOS.	10				
4.10.4	NDSR	Service saddle 40 mm x 3/4"	NOS.	95				

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
4.10.5	NDSR	Service saddle 63 mm x1/2"	NOS.	12				
4.10.6	NDSR	Service saddle 50 mm x1/2"	NOS.	105				
4.10.7	NDSR	Service saddle 40 mm x1/2"	NOS.	460				
4.11	NDSR	Providing and fixing of pressure guage (glycerine filled) 2" dial of approved pattern including requird accessories etc. complete as per direction of Engineer-in-charge.	NOS.	2				
4.12	NDSR	Providing and fixing of plastic quick pressure relief valve 1 1/2" dial of approved pattern including requird accessories etc. complete as per direction of Engineer-in-charge.	NO.	1				
		<b>Providing and fixing of valves and accessories to regulate the irrigation system.</b>						
4.13	NDSR	Providing and fixing of isolation valve of pvc plain ball valve 63 mm (teflon seal) of approved make including requird accessories etc. complete as per direction of Engineer-in-charge.	NOS.	7				
4.14	NDSR	Providing and fixing of control valve of pvc plain ball valve 63 mm (teflon seal) of approved make including requird accessories etc. complete as per direction of Engineer-in-charge.	NOS.	24				
4.15	NDSR	Providing and fixing of valve box with cover on all valves. the valve boxes shall be heavy duty plastic with poly vinyl chloride reinforce and a green top of approved make and design as per direction of Engineer-in-charge.						

Sl.NO.	DSR 2012 /NDSR	DESCRIPTION	UNIT	QTY	Rate (In Rs) In Figures	Rate (In Rs) In Words	Amount (In Rs) In Figures	Amount (In Rs) In Words
4.15.1	NDSR	Valve box 10" round	NOS.	31				
4.15.2	NDSR	Valve box 6" round	NOS.	26				
4.16	NDSR	Providing and fixing of a double acting air/ vacuum release valve 1" made of high strength plastic with fibre glass reinforced. the air release valve shall be capable of both releasing and admitting air from and into the line. the working pressure shall be 10 bars and testing pressure shall be 16 bars etc. complete as per direction of Engineer-in-charge.	NOS.	3				
4.17	NDSR	Providing and fixing of self closing spring loaded quick coupling 3/4" hydrant of approved make made of brass & having self closing thermoplastic hinged lid etc. complete as per direction of Engineer-in-charge.	NOS.	26				
4.18	NDSR	Providing and fixing of 3/4" key for quick coupling hydrant made of brass including required accessories etc. complete as per direction of Engineer-in-charge.	NOS.	3				
4.19	NDSR	Providing and fixing of brass swivel hose elbow 3/4" x 3/4" including required accessories etc. complete as per direction of Engineer-in-charge.	NOS.	3				
		<b>Garden Irrigation System</b>						
		<b>Grand Total</b>						

Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha				
SUMMARY FOR ELECTRICAL WORKS				
Sr. No.		SUMMARY	Quoted Amount (Rs.) (In Figures)	Quoted Amount (Rs.) (In Words)
1		Main LT Panel and Main Distribution Panel		
2		Cable Works		
3		External Lighting		
4		Lighting Protection		
5		UPS Equipments		
6		Sub Station Works		
7		Substation equipments		
8		Earthing System		
9		Cable Laying		
10		D.G SETS		



11		Solar Power Plant		
12		Internal Wiring		
13		MCB Distribution Boards		
14		Supplying of Light fixtures		
		<b>TOTAL FOR ELECTRICAL WORKS</b>		

Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha									
BoQ FOR ELECTRICAL WORKS									
Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	(In	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
1		<b>MAIN L.T. PANEL &amp; SUB DISTRIBUTION PANEL</b>							
		All panels shall be suitable with BMS integration with necessary provisions.							
1.1	NDSR	<b>MAIN L.T. Panel</b>							
		Supplying and installing at site of the following cubical type, dead front, 2mm thick sheet steel enclosed, free standing indoor type extendible Main Panel and Sub-distribution Boards with vermin proof hinged lockable doors for each compartment provide bus bar interconnections for incoming and outgoing including feeders earthing and painting and as per specifications.							
		<b>Note :All meters shall be digital with LED display.</b>							
		The Main L.T Panel located in Electrical Room consists of ( Ref: EL- SLD )							
		<b>Transformer Incomers -1,2 &amp; 3 ( 750 KVA)</b>							
		3 Nos.1250 A 4P pole ACB 50KA (EDO Type) Microprocessor based ACB Terminal suitable to receive cable connections on one side and Busbar connection on the other side.							
		<b>D.G. Incomer -1 (750 KVA)</b>							
		1 No.1250 A 4 Pole ACB 50KA (EDO Type) Microprocessor based ACB Terminal suitable to receive cable connections on one side and Busbar connection on the other side.							
		<b>D.G. Incomer- 2 (500 KVA)</b>							
		1 No.800 A 4 Pole ACB 50KA (EDO Type) Microprocessor based ACB Terminal suitable to receive cable connections on one side and Busbar connection on the other side.							
		<b>BUSBARS SECTIONS</b>							
		Bus bar shall be suitable for 1500 amps TPN busbar chamber of suitable length with Aluminum busbars. All busbars and interconnections shall be of suitable size Aluminum busbar, current density of Aluminum shall not be more than 0.8 Amps/ sq.mm cross sectional area of Bus Bar.							

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
		<b>Bus Couplers</b>						
		2 x 1250 Amps 4 P ACB (EDO), terminals suitable for Bus bar connections on both sides.						
		<b>INDICATING PANEL</b>						
		Provide 4 Nos indicating lamps(LED) on each ACB for status indication "ON", "OFF" & tripped due to fault and spring charged. All incoming & outgoing feeder						
		Set of 3 nos phase indicating lamps(LED type) each backed up with MCB shall be provided for each incomer ACB.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incomer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		Provide Microprocessor based relay Type MC 61C with port short circuit and earth fault protection with communication port for all incoming ACB's.						
		Auxiliary Relays as required.						
		Provide reverse power relay for transformer and DG incomer ACBs						
		Provide under voltage & over voltage relay for transformer & DG set Incomer ACB's with time lag timer.						
		Provide simple SR18 G relays for bus coupler ACB's						
		Provide electrical & Mechanical interlocking between incomer ACB and buscoupler						
		Provide ON/OFF indication lamp in all outgoing MCCB Feeder						
		Provide restrict relay protection for earth fault for transformer incomer						
		Provide suitable TVSS((transient voltage surge suppressor) for all Transformer Incomers.						
		<b>INTERLOCKING</b>						
		Provide electrical & Mechanical interlocking between D.G incomers & transformer incomers in such a way so that the two supplies are not parallel at any time.						
		<b>OUTGOINGS</b>						
		1 x 800 Amps TPN MCCB (50 kA) terminals suitable for cable connection on one side and Bus bar connection on other side cable connection.						
		3 x 630 Amps TPN MCCB (50 kA) terminals suitable for cable connection on one side and Bus bar connection on other side cable connection.						

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
		3 x 500 Amps TPN MCCB (50 kA) terminals suitable for cable connection on one side and Bus bar connection on other side cable connection.						
		3 x 400 Amps TPN MCCB (50 kA) terminals suitable for cable connection on one side and Bus bar connection on other side cable connection.						
		4 x 320 Amps TPN MCCB (50 kA) terminals suitable for cable connection on one side and Bus bar connection on other side cable connection.						
		2 x 250 Amps TPN MCCB (50 kA) terminals suitable for cable connection on one side and Bus bar connection on other side cable connection.						
		4 x 200 Amps TPN MCCB (50 kA) terminals suitable for cable connection on one side and Bus bar connection on other side cable connection.						
		3 x 125 Amps TPN MCCB (35 kA) terminals suitable for cable connection on one side and Bus bar connection on other side cable connection.						
		2 x 100 Amps TPN MCCB (35 kA) terminals suitable for cable connection on one side and Bus bar connection on other side cable connection.						
		1 x 63 Amps TPN MCCB (25 kA) terminals suitable for cable connection on one side and Bus bar connection on the other side cable connection.						
		The Main L.T. Panel as described above and specifications complete.	Set	1				
1.2	NDSR	<b>The D.G. CUM Synchronizing PLC Panel located in L.T. Room consists of :-</b>						
		<b>D.G. Incomers -750KVA</b>						
		1 No.1250 A 4 Pole ACB 50KA (EDO Type) Microprocessor based ACB Terminal suitable to receive cable connections on one side and Busbar connection on the other side.						
		<b>D.G. Incomers -500KVA</b>						
		1 No.800 A 4 Pole ACB 50KA (EDO Type) Microprocessor based ACB Terminal suitable to receive cable connections on one side and Busbar connection on the other side.						
		<b>BUSBARS SECTIONS</b>						
		Bus bar shall be suitable for 2000 amps TPN busbar chamber of suitable length with Aluminum busbars. All busbars and interconnections shall be of suitable size Aluminum busbar, current density of Aluminum shall not be more than 0.8 Amps/ sq.mm cross sectional area of Bus Bar.						
		<b>Bus Couplers</b>						
		1 x 1250 Amps 4 P ACB 50KA (EDO), terminals suitable for Bus bar connections on both sides.						

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
		<b>INDICATING PANEL</b>						
		Provide 4 Nos indicating lamps on each ACB for status indication "ON","OFF", tripped due to fault, DC supply healthy and spring charged. For all incoming & outgoing ACB's						
		Provide 3 nos phase indicating lamps each backed up with MCB for each incomer ACB						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incomer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		Provide Microprocessor based relay Type MC 61C with communication port and short circuit and earth fault protection for all incoming ACB's except Bus coupler ACB's.						
		Auxiliary Relays as required.						
		Provide reverse power relay for all DG Incomer ACB's with Indicating lamps.						
		Provide simple SR18 G relays for bus coupler ACB's.						
		Provide under voltage & over voltage relay for all D.G Incomer ACB's with time lag & Indicating lamps.						
		Provide electrical and mechanical interlocking & load manager through PLC .						
		PLC based Automatic Synchronisation and check synchronising Panel with auto and manual operation and Load Manager for both Mains and DG power, whose function will be to determine the Load, decide how many DG sets to be synchronised, perform Synchronisation and supply power to the load. Supplier to submit the Bill of materials for the above functions also provide motorised potential meter for each generator for voltage correction Provide electrical/manual changeover switch for interlocking. Provide PLC based load manager/ load sharing with DG selection and ON/OFF through PLC including providing 1KVA UPS with minimum 10 minutes battery backup for PLC system.						
		<b>OUTGOINGS</b>						
		1 x 1250 Amps 4Pole MDO ACB (50 kA) terminals suitable for cable connection on one side and Bus bar connection on other side.						
		1 x 800 Amps 4 Pole MDO ACB (50 kA) terminals suitable for cable connection on one side and Bus bar connection on other side.						
		1 x 200 Amps TPN MCCB (35 kA) terminals suitable for cable connection on one side and Bus bar connection on other side.						
		1 x 100 Amps TPN MCCB (25 kA) terminals suitable for cable connection on one side and Bus bar connection on other side.						

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		The D.G.Panel as described above and specifications complete.	Set	1				
1.3	NDSR	<b>CAPACITOR PANEL</b>						
		Design, manufacture, supplying, assembling at site, installation, fixing on the position, testing & commissioning of the following cubical type, dead front, 2mm thick sheet steel enclosed, free standing indoor type extendible capacitor panel with vermin proof hinged lockable doors for each compartment provide bus bar interconnections for incoming and outgoing including feeders earthing and painting and as per specifications. All earth busbars shall copper.						
1.3.1		The capacitor banks in tier formation. Capacitors shall be rated for minimum 10% more than the system voltage, 50/60 hertz, 200 times rated current, -25 to + 55 deg. centigrade, dielectric losses in W/KVAR to be less than 0.2 ,95 % max. humidity, Triple safety (Overpressure disconnector, solid steel case, self healing ), Kraft paper coated with metallised Al. alloys and PP film dielectric, special double side vacuum deposited metal coating on paper electrode, non PCB biodegradable impregnated, 100,000 hours useful life, natural cooling, steel case , IP 42 enclosure , conforming to IEC 831 - 1 & 2, IS 13340/4, min. 5000 nos switching operations per annum, heavy duty double dielectric for non-linear loads, multi layer MPP film with heavy edge, low energy consumption dry type freedom from oil leakage, hermetically sealed single phase basic capacitor cells, inductor coil per cell for dampening inrush current, wiring between panel to banks. These Banks would be a part of the Automatic Power Factor Correction Panel mentioned in Item below.						
1.3.1.1		300 KVAR formed with 4 Nos 50 KVAR and 4 No 25 KVAR heavy duty capacitors fitted with 7% detuned reactors. Each 50/25 KVAR Capacitor shall be Double Metallised Paper heavy duty (Extra low loss), 480 volts, 50 hertz.						
1.3.1.2		The following integrated, cubicle type automatic switching "ON" & "OFF" capacitor control panel with dust and vermin proof hinged lockable doors complete with interconnections cable glands lugs, bonding to earth and painting (suitable for 500 volts 3 phase control boards) each Capacitor bank shall be provided with MCCB, contactors & push buttons, frequency meters & CT's complete as mentioned below.						
		Each automatic Power Factor Correction Panel for 300KVAR Capacitor Bank shall consist of :-						
		<b>INCOMER</b>						
		1 x 630 A 4Pole ACB (MDO) 50kA. The ACB terminals shall be suitable to receive cable connection on one side and bus bar connection on another side.						
		<b>BUSBAR SECTION</b>						

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
		800 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size aluminium busbar, current density of aluminium shall not be more than 0.8 Amps/ sq.mm cross sectional area of Bus Bar provide 50% capacity for neutral bus bar.						
		<b>INDICATING PANEL</b>						
		3 nos phase indicating lamps(LED type) each backed up with MCB and switch and shall be provided for each incomer ACB.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incomer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		Phase indicating neon lamps each lamp backed with MCB and ON/OFF switch 8 Nos.						
		Provide Microprocessor based relay Type MC 21C with short circuit and earth fault protection with port for all incoming ACB's.						
		2Nos. Indicating lamps for each capacitor unit to indicate the status of the unit						
		Power factor correction Intelligent controller with 8steps and multi -functional display , APFCR with 8steps. The relay shall be sensitive to pick up 1% of rated current and correct the P.F accordingly. Also the relay shall display the harmonic level of system.						
		<b>OUTGOINGS</b>						
		50 KVAR capacitor duty contactor (for each),50 KVAR capacitor unit 4 Nos						
		100 Amps TP MCCB (25KA) capacitor duty -4 Nos						
		25 KVAR capacitor duty contactor (for each),25 KVAR capacitor unit 3 Nos						
		63 Amps TP MCCB (25KA) capacitor duty - 4 Nos						
		Push button stations "RED" and "GREEN" push buttons for manual operation of contactors 8 sets.						
		Toggle switches for changing automatic to manual operation of contactors 8 Nos.						
		Terminal block for terminating outgoing connections.						
		All interconnections from bus bar to contactors and contactors to terminal blocks etc.						
		Control Wiring for APFCR connections shall be done between main L.T. Panel to capacitor banks in M.S. conduit.						

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		1 Nos. 25 KVAR Capacitor shall be fixed capacitor to take care of the no load losses of the transformer.						
		Automatic Power Factor Correction Panel for 300 KVAR Capacitor Banks and control panel as described above.	Set	3				
1.4	NDSR	<b>SUB DISTRIBUTION PANELS</b>						
		Design, manufacture, supplying at site of the following cubical type, dead front, 2mm thick sheet steel enclosed, free standing indoor type extendible Sub Distribution Panel with vermin proof hinged lockable doors for each compartment provide bus bar interconnections for incoming and outgoing including feeders earthing and painting and as per specifications.						
1.4.1	NDSR	<b>The Main Distribution Board -Admin Block (Ground Floor):</b>						
		<b>INCOMER</b>						
		Main Incomer 1 no 800 A TPN MCCB ( 50 KA) Terminals suitable to receive 4x3.5x300 samm AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		<b>BUSBARS</b>						
		1000 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar						
		<b>INDICATING PANEL</b>						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incomer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		<b>OUTGOINGS</b>						
		1 No. 400 A TPN MCCB (35 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		1 No. 320 A TPN MCCB (35 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		1 No. 200 A TPN MCCB (35 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						



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		1 Nos.160 A TPN MCCB (25 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		1 Nos.125 A TPN MCCB (25 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		5 Nos. 63 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		4 Nos. 16 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		4 Nos. 10 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		1 No. 16 A DP MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		<b>The MDB as described above and specifications complete</b>	Set	1				
1.4.2	NDSR	<b>The Sub Distribution Board -1 Admin Block (First Floor):</b>						
		INCOMER						
		Main Incomer 1 no 160 A TPN MCCB ( 35 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		BUSBARS						
		200 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar.						
		INDICATING PANEL						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incommer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		OUTGOINGS						
		5 Nos. 63 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						

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		4 Nos. 16 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		3 Nos. 10 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		<b>The SDB-1 as described above and specifications complete</b>	Set	1				
1.4.3		<b>The Sub Distribution Board -2 Admin Block (Second Floor):</b>						
		INCOMER						
		Main Incomer 1 no 320 A TPN MCCB ( 35 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		BUSBARS						
		400 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the cross sectional area of the bus bar						
		INDICATING PANEL						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incomer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		OUTGOINGS						
		1 Nos. 160 A TPN MCCB (25 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		4 Nos. 63 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		10 Nos. 16 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		1 No. 10 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		<b>The SDB-2 as described above and specifications complete</b>	Set	1				

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1.4.4	NDSR	<b>The Sub Distribution Board -3 Admin Block (3rd &amp; 4th Floor):</b>						
		INCOMER						
		Main Incomer 1 no 400 A TPN MCCB ( 35 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		BUSBARS						
		500 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar						
		INDICATING PANEL						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incomer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		OUTGOINGS						
		1 Nos. 160 A TPN MCCB (25 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		5 Nos. 63 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		12 Nos. 16 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		<b>The SDB-3 Admin Block as described above and specifications complete</b>	Set	1				
1.4.5	NDSR	<b>The Sub Distribution Board - 3 (UPS), Electrical Room (Third Floor):</b>						
		INCOMER						
		Main Incomer 1 no 200 A TP+2N MCCB ( 35 KA) Terminals suitable to receive CU. XLPE cable connection on one side and Busbar connection on the other side.						
		BUSBARS						

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		300 amps TP+2N busbar chamber of suitable length with copper busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of copper shall not be more than 1.6 Amps/ sq.mm. of the corss sectional area of the bus bar						
		INDICATING PANEL						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incommer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		OUTGOINGS						
		7 Nos. 63A TPN MCB (10 kA) terminals suitable to receive cable connection including providing dual type single phase energy meter on one side and Bus bar connection on another side.						
		6 Nos. 63A DP MCB (10 kA) terminals suitable to receive cable connection including providing dual type single phase energy meter on one side and Bus bar connection on another side.						
		The SDB as described above and specifications complete	Set	1				
1.4.6	NDSR	The Main Distribution Board - Academic Building (North Block):						
		INCOMER						
		Main Incomer 1 no 400 A TPN MCCB ( 35 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		BUSBARS						
		500 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar						
		INDICATING PANEL						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incommer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						

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		OUTGOINGS						
		3 Nos. 160 A TPN MCCB (25 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		4 Nos. 63 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		1 No. 63 A DP MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		1 No. 16 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		3 No. 16 A DP MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		2 Nos. 10 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		<b>The MDB as described above and specifications complete</b>	Set	1				
1.4.7	NDSR	<b>The Sub Distribution Board-2 Academic Building North Block (First Floor):</b>						
		<b>INCOMER</b>						
		Main Incomer 1 No 160 A TPN MCCB ( 35 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		<b>BUSBARS</b>						
		200 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar						
		<b>INDICATING PANEL</b>						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incommer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		<b>OUTGOINGS</b>						
		1 Nos. 100 A TPN MCCB (25 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		4 Nos. 63 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						

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		5 Nos. 16 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		3 Nos. 16 A DP MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		<b>The SDB-2 as described above and specifications complete</b>	Set	1				
1.4.8	NDSR	<b>The Sub Distribution Board-3 Academic Building North Block (Second Floor):</b>						
		<b>INCOMER</b>						
		Main Incomer 1 no 160 A TPN MCCB (35 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		<b>BUSBARS</b>						
		200 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar						
		<b>INDICATING PANEL</b>						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incommer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		<b>OUTGOINGS</b>						
		4 Nos. 63 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		8 Nos. 16 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		3 Nos. 16 A DP MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		<b>The SDB-3 as described above and specifications complete</b>	Set	1				
1.4.9	NDSR	<b>The Sub Distribution Board-1 Academic Building North Block (Third Floor):</b>						

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		<b>INCOMER</b>						
		Main Incomer 1 no160 A TPN MCCB ( 35 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		<b>BUSBARS</b>						
		200 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar						
		<b>INDICATING PANEL</b>						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incommer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		<b>OUTGOINGS</b>						
		4 Nos. 63 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		8 Nos. 16 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		3 Nos. 16 A DP MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		<b>The SDB-1 as described above and specifications complete</b>	Set	1				
1.4.10	NDSR	<b>The Sub Distribution Board - Auditorium Block:</b>						
		<b>INCOMER</b>						
		Main Incomer 1 no 200 A TPN MCCB ( 35 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		<b>BUSBARS</b>						

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		300 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar						
		<b>INDICATING PANEL</b>						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incommer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		<b>OUTGOINGS</b>						
		1 No. 100 A TPN MCCB (25 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		12 Nos. 63 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		1 No. 16 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		3 Nos. 10 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		3 Nos. 32A DP MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		<b>The SDB as described above and specifications complete</b>	Set	1				
1.4.11	NDSR	<b>The Main Distribution Board - Academic Building (South Block):</b>						
		<b>INCOMER</b>						
		Main Incomer 1 no 320 A TPN MCCB ( 35 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		<b>BUSBARS</b>						
		400 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar						



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		INDICATING PANEL						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incomer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		OUTGOINGS						
		3 No. 160 A TPN MCCB (25 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		4 Nos. 63 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		9 Nos. 16 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		2 No. 63 A DP MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		2 Nos. 16 A DP MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		<b>The MDB as described above and specifications complete</b>	Set	1				
1.4.12	NDSR	<b>The Sub Distribution Board-2 Academic Building South Block (First Floor):</b>						
		INCOMER						
		Main Incomer 1 no 160 A TPN MCCB ( 35 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		BUSBARS						
		200 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar						
		INDICATING PANEL						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						

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		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incommer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		OUTGOINGS						
		4 Nos. 63 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		9 Nos. 16 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		3 Nos. 16 A DP MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		The SDB-2 as described above and specifications complete	Set	1				
1.4.13	NDSR	The Sub Distribution Board-3 Academic Building South Block (Second Floor):						
		INCOMER						
		Main Incomer 1 no 160 A TPN MCCB ( 35 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		BUSBARS						
		200 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar						
		INDICATING PANEL						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incommer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		OUTGOINGS						
		4 Nos. 63 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		8 Nos. 16 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		3 Nos. 16 A DP MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
		The SDB-3 as described above and specifications complete	Set	1				
1.4.14	NDSR	The Sub Distribution Board-1 Academic Building South Block (Third Floor):						
		INCOMER						
		Main Incomer 1 no 160 A TPN MCCB ( 35 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		BUSBARS						
		200 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium						
		INDICATING PANEL						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incomer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		OUTGOINGS						
		4 Nos. 63 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		9 Nos. 16 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		3 Nos. 16 A DP MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		The SDB-1 as described above and specifications complete	Set	1				
1.4.15	NDSR	The Sub Distribution Board-1 Boys Hostel (Ground Floor):						
		INCOMER						

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
		Main Incomer 1 no 320 A TPN MCCB ( 35 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		BUSBARS						
		400 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar						
		INDICATING PANEL						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incomer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		OUTGOINGS						
		23 Nos.100 A TPN MCCB (25 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		1 Nos.63A DPMCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		<b>The SDB-1 as described above and specifications complete</b>	Set	1				
1.4.16	NDSR	<b>The Sub Distribution Board-1 Girls Hostel (Ground Floor):</b>						
		INCOMER						
		Main Incomer 1 no 320 A TPN MCCB ( 35 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		BUSBARS						
		400 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of aliminium shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar						
		INDICATING PANEL						

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incomer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		OUTGOINGS						
		23 Nos. 100 A TPN MCCB (25 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		1 Nos.63A DPMCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		The SDB-1 as described above and specifications complete	Set	1				
1.4.17	NDSR	<b>The Distribution Board-Emergency Girls &amp; Boys Hostel (Ground Floor):</b>						
		INCOMER						
		Main Incomer 1 no 63 A DP MCB ( 10 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		BUSBARS						
		100 amps DP busbar chamber of suitable length with copper busbars. All busbars and interconnections shall be of suitable size copper strips. Current density of copper shall not be more than 1.6 Amps/ sq.mm. of the corss sectional area of the bus bar						
		INDICATING PANEL						
		2 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		OUTGOINGS						
		5 Nos.63A DPMCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		<b>The DB-1 as described above and specifications complete</b>	Set	2				
1.5	NDSR	<b>Smoke Panel</b>						
		INCOMER						

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
		Main Incomer 1 no 100 A TPN ACO's (Automatic change over switch) ( 25 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		Main Incomer 1 no 100 A TPN MCCB ( 25 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		BUSBARS						
		200 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar						
		INDICATING PANEL						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incomer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		OUTGOINGS						
		3 Nos. 63 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		The Smoke Panel as described above and specifications complete	Set	1				
1.6	NDSR	LT Panel-2 (The panel shall be Out door type)						
		With degree of protection IP 67						
		INCOMER						
		Main Incomer 1 no 400 A TPN MCCB ( 35 KA)+ 1No 400A 4Pole contactor Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side from AMF panel.						
		One no. Incomer of 400 A TPN MCCB ( 35 KA)+1No 400 A 4 Pole contactor Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side from main supply line.						
		BUSBARS						

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
		500 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the cross sectional area of the bus bar						
		INDICATING PANEL						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incomer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		Interlocking						
		PLC based Load Manager for both Mains and DG power Provide electrical/manual changeover switch for interlocking. Provide PLC based load manager/ load sharing with DG selection and ON/OFF through PLC Supplier to submit the Bill of materials for the above functions.						
		Bus Coupler						
		1 No. 400 A 4Pole contactor terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		OUTGOINGS						
		1 No. 250 A TPN MCCB (35 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		1 No. 200 A TPN MCCB (35 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		1 No. 160 A TPN MCCB (25 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		2 Nos. 100 A TPN MCCB (25 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side.						
		4 Nos. 63 A TPN MCB (10 kA) terminals suitable to receive cable connection on one side and Bus bar connection on another side including providing dual type three phase energy meter on one side and Bus bar connection on another side.						
		The LT Panel-2 as described above and specifications complete	Set	1				

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1.6.1	NDSR	<b>The Main Distribution Board - Guest House (Ground Floor):</b>						
		INCOMER						
		Main Incomer 1 no 200 A TPN MCCB (35 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		BUSBARS						
		300 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar						
		INDICATING PANEL						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incomer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		OUTGOINGS						
		21 Nos. 63 A DP MCB (10 kA) terminals suitable to receive cable connection on another side.						
		<b>The MDB Guest House (Ground Floor) as described above and specifications complete</b>	Set	1				
1.6.2	NDSR	<b>The Main Distribution Board - Quarters Type-IV (Ground Floor):</b>						
		INCOMER						
		Main Incomer 1 no 160 A TPN MCCB ( 25 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		BUSBARS						
		250 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar						
		INDICATING PANEL						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						



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		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incommer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		OUTGOINGS						
		12 Nos. 63A TPN MCB (10 kA) terminals suitable to receive cable connection including providing dual type three phase energy meter on one side and Bus bar connection on another side.						
		<b>The MDB Quarters Type-IV (Ground Floor) as described above and specifications complete</b>	Set	1				
1.6.3	NDSR	<b>The Main Distribution Board, Staff Apartment (Ground Floor):</b>						
		INCOMER						
		Main Incomer 1 no 250 A TPN MCCB ( 35 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		BUSBARS						
		300 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminium shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar						
		INDICATING PANEL						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incommer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		OUTGOINGS						
		1 No. 160A TPN MCCB (25 kA) terminals suitable to receive cable connection including providing dual type single phase energy meter on one side and Bus bar connection on another side.						
		16 Nos. 63A DP MCB (10 kA) terminals suitable to receive cable connection including providing dual type single phase energy meter on one side and Bus bar connection on another side.						
		<b>The Main Distribution Board as described above and specifications complete</b>	Set	1				

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
1.6.4	NDSR	<b>The Sub Distribution Board, Staff Apartment (Ground Floor):</b>						
		INCOMER						
		Main Incomer 1 no 160 A TPN MCCB ( 25 KA) Terminals suitable to receive AR. Al. XLPE cable connection on one side and Busbar connection on the other side.						
		BUSBARS						
		250 amps TPN busbar chamber of suitable length with Aluminium busbars. All busbars and interconnections shall be of suitable size Aluminium strips. Current density of Aluminum shall not be more than 0.8 Amps/ sq.mm. of the corss sectional area of the bus bar						
		INDICATING PANEL						
		3 nos phase indicating lamps each backed up with MCB shall be provided for each incomer.						
		Provide Intelligent Panel Meter (96 mm x 96 mm) covering 25 electrical parameters with RS 485 port for all incommer feeders.(consisting of Voltage, Amps, kWh, kW, P.F. Hz etc parameter).						
		OUTGOINGS						
		16 Nos. 63A DP MCB (10 kA) terminals suitable to receive cable connection including providing dual type single phase energy meter on one side and Bus bar connection on another side.						
		<b>The Main Distribution Board as described above and specifications complete</b>	Set	1				
1		<b>TOTAL OF MAIN L.T. PANEL &amp; SUB DISTRIBUTION PANEL (Rs.)</b>						
2		<b>CABLE WORK</b>						
2.1	NDSR	Supplying the following sizes of 11 KV grade Aluminium/Copper conductor armoured cables suitable for unearthed system confirming to IS -7098 Part 2 amended upto date.						
2.2	NDSR	11 KV 3C x240 sq. mm. XLPE Aluminium conductor Cables	RM	105				

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2.3	NDSR	Supplying of armoured aluminium conductor of 1100 V grade conforming to IS-7098 Part 2 amended upto date as per the following size.						
2.4	NDSR	1100 V 3.5 x 300 sq. mm PVC insulated and PVC sheathed / XLPE armoured Aluminium conductor Cables	RM	2,612				
2.5	NDSR	1100 V 3.5 x 240 sq. mm PVC insulated and PVC sheathed / XLPE armoured Aluminium conductor Cables	RM	1,257				
2.6	NDSR	1100 V 3.5 x 185 sq. mm PVC insulated and PVC sheathed / XLPE armoured Aluminium conductor Cables	RM	153				
2.7	NDSR	1100 V 3.5 x 150 sq. mm PVC insulated and PVC sheathed / XLPE armoured Aluminium conductor Cables	RM	2,472				
2.8	NDSR	1100 V 3.5 x 120 sq. mm PVC insulated and PVC sheathed / XLPE armoured Aluminium conductor Cables	RM	101				
2.9	NDSR	1100 V 3.5 x 95 sq. mm PVC insulated and PVC sheathed / XLPE armoured Aluminium conductor Cables	RM	65				
2.1	NDSR	1100 V 3.5 x 70 sq. mm PVC insulated and PVC sheathed / XLPE armoured Aluminium conductor Cables	RM	25				
2.11	NDSR	1100 V 3.5 x 50 sq. mm PVC insulated and PVC sheathed / XLPE armoured Aluminium conductor Cables	RM	25				
2.12	NDSR	1100 V 3.5C x 35 sq. mm PVC insulated and PVC sheathed / XLPE armoured Aluminium conductor Cables	RM	453				
2.13	NDSR	1100 V 4C x 35 sq. mm PVC insulated and PVC sheathed / XLPE armoured Aluminium conductor Cables	RM	512				
2.14	NDSR	1100 V 4C x 16 sq. mm PVC insulated and PVC sheathed / XLPE armoured Copper conductor Cables	RM	108				
2.15	NDSR	1100 V 4C x 10 sq. mm XLPE armoured Copper conductor Cables	RM	29				
2.16	NDSR	1100 V 4C x 6 sq. mm XLPE armoured Copper conductor Cables	RM	221				
2.17	NDSR	1100 V 4C x 4 sq. mm XLPE armoured Copper conductor Cables	RM	3,572				
2.18	NDSR	1100 V 4C x 2.5 sq. mm XLPE armoured Copper conductor Cables	RM	299				
2.19	NDSR	1100 V 3C x 6 sq. mm XLPE armoured Copper conductor Cables	RM	604				
2.2	NDSR	1100 V 3C x 4 sq. mm XLPE armoured Copper conductor Cables	RM	840				
2.21	NDSR	12c x 2.5 Copper Control Cable	RM	1,000				
2.22	NDSR	1c x 10 sq.mm PVC insulated PVC flexible copper conductor cables	RM	100				
2.23	NDSR	1c x 16 sq.mm PVC insulated PVC flexible copper conductor cables	RM	50				
2.24	NDSR	1c x 25 sq.mm PVC insulated PVC flexible copper conductor cables	RM	25				
2.25	NDSR	1c x 35 sq.mm PVC insulated PVC flexible copper conductor cables	RM	25				

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2.26	NDSR	1c x 50 sq.mm PVC insulated PVC flexible copper conductor cables	RM	25				
2.27	NDSR	1c x 95 sq.mm PVC insulated PVC flexible copper conductor cables	RM	200				
2.28	NDSR	Fabricating and installing following size of perforated G.I cable trays including horizontal and vertical bends, reducers, tees, cross members and other accessories as required and duly suspended from the ceiling with G.I Suspenders and including painting with powder coating etc. as required.						
2.28.1		100 mm width x 50 mm depth x 1.6 mm thickness	Metre	150				
2.28.2		150 mm width x 50 mm depth x 1.6 mm thickness	Metre	100				
2.28.3		300 mm width x 50 mm depth x 1.6 mm thickness	Metre	150				
2.28.4		450 mm width x 50 mm depth x 2.0 mm thickness	Metre	100				
2.28.5		600 mm width x 50 mm depth x 2.0 mm thickness	Metre	80				
2		<b>TOTAL OF CABLE WORK (Rs.)</b>						
3		<b>EXTERNAL LIGHTING</b>						
3.1	NDSR	Design,Fabrication, supplying to site of foundations, installation,preparing foundations,testing and commissioning of 15 M height above ground level M.S. octagonal poles as per details given in Sketch and suitable for 4. <b>No.250 watts lamps fitting Future lighting</b> or equivalent .The cost shall also include junction box, wiring from the Junction Box to the Luminaire with 3 x 2.5 sq.mm PVC insulated copper conductor stranded wires of 1100 V grade.(Cost doesn't include the fixture)	Set	1				
3.2	NDSR	Design, fabrication, supplying to site of installation, preparing foundations, installing in position, testing and commissioning of 6 M height above ground level Octagonal poles suitable 70/150 Watt for post top lantern as per <b>Future Lighting cat no - PY01TY1401 or equivalent</b> as per details given in sketch. The cost shall also include junction box, wiring from the Junction Box to the luminaire with 3 x 1.5 sq.mm FRLS PVC Insulated copper conductor stranded wires of 1100 V grade . (Cost doesn't include the fixture)	Set	83				

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
3.3	NDSR	Supplying to site of installation, preparing foundations suitable length of 50 mm dia G.I. Pipe with coupler, installing in position, testing and commissioning of Gate Light Fixture as per Philips Cat No. SPC 102 with SON 70 W lamps.	Set	6				
3.4	NDSR	<b>Cable Work</b>						
	NDSR	<b>All the cable shall be FRLS PVC insulated .</b>						
3.4.1	NDSR	Supply of following size of cables as per specifications mentioned in the Document elsewhere complete as required.						
3.4.1.1	NDSR	1100 V 3 x 6 Sq.mm YFY cable	RM	1,200				
3.4.1.2	NDSR	1100 V 3 x 4 Sq.mm YFY cable	RM	500				
3.4.2	NDSR	Supplying & making end terminations with brass compression gland for PVC insulated and PVC sheathed Aluminium conductor cable of 1100 V grade of the following sizes as required including providing and crimping heavy duty copper lugs.						
3.4.2.1	NDSR	1100 V 3C x 6 sq. mm PVC insulated armoured PVC sheathed copper conductor Cable	Jt	120				
3.4.2.2	NDSR	1100 V 3C x4 sq. mm PVC insulated armoured PVC sheathed copper conductor Cable	Jt	50				
3.5		G.I. Earth pipe Electrode						
3.5.1	5.2	Earthing with G.I. earth pipe 4.5 mm long x 40 mm dia. Including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/coak and salt complete as required.	Set	16				
3.5.2	5.18	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing along with existing surface/recessed conduit /submain wiring/ cable as required	RM	200				
3.6		<b>Luminaires</b>						
	NDSR	Supplying to site of installation in position, testing and commissioning of the following Luminaires with suitable lamp complete as required.						
		<b>Note: All the CFL lamp shall be of 60 or above Lumens per watt and the FTL T5 and T8 lamps shall be of 75 or above lumes per watts.</b>						
3.6.1	NDSR	250 watts lamps fitting Future lighting as per Philips Cat No.MWF331 IXHPITP 250WS Watt or equivalent complete with all accessories with suitable lamp and Control Gear Box as required.	Nos	4				

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3.6.2	NDSR	150Watt for post top lantern as per Future Lighting as per Philips cat no - SGP 401 IXCD MTT-150W or equivalent complete with all accessories with suitable lamp and Control Gear Box as required.	Nos	83				
3.6.3	NDSR	Philips make Gate light Luminaries as per Philips Cat No.HPC 102 IXHPLN-125WE Watt or equivalent complete with all accessories with suitable lamp and Control Gear Box as required.	Nos	6				
3.7	NDSR	Supply,installing testing and commissioning of outdoor feeder pillar Box comprising of the following						
		Supply, installing testing and commissioning of Street Light Distribution Board comprising of the following : (The panel shall be out door type with degree of protection IP 67)						
		1 no 125 A TPN MCB as incomer						
		1 no 110 A TP Contactor (230 V coil)						
		1 no selector switch to select automatic or manual operation						
		1 Set of ON/OFF push buttons for manual operation						
		1 No L & T timer TSQ -ST (daily dial - 1x 24 Hours)						
		20 nos. 16/32 A DP MCB's (10 KA breaking capacity) as outgoings						
		200 A TPN Copper busbar.						
		All interconnections and wiring as required for automatic "ON" and "OFF" operation of the Street light Distribution Boards.						
		2 mm thick M.S. sheet metal Cubicle Board as per specifications mentioned elsewhere in the document complete, including earthing as required. IP-65						
		<b>Street Light DB ( Outdoor Feeder Pillar Box ) as described above complete</b>	Set	2				
3		<b>TOTAL OF EXTERNAL LIGHTING (Rs.)</b>						
4		<b>LIGHTNING PROTECTION</b>						
4.1	NDSR	Supply, installation, testing and commissioning of Early Streamer Emission Lightning Protection System ( Creates an upward stream to neutralise the lightning stroke above the building and hence protect the building), Level-I protection etc. complete with all fixing accessories as required.	Set	4				

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4.2	NDSR	Supply & laying, effecting proper connections, testing & commissioning of the following sizes of 1.1 KV PVC insulated PVC sheathed copper conductor cables conforming to IS : 694-1990 with latest amendments laid over MS supports in existing RCC ducts/ laid in ground /laid on Cable Trays including clamping the cables to supports in an approved manner as required complete with all accessories.						
4.2.1		1 x 70 sq. mm unarmoured PVC insulated PVC Sheathed copper conductor cable including end termination.	RM	200				
4.3	NDSR	Supply, Installation, testing and commissioning of Maintenance Free Earthing of make Electrolytic Earthing comprising of type 'K' copper 2.4 mm wall thickness, hollow tube 12 feet long, 2.125 inches outer diameter completely filled with non hazardous metallic salts (Terrafill- isogel) to achieve an earth resistance of less than 1 ohms. Provide Manhole chamber at the top for inspection purpose .	Nos.	4				
4		<b>TOTAL OF LIGHTNING PROTECTION (Rs.)</b>						
5		<b>UPS EQUIPMENT</b>						
5.1	NDSR	Design, manufacture and supply of following UPS's (Input - three phase and Output -three phase) unit as per specifications,.						
5.1.1		120 KVA/96 KW UPS including sealed maintenance free batteries with M.S rack for battery bank with 30 Minutes Battery Backup.	No	1				
5.1.2		10 KVA/8 KW UPS including sealed maintenance free batteries with M.S rack for battery bank with 30 Minutes Battery Backup.	No	1				
5.3	NDSR	Installation, testing and commissioning of the following UPS and Batteries, complete in all respect as per direction of Engineer-in-charge.						
5.3.1		120 KVA/96 KW UPS	No	1				
5.3.2		10 KVA/8 KW UPS	No	1				
5.4	NDSR	Supply, installation, testing & commissioning of 5.0 KVA, 1 Phase, Pure Sine Wave inverter with 60 Minute. battery back up (EXIDE BATTERY), complete with battery Cabinet. As per specification.	Set	4				
5.5	NDSR	Supply, installation, testing & commissioning of 3.0 KVA, 1 Phase, Pure Sine Wave inverter with 60 Minute. battery back up (EXIDE BATTERY), complete with battery Cabinet. As per specification.	Set	2				

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
5		<b>TOTAL OF UPS EQUIPMENT (Rs.)</b>						
6		<b>SUB STATION WORKS</b>						
6.1	NDSR	120 AH 24 volts D.C. supply system along with set of batteries and battery charger with Trickle charger and Boost charger complete suitable for operation of H.T. Panel	Nos	1				
6.2	NDSR	Supply, Installation Testing & commissioning of 2 Pole, <b>11 Meter high, concrete, Structure</b> with Gang operating Switch, dropout fuses, lightning arrestor, guide insulator and other steel Structure, painting. The pole & structure, Stay set Complete as required include civil Foundation etc.	Nos	1				
6.3	NDSR	Supply, Installation Testing & commissioning of 2 mm Sheet Metal enclosed with 1250 4 Pole ACB (50KA); Cable termination box including making Connection etc as Required enclosure should be out door type. <b>(For L.T Isolation )</b>	Set	3				
6.4	NDSR	Supply, Installation Testing & commissioning of 11 KV cubical type Meter including calibrated CT&PT from the electricity board complete as required etc.	Nos	1				
6.5	NDSR	Supply, installation, testing and commissioning of sheet metal enclosed 200 A TPN MCCB (35 KA) for 120 KVA UPS. (This shall include cable entry boxes both for incoming and outgoing cable)	Nos	1				
6.6	NDSR	Supply, installation, testing and commissioning of sheet metal enclosed 63/40 A TPN MCB. (This shall include cable entry boxes both for incoming and outgoing cable)	Nos	10				
6.7	NDSR	Supply, installation, testing and commissioning of sheet metal enclosed 63/40/32 A DP MCB. (This shall include cable entry boxes both for incoming and outgoing cable).	Nos	10				
6.8	NDSR	Providing & fixing danger plates made of mild steel at least 2 mm thick & vitreous enameled white on both sides & with inscriptions in signal red colour on front side as reqd.						
6.8.1		High Voltage - Size 250mm x 200mm	Each	2				
6.8.2		Medium Voltage - Size 200mm x 150mm.	Each	6				



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6.9	NDSR	Providing and fixing carbon dioxide (CO2) type fire extinguishers fully charged of following capacity .						
6.9.1		4.5 KG	Each	2				
6.10	NDSR	Supply and fixing of foam fire extinguishers, portable type 9 lit capacity hanged on wall with bracket complete as required.	Each	2				
6.11	NDSR	Supply and fixing safety instruction chart in word duly framed with 5mm thick glass as required.(approx.Front area 1.20sq.mt)	Each	2				
6.12	NDSR	Providing of set of 4Nos. 9.5 Litre capacity GI bucket painted in post office red colour with prior coat of red -oxide paint and written with white paint 'FIRE' and mounted on MS angle iron frame with bracket of appropriate size & capacity I/C filling sand etc.	Set	1				
6.13	NDSR	Providing First Aid Box as approved by St. John Ambulance Brigade/Indian Red Cross conforming to IS 2217-1963.	Each	1				
6.14	NDSR	Supply & fixing shock treatment chart duly mounted on a wooden frame with 5mm thick glass as reqd. (approximate front area 1.20sq.metre.)	Each	2				
6.15	NDSR	Providing of rubber mat 1 mtr wide and 12mm thick to withstand 15KV dielectric strength as per IS 5424-1969.	Mtr	6				
6.16	NDSR	Providing of rubber mat 1 mtr wide and 6mm thick to with stand 3.3KV dielectric strength as per IS: 5424-1969	Mtr	12				
6		<b>TOTAL OF SUB STATION WORKS (Rs.)</b>						
7		<b>SUB STATION EQUIPMENTS</b>						
7.1	NDSR	<b>HT Panel</b>						
		Design, manufacture and supplying Installation Testing & commissioning of 1 incoming and 3 out going panel, 11 kV HT VCB switch board with following accessories:						
		<b>Incoming</b>						
		630A, 11kV, 350MVA, for 1second TP, horizontal isolated, horizontal drawout type, motorised spring charged, manually/electrical operated, trip free, vacuum circuit breaker (VCB) with mechanical OFF/ON indicators & provided with following:						

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		Double wound single phase, cast resin CT, 15VA burden with core-1 for metering (CL-1) and core-2 for protection (CL-5P10) and of 120/60/5 + 5A ratio.						
		0-200 A Digital Ammeter with selector switch.						
		IDMTL relay with 3 elements for over current (50-200%) and 1 element for earth fault protection(10-40%) CDG-31 type.						
		Suitable for connection to 1 x 3core x 240 sq.mm. Cross linked polythelene (XLPE) 11kV cables or as called for.						
		Master Trip Relay & Trip circuit supervision relay.						
		Potential transformers, 3 phase, 3 limb, drawout type, resin cast 11000/(Root 3)/110/(Root 3) ratio class 1accuracy, 100 VA burden.						
		0-15kV Digital Voltmeter with selector switch.						
		24 VDC shunt trip coil						
		Digital Power factor meter range 0.5 lag to 0.5 lead.						
		Digital Frequency meter						
		Trivector meter digital type with MD1, KVARH, KW and demand controller with communication part.						
		A set of ON/OFF/Trip/DC control supply/Trip circuit healthy & R,Y, B phase indication lamps.						
		Emergency trip push button						
		Limit switches with 6 NO/ 6 NC breaker auxilliary contacts						
		Control:- T-N-C (Trip, Neutral, Close) breaker control switch with indication arrangement.						
		All control wiring with protection & test terminal block as required.						
		Strip heater (40W, 240V AC) with thermostat for moisture absorption.						
		220 V AC / 24 V DC Power Pack Unit						
		5 Amps, 5 pin, 240V AC socket for internal illumination light.						
		Cable box for 3C x 240sq.mm 11kV XLPE Al. conductor cable.						
		HT Danger Plate						
		Incoming as described above.						
		<b>Bus Bars:</b>						
		630A,11kV, 350MVA,for 1 second 3phase, Electrolytic grade copper bus bars.The Bus bar temperature shall not exceed 75°C at 45°C ambient accordingly the bus bar sizes and number shall be provided.						

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		<b>Outgoings:</b>						
		All the CT's,PT's,volt meter, Ameter and all the other relay's to be provided in each cubical.						
		3x630A, 11kV, 350MVA, for 1 second TP, horizontal isolated, horizontal drawout type, motorised spring charged, manually operated, trip free, vacuum circuit breaker with mechanical OFF/ON indicators & provided with following:						
		Double wound single phase, cast resin CT, 15VA burden with core-1 for metering (CL-1) and core-2 for protection (CL-5P10) and of 40/20/5+5A ratio.						
		0-50A Digital Ammeter with selector switch.						
		IDMTL relay with 2 elements for over current (50-200%) and 1 element for earth fault protection(10-40%) CDG-61 type.						
		Anti Pumping Relay, Master Trip Relay & Trip circuit supervision relay.						
		Restricted Earth fault relay with required CT's.						
		24 VDC shunt trip coil						
		A set of ON/OFF/Trip/DC control supply/Trip circuit healthy & R,Y, B phase indication lamps.						
		1 No. Auxiliary relay for transformer faults <u>WTI</u> .						
		6 window annunciator with hooter.						
		(2 Window for over Current & Earth fault)						
		(2 Window for WTI & Trip)						
		(2 Window Spare)						
		Emergency trip push button						
		Limit switches with 6 NO/ 6 NC breaker auxiliary contacts						
		Control:- T-N-C (Trip, Neutral, Close) breaker control switch with indication arrangement.						
		All control wiring with protection & test terminal block as required.						
		Strip heater (40W, 240V AC) with thermostat for moisture absorption.						
		5 Amps, 5 pin, 240V AC socket for internal illumination light.						
		Cable box for 3C x 240 sq.mm 11kV XLPE Al. conductor cable.						
		HT Danger Plate						
		Outgoing as described above.						

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		HT Panel as described above						
		Provide power pack unit 110V/24V complete as required.						
		<b>HT Panel complete set</b>	Set	1				
7.2	NDSR	Supplying, unloading at site, installation testing & commissioning of 750 KVA 11/0.415 KV Step down Transformer with OLTC RTCC & AVR including shifting on to the foundations etc as required.(Including unloading and shifting at site)	Set	3				
7		<b>TOTAL OF SUB STATION EQUIPMENT (Rs.)</b>						
8		<b>EARTHING SYSTEM</b>						
		G.I Plate Electrode :						
8.1	5.4	Earthing with G.I earth plate 600 x 600 x 6 mm thick including accessories and providing masonry enclosure with cover plate having locking arrangement and water pipe of 2.7 metre long etc with charcoal/coke and salt complete as required.(Body Earthing)	Set	18				
		Copper Plate Electrode :						
8.2	5.6	Earthing with copper earth plate 600 x 600 x 3 mm thick including accessories and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc with charcoal or coke and salt as required.	Set	28				
8.3	6.13	Providing and laying copper tape 32 mm x 6 mm from earth electrode directly in ground as required	RM	500				
8.4	6.14	Providing and laying G.I tape 32 mm x 6 mm from earth electrode directly in ground as required	RM	600				
8.5	5.15	Providing and fixing 25 mm x 5 mm G.I. strip on surface or in recess for connections etc. as required	RM	1,200				
8.6	5.14	Providing and fixing 25 mm x 5 mm copper strip on surface or in recess for connections etc. as required	RM	300				
		S/L 6 SWG G.I wire in ground						
8.7	5.18	Providing and fixing 6 SWG dia G.I wire on surface or in recess for loop earthing along with existing surface/recessed conduit /submain wiring/ cable as required.	RM	3,000				

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8		<b>TOTAL OF EARTHING SYSTEM (Rs.)</b>						
9		<b>CABLE LAYING</b>						
9.1	F.a	<b>Cable Laying in ground</b>						
9.1	7.1	Laying of one number PVC insulated and 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.						
9.1.1	7.1.1	Up to 35sq mm	Mtr.	7,700				
9.1.2	7.1.2	Above 35sq mm and up to 95 sqmm	Mtr.	725				
9.1.3	7.1.3	Above 95sq mm and up to 185 sqmm	Mtr.	1,662				
9.1.4	7.1.4	Above 185sq mm and up to 400 sqmm	Mtr.	2,731				
9.2	7.2	Laying of one number PVC insulated and 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.						
9.2.1	7.2.1	Up to 35sq mm	Mtr.	50				
9.2.2	7.2.2	Above 35sq mm and up to 95 sqmm	Mtr.	50				
9.2.3	7.2.3	Above 95sq mm and up to 185 sqmm	Mtr.	25				
9.2.4	7.2.4	Above 185sq mm and up to 400 sqmm	Mtr.	150				
9.3	7.5	Laying of one number PVC insulated and PVC sheathed/ XLPE power cable of 1.1 KV grade of following size direct in the existing RCC/Hume/ Metal pipe as required.						
9.3.1	7.5.1	Up to 35sq mm	Mtr.	50				
9.3.2	7.5.2	Above 35sq mm and up to 95 sqmm	Mtr.	25				
9.3.3	7.5.3	Above 95sq mm and up to 185 sqmm	Mtr.	50				
9.3.4	7.5.4	Above 185sq mm and up to 400 sqmm	Mtr.	786				
9.4	7.8	Laying and fixing of one number PVC insulated and PVC sheathed /XLPE power cabl of 1.1 KV grade of following size on cable tray as required.						
9.4.1	7.8.1	Up to 35 sq mm (clamped with 1 mm thick saddle)	Mtr.	8,358				
9.4.2	7.8.2	Above 35 sq mm and up to 95 sqmm(clamped with 25x3 mm M.S flat clamp)	Mtr.	100				

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9.5	8.1	Laying of one number PVC insulated and PVC sheathed/ XLPE power cable of 11 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required.						
9.5.1	8.1.2	Above 120 sq mm and upto 400 sqmm	Mtr.	120				
9.6	8.3	Laying of one number PVC insulated and PVC sheathed/ XLPE power cable of 11 KV grade of following size in the existing RCC/Hume/Metal pipe as required.						
9.6.1	8.3.2	Above 120 sq mm and up to 400 sqmm	Mtr.	15				
9.7	3.3	Supplying and fixing cable route marker with 10 cm x 10 cm x 5 mm thick G.I. plate with inscription there on, bolted/welded to 35 mm x 35 mm x 6 mm angle iron, 60 cm long and fixing the same in ground as required.	Nos.	5				
		<b>S/M LV/MV Cable end Terminations</b>						
9.8	9.1	Supplying and making and termination with brass compression gland and aluminum lugs for following size of PVC insulated and PVC sheathed /XLPE aluminum conductor cable of 1.1 KV grade of the following sizes are required.( DSR ITEM)						
9.8.1	9.1.30	1100 V 3.5 x 300 sq. mm PVC insulated and PVC sheathed / XLPE Armoured Aluminium conductor Cable	Each	70				
9.8.2	9.1.29	1100 V 3.5 x 240 sq. mm PVC insulated and PVC sheathed / XLPE Armoured Aluminium conductor Cable	Each	20				
9.8.3	9.1.27	1100 V 3.5 x 185 sq. mm PVC insulated and PVC sheathed / XLPE Armoured Aluminium conductor Cable	Each	8				
9.8.4	9.1.26	1100 V 3.5 x 150 sq. mm PVC insulated and PVC sheathed / XLPE Armoured Aluminium conductor Cable	Each	30				
9.8.5	9.1.25	1100 V 3.5 x 120 sq. mm PVC insulated and PVC sheathed / XLPE Armoured Aluminium conductor Cable	Each	8				
9.8.6	9.1.24	1100 V 3.5 x 95 sq. mm PVC insulated and PVC sheathed / XLPE Armoured Aluminium conductor Cable	Each	6				
9.8.7	9.1.23	1100 V 3.5 x 70 sq. mm PVC insulated and PVC sheathed / XLPE Armoured Aluminium conductor Cable	Each	2				
9.8.8	9.1.22	1100 V 3.5 x 50 sq. mm PVC insulated and PVC sheathed / XLPE Armoured Aluminium conductor Cable	Each	2				
9.8.9	9.1.21	1100 V 3.5 x 35 sq. mm PVC insulated and PVC sheathed / XLPE Armoured Aluminium conductor Cable	Each	4				
9.8.10	9.1.35	1100 V 4 x 35 sq. mm PVC insulated and PVC sheathed / XLPE Armoured Aluminium conductor Cable	Each	6				
9.8.11	9.1.33	1100 V 4C x 16 sq. mm PVC insulated and PVC sheathed / XLPE Armoured Aluminium conductor Cable	Each	4				
9.8.12	9.1.32	1100 V 4C x 10 sq. mm PVC insulated and PVC sheathed / XLPE Armoured Aluminium conductor Cable	Each	2				

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9.9	NDSR	1100 V 4C x 6 sq. mm PVC insulated and PVC sheathed / XLPE Armoured copper conductor Cable	Each	2				
9.1	NDSR	1100 V 4C x 4 sq. mm PVC insulated and PVC sheathed / XLPE Armoured copper conductor Cable	Each	154				
9.11	NDSR	1100 V 4C x 2.5 sq. mm PVC insulated and PVC sheathed / XLPE Armoured copper conductor Cable	Each	14				
9.12	NDSR	1100 V 3C x 6 sq. mm PVC insulated and PVC sheathed / XLPE Armoured copper conductor Cable	Each	36				
9.13	NDSR	1100 V 3C x 4 sq. mm PVC insulated and PVC sheathed / XLPE Armoured copper conductor Cable	Each	32				
9.14	NDSR	1100 V 2C x 16 sq. mm PVC insulated and PVC sheathed / XLPE Armoured copper conductor Cable	Each	30				
9.15	NDSR	12c x 2.5 Copper Control Cable	Each	20				
		S/M 11 KV heat shrinkable indoor XLPE Cable Jointing						
9.16	10.4	Supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required:						
9.16.1	10.4.3	240 sq. mm (Indoor)	Each	9				
		S/M 11 KV heat shrinkable outdoor XLPE Cable Jointing						
9.17	10.5	Supplying and making outdoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required:						
9.17.1	10.5.3	240 sq. mm (outdoor)	Each	1				
9.18	10.6	Supplying and making straight through cable jointing with heat shrinkable jointing kit complete with all accessories including ferrules suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required:						
9.18.1	10.6.3	240 sq. mm (outdoor)	Each	1				
9		<b>TOTAL OF CABLE LAYING (Rs.)</b>						
10		<b>D.G SETS</b>						
10.1	NDSR	<b>D.G SET - 750 KVA</b>						

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		Providing, Installing, Testing and Commissioning of 'Silent Type' Diesel Generating set alongwith having Prime Power Rating suitable to drive of 750 KVA, 415 volts at 1500 RPM, 0.8 lagging power factor at 415 V suitable for 50 Hz, 3 phase system generator & for 0.85 Load Factor and consisting of the followings:						
A		<b>Diesel Engine</b>						
		Diesel Engine 4 stroke water cooled with radiator type, electric start of suitable BHP at 1500 RPM suitable for above output of alternator at 45 Degree C, 50% RH & at 1000 Meter MSL and Conforming to BS 5514, BS 649, IS 10000, capable of taking 10% over loading for one hour after 12 hours of continuous operation. The engine will be fitted complete with all the required accessories.						
		<b>Engine mounted Instrument Panel fitted with and having digital display for following:</b>						
		Start-stop switch with key						
		Water temperature indication						
		Lubrication oil pressure indication						
		Lubrication oil temperature indication						
		Battery charging indication						
		RPM indication						
		Over speed indication						
		Low lub. Oil trip indication						
		Engine Hours indication						
B		<b>Alternator</b>						
		Synchronous alternator rated at 750 KVA, 415 VOLTS AT 1500 RPM, 3 PHASE 50 Hz, AC supply with 0.8 lagging power factor at 45 Degree C, 50% RH & at 1000 Meter MSL. The alternator shall be having SPDP enclosure, brushless, continuous duty, self-excited and self-regulated through AVR conforming to IS : 4722/BS 2613 suitable for tropical conditions and with class F/H insulation.						
C		<b>Base Frame &amp; Foundation</b>						
		Both the engine and alternator shall be mounted on suitable base frame made of MS channel with necessary reinforcement which shall be installed on suitable cement concrete foundation and vibration isolation arrangement as per recommendations of manufacturer.						
D		<b>Fuel Tank</b>						



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		Daily service fuel tank of 990 liters capacity fabricated out of 3 mm thick M.S. sheet complete with all standard accessories and fuel piping between fuel tank and diesel engine with MS class 'C' pipes of suitable dia. Complete with valves, level indications & accessories as required as per specifications.						
E		<b>Exhaust System :</b>						
		Dry exhaust manifold with hospital exhaust silencer and catalytic convertor						
F		<b>Starting System</b>						
		12 V/24 V DC starting system comprising of starter motors: voltage regulator and arrangement for initial excitation complete with suitable nos. of batteries (25 plates, 180 Amp. Hour capacity lead acid type) as required as per specifications						
10.1.1	NDSR	Acoustic and weather proof enclosure with arrangement for fresh air intake for cooling of the engine & alternator, extraction, discharging hot air in to the atmosphere as per specifications.	Set	1				
		<b>TOTAL FOR DG SET- 750 KVA</b>						
10.2		<b>D.G SET - 500 KVA</b>						
		Providing, Installing, Testing and Commissioning of 'Silent Type' Diesel Generating set alongwith having Prime Power Rating suitable to drive of 500 KVA, 415 volts at 1500 RPM, 0.8 lagging power factor at 415 V suitable for 50 Hz, 3 phase system generator & for 0.85 Load Factor and consisting of the followings:						
10.2.1		<b>Diesel Engine</b>						
		Diesel Engine 4 stroke water cooled with radiator type, electric start of suitable BHP at 1500 RPM suitable for above output of alternator at 45 Degree C, 50% RH & at 1000 Meter MSL and Conforming to BS 5514, BS 649, IS 10000, capable of taking 10% over loading for one hour after 12 hours of continuous operation. The engine will be fitted complete with all the required accessories.						
10.2.2		<b>Engine mounted Instrument Panel fitted with and having digital display for following:</b>						
10.2.2.1		Start-stop switch with key						
10.2.2.2		Water temperature indication						

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10.2.2.3		Lubrication oil pressure indication						
10.2.2.4		Lubrication oil temperature indication						
10.2.2.5		Battery charging indication						
10.2.2.6		RPM indication						
10.2.2.7		Over speed indication						
10.2.2.8		Low lub. Oil trip indication						
10.2.2.9		Engine Hours indication						
10.2.3		<b>Alternator</b>						
		Synchronous alternator rated at 500 KVA, 415 VOLTS AT 1500 RPM, 3 PHASE 50 Hz, AC supply with 0.8 lagging power factor at 45 Degree C, 50% RH & at 1000 Meter MSL. The alternator shall be having SPDP enclosure, brushless, continuous duty, self-excited and self-regulated through AVR conforming to IS : 4722/BS 2613 suitable for tropical conditions and with class F/H insulation.						
10.2.4		<b>Base Frame &amp; Foundation</b>						
		Both the engine and alternator shall be mounted on suitable base frame made of MS channel with necessary reinforcement which shall be installed on suitable cement concrete foundation and vibration isolation arrangement as per recommendations of manufacturer.						
10.2.5		<b>Fuel Tank</b>						
		Daily service fuel tank of 990 liters capacity fabricated out of 3 mm thick M.S. sheet complete with all standard accessories and fuel piping between fuel tank and diesel engine with MS class 'C' pipes of suitable dia. Complete with valves, level indications & accessories as required as per specifications.						
10.2.6		<b>Exhaust System :</b>						
		Dry exhaust manifold with hospital exhaust silencer and catalytic convertor						
10.2.7		<b>Starting System</b>						
		12 V/24 V DC starting system comprising of starter motors: voltage regulator and arrangement for initial excitation complete with suitable nos. of batteries (25 plates, 180 Amp. Hour capacity lead acid type) as required as per specifications						

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10.2.8		Acoustic and weather proof enclosure with arrangement for fresh air intake for cooling of the engine & alternator, extraction, discharging hot air in to the atmosphere as per specifications.	Set	1				
10.3	NDSR	Supplying and fixing exhaust gas piping of suitable dia. Welded black MS, B class pipe conforming to IS : 3589 cut to required lengths and installed with necessary bends, supports and clamps, anti-vibration mountings, insulation of exhaust system with mineral wool/ Rockwool, 50 mm thick wiremesh & aluminium cladding etc. as required as per specifications.						
		250 mm dia	Mtrs	30				
		200 mm dia	Mtrs	30				
10.4	NDSR	Design, supply and installation of M.S. Steel painted supporting/fixing structure capable of holding suitable for the 750 KVA D.G. and 500KVA D.G Set up to required height as per CPCB . The cost shall also include all necessary fixing accessories and foundation as required complete.	Kg.	8000				
		<b>Total for DG sets</b>						
		<b>D.G SET - 200 KVA</b>						
10.5		Providing, Installing, Testing and Commissioning of 'Silent Type' Diesel Generating set alongwith having Prime Power Rating suitable to drive of 200 KVA, 415 volts at 1500 RPM, 0.8 lagging power factor at 415 V suitable for 50 Hz, 3 phase system generator & for 0.85 Load Factor and consisting of the followings:						
10.5.1		<b>Diesel Engine</b>						
		Diesel Engine 4 stroke water cooled with radiator type, electric start of suitable BHP at 1500 RPM suitable for above output of alternator at 45 Degree C, 50% RH & at 1000 Meter MSL and Conforming to BS 5514, BS 649, IS 10000, capable of taking 10% over loading for one hour after 12 hours of continuous operation. The engine will be fitted complete with all the required accessories.						
10.5.2		<b>Engine mounted Instrument Panel fitted with and having digital display for following:</b>						
10.5.2.1		Start-stop switch with key						
10.5.2.3		Lubrication oil pressure indication						

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10.5.2.4		Lubrication oil temperature indication						
10.5.2.5		Battery charging indication						
10.5.2.6		RPM indication						
10.5.2.7		Over speed indication						
10.5.2.8		Low lub. Oil trip indication						
10.5.2.9		Engine Hours indication						
10.5.3		<b>Alternator</b>						
		Synchronous alternator rated at 200 KVA, 415 VOLTS AT 1500 RPM, 3 PHASE 50 Hz, AC supply with 0.8 lagging power factor at 45 Degree C, 50% RH & at 1000 Meter MSL. The alternator shall be having SPDP enclosure, brushless, continuous duty, self-excited and self-regulated through AVR conforming to IS : 4722/BS 2613 suitable for tropical conditions and with class F/H insulation.						
10.5.4		<b>Base Frame &amp; Foundation</b>						
		Both the engine and alternator shall be mounted on suitable base frame made of MS channel with necessary reinforcement which shall be installed on suitable cement concrete foundation and vibration isolation arrangement as per recommendations of manufacturer.						
10.5.5		<b>Fuel Tank</b>						
		Daily service fuel tank of 990 liters capacity fabricated out of 3 mm thick M.S. sheet complete with all standard accessories and fuel piping between fuel tank and diesel engine with MS class 'C' pipes of suitable dia. Complete with valves, level indications & accessories as required as per specifications.						
10.5.6		<b>Exhaust System :</b>						
		Dry exhaust manifold with hospital exhaust silencer and catalytic convertor						
10.5.7		<b>Starting System</b>						
		12 V/24 V DC starting system comprising of starter motors: voltage regulator and arrangement for initial excitation complete with suitable nos. of batteries (25 plates, 180 Amp. Hour capacity lead acid type) as required as per specifications						

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
11.5.8		Acoustic and weather proof enclosure with arrangement for fresh air intake for cooling of the engine & alternator, extraction, discharging hot air in to the atmosphere as per specifications.	Set	1				
10.5.9		Fabricating, Installing, Testing & Commissioning of automatic mains failure control including auto-bypass panel, suitable for 200 KVA silent type D.G. Set complete with relays, timers, set of CTs for metering & protection and energy analysis to indicate currents, phase and line voltages, frequency, power factor, KWH, KVARH & provision for overload, short circuit, restricted earth fault, under frequency, control cabling from AMF panel to diesel engine and elsewhere if required, all complete and inter locking including the following:						
10.5.9.1		1 No. 320 Amp., 4 pole MCCB, combined with 2 x 320 Amps 4 pole contactor for Auto load transfer with electromagnatic release for O/C & E/F and shunt trip						
10.5.9.2		Auto/Manual/Test/Off selector switch						
10.5.9.3		3 Sets of current transformers 15 P 10 accuracy for protection and 15 VA class-I for metering						
10.5.9.4		Energy analyser unit to indicate current voltage frequency power factor and KWH						
10.5.9.5		Indicating lamps for load on mains and load on set						
10.5.9.6		Fuse for instruments						
10.5.9.7		Battery charger, complete with transformer/rectifier, D.C. Voltmeter and ammeter, Selector switch for trickle, off and boost and current adjustment.						
10.5.9.8		Main supply failure monitor						
10.5.9.9		Supply failure timer						
10.5.9.10		Restoration timer						
10.5.9.11		Control unit with three impulse automatic engine start/stop and failure to start lockout						
10.5.9.12		Impulse counter with locking and reset facility						
10.5.9.13		AMF logic with mains failure voltage sensor for Auto transfer of load						
10.5.9.14		Necessary Electro Mechanical Interlocking for not to parallel both supplies						
10.5.9.15		ON/OFF/Control circuit switch with indicator						
10.5.9.16		Audio/Video annunciation for						
10.5.9.17		High Water temperature						
10.5.9.18		Low lubricating oil pressure						

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
10.5.9.19		Engine Over Speed						
10.5.9.20		Engine fails to start						
10.5.9.21		Full load/maximum load warning	Set	1				
10.5.10		Supplying and fixing exhaust gas piping of suitable dia. Welded black MS, B class pipe conforming to IS : 3589 cut to required lengths and installed with necessary bends, supports and clamps, anti-vibration mountings, insulation of exhaust system with mineral wool/Rockwool, 50 mm thick wiremesh & aluminium cladding etc. as required as per specifications.	Mtrs	30				
		<b>Total for DG set 200 KVA</b>						
10		<b>TOTAL OF sub head K : D.G SETS (Rs.)</b>						
11		<b>SOLAR POWER PLANT</b>						
11.1	NDSR	Design, Engineering, Manufacture, Supply, Install, Testing and Commissioning of 15.0 Kwp Solar Power Generating System, as per technical specifications . Vendor shall provide training for minimum 3 persons from RIAHS Bhubneshwar mentioned to operate the plant.	Set	1				
11		<b>TOTAL OF SOLAR POWER PLANT (Rs.)</b>						
12		<b>INTERNAL WIRING</b>						
		<b>POINT WIRING</b>						
		<b>All wire shall be FRLS.</b>						
12.1	1.10	Point wiring in PVC conduit, with modular type switch						
		Wiring for light point /fan point/exhaust fan point/call bell point with 1.5 Sq.mm FRLS PVC insulated copper conductor single core cable in surface/recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FRLS PVC insulated copper conductor single core cable etc. as required.						
12.1.1	1.10.3	Group C	Point	3,698				

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
12.1.1.1		Same as item No. 13.1 above but LOOP POINT i.e. wiring of point looped from first point with 3 x 1.5 sq. mm FRLS PVC insulated copper conductor wire in concealed/exposed FRLS PVC conduits and earthing.	Nos.	3,014				
12.1.1.2	1.3	Point wiring in steel conduit, with modular type switch (For Admin & academic block)						
		Wiring for light point /fan point/exhaust fan point/call bell point with 1.5 Sq.mm FRLS PVC insulated copper conductor single core cable in surface/recessed steel conduit, with modular switch, modular plate, suitable size GI box and earthing the point with 1.5 sq.mm. FRLS PVC insulated copper conductor single core cable etc. as required.						
12.1.1.3	1.3.3	Group C	Point	800				
12.2	NDSR	Same as item No. 13.1.1.1 above but LOOP POINT i.e. wiring of point looped from first point with 3x1.5 sq. mm FRLS PVC insulated copper conductor wire in concealed/exposed steel conduits and earthing.	Nos.	1,565				
12.3	1.11	Twin Control Point wiring in PVC conduit, with modular type switch						
12.3.1		Wiring for twin control light point with 1.5 Sq.mm FRLS PVC insulated copper conductor single core cable in surface/recessed medium class PVC conduit, two way modular switch, modular Plate, suitable G.I box and earthing the point with 1.5 sq.mm. FRLS PVC insulated copper conductor single core cable etc. as required.	Point	50				
12.4	1.14	Circuit/sub-main wiring in PVC conduit:-						
		Wiring for circuit/submain wiring along with earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/recessed medium class PVC conduit as required.						
12.4.1	1.14.1	2 x 1.5 sq. mm + 1 x 1.5 sq. mm earth wire	Metre	100				
12.4.2	1.14.2	2 x 2.5 sq. mm + 1 x 2.5 sq. mm earth wire (for ckt wiring)	Metre	22,500				
12.4.3	1.14.3	2 x 4 sq. mm + 1 x 4 sq. mm earth wire (for power plug)	Metre	59,100				
12.4.4	1.14.4	2 x 6 sq. mm + 1 x 6 sq. mm earth wire (for power plug)	Metre	5,225				
12.4.5	1.14.5	2x10 sq.mm+1x10sq. Mm earth wire.(for sub Main)	Metre	100				
12.4.6	1.14.6	2x16 sq.mm+1x16sq. Mm earth wire.(for sub Main)	Metre	2,135				
12.4.7	1.14.10	4x10 sq.mm+2x10sq. Mm earth wire.(for sub Main)	Metre	50				
12.4.8	1.14.11	4x16 sq.mm+2x16sq. Mm earth wire.(for sub Main)	Metre	2,905				

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
12.5	1.7	Circuit/sub-main wiring in steel conduit:-						
		Wiring for circuit/submain wiring along with earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/recessed steel conduit as required.						
12.5.1	1.7.2	2 x 2.5 sq. mm + 1 x 2.5 sq. mm earth wire(for ckt wiring)	Metre	4,434				
12.6	1.17	Wiring in Existing Conduit						
		Supplying and drawing following sizes of FRLS PVC insulated copper conductor, single core cable in the existing surface / recessed steel / PVC conduit as required.						
12.6.1	1.17.2	2 X 1.5 Sq. mm	Metre	4,760				
12.6.2	1.17.3	3 X 1.5 Sq. mm	Metre	50				
12.6.3	1.17.12	3 X 2.5 Sq. mm	Metre	100				
12.7	1.18	Telephone wiring in existing conduit :						
		Supplying and drawing following pair, 0.5 sq. mm FRLS PVC insulated annealed copper conductor, unarmoured telephone cable in the existing surface/recessed steel/PVC conduit as required						
12.7.1	1.18.2	2 Pair	Metre	9,810				
12.8	1.19	TV Cable in existing Conduit						
		Supplying and drawing co-axial TV Cable RG - 6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed steel/ PVC conduit as required.	Metre	4,260				
12.9	1.20	S/F steel conduit :						
		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						
12.9.1	1.20.1	20 mm	Metre	3,732				
12.9.2	1.20.2	25 mm	Metre	75				
12.10	1.21	S/F PVC conduit :-						



Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
		Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.						
12.10.1	1.21.1	20 mm	Metre	10,110				
12.10.2	1.21.2	25 mm	Metre	20,000				
12.10.3	1.21.3	32 mm	Metre	2,500				
12.11	1.24	S/F modular type switch/socket :						
		Supplying and fixing following modular switch/socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.						
12.11.1	1.24.1	5/6 Amps Switch	Each	2,432				
12.11.2	1.24.4	3 pin 5/6 Amps Socket outlet	Each	3,013				
12.11.3	1.24.3	15/16 Amps Switch	Each	984				
12.11.4	1.24.5	6 pin 15/16 Amps Socket outlet	Each	984				
12.11.5	1.24.6	Telephone socket outlet	Each	327				
12.11.6	1.24.7	TV Antenna Socket Outlet	Each	142				
12.12	1.25	S/F modular type electronic fan regulator :						
		Supplying and fixing stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required	Each	1,564				
12.13	1.27	S/F modular boxes, base & cover plate :						
		Supplying and fixing following size/modules, GI box along with modular base & cover plate for modular switches in recess etc as required						
12.13.1	1.27.1	1 or 2 Module (75 mm x 75 mm)	Each	5				
12.13.2	1.27.2	3 Module (100 mm x 75 mm)	Each	2,835				
12.13.3	1.27.3	4 Module (125 mm x 75 mm)	Each	5				
12.13.4	1.27.4	6 Module (200 mm x 75 mm)	Each	581				
12.13.5	1.27.5	8 Module (125 mm x 125 mm)	Each	5				
12.14	1.31	S/F light plug point modular type accessories:						

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
		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 amps modular socket outlet and 5/6 amps modular switch, connection etc. as required.	Each	3,013				
12.15	1.32	S/F power plug point modular type accessories:						
		Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 15/16 & 5/6 amps modular socket outlet and 15/16 amps modular switch, connection, etc. as required.	Each	984				
12.16	1.41	ITC of Light Fixture						
		Installation, testing and commissioning of pre-wired, fluorescent fitting/compact fluorescent fitting of all types, with all accessories and tube etc. directly on ceiling/wall, including connection with 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable and earthing etc. as required.	Each	6,889				
12.17	1.45	ITC ceiling fan :						
		Installation, testing and 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 required.	Each	1,577				
12.18		Supplying, Installation, testing and commissioning of hexagonal ceiling fan box, including fixing with all accessories complete as required etc.	Each	1,577				
12.19	1.50	Fixing louvers/shutters for exhaust fan						
		Installation of exhaust fan in the existing opening, including making good the damage, connection, testing, commissioning etc. as required						
12.19.1	1.50.1	Upto 450 mm sweep	Each	491				
12.2	NDSR	Fabricating supplying to site of installation, in floor including chase cutting of floor, leveling, refilling and making good the same 2 mm thick M.S. power coated raceways of height 40 mm and 2.0 mm thick openable cover, totally enclosed, the joints between two lengths of channels or between channel and junction box shall be joined together with 3 mm thick MS powder coated coupler plates to make it dust and water proof.. complete with all fixing accessories as required.						
12.20.1		150 mm (wide) x 40 mm (height)	RM	200				
12.20.2		100 mm (wide) x 40 mm (height)	RM	150				

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
12		TOTAL OF INTERNAL WIRING (Rs.)						
13		MCB DISTRIBUTION BOARD						
	2.7	S/F prewired SP MCB DB :-						
13.1		Supplying and fixing following way, single pole and neutral, prewired, sheet steel, MCB distribution board, 240 volts, on surface/recess, complete with loose wire box, terminal blocks, duly prewired with suitable size FRLS PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)						
13.1.1	2.7.4	(2 +4) way Double door	Each	20				
13.1.2	2.7.5	(2 +8) way Double door	Each	61				
	2.8	S/F prewired TP MCB DB :-						
13.2		Supplying and fixing following way prewired TP&N MCB distribution board of steel sheet for 415 volts on surface/recess complete with loose wire box, terminal connectors for all incoming & outgoing circuits, duly prewired with suitable size FRLS PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)						
13.2.1	2.8.7	8 way (4+24), Double door	Each	38				
13.2.2	2.8.8	12 way (4+36), Double door	Each	45				
	2.10	S/F 'C' series, SP MCB						
13.3		Supplying and fixing 5 amps to 32 amps rating, 240/415 volts. "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.						
13.3.1	2.10.1	Single Pole	Each	3,020				
13.3.2	2.10.2	Single Pole & neutral	Each	5				
13.3.3	2.10.5	Triple Pole & neutral	Each	1				

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
13.4	2.14	Supplying and fixing following rating ,double pole(single phase and neutral), 240 Volts,residual current circuit breaker (RCCB), having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc.as required.						
13.4.1	2.14.2	40 amps	Each	1				
13.4.2	2.14.3	63 amps	Each	249				
13.5	2.12	Supplying and fixing following rating ,double pole, 240 Volts, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.						
13.5.1	2.12.1	40 amps	Each	2				
13.5.2	2.12.2	63 amps	Each	61				
13.6	2.13	Supplying and fixing following rating ,4 pole, 415 Volts, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.						
13.6.1	2.13.1	40 amps	Each	2				
13.6.1	2.13.2	63 amps	Each	83				
	2.18	S/F 20A SPN MCB Industrial Socket outlet						
13.7		Supplying & Fixing 20 Amps, 240Volts, SPN Industrial Type Socket Outlet, with 2 Pole and earth, metal enclosed plug top alongwith 20 amps "C" curve, SP, MCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket outlet and complete with connections, testing & commissioning as required.	Each	204				
13		<b>TOTAL OF MCB DISTRIBUTION BOARD (Rs.)</b>						
14		<b>SUPPLYING OF LIGHT FIXTURES</b>						
		Supplying , fixing in position testing and commissioning of the following Lighting fixtures including lamps at site. (Samples of all light fixtures to be submitted to the Engineer-in-charge for approval prior to procurement of fixtures)						
		Note : All the CFL lamp shall be of 60 or above Lumens per watt and the FTL T5 and T8 lamps shall be of 75 or above lumens per watts.						

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
14.1	NDSR	Supplying of 2 X 18 W CFL Recess mounted square downlighter as per Philips Cat.No.FBS 033 2x18w CFL or equivalent.	Each	1,380				
14.2	NDSR	Supplying of 1 X 18 W CFL Recess mounted square downlighter as per Philips Cat.No.FBS 033 1x18W CFL or equivalent.	Each	916				
14.3	NDSR	Supplying of 1 X 36 W FTL (T8) fluorescent channel light as per Philips Cat.No.TMS 520 1x36w or equivalent.	Each	349				
14.4	NDSR	Supplying of 1 X 28 W FTL (T5) Channel light fixture as per Philips Cat.No.TMS 520 1x28W or equivalent.	Each	100				
14.5	NDSR	Supplying of 1 X 36 W FTL (T5) Channel light fixture as per Philips Cat.No.TMS 520 1x36W or equivalent.	Each	979				
14.6	NDSR	Supplying of 1 X 18 W CFL Light fixture as per Philips Cat. No.- FBH150 1x18w CFL or equivalent.	Each	182				
14.7	NDSR	Supplying of 2 X 18 W CFL Light fixture as per Philips Cat.No.FBH150 2x18w CFL or equivalent.	Each	728				
14.8	NDSR	Supplying of 1 X 36 W FTL surface mounted luminaire as per Philips Cat.No.TCS 350 1x36w M1 HFB or equivalent.	Each	50				
14.9	NDSR	Supplying of 2 X 36 W FTL (T8) recess/surface mounted luminaire as per Philips Cat.No.TCS 350 2x36w M1 HFB or equivalent.	Each	524				
14.10	NDSR	Supplying of 2 X 28 W FTL (T5) recess/surface mounted luminaire as per Philips Cat.No.TBS 520 2x28w M1 EBE or equivalent.	Each	300				
14.11	NDSR	Supplying of 2 X 28 W FTL (T5) surface mounted luminaire as per Philips Cat.No.TCS 150 2XTL5-28W MI EBT or equivalent.	Each	52				
14.12	NDSR	Supplying of 1 x 40/60/100 W GLS bulk head light as per Philips Cat.No. NXC 101 1x60W GLS or equivalent.	Each	129				

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) (In Figures)	RATE (Rs.) (In words)	AMOUNT (Rs.) (In Figures)	Amount (Rs.) (In words)
14.13	NDSR	Supplying of 2 X 26 W CFL light fixture as per Philips Cat.No. FBH145 2x26W CFL or equivalent.	Each	91				
14.14	NDSR	Supplying of 1 X TL5-28 W surface mounted luminaire as per Philips Cat.No.V2 VECTOR 28 W TCH 207or equivalent.	Each	1223				
14.15	NDSR	Supplying, fixing, connecting, testing and commissioning of mirror light luminaire with 1 x 14 watt complete with electronic ballast, lamp including connection etc. complete as required similar to Philips Cat. No. Adreno 14w TWG207 1xTL5 -14W or equivalent	Each	120				
14.16	NDSR	Supplying of Ceiling Fan (1200 mm)	Each	1521				
14.17	NDSR	Supplying of Ceiling Fan (900 mm)	Each	43				
14.18	NDSR	Supplying of Exhaust Fan 300 mm dia.	Each	491				
14.19	NDSR	Supplying of Wall Fan 400 mm dia.	Nos.	13				
		SCHEDULE ITEM						
14.20	15.1	Supplying, installation, testing and commissioning of passive Infrared (PIR) technology based occupancy sensor having high performance, non regulating programmable type, suitable for connected load upto 10 amp, for mounting height upto 2.8 mtr and for 5m diameter coverage area along with necessary fixing arrangements i/c programming at site etc. complete as required.	Nos	44				
14.21	15.2	Supplying, installation, testing and commissioning of passive Infrared (PIR) technology based occupancy sensor with day light dimming (lighting level shall be regulated as per availability of natural day light in an area along with occupancy detection.) having high performance, regulating programmable type, suitable for connected load upto 10 amp, for mounting height upto 2.8 mtr and for 5m diameter coverage area along with necessary fixing arrangements i/c programming at site etc. complete as required.	Nos.	20				
		<b>TOTAL OF SUPPLYING OF LIGHT FIXTURES (Rs.)</b>						
		<b>GRAND TOTAL (In Rs.)</b>						

Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha			
<u>SUMMARY FOR LV WORKS (FIRE ALARM, PUBLIC ADDRESS SYSTEM, CCTV &amp; EPABX WORKS)</u>			
Sr.No.	Description	Quoted Amount (Rs.) (In Figures)	Quoted Amount (Rs.) (In Words)
1	Fire Detection System (Conventional)		
2	Fire Detection System (Analogue Addressable) for Admin and Academic Block		
3	CCTV System		
4	Public Address System		
5	EPABX		
6	WIRING FOR TELEPHONE & TV SYSTEM		
7	NET WORKING SYSTEM		
	<b>TOTAL FOR LV WORKS ( FIRE ALARM, PUBLIC ADDRESS SYSTEM, CCTV &amp; EPABX WORKS)</b>		

Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha								
BoQ FOR FIRE ALARM, PUBLIC ADDRESS SYSTEM, CCTV & EPABX WORKS								
Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) In Figures	RATE (Rs.) In Words	AMOUNT (Rs.) In Figures	AMOUNT (Rs.) In Words
1		<b>FIRE DETECTION SYSTEM (CONVENTIONAL)- FOR HOSTEL</b>						
		All panels shall be suitable with BMS integration with necessary provisions.						
1.1	NDSR	Supply, installation, connecting, testing and commissioning of Smoke Detectors (Optical) with blinking LED etc as required complete.(approved make series 65)	Nos.	182				
1.2	NDSR	Supply, installation, connecting ,testing and commissioning of Heat Detect-ors as required complete. (Rate of rise cum fixed type)	Nos.	6				
1.3	NDSR	Supply, installation, connecting, testing and commissioning of Electronic Hooters (30 M range) in suitable size of M.S. box. as required complete.	Nos.	42				
1.4	NDSR	Supply, installation, connecting, testing and commissioning of Manual Call Push button with Hammer etc.in suitable size of M.S as required complete.	Nos.	42				
1.5	NDSR	Supply, installation, connecting, testing and commissioning of Fire Control Panel as per specifications mentioned elsewhere in the Document complete as required.						
1.5.1	NDSR	8 Zone Control Panel	Set	2				
1		<b>TOTAL OF FIRE DETECTION SYSTEM (CONVENTIONAL) (Rs.)</b>						
2		<b>FIRE DETECTION SYSTEM (ANALOGUE ADDESSABLE)- FOR ADMIN &amp; ACADEMIC</b>						



Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) In Figures	RATE (Rs.) In Words	AMOUNT (Rs.) In Figures	AMOUNT (Rs.) In Words
		All AHU's shall be integrated with fire panel so that in case of fire signal, all the AHUs shall be switched OFF. And also suitable for BMS integrated.						
2.1	NDSR	Supply, installation, connecting, testing and commissioning of addressable photoelectric type Smoke Detectors with mounting base, blinking LED etc. complete as required.	Nos	440				
2.2	NDSR	Supply, installation, connecting, testing and commissioning of addressable rate of rise cum fixed temperature Heat Detectors with mounting base, blinking LED etc. complete as required.	Nos	10				
2.3	NDSR	Supply, installation, connecting, testing and commissioning of Addressable Hooters cum strobe min. 95 db output	Nos	22				
2.4	NDSR	Supply, installation, connecting, testing and commissioning of Addressable Manual Call Box in ABS plastic as required complete.	Nos	22				
2.5	NDSR	Supply, installation, connecting, testing and commissioning of addressable fault Isolator	Nos	42				
2.6	NDSR	Supply, installation, connecting, testing and commissioning of addressable control module for A.C,AHU ,Flow switch. & Access Control System	Nos	30				
2.7	NDSR	Supply, installation, connecting, testing and commissioning of addressable monitor module for integration of main LT panel to main fire panel	Nos	3				
2.8	NDSR	Supply, installation, connecting, testing and commissioning of Response indicator.	Nos	30				
2.9	NDSR	Supply, installation, connecting, testing and commissioning of 2 Loop multiprotocol analog addressable panel ( networkable type ) with auto dialer ( min. 6 line), serial printer and ground isolator card for printer etc. complete as required.	Set	4				

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) In Figures	RATE (Rs.) In Words	AMOUNT (Rs.) In Figures	AMOUNT (Rs.) In Words
2.10	NDSR	Supply, installation, connecting, testing and commissioning of Main Fire alarm 8 Loop multiprotocol analog addressable panel ( networkable type ) with auto dialer ( min. 6 line), serial printer and ground isolator card for printer etc. complete as required.	Set	1				
2.11	NDSR	Supply and drawing of the following FRLS PVC insulated copper conductor wires in existing conduits.						
2.11.1	NDSR	2 x 1.5 sq. mm shielded ATC conductor loop cable	RM	5645				
2.11.2	NDSR	2 x 2.5 sq. mm shielded ATC conductor loop cable	RM	10				
2.12	NDSR	S/F steel conduit :						
		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						
2.12.1	NDSR	20 mm	Metre	4780				
2.12.2	NDSR	25 mm	Metre	50				
2.13	NDSR	Supply, installation, connecting, testing and commissioning of addressable photo beam type Smoke Detectors with mounting base, blinking LED etc. complete as required	Nos.	2				
2		<b>TOTAL OF FIRE DETECTION SYSTEM (ANALOGUE ADDESSABLE) (Rs.)</b>						
3		<b>CCTV SYSTEM</b>						
		The CCTV system suitable with BMS integrated as required.						
3.1	NDSR	Colour Camera with fixed lens 3.6 mm, 2 inch HAD 530 HTV resolution 0.5 lux, 3.4" Dome Type.	Nos.	34				

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) In Figures	RATE (Rs.) In Words	AMOUNT (Rs.) In Figures	AMOUNT (Rs.) In Words
3.2	NDSR	Colour Camera with fixed lens 3.6 mm, 2 inch HAD 530 HTV resolution 0.5 lux, 3.4" Dome Type ( Outdoor Type)	Nos.	6				
3.3	NDSR	Supply, intallation of 100x100 M.S/G.I surface mounted box suitable of CCTV camera out door/ indoor type with all fixing accessories complete as required etc.	Nos.	40				
3.4	NDSR	16 Channel Digital Video Surveillance System, record rate 400 FPS – record and viewing, 25 FPS per Camera, with built in Multiplexer, Video motion detection, smart search with TCP – IP connectivity, recording on real time , high quality 500 GB HDD recorder.	Nos.	3				
3.5	NDSR	SMPS Based Power Supplies Unit Suitable for power supply unit.	Nos.	3				
3.6	NDSR	19" Colour Video Display ,Pelco ,Model PMCS 19 A Including wall support suitable for 360 degree rotation capacity.	Nos.	3				
3.7	NDSR	Supply and drawing of the RG 6 co-axial cable for signal.	RM	1800				
3.8	NDSR	Supply and drawing of the 3x1.5 sq. mm PVC insulated copper conductor cable for camera power including cable glands.	RM	1200				
3.9	NDSR	The rack to accommodate 19" Colour Video Display ,Pelco ,Model PMCS 19 A etc for Open CCTV System equipment Suitable for 2 Nos Power Supply , 1 No.CCTV Recoder and necessary polarised duplex outlet rack tray complete as required.	Set	5				
3.10	NDSR	Design, Fabrication, supplying to site of foundations, installation, preparing foundations, testing and commissioning of 4.5 M height above ground level M.S. tubular steel swaged poles for suitable of Out Door Type CCTV Camera .	Nos	6				
<b>3</b>		<b>TOTAL OF CCTV SYSTEM (Rs.)</b>						
<b>4</b>		<b>PUBLIC ADDRESS SYSTEM</b>						
		The system is suitable with BMS integrated.						

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) In Figures	RATE (Rs.) In Words	AMOUNT (Rs.) In Figures	AMOUNT (Rs.) In Words
4.1	NDSR	Supply, installation, testing and commissioning of following make Music Accessories/Equipments.						
4.1.1	NDSR	Ceiling Speaker Unit 6 Watts	Nos.	10				
4.1.2	NDSR	6 Watts wall mounted speaker unit	Nos.	641				
4.1.3	NDSR	Power Amplifier, 480 Watts with output transformer etc. complete.	Nos.	8				
4.1.4	NDSR	Power Amplifier, 180 Watts inbuilt DVD player and pre amplifier with output transformer etc. complete. For Cafe Area.	Nos.	1				
4.1.5	NDSR	System pre-amplifier with 8 zone complete as required etc.	Nos.	5				
4.1.6	NDSR	Control Unit (with volume and on/off switch) Philips (Smooth stepless control, but the control shall be through dimmer switch, the make of which will be same as the make of light control switches).	Nos.	5				
4.1.7	NDSR	Philips Microphone unit Cat no LBD 8292	Nos.	5				
4.1.8	NDSR	Equipment Rack complete with monitor unit, speaker, power supply control etc. President make suitable size for 4 x 480 watts amplifier system.	Nos.	5				
4.1.9	NDSR	Main Termination Box	Nos.	1				
4.1.10	NDSR	Supply and drawing of 1.5 sq. mm Twin Core Speaker Cable in existing conduit.	RM	16275				
4		<b>TOTAL OF PUBLIC ADDRESS SYSTEM (Rs.)</b>						
5		<b>EPABX</b>						

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) In Figures	RATE (Rs.) In Words	AMOUNT (Rs.) In Figures	AMOUNT (Rs.) In Words
5.1	NDSR	500 ports EPABX equiped 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.						
5.1.1	NDSR	Above complete as per design /details /technical specifications and directions of Engineer-in-Charge.	SET	1				
		<b>TOTAL OF EPABX (Rs.)</b>						
<b>6</b>		<b>WIRING FOR TELEPHONE &amp; TV SYSTEM</b>						
6.1	NDSR	Providing and fixing of Krone make Telephone Tag Block of following pairs consisting of necessary Back Mount Frame, disconnection modules and grommets complete as required.						
6.1.1	NDSR	20 pair Telephone Tag Block	Nos.	15				
6.1.2	NDSR	30 pair Telephone Tag Block	Nos.	5				
6.1.3	NDSR	50 pair Telephone Tag Block	Nos.	2				
6.1.4	NDSR	100 pair Telephone Tag Block	Nos.	1				
6.2	NDSR	Supply,drawing and making connections with Telephone Main Junction box and Telephone Outlet Box with annealed tinned copper conductor , PVC insulated and PVC sheathed GI strip armoured / Unarmoured Telecommunication cable in ground /Conduit Pipe from the P & T Junction Box to the Main Telephone junction box includ-ing supporting from the roof complete with all accessories as required.						
6.2.1	NDSR	100 x ( 2 x 0.61mm ) armoured Telephone cable.	RM	300				
6.2.2	NDSR	50 x ( 2 x 0.61mm ) armoured Telephone cable.	RM	400				
6.2.3	NDSR	20 x ( 2 x 0.61mm ) armoured Telephone cable.	RM	250				
6.2.4	NDSR	30 x ( 2 x 0.61mm ) armoured Telephone cable.	RM	150				
6.3	NDSR	Supply drawing connecting testing and commissioning of TV Coaxial cable RG 11 armoured cable including making connections etc asd required.	RM	4970				

Sr.No.	DSR 2013 ITEM CODE / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) In Figures	RATE (Rs.) In Words	AMOUNT (Rs.) In Figures	AMOUNT (Rs.) In Words
6.4	NDSR	Supply and fixing of Booster amplifier for TV System including making connections etc as required.	Nos	10				
6.5	NDSR	Supply and fixing of 12 way splitter box for TV system including making connections etc as required.	Nos	25				
6.6	NDSR	Supply and fixing of 10 way splitter box for TV system including making connections etc as required.	Nos	16				
6.7	NDSR	Supply and fixing of 4 way splitter box for TV system including making connections etc as required.	Nos	12				
<b>6</b>		<b>TOTAL OF WIRING FOR TELEPHONE &amp; TV SYSTEM (Rs.)</b>						
<b>7</b>		<b>NET WORKING SYSTEM</b>						
7.1	DSR 2013 1.53	Supplying and drawing of UTP 4 pair CAT 6 LAN cable in the existing surface/recessed steel/ PVC conduit as required.	RM	6870				
7.2	NDSR	Providing and fixing in position suitable 1.6 mm thick G.I. outlet box with 1 nos RJ - 45 for Data/Voice outlet including crimping on both side with all fixing accessories as required.	Nos.	229				
7.3	NDSR	Providing and fixing in position suitable 1.6 mm thick G.I. outlet box with 2 nos RJ - 45 for Data/Voice outlet including crimping on both side with all fixing accessories as required.	Nos.	5				
7.4	NDSR	S/I/T/C of 24-port loaded, Jack Panel, for UTP Jacks, 1U (For Data) including making connections etc as required.	Each	12				
7.5	NDSR	42 U Networking Rack (800 x1000 mm ) with accessories for data/Voice ( Cisco Make)	Nos	1				
<b>7</b>		<b>TOTAL OF NET WORKING SYSTEM (Rs.)</b>						
		<b>GRAND TOTAL (In Rs.)</b>						

Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha			
SUMMARY OF lift			
Sl. No.	Description	Quoted Amount (In Rs.) In Figures	Amount (In Rs.) In Words
1	Lift Work for All Blocks		
	<b>TOTAL AMOUNT (Rs.)</b>		

Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha								
BoQ FOR LIFT WORKS								
SR. NO.	DSR 2013 Item No./NDSR	PARTICULAR	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In Words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In Words
1	NDSR	Supplying, installation, testing and commissioning of 13 Passenger (884 Kg) Gearless lifts having speed of 1 MPS serving different floors in the lift shaft as per detailed specifications and as under:						
		Controller: AC Variable voltage and variable frequency						
		Operation: Microprocessor based single automatic push button / duplex selective collective/ with/ without attendant						
		Power Supply: 415 Volts + 10%, 3 Phase 4 wire, 50 Hz A.C. supply						
		Type of Door & Frame: a. Car door: power operated center opening horizontal sliding, stainless steel scratch proof (moon rock finish) b. Landing doors: stainless steel scratch proof (moon rock finish)(One hour fire rated) c) Door Frame: Stainless steel Hairline Finish						
		A hand rail not less than 900mm long at 900 mm above floor level to be fixed adjacent to control panel in the lift car						
		Voice announcement system in the car to announce the position of the elevator in the hoist-way as the car passes or stops at a floor served by the elevator						
		Type of Drive A.C. VVVF						
		Signals & Other Features a) Call register indicator at all Floors b) Digital car position indicator in car c) Battery operated alarm bell and d) Emergency light. e) Fireman's switch						
		Over-riding Facility						
		Adjustable guide shoes						
		Music & hands free press & speak intercom						
		Braille Buttons						
		Voice synthesizer						
		Full height car operating panel						
		Lift Well/shaft size: 2500 mm x 1900mm						
		Car Size :As per manufacture Standard and IS.						
		Door Operation: Automatic AC VVVF						
		Car enclosure: Stainless steel Hairline finish. The ceiling panel shall be with 4 down lights (CFL Type) in stainless steel panel, Ceiling cabin fan.						
		Car Floor 25mm thick stone flooring by client						
		Car height : 2700mm Door height : 2100mm Car Entrance : 900mm wide						



SR. NO.	DSR 2013 Item No./NDSR	PARTICULAR	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In Words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In Words
		Machine Room: Gearless Machine M/C Room at Terrace						
		Safeties a)Automatic rescue device complete with dry maintenance free batteries as required b) Overload Safety device. c) Full length infrared curtain (min. 150 criss cross beam) d) Automatic Rescue device with maintenance free batteries						
1.1	NDSR	<b>Admin Block (04 Nos lifts)</b>						
		Floor: G+4(Admin)						
		Travel : 20 Meters (approx.)						
		Stops and Opening :5 Stops & 5 Opening						
		Lift for <b>Admin</b> as per Above description complete as required.	Set	4				
1.2	NDSR	<b>Boys &amp; Girls Hostels (04Nos Lifts)</b>						
		Floor: G+6(Boys & Girls)						
		Travel : 23 Meters (approx.)						
		Stops and Opening :7 Stops & 7 Opening						
		Lift for <b>Boys &amp; Girls Hostels</b> as per Above description complete as required.	Set	4				
		<b>TOTAL COST FOR LIFT WORK (Rs.)</b>						

Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha			
SUMMARY OF HVAC SYSTEM			
Sl. No.	Description	Quoted Amount (In Rs.) In Figures	Amount (In Rs.) In Words
1	HIGH SIDE EQUIPMENT		
2	LOW SIDE EQUIPMENT, PIPING, VALVES +HIGH SIDE PIPING, VALVES ETC.		
	<b>TOTAL AMOUNT (Rs.)</b>		

Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha								
BoQ FOR HEATING VENTILATION & AIR CONDITIONING WORKS								
Sl.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
I		<b>HIGH SIDE EQUIPMENT</b>						
1.	NDSR	<b>Water Chilling Unit</b>						
1.1	NDSR	Providing, fixing, testing and commissioning of water cooled screw chilling unit of following capacity complete with semi hermetic/ hermetically sealed twin screw compressors, multiple refrigerant circuits, shell & tube condenser, microprocessor based control panel, oil separators, pressure relief devices, filter drier moisture indicator, complete operating charge of both CFC Free Refrigerant (R-134 a) & compressor oil, refrigerant controls & piping, including SITC of motorized regulating valve, mounting base frame, foundations, foundation pads shall be vibration free etc. Note:Chiller should meet ASHRAE 90.1-2004 ,ARI 550/590. All chillers shall have IBMS integrator card. Complete as per specifications and drawings. It should be complete as per Direction's of Engineer-In-Charge.						
		<b>Operation parameters</b>						
		Chilled water out : 6.6 Degree C						
		Chilled water in : 12.2 Degree C						
		Condenser water in : 32.2 Degree C						
		Condenser water out : 36.38 Degree C						
		COP : 5.40 (MIN.)						
		IPLV : 6.17 (MIN.)						
		Chiller Fouling .Factor. : 0.0005 FPS						
		Condensor Fouling Factor : 0.001 FPS						
1.1.1	NDSR	<b>Capacity: 180 TR (Actual Cooling capacity) (1WORKING + 1 STANDBY)</b>	Nos.	2				
2.	NDSR	<b>Pump Set</b>						
		Providing, fixing, testing and commissioning split casing type with end suction and top discharge water circulating pump sets complete with EFF-1 TYPE motor & suitable for 415+-10%V,50 cycles, 3 phase power supply, base plate foundation flexible pipe connection, base frame, insulation, cladding etc. as per specifications and drawings. It should be complete as per Direction's of Engineer-In-Charge.						
2.1	NDSR	Primary Chilled water pump, Split casing type, 432 USGPM at 18 mt. head (One Working + One standby).	Nos.	2				
2.2	NDSR	Condenser water pumps, split casing type, 720 USGPM at 22 mt. head (One Working +One standby).	Nos.	2				
3.	NDSR	<b>Secondary Chilled Water Pumps &amp; Variable Speed Pumping System</b>						

SI.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
		Providing, fixing, testing and commissioning of secondary variable speed pumping system consisting of 2 Nos. secondary pumps, 1 No. dedicated microprocessor based pump controller with parallel pumping software duly downloaded, 2 Nos. adjustable frequency drives as necessary and as described in the specifications. It should be complete as per Direction's of Engineer-In-Charge.						
		The entire system alongwith secondary pumps must be sourced from single manufacturer only for unit responsibility.						
		The system shall be complete in all respects and suitable for following rating.						
3.1	NDSR	Secondary chilled water pumps 432 USGPM at 20 mt. head. (One working + One standby)	Nos.	2				
4.	NDSR	<u>Cooling Tower</u>						
		Providing, fixing, testing and commissioning FRP induced draft type cooling tower complete with FRP basin, FRP body, 2 Nos. of 1200 mm dia.fans, two 7.5 HP EFF 1 Type fan motorS suitable for 415 V, 3 Phase, 50 Hz. along with VFD ,distribution pipes, overflow pipe, inspection ladder, M.S.Structure for mounting cooling tower, access arrangement for cooling tower interior, cement concrete foundation, steel/masonry supporting structure, anti vibration mountings, Isolator panel with suitable MCB etc.as per specifications and drawings. It should be complete as per Direction's of Engineer-In-Charge.						
4.1	NDSR	250 TR (1 WORKING+ 1 STANDBY)	Nos.	2				
		<b>Total Amount of Subhead I (Rs.)</b>						
II		<b>LOW SIDE EQUIPMENT, PIPING, VALVES +HIGH SIDE PIPING, VALVES ETC.</b>						
5.	NDSR	<u>Unitary Airhandling Units</u>						

SI.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
		Providing, fixing, testing and commissioning of ceiling suspended /Floor mounted type double skin unitary air handling units with backward curved centrifugal fans, squirrel cage induction EFF1 Type fan motor suitable for 415+10 V, 3 phase, 50 Hz, chilled water cooling coil of copper tube & aluminium fins construction, filters, canvass connection, controls, 2 way control cum balancing PID valve with proportionate thermostat with cabling, foundation with vibration isolation pads,electrical panel board with MCCB/MCB complete along with cabling & earthing as per specifications and drawings. It should be complete as per Direction's of Engineer-In-Charge.						
5.1	NDSR	16,000 cfm, 4 row coil cooling, 50 mm S.P.(Floor Mounted) (In Auditorium)	Nos.	2				
5.2	NDSR	5000 cfm, 30 mm wg S.P (Ceiling Suspended)	Nos.	4				
5.3	NDSR	4000 cfm, 30 mm wg S.P (Ceiling Suspended)	Nos.	3				
5.4	NDSR	3500 cfm, 30 mm wg S.P (Ceiling Suspended)	Nos.	4				
5.5	NDSR	3000 cfm, 30 mm wg S.P (Ceiling Suspended)	Nos.	3				
5.6	NDSR	2500 cfm, 30 mm wg S.P (Ceiling Suspended)	Nos.	3				
5.7	NDSR	2000 cfm, 30 mm wg S.P (Ceiling Suspended)	Nos.	1				
5.8	NDSR	1200 cfm, 30 mm wg S.P (Ceiling Suspended)	Nos.	3				
6.	NDSR	<b>Fan Coil Units</b>						
		Providing, fixing, testing and commissioning of double skin ceiling mounted fan coil unit complete with centrifugal fan, fan motor drive with cooling coil, aluminium /thetic cleanable filters, canvass connection, cooling coil, control panel, including cabling and earthing filters, canvass connections, 2 way control cum balancing (PID) valve modulating type with snap acting thermostat with cabling, ball valve with and without Y strainers, foundation with vibration isolation pads,electrical panel board with MCCB/MCB. complete as per specifications and drawings. It should be complete as per Direction's of Engineer-In-Charge.						
6.1	NDSR	2.0 Tons, 800 cfm	Nos.	2				
6.2	NDSR	1.5 Tons, 600 cfm	Nos.	13				
6.3	NDSR	1.0 Tons, 400 cfm	Nos.	18				
7	NDSR	<b>Axial Flow Fan</b>						

SI.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
		Providing, fixing, testing and commissioning of short cased Axial flow type fan, motor, drives set, with mounting and accessories along with spring isolator, including suitable electrical panel with cabling & earthing etc. complete as per specifications and drawings. It should be complete as per Direction's of Engineer-In-Charge.						
7.1	NDSR	19,000 cfm, 30 mm wg S.P.	No.	2				
7.2	NDSR	6300 cfm, 20 mm wg S.P.	Nos.	4				
7.3	NDSR	5600 cfm, 20 mm wg S.P.	Nos.	4				
8.	NDSR	<b>Ducted Inline Fans</b>						
		Providing, fixing, testing and commissioning of rectangular ceiling mounted inline fans with canvass connection on both inlet and outlet side of exhaust blower with direct driven centrifugal fan, TEFC squirrel cage induction motor, direct drive arrangement, heavy gauge sheet metal casing, rubber isolator mounts and other accessories including electric MCB panel board with 15 RM cabling and earthing complete as per specifications and drawings. It should be complete as per Direction's of Engineer-In-Charge.						
8.1	NDSR	1100 cfm, 20mm S.P.	Nos.	1				
8.2	NDSR	700 cfm, 20 mm S.P.	Nos.	21				
8.3	NDSR	100 cfm, 10 mm S.P.	Nos.	1				
9.		<b>Condenser Water Piping System</b>						
	DSR 2013 16.10	<b>Condenser Water Pipe</b>						
9.1	DSR 2013 16.10.1	Supplying, fixing, testing and commissioning of condenser water pipes of following sizes of MS 'C' class along with necessary clamps, vibration isolators and fittings such as bends, tees etc. but excluding valves, strainers, gauges etc. adequately supported on rigid supports duly painted/buried in ground excavation and refilling etc. as per specification and as required complete in all respect.  Note:- The Pipes size 150mm & below shall be M.S. 'C' class as per IS : 1239 and pipes size above 150mm shall be welded black steel pipe heavy class as per IS: 3589, from minimum 6.35mm thick M.S. Sheet for pipes upto 350 mm dia. And from minimum 7mm thick MS sheet for pipes of 400 mm dia and above. etc. as per specifications and drawings.						

Sl.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
9.1.1	DSR 2013 16.10.1.3	200 mm DIA	Rmt	80				
9.1.2	DSR 2013 16.10.1.4	150 mm DIA	Rmt	20				
9.2	NDSR	Supplying, fixing, testing and commissioning of condenser water pipes of following sizes of MS 'C' class along with necessary clamps, vibration isolators and fittings such as bends,tees etc.but excluding valves, strainers, gauges etc. adequately supported on rigid supports duly painted/buried in ground excavation and refilling etc. as per specification and as required complete in all respect. It should be complete as per Direction's of Engineer-In-Charge.						
9.2.1	NDSR	50 mm DIA (For Drain at Cooling Tower)	Rmt	30				
9.2.2	NDSR	40 mm DIA (for Quick Fill)	Rmt	50				
		<b>Butterfly Valves (Valves without Insulation)</b>						
9.3	DSR 2013 16.11	Supplying, Fixing, Testing & Commissioning of following size valves, gauges & strainers for Condenser water circulation as per specifications.						
	DSR 2013 16.11.1	Butterfly valve (manual) with CI Body SS disc nitrile sheet & O ring & PN 16 pressure rating as specified.						
9.3.1	DSR 2013 16.11.1.1	200 mm DIA	Nos.	12				
9.3.2	DSR 2013 16.11.1.2	150 mm DIA	Nos.	2				
9.3.3	DSR 2013 16.11.1.7	50 mm DIA	Nos.	3				
9.3.4	DSR 2013 16.11.1.8	40 mm DIA	Nos.	2				
9.4	NDSR	<b>Balancing Valve</b>						
		Supplying, fixing, testing & commissioning of balancing valves with built in measuring facility with CI Body flanged construction with EPDM coated disc & PN 16 pressure rating. It should be complete as per Direction's of Engineer-In-Charge.						

SI.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
9.4.1	NDSR	200 mm DIA	Nos.	2				
		<b><u>Non Return Valves</u></b>						
9.5	DSR 2013 16.11	Supplying, Fixing, Testing & Commissioning of following size valves, gauges & strainers for Condenser water circulation as per specifications.						
	DSR 2013 16.11.2	Non return Valve with dual plate of CI body SS plates vulcanized NBR seal flanged end & PN 16 Pressure rating as specified.						
9.5.1	DSR 2013 16.11.2.1	200 mm DIA	Nos.	2				
9.6	NDSR	<b><u>Y- Strainer</u></b>						
		Supplying, fixing, testing & commissioning of Y Strainer of Ductile CI Body flanged ends with stainless steel strainer as per specifications. It should be complete as per Direction's of Engineer-In-Charge.						
9.6.1	NDSR	200 mm DIA	Nos.	2				
9.7	NDSR	Supplying, fixing, testing & commissioning of Water flow switch as per specifications. It should be complete as per Direction's of Engineer-In-Charge.	Nos.	2				
		<b><u>Pressure gauge</u></b>						
9.8	DSR 2013 16.8	Providing and fixing in position the industrial type pressure gauge complete as required.	Nos.	12				
		<b><u>Thermometer</u></b>						
9.9	DSR 2013 16.9	Providing and fixing in position the mercury in glass industrial type thermometer complete as required.	Nos.	4				
9.10	NDSR	<b><u>Flexible Pipe Connection</u></b>						
		Supplying, fixing, testing & commissioning of Flexible Pipe Connections at pump suction & discharge/condensor/cooling tower as per specifications. MOC: Neoprene Rubber It should be complete as per Direction's of Engineer-In-Charge.						
9.10.1	NDSR	200 mm DIA	Nos.	12				
10.		<b><u>Chilled Water Piping System</u></b>						
		<b><u>Insulated Chilled Water Piping (Expanded Polystyrene Insulation)</u></b>						



SI.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
10.1	DSR 2013 16.3	Supplying, laying/ fixing, testing and commissioning of following nominal sizes of chilled water piping plumbing inside the building (with necessary clamps, vibration isolators and fittings but excluding valves, strainers, gauges etc.) duly insulated with fire retardant quality expanded polystyrene moulded pipe section of density 20 kg/cu.m after a thick coat of cold setting adhesive (CPRX compound) wrapping with 500g polythene faced hessain and finally applying 0.63mm aluminium sheet cladding complete with type3 , grade 1 roofing feltstrip(as per IS:1322 as amended up to date ) at joints repairing of damage to building etc. as per specifications and as required complete in all respect. Note : The Pipes of sizes 150mm & below shall be M.S. 'C' class as per IS : 1239 and pipes size above 150mm shall be welded black steel pipe heavy class as per IS: 3589, from minimum 6.35mm thick M.S. Sheet for pipes upto 350 mm dia. and from minimum 7mm thick MS sheet for pipes of 400 mm dia and above. etc. as per specifications and drawings. etc. as per specifications and drawings.						
10.1.1	DSR 2013 16.3.6	150 mm DIA	Rm	20				
10.1.2	DSR 2013 16.3.7	125 mm DIA	Rm	225				
10.1.3	DSR 2013 16.3.8	100 mm DIA	Rm	525				
10.1.4	DSR 2013 16.3.9	80 mm DIA	Rm	220				
10.1.5	DSR 2013 16.3.10	65 mm DIA	Rm	105				
10.1.6	DSR 2013 16.3.11	50 mm DIA	Rm	600				
10.1.7	DSR 2013 16.3.12	40 mm DIA	Rm	245				
10.1.8	DSR 2013 16.3.13	32 mm DIA	Rm	238				

SI.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
10.1.9	DSR 2013 16.3.14	25 mm DIA	Rm	375				
10.2	NDSR	Supplying, laying/ fixing, testing and commissioning of following nominal sizes of chilled water piping plumbing inside the building (with necessary clamps, vibration isolators and fittings but excluding valves, strainers, gauges etc.) duly insulated with fire retardant quality expanded polystyrene moulded pipe section of density 20 kg/cu.m after a thick coat of cold setting adhesive (CPRX compound) wrapping with 500g polythene faced hessain and finally applying 0.63mm aluminium sheet cladding complete with type3 , grade 1 roofing feltstrip(as per IS:1322 as amended up to date ) at joints repairing of damage to building etc. as per specifications and as required complete in all respect. It should be complete as per Direction's of Engineer-In-Charge.						
	NDSR	20 mm DIA	Rm	50				
		<b><u>Butterfly Valves (Insulated Valves)</u></b>						
10.3	DSR 2013 16.7	Supplying, Fixing, Testing & Commissioning of following valves, strainers, gauges in the chilled water plumbing duly insulated to the same specifications as the connected piping and adequately supported as per specifications.						
	DSR 2013 16.7.1	Butterfly valve (manual) with CI body SS Disc, Nitrile Rubber Seal & O ring PN 16 Pressure rating for chilled water / hot water circulation as specified.						
10.3.1	DSR 2013 16.7.1.3	125 mm DIA	Nos	12				
10.3.2	DSR 2013 16.7.1.4	100 mm DIA	Nos	6				
10.3.3	DSR 2013 16.7.1.5	80 mm DIA	Nos	4				
10.3.4	DSR 2013 16.7.1.7	50 mm DIA	Nos	8				
		<b><u>Balancing Valves (Insulated Valves)</u></b>						
10.4	DSR 2013 16.7	Supplying, Fixing, Testing & Commissioning of following valves, strainers, gauges in the chilled water plumbing duly insulated to the same specifications as the connected piping and adequately supported as per specifications.						

SI.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
	DSR 2013 16.7.2	Balancing Valve with Built In Measuring Facility with CI Body Flanged Construction with EPDM Coated disc with long pitch with protected out pipe insulation & PN 16 pressure rating for chilled/ hot water circulation as specified.						
10.4.1	DSR 2013 16.7.2.3	125mm DIA	Nos.	2				
10.4.2	DSR 2013 16.7.2.4	100 mm DIA	Nos.	1				
10.4.3	DSR 2013 16.7.2.5	80 mm DIA	Nos.	2				
10.4.4	DSR 2013 16.7.2.7	50 mm DIA	Nos.	4				
		<b>Non Return Valves (Insulated Valves)</b>						
10.5	DSR 2013- 16.7	Supplying, Fixing, Testing & Commissioning of following valves, strainers, gauges in the chilled water plumbing duly insulated to the same specifications as the connected piping and adequately supported as per specifications.						
	DSR 2013- 16.7.3	Non return valve with duel plate of CI body SS plates vulcanised NBR seal flanged end & PN 16 pressure rating for chilled / hot water circulation including insulation as specified.						
10.5.1	DSR 2013 16.7.3.3	125 mm DIA	Nos.	4				
		<b>Y - Strainer</b>						
10.6	DSR 2013 16.7	Supplying, Fixing, Testing & Commissioning of following valves, strainers, gauges in the chilled water plumbing duly insulated to the same specifications as the connected piping and adequately supported as per specifications.						
	DSR 2013 16.7.4	Y strainer of Ductile CI Body flanged ends with stainless steel strainer for chilled / hot water circulation including insulation as specified.						
10.6.1	DSR 2013 16.7.4.3	125 mm DIA	Nos.	4				
10.6.2	DSR 2013 16.7.4.4	100 mm DIA	Nos.	1				

Sl.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
10.6.3	DSR 2013 16.7.4.5	80 mm DIA	Nos.	2				
10.6.4	DSR 2013 16.7.4.7	50 mm DIA	Nos.	4				
10.7	NDSR	Supplying, fixing, testing & commissioning of Water flow switch as per specifications. It should be complete as per Direction's of Engineer-In-Charge.	Nos.	2				
		<b>Pressure gauge</b>						
10.8	DSR 2013 16.8	Providing and fixing in position the industrial type pressure gauge complete as required.	Nos.	20				
10.9		<b>Thermometers</b>						
	DSR 2013 16.9	Providing and fixing in position the mercury in glass industrial type thermometer complete as required.	Nos.	8				
10.1	NDSR	Providing and fixing Auto Airvent Switch as required.	Nos.	2				
10.11	NDSR	<b><u>Flexible Pipe Connection</u></b>						
		Supplying, fixing, testing & commissioning of Flexible Pipe Connections at pump suction & discharge/chiller as per specifications. MOC: Neoprine Rubber It should be complete as per Direction's of Engineer-In-Charge.						
10.11.1	NDSR	125 mm DIA	Nos.	12				
10.12	NDSR	<b><u>Expansion Tank</u></b>						
		Supply, Installation, Testing, & Commissioning of MS Closed Expansion tank fabricated from 3 mm MS sheet Insulated with EPDM ( Ethylene propylene diene monomer) BUTYL membrane for chilled /hot water application ( pressurized) complete with piping connections, 2 set of pumps (1W + 1S) , safety relief valve, drain valve, pressure gauge, painting etc. as required and as specified. It should be complete as per Direction's of Engineer-In-Charge.						
10.12.1	NDSR	1000 litres.(1000mm x1000mm x 1000mm)	No.	1				
11.	NDSR	<b><u>Air Seperator</u></b>						

SI.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
		Supply, Installation, Testing, & Commissioning of centrifugal type sediment Air separator with strainer, auto air purging arrangement complete duly insulated as required and as per specifications. It should be complete as per Direction's of Engineer-In-Charge.						
11.1	NDSR	125 mm dia (working pressure :3.5 bar)	No.	1				
12.		<b>Drain Piping</b>						
	NDSR	Providing, fixing, testing and commissioning of Class "B" G.I drain piping complete with fittings, including Expanded Polystyrene (thermocole) Insulation of 20 kg/cum density & 28 G Aluminium Cladding, P-Trap as per specification and drawings. Pipe Dia. Thickness of insulation <b>10-40 mm 25mm</b> <b>50-100 mm 50mm</b> It should be complete as per Direction's of Engineer-In-Charge.						
12.1	NDSR	50 mm DIA	Rm	120				
12.2	NDSR	40 mm DIA	Rm	210				
12.3	NDSR	32 mm DIA	Rm	215				
12.4	NDSR	25 mm DIA	Rm	285				
		<b>Ducting</b>						
13.	DSR 2013 16.12.1	Supply, installation, balancing and commissioning of factory fabricated GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required.						
13.1.1	DSR 2013 16.12.1.1	Thickness 0.63 mm sheet	Sqm	1556				
13.1.2	DSR 2013 16.12.1.2	Thickness 0.80 mm sheet	Sqm	351				

SI.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
13.1.3	DSR 2013 16.12.1.3	Thickness 1.00 mm sheet	Sqm	118				
13.1.4	DSR 2013 16.12.1.4	Thickness 1.25 mm sheet	Sqm	169				
		<u>Insulation</u>						
14.	DSR 2013 16.23	Supplying and fixing of following thickness duly laminated aluminum foil of mat finish closed cell Nitrile rubber (class "O") insulation on duct after applying two coats of cold setting adhesive (CPRX compound). The joints shall sealed with 50 mm wide and 3 mm thick self adhesive nitrile rubber tape insulation complete as per specifications and as required.						
14.1	DSR 2013 16.23.1	19 mm thick	Sqm	1406				
14.2	DSR 2013 16.23.2	25 mm thick	Sqm	649				
		<u>Duct Acoustic Lining</u>						
15.	DSR 2013 16.21	Supply and fixing of acoustic lining of supply air duct and plenum with 25 mm thick resin bonded glass wool having density of 32 kg/m <sup>3</sup> , with 25 mm X 25 mm GI section of 1.25 mm thick, at 600 mm centre to centre covered with Reinforced Plastic tissue paper and 0.5 mm thick perforated aluminum sheet fixed to inside surface of ducts with cadmium plated nuts, bolts, stick pins, CPRX compound etc. complete as required and as per specifications.	Sqm	1241				
		<u>AHU Room Acoustic Lining</u>						
16	DSR 2013 16.22	Supplying, fixing acoustic lining on wall and ceiling of AHU rooms with 50mm thick, density 32 kg/cu.m resin bonded glass fiber insulation friction fixed in 610mm x 610 mm frame work made of 25X50X50X50X25 mm made out of 0.6mm thick GI sheet U shaped channel and covered with reinforced fiber glass tissue and finished with 0.80 mm perforated aluminium sheet etc. complete as per specifications and drawings.	Sqm	275				
		<u>Expanded Polystyrene Insulation</u>						

Sl.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
17	DSR 2013 16.25	Supplying and fixing 50mm thick aluminium foil faced resin bonded fibre glass insulation (on duct) of density 24 kg/cu.m after applying two coats of cold setting adhesive (CPRX compound) sealing all joints with self adhesive aluminium tape & covering with 0.63mmx19mm GI wire mesh netting & butting all joints and laced with GI wire complete and finally covered with one layer of tar felt stuck with hot bitumen as per specifications and as required. (for outdoor applications).	Sqm	50				
18		<u>Grilles/Diffusers</u>						
18.1	DSR 2013 16.17	Supplying, fixing testing commissioning of supply air diffusers of powder coated aluminium with aluminium volume control dampers with anti smudge ring & removable core.	Sqm	30.56				
18.2	DSR 2013 16.18	Supplying, fixing testing commissioning of Return air diffusers of powder coated aluminium without volume control dampers with anti smudge ring & removable core.	Sqm	37.1				
18.3	DSR 2013 16.15	Supplying & fixing of powder coated extruded aluminium Supply Air Grills with aluminium volume control dampers as per specifications.	Sqm	6.9				
18.4	DSR 2013 16.16	Supplying & fixing of powder coated extruded aluminium Return Air Grills with louvers but without volume control dampers complete as required.	Sqm	7.8				
19	NDSR	<u>Fresh/Exhaust Air Damper</u>						
19.1	NDSR	Supplying & fixing of Fresh/Exhaust air damper with louvers, bird screen and damper. It should be complete as per Direction's of Engineer-In-Charge.	Sqm	8				
20		<u>Volume Control Damper</u>						
20.1	DSR 2013 16.13	Supply, installation, testing and commissioning of GI volume control duct damper complete with neoprene rubber gaskets, nuts, bolts, screws linkages, flanges per specifications.	Sqm	8				
		<u>Fire Damper</u>						

SI.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
21	DSR 2013 16.20	Supplying, Fixing,testing and commissioning of fire dampers in supply air duct/main branch and return air path as and where required of required sizes i/c control wiring,the damper shall be motorized and spring return so as to close the damper in the event of power failure automatically and open the same in case of power being restored. The spring return action shall be inbuilt mechanism and not externally mounted. The damper shall also be closed in the event of fire signal complete as required and as per specifications.						
21.1	DSR 2013 16.20.1	Fire damper	Sqm	7.2				
21.2	DSR 2013 16.20.2	Actuator	Each	14				
22	NDSR	<b>Electrical Panel Board (Airconditioning)</b>						
22.1	NDSR	<b>(Admin / Academic)</b>						
		Providing and fixing of main panel board cubical compartmentalised, floor mounted made of 2.0 mm thick steel sheet duly painted complete with voltmeter, ammeter, indicating lights for selector switch, incoming/ outgoing feeders CTS contactors for remote control operation, complete as per specifications and required.						
		1 No. 630 Amps 415 volts ,4 pole incoming MCCB with Microprocessor release (50 KA) shall be ICS = 100% ICU rating.						
		1 set 630 Amps triple pole and neutral Aluminium conductor bus bars duly sleeved.						
		2 Nos. 400 Amps MCCB (50KA) outgoing for chilling units of 180 Tons (each).						
		2 Nos. 32 Amps MCB thermal magnetic relaease with neutral link outgoing along with 2 Nos Star Delta Starter for 9.3 kw motor of chilled water pump.						
		2 Nos. 63 Amps MCCB thermal magnetic relaease with neutral link outgoing alongwith 2 Nos Star Delta Starter for 18.5 kw motor of Condenser water pump.						
		2 Nos. 63 Amps MCCB thermal magnetic relaease with neutral link outgoing for 9.3 kw motor of Secondory Chilled water pump.(SPACE FOR VFD)						



SI.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
	NDSR	2 Nos. 32 Amps MCB thermal magnetic release with neutral link outgoing for 7.5 kw motor of Cooling Tower (250 Tons each) (SPACE FOR VFD)	Set	1				
22.2	NDSR	<u>(Auditorium &amp; Entrance Foyer)</u>						
		Providing and fixing of main panel board cubical compartmentalised, wall mounted made of 2.0 mm thick steel sheet duly painted complete with voltmeter, ammeter, indicating lights for selector switch, incoming/outgoing feeders CTS contactors for complete as per specifications and required. It should be complete as per Direction's of Engineer-In-Charge.						
		1 No. 63 Amps incoming MCCB with Microprocessor release (50 KA) shall be ICS=100% ICU rating..						
		1 set 63 Amps triple pole and neutral Aluminium conductor bus bars duly sleeved.						
	NDSR	1 No. 63 Amps TPN MCCB 36 KA thermal magnetic release with neutral link outgoing with thermal release type along with 1 No. star delta starter for 11.0 kw motor of (Total 2 Nos. 16000 cfm AHU for Auditorium).	Set	2				
22.3	NDSR	<u>(EAP - 2 For Smoke Exhaust of Auditorium)</u>						
		Providing and fixing of main panel board cubical compartmentalised, wall mounted made of 2.0 mm thick steel sheet duly painted complete with voltmeter, ammeter, indicating lights for selector switch, incoming/outgoing feeders CTS contactors for complete as per specifications and required. It should be complete as per Direction's of Engineer-In-Charge.						
		1 No. 100 Amps incoming MCCB.						
		1 Set 125 Amps triple pole and neutral aluminium conductor bus bars duly sleeved.						
	NDSR	2 Nos. 63 Amps TPN MCCB thermal release type outgoing along with 2 Nos. Star Delta starter for 11.0 kw motor of (2 Nos. 19000 cfm axial flow fan for Auditorium Exhaust).	Set	1				
23	NDSR	<u>Power Cabling</u>						

SI.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
		Providing and fixing PVC sheathed Aluminium / Copper cables with for various equipments through walls/ceiling/cable tray with appropriate clamps & fixing arrangements including M.S. perforated cable tray as per specifications and drawings and as required. It should be complete as per Direction's of Engineer-In-Charge.						
23.1	NDSR	3.5 C - 180 sqmm (Aluminium)	Rmt	80				
23.2	NDSR	3 C - 6 sqmm (Copper)	Rmt	90				
23.3	NDSR	3 C - 4 sqmm (Copper)	Rmt	210				
		<b>Earthing</b>						
24.	DSR 2013 -5.16	Providing & fixing 6 SWG Dia. G.I Wire on Surface or In Recess for Loop earthing as Required.	Rmt	1200				
24		<b>Split Unit Airconditioners</b>						
24.1	NDSR	<b>Hi Wall Split Unit (DX Type)</b>						
		Providing, fixing, testing and commissioning of high wall mounted split unit airconditioners (BEE 5 star rating) with evaporator, fan, motor, cooling coil, filter, all enclosed in decorative plastic casing, condenser with hermetically sealed rotary/Scroll compressor, condenser coil, propeller fan with motor, inter connecting refrigerant piping, wiring, earthing, cordless remote control, M.S. frame for mounting condensing unit. (with 20 m refrigerant piping,UPVC draing piping with 6 mm thick XLPE insulation with cabling & earthing). It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
24.1.1	NDSR	1.5 TR	Nos.	11				
24.2	NDSR	<b>Hi Wall Split Unit (DX Type)</b>						

SI.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
		Providing, fixing, testing and commissioning of high wall mounted split unit airconditioners (BEE 4 star rating) with evaporator, fan, motor, cooling coil, filter, all enclosed in decorative plastic casing, condenser with hermetically sealed rotary/Scroll compressor, condenser coil, propeller fan with motor, inter connecting refrigerant piping, wiring, earthing, cordless remote control, M.S. frame for mounting condensing unit. (with 20 m refrigerant piping with cabling & earthing). It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
24.2.1	NDSR	2 TR	Nos.	21				
25		<b><u>Propeller Fans for Kitchen / Toilet Exhaust Ventillation</u></b>						
25.1	NDSR	Supply of Propeller Type Free Discharge Exhaust Fans complete with motor, fan, exhaust louvers. It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
25.1.1	NDSR	225 mm Dia.	Nos.	14				
25.1.2	NDSR	300 mm Dia.	Nos.	2				
25.1.3	NDSR	450 mm Dia.	Nos.	1				
25.2	DSR 2013-1.50	Installation of exhaust fan in the existing opening, including making good the damage, connection, testing, commissioning etc. as required.						
	DSR 2013-1.50.1	Upto 450mm sweep	Each	17				
26		<b><u>Cable Tray</u></b>						
26.1	DSR 2013-4.1	Supplying and installing following size of perforated pre-painted M.S. cable trays with perforation not more than 17.5%, inconvenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting						
26.1.1	DSR 2013-4.1.7	600 mm width X 50 mm depth X 2.0 mm thickness Metre 1338	Rmt	200				
26.1.2	DSR 2013-4.1.2	150 mm width X 50 mm depth X 1.6 mm thickness Metre 523	Rmt	200				

SI.No.	DSR 2013 Item No./NDSR	Description	Unit	Qty.	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Amount (In Rs.) In Figures	Amount (In Rs.) In Words
27	NDSR	<b>Heat Recovery Wheel</b> Providing, fixing, testing and commissioning of Heat reclaim Ventilation unit with inlet and exhaust blower with fan (Inlet & Exhaust) desiccant absorption material non contact seal, modular design with aluminium supports of extruded section, galvanized steel plate casing, self extinguishable polyurethane foam insulation, multi-directional fibrous fleeces air filters with electrical control panel with cabling & earthing, complete as per specifications and drawings. It should be complete as per directions of Engineer-In-Charge.						
		2720 CMH (1600 CFM) ( 1 NO EACH FOR AUDITORIUM AHU )	Nos.	2				
		<b>Total Amount of Subhead II (Rs.)</b>						
		<b>GRAND TOTAL (In Rs.)</b>						

<b>Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha</b>
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<b>SUMMARY FOR FIRE FIGHTING WORKS</b>
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SL.NO.	DESCRIPTION	AMOUNT (RS.) (IN FIGURES)	AMOUNT (RS.) (IN WORDS)
I.	Fire Hydrant Works		
II.	Piping For Fire Fighting System		
III.	SPRINKLER SYSTEM		
IV.	FIRE EXTINGUISHER		
V.	Electrical Works - Fire		
	<b>Total Amount (Rs.)</b>		

Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha								
BoQ FOR FIRE FIGHTING WORKS								
SL. NO.	DSR-2013 ITEM NO./NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.) (In Figures)	RATE (RS.) (In Words)	AMOUNT (Rs.) (In Figures)	AMOUNT (Rs.) (In Words)
SUBHEAD-I(A): FIRE HYDRANT WORKS (NON SCHEDULED ITEMS)								
1.1	NDSR	<b>FIRE PUMPS - ELECTRICAL</b>						
		Supply, installation, testing and commissioning of vertical single stage/multi stage centrifugal type fire pumps suitable for automatic operation at synchronous speed of 2900 rpm, TEFC conforming to IP-55 & flexible coupling guard mounted on a common structural base plate with 150mm dia gun metal pressure gauges with isolation cock and piping, suitable vibration elimination pads of approved design for pump foundation, motor to be suitable for 415 volts, 3 phase 50 cycles AC. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
1.1.1	NDSR	Capacity 2280 LPM at 70 m head for Fire Hydrant & Sprinkler Network.	Set	1				
1.1.2	NDSR	Capacity 180 LPM at 70m head (Jockey Pump).	Set	1				
1.2	NDSR	<b>FIRE PUMPS - DIESEL</b>						
		Supply, installation, testing and commissioning of vertical single stage/multi stage centrifugal fire pumping set with CI volute and bronze impeller with mechanical seals directly coupled to automatic Diesel Engine complete with all accessories like self starting by means of Battery powered electric starter motor, Paper Filter type air cleaner, exhaust silencer etc. complete in all respects. The engine & the pump will be mounted on common base plate on anti-vibration mountings. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
1.2.1	NDSR	Capacity 2280 LPM, 70 m head for Fire Hydrant & Sprinkler Network.	Set	1				

SL. NO.	DSR-2013 ITEM NO./ NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
1.3	NDSR	<b>Oil Tank</b>						
		Supplying, fixing and commissioning 500 ltrs. capacity including first fill of 500 ltrs high speed diesel oil in 16 SWG MS steel oil tank with manhole cover, glass gauge, inlet and outlet connections with gate valves, drain plug, GI piping between tank and engine vent pipe with wire mesh etc. duly painted and mounted on suitable MS angle staging to maintain gravity flow of oil. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Set	1				
1.4	NDSR	<b>Exhaust piping</b>						
		Providing & fixing 150 mm diameter M.S. Class 'C' diesel pump exhaust pipe including all fittings, like bends, tees etc. clamps / structural steel supports. The pipe shall be provided with 75mm thick fiberglass insulation & covering the insulation with 500 g polythene sheet giving proper overlaps & sealing the joints with suitable adhesive compound. The pipe shall be provided with 24 gauge aluminium sheet cladding. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Rmt	10				
1.5	NDSR	<b>Pressure Switch</b>						
1.5.1	NDSR	Supplying, installing, testing and commissioning 0 to 12 Kg/ cm2 ON/OFF pressure switch in delivery line of pump along with control wiring for auto starting and auto stopping of hydrant / sprinkler and jockey pumps. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Nos.	3				
1.6	NDSR	<b>Pressure Vessel</b> Supply, fabrication (as per code), installation, testing and commissioning of Pressure vessels 450mm diameter and 1000mm high fabricated from 8-10mm M.S. plate with accessories inside painting with epoxy paint and outside with enamel paint. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Nos.	1				

SL. NO.	DSR-2013 ITEM NO./ NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
1.7	NDSR	Providing, fixing, testing & commissioning of resilient rubber lined single arch vibration eliminators suitable for raw water up to 45 deg. C temperature, working pressure 7 Kg/cm <sup>2</sup> and test pressure 14 Kg/cm <sup>2</sup> . It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
1.7.1	NDSR	200 mm dia.	Nos.	2				
1.7.2	NDSR	150 mm dia	Nos.	11				
1.7.3	NDSR	100 mm dia	Nos.	7				
1.8	NDSR	Providing and fixing <b>single headed gun metal landing valve</b> (hydrant) with 63 mm female instantaneous outlet connections, with blank caps and chains complete with suitable orifice plate assembly, conforming to IS:903..It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Nos.	98				
1.9	NDSR	Providing and fixing impact, abrasion and weathering resistant <b>rubberised fabric lined (RRL) hose pipe</b> conforming to IS : 636-1979 (Type -A) of 63 mm dia and 15 m length with gunmetal instantaneous male and female couplings conforming to IS: 903-1975. .It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Nos.	146				
1.10	NDSR	Providing and fixing Controlled Percolating (CP) Hose ISI marked (IS:8423) 63 mm dia x 15 m long complete with instantaneous type gunmetal / SS, 63 mm dia, ISI marked Male & Female couplings (IS:903) bound and rivetted to hose pipe with copper rivets and 1.5 mm copper wire. .It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Nos.	50				



SL. NO.	DSR-2013 ITEM NO./NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
1.11	NDSR	Providing and fixing dial type pressure gauge including making connection with ball valve at each hydrant station, complete in all respects. Dial dia 100 mm, calibration 0-14 kg/sq cm. Valve shall be paid separately. .It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
1.11.1	NDSR	a) 20 mm dia nominal bore	Nos.	87				
1.12	NDSR	Providing and fixing swinging type <b>first aid fire hose reel</b> comprising 20 mm dia 36 m long reinforced rubber tubing conforming to IS :444 Type II / thermoplastic reinforced hose reel tubing conforming to IS :12585 Type II, MS drum with fixing bracket conforming to IS:884 and with 5 mm dia gun metal shut off nozzle conforming to IS:8090. .It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Nos.	83				
1.13	NDSR	Providing and fixing <b>gunmetal branch pipe</b> nozzle conforming to IS : 903, suitable for instantaneous connections to hose coupling etc. as required. .It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Nos.	98				
1.14	NDSR	Providing and fixing standard Fireman's Axe with heavy insulated rubber handle. .It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Nos.	73				
1.15	NDSR	Providing and fixing M.S. fire hose shaft door with frame fabricated from angle iron frame 40 x 40 x 6 mm thick, angle iron shutter 25 x 25 x 4 mm thick, 16 g M.S. sheet of fully welded construction with hinged double front door with locking arrangement and butt hinges, 15 x 3 mm lugs 10 cm long (6 Nos) embedded in cement conc. blocks ( 1: 3: 6 mix) or with rawl plug and screws/bolts and nuts as required, partly glass door 4 mm thick approved by local fire aauthority, painted with one coat of primer, stove enamelled fire red finished, "Fire Hose" written on front, suitable to accommodate 2 Nos single headed Hydrant landing valve, 1 fire hose reel, 2 nos.15m long 63mmdia hose,1-branch pipe, 1 fire-man's axe, including suitably mounted on a raised masonry platform as required. (Approx.size 0.9m x 2.1m). .It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Nos.	73				

SL. NO.	DSR-2013 ITEM NO./NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
1.16	NDSR	Providing and fixing Weather proof hose cabinets fabricated from 18 g M.S. Sheet with full glass door and locking arrangement, suitable to accommodate one Hydrant landing valve, 2 nos. 15 M long hose and 1 No branch pipe. The cabinet shall be painted with one coat of primer and finished stove enamelled "Fire Red", "Fire Hose" written on front including suitably mounted on a raised masonry platform as required.(Approx 0.75m x 0.6 m x 0.3 m).	Nos.	35				
1.17	NDSR	Providing and fixing Air cushion tank 250 mm dia. x 1.0 M high with dished top, made of minimum 6 mm thick M.S. pipe/plate complete with 25 mm dia. Brass Air Valve (Ball valve, pressure guage type), 25 mm dia. Stop with brass stop cock,nipple, tees, elbow and all accessories as required incl. fixing brackets. On Hydrant and Sprinkler Risers	Nos.	20				
1.18	NDSR	Providing and fixing Gun-Metal Fire Brigade connection (Suction collecting head) consisting of 63 mm dia instantaneous type male coupling with built-in check valves and 150 mm dia.flanged outlet complete with bolts, nuts and rubber insertions as required as per IS:903-1983. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
1.18.1	NDSR	Two Way	Nos.	3				
1.18.2	NDSR	Three Way	Nos.	17				
1.18.3	NDSR	Four Way	Nos.	1				
1.19	NDSR	Providing, installing, testing & commisioning of fire brigade draw out connection (fire department connection) with suction pipe MS class 'C' 100 mm dia. & 100 mm dia. foot valve & steel chain including wall mounted box M.S. construction with glass door to house the above mentioned componenets. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Set	1				
1.20	NDSR	SUPPLY, INSTALLATION, TESTING. & COMMISSIONING OF:						

SL. NO.	DSR-2013 ITEM NO./NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
		Electrical Motor Driven Fire Pumping set suitable for automatic operation consisting of the following as per the specifications. .It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
		a) Horizontally mounted, centrifugal type single/ multi stage fire pump having cast iron body, bronze impeller, stainless steel shaft & capable of delivering 450 LPM against a total head of 35 M, pressure gauge with GM cocks on the delivery side including bypass arrangement (with 50 valve and upto 5M G.I. Medium pipes) for periodical testing of the working of the testing of the working of the pumping set as per TAC rules.						
		b) Squirrel cage induction motor totally enclosed fan cooled type suitable for 415 Volts +_ 15%, 3 phase, 50 HZ A.C. supply 1450 / 2900 RPM of suitable capacity including electric power control panel with all accessories for auto operation of pump e.g., single phase preventor, rotary switch, ampere meter, volt meter , starter of suitable capacity, pressure switches to start the pump at predetermined pressure, necessary power cable from panel to motor (approx. 7.5 HP or as required) for the above pump coupled with flexible coupling including earthing as per relevant Indian Standard & specifications.						
		c) Common bed plate for mounting Pump and Motor fabricated of Motor fabricated of suitable M.S.Channel as per manufacturer's recommendations.						
		d) Suitable R.C.C Pump-Foundations as per manufacturer's design and 4 nos. Dunlop (cushy foot) heavy duty Antivibration mounting pads. ( for hose reel or down comer on terrace).	Set	3				
1.21	NDSR	SUPPLY, INSTALLATION, TESTING. & COMMISSIONING OF:						
		Electrical Motor Driven Fire Pumping set suitable for automatic operation consisting of the following as per the specifications. .It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						

SL. NO.	DSR-2013 ITEM NO./ NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
		a) Horizontally mounted, centrifugal type single/ multi stage fire pump having cast iron body, bronze impeller, stainless steel shaft & capable of delivering 900 LPM against a total head of 35 M, pressure gauge with GM cocks on the delivery side including bypass arrangement (with 50 valve and upto 5M G.I. Medium pipes) for periodical testing of the working of the testing of the working of the pumping set as per TAC rules.						
		b) Squirrel cage induction motor totally enclosed fan cooled type suitable for 415 Volts +_ 15%, 3 phase, 50 HZ A.C. supply 1450 / 2900 RPM of suitable capacity including electric power control panel with all accessories for auto operation of pump e.g., single phase preventor, rotary switch, ampere meter, volt meter, starter of suitable capacity, pressure switches to start the pump at predetermined pressure, necessary power cable from panel to motor (approx. 12.5 HP or as required) for the above pump coupled with flexible coupling including earthing as per relevant Indian Standard & specifications.						
		c) Common bed plate for mounting Pump and Motor fabricated of Motor fabricated of suitable M.S.Channel as per manufacturer's recommendations.						
		d) Suitable R.C.C Pump-Foundations as per manufacturer's design and 4 nos. Dunlop (cushy foot) heavy duty Antivibration mounting pads. ( for down comer on terrace).	Set	4				
1.22	NDSR	SUPPLY, INSTALLATION, TESTING & COMMISSIONING of Mild Steel pipe (IS:1239/3589 Part-I) heavy class (6mm wall thickness) including cutting, threading, welding etc. bends, elbows reducers, unions, flanges, rubber gasket clamps, G.I. nuts bolts washer, hangers etc., including supporting / fixing the pipe on wall / floor / ceiling using anchor fasteners, G.I. pipe sleeves of higher dia shall be provided wherever the pipes are crossing the wall or floors and sealing the sleeve with glass wool and fire sealant, cutting holes in brick or RCC walls/slabs and making good the same complete including painting with one coat of primer and two or more coats of synthetic enamel paint of approved make and shade including all steel work for <b>Pipe for Suction and Delivery headers</b> . It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
1.22.1	NDSR	300 mm dia	RMT	6				

SL. NO.	DSR-2013 ITEM NO./ NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
1.22.2	NDSR	250 mm dia	RMT	10				
1.22.3	NDSR	200 mm dia	RMT	10				
1.22.4	NDSR	150 mm dia	RMT	15				
1.22.5	NDSR	100 mm dia	RMT	5				
1.22.6	NDSR	f) 80 mm dia	RMT	2				
		<b>TOTAL C/F TO SUMMARY (Rs.)</b>						
<b>SUBHEAD-II(A):PIPING FOR FIRE FIGHTING (Hydrant+Sprinkler) SYSTEM (NON SCHEDULED ITEMS)</b>								
2.1	NDSR	SUPPLY, INSTALLATION, TESTING & COMMISSIONING Mild Steel black pipe (IS: 1239 Part-1) heavy class including cutting, screwing, welding etc. complete with fitting viz. tees elbow, bends, flanges, reducers. etc including excavation (upto 1.5M deep). Rubble soling, sand filling upto 3 " above the pipe, back-filling with excavated earth, removal of surplus soil and providing anti-corrosive treatment (coating and wrapping) with 4 mm thick tape and holiday test check as per IS: 10221complete as required. <b>Pipes in External Works.</b> <b>Note :Pipes upto and 50 mm dia shall be standard threaded forged steel fittings joints, above 50mm shall be standard M.S. fittings with welded joints.</b>						
2.1.1	NDSR	200 mm dia	RMT	330				
2.1.2	NDSR	150 mm dia	RMT	490				

SL. NO.	DSR-2013 ITEM NO./ NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
2.1.3	NDSR	100 mm dia	RMT	20				
2.1.4	NDSR	80 mm dia	RMT	30				
2.2	NDSR	Supply Installation and testing cast iron wafer type <b>Butterfly valves</b> Class (PN 16) SS 304 Disc, Nitrile rubber lining (lever operated upto 150 mm and gear operated for 200mm and more) complete with 2 Nos matching flanges rubber insertion, nuts, bolts and washer etc. of following sizes. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
2.2.1	NDSR	250 mm nominal bore	Nos.	1				
2.2.2	NDSR	200 mm nominal bore	Nos.	5				
2.2.3	NDSR	150 mm nominal bore	Nos.	35				
2.2.4	NDSR	100 mm nominal bore	Nos.	13				
2.2.5	NDSR	80 mm nominal bore	Nos.	10				
2.2.6	NDSR	65 mm nominal bore	Nos.	3				
2.2.7	NDSR	50 mm nominal bore	Nos.	9				

SL. NO.	DSR-2013 ITEM NO./NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
2.3	NDSR	Supply Installation and testing C.I. Dual plate <b>wafer check valve</b> , spring loaded class (PN 16), ductile iron disc, 416 SS stem, EPDM lining, S.Steel spring complete with 2 Nos. matching flanges, rubber insertion, nuts, bolts and washer etc. of following sizes. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
2.3.1	NDSR	150 mm nominal bore	Nos.	29				
2.3.2	NDSR	100 mm nominal bore	Nos.	10				
2.3.3	NDSR	65 mm nominal bore	Nos.	3				
2.4	NDSR	Providing and fixing C.I. "Y" suction strainer with SS 304 stainless steel perforated sheet screen having 1.2 mm perforation, flanged ends, body test pressure 500 Psig, installed outside water tanks.						
2.4.1	NDSR	Size 250mm	Nos.	1				
2.4.2	NDSR	Size 150mm	Nos.	6				
2.4.3	NDSR	Size 100mm	Nos.	3				
2.5	NDSR	<b>HYDRANT &amp; SPRINKLER SYSTEM (DOWNCOMER SYSTEM &amp; WET RISER SYSTEM)</b>						

SL. NO.	DSR-2013 ITEM NO./NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
	NDSR	Providing, fixing, jointing and testing heavy quality (Class C) M.S. pipe conforming to IS:1239(Part I)-1990 for pipes upto 150 mm dia. including weldable ( 65 mm dia and above) and threaded forged fittings ( 50 mm dia and below) i.e. tees, bends, elbows, unions, reducers, draining arrangement, flange joints, rubber insertion, nuts & bolts etc. as required including fixing of pipework on walls, slabs etc. with M. S. supports, adjustable hangers, including painting with two coats of enamel paint of fire red shade over a coat of primer (Internal work). <b>Note:</b> Joints for pipes and fittings upto 50 mm diameter shall be threaded joints using Teflon Tape or equivalent bonding tape on the threads. Joints for pipe and fittings above 50 mm diameter shall be welded joints. <b>(Internal works).</b>						
		<b>Note:</b>						
		Threaded joint upto 50mm diameter pipe.						
		Welded joint above 50mm diameter pipe.						
2.5.1	NDSR	150 mm nominal bore	RMT	880.00				
2.5.3	NDSR	100 mm nominal bore	RMT	410.00				
2.5.4	NDSR	80 mm nominal bore	RMT	140.00				
2.5.5	NDSR	65 mm nominal bore	RMT	385.00				
2.5.6	NDSR	50 mm nominal bore	RMT	1,350.00				
2.5.7	NDSR	40 mm nominal bore	RMT	1,155.00				



SL. NO.	DSR-2013 ITEM NO./NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
2.5.8	NDSR	32 mm nominal bore	RMT	1,545.00				
2.5.9	NDSR	25 mm nominal bore	RMT	3,755.00				
2.6		Providing and fixing Gun Metal Ball valve with SS 304 ball, SS stem, renewable PTFE seat, teflon gland packing, stanmdard bore, lever operated, screwed female threads, body and seat test pressure 500 Psig. Complete in all respects.						
2.6.1	NDSR	20 mm dia nominal bore	Nos.	5				
2.6.2	NDSR	25 mm dia nominal bore	Nos.	94				
		<b>TOTAL C/F TO SUMMARY (Rs.)</b>						
<b>SUBHEAD-III(A): SPRINKLER SYSTEM (NON SCHEDULED ITEMS)</b>								
3.1	NDSR	Providing & Fixing 150 mm dia. Installation Control Valve assembly comprising of vertical wet alarm valve, including 150 mm dia butterfly valve, hydraulic alarm motor & gong, 15 mm dia. Test valve, 50 mm dia. Drain valve and all necessary trimming connections including 2 nos. pressure gauges as per manufacturer's catalogue (UL/FM/LPC/TAC listed/approved). It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Set	2				
3.2	NDSR	Electrically Operated Flow Indicating Switches ( vane type) including tamper switch and accessories, with potential free contact with 2 Nos. NONC. Complete. For 150/100/80 mm line. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Set	6				

SL. NO.	DSR-2013 ITEM NO./ NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
3.3	NDSR	Providing and fixing 25 mm dia inspecting & testing assembly with gunmetal valve, gunmetal sight glass, bypass valve & connected to drain line. .It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Nos.	6				
3.4	NDSR	Providing, fixing, testing and commissioning of quick response 15 mm dia. gunmetal quartz bulb type sprinkler head to operate at 68 degree centigrade . (UL/FM/LPC listed /approved) .It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
3.4.1	NDSR	Standard Response Pendant type in brass/chrome finish.	Nos.	650				
3.4.2	NDSR	Standard Response Upright type in brass/chrome finish.	Nos.	625				
		<b>TOTAL C/F TO SUMMARY (Rs.)</b>						
<b>SUBHEAD-IV (A): FIRE EXTINGUISHER (NON SCHEDULED ITEMS)</b>								
4.1	NDSR	Providing, storing, handling, shifting, installation, testing and commissioning of halon free portable fire Extinguishers as described below: .It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
		ISI marked (IS:15683) Portable fire Extinguisher, Carbon-dioxide type flat base including valve, discharge hose of not less than 10 mm dia. 1m long & complete in all respects including initial fill with CO2 gas confirming to IS:307-1966 filled to a filling ratio of not more than 0.667of not more than 0.667and wall suspension bracket.						
4.1.1	NDSR	a) Capacity 4.5 Kg	Nos.	24				
		ABC dry powder conforming to IS:15683, stored pressure type fire extinguishers (Mono ammonium phosphate confirming to IS 14609) minimum 85% effective discharge, finished externally with red enamel paint and fixed to wall with brackets, complete, with internal charge.						

SL. NO.	DSR-2013 ITEM NO./ NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
4.1.2	NDSR	Capacity : 5 kg (Min Jet length 4.0 m)	Nos.	89				
4.1.3	NDSR	ISI: 15683 marked Water stored pressure type fire extinguisher capacity 9 ltrs. with gun-metal cap and nozzle and complete in all respects including initial fill and wall suspension bracket. Capacity 9 ltrs.	Nos.	89				
		ISI marked (IS:15683) upright Dry Powder fire extinguisher, flat base including valve, discharge hose of not less than 12 mm dia. 550 mm long & complete in all respects including initial fill with CO2 gas cartridge confirming to IS:4947 filled to a filling ratio of not more than .85 minimum range of throw 4 mtrs. and wall suspension bracket.						
4.1.4	NDSR	a) Capacity 5 Kg	Nos.	8				
4.1.5	NDSR	ISI marked (IS:15683) Portable Fire Extinguisher, Mech. Foam type capacity 9 ltrs with gun-metal cap and nozzle and complete respects in all respects including initial fill and wall suspension.	Nos.	8				
		<b>TOTAL C/F TO SUMMARY (Rs.)</b>						
<b>SUBHEAD-V (A): ELECTRICAL WORKS</b>								
5.1	NDSR	<b>CUBICAL FIRE PANEL BOARD</b>						

SL. NO.	DSR-2013 ITEM NO./ NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
		Supply, installation, testing and commissioning of fire fighting panel suitable for 415V, 3 phase, 4 wires, 50 HZ power distribution system. The panel shall be floor mounted sheet metal sheet enclosed, dust and vermin proof conforming to IP-52, Compartmentalized design, fabricated out of 14SWG sheet steel, painting, earthing numbering, danger plate as per specifications and drawings, flush front with Aluminium busbars, separate earthing to be provided throughout the length of the panel. The incoming and outgoing feeder breakers, fuses, indicating lamps etc shall be accommodated in modular multitier arrangement. The painting shall done as per relevant IS codes/as specified in the specifications. Adequate size cable alley shall be provided all round the panel and in the back for each cable bending and termination. The panel shall be fabricated by TAC/Fire authority approved vendor. The outgoing feeders inside the panel shall be connected through solid bus bars. It should be complete as per manufacturer's specification.						
		Bus bars shall be provided with heat shrinkable sleeves and shall be colour coded . The panels shall be suitable for cable entry from top. The minimum fault rupturing of all incoming and outgoing switches/breakers shall be 35KA. The panels shall be fabricated after the approval of fabrication drawings.						
		i) For 1 x 70 HP Wet Riser and Sprinkler Pump						
		ii) For 1 x 7.5 HP Jockey Pumps						
		Supply, installation, testing and commissioning of non draw out Cubical type sectionalised floor standing powder coated switch board of 31 MVA fault capacity at 415 V complete with 4 strip, 400 A capacity Aluminium Bus - Bar Electrolytic grade, cable alley & supplying & fixing of following switchgears as per specifications including connections & interconnections.						
A)		INCOMER						
(i)		One (1) No. 250A TPN MCCB (35KA).						
(ii)		300 Amps Aluminium bus bar shall be insulated with heat shrinkable sleeves and shall be coded.						
(iii)		Three (3) Nos. current transformer (600/5A).						

SL. NO.	DSR-2013 ITEM NO./ NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
(iv)		One (1) No. ammeter (0-600) Amps with selector switch.						
(v)		One (1) No. (0-500V) voltmeter with selector switch.						
(vi)		1 Set (3 Nos.) of phase indication lamps with HRC fuses.						
(vii)		Indication for control supply 'healthy'.						
B)		OUTGOINGS						
(i)		One (1) No. 160A TPN MCCB 35KA.						
(ii)		One (1) 80/100A TPN MCCB 35KA.						
(iii)		One (1) No. Star/Delta Starters complete with over load relay with single phasing protection feature. On / Off & TRIP, indication lamp, contactors, ammeter with suitable C.T's sufficient nos. of potential free spare contacts, etc. Suitable for 70 HP Motor.						
(vi)		one (1) No. pressure Switch.						
(v)		Wiring from pressure switch to starter - Lot						
(vi)		One (1) No. DOL Starter with over load relay with single phase protection feature. ON/OFF & TRIP, indication lamp, contactors, ammeter with suitable C.T's sufficient nos. of potential free spare contacts, etc, suitable for 10 Hp motor.						
(vii)		One (1) No. pressure Switch.						
(viii)		Wiring from pressure switch to starter -1 Lot						
(ix)		Set of control system to make the system automatic as per functional requirements.						
(x)		Provision for starting the diesel engine fire pump with battery charger for trickle & boost charging. The diesel engine driven fire pump shall start automatically in the event of pressure drop beyond preset limit or mains failure or failure of electrical driven pumps to start.						
(xi)		One (1) No. pressure Switch.						

SL. NO.	DSR-2013 ITEM NO./ NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
(xii)		Wiring from pressure switch to Diesel engine control panel.						
(xiii)		One (1) No. 100A TPN MCCB (35KA).						
		<b>Note:- CABLE CONNECTION</b>						
(i)		Control Scheme as per specification						
(ii)		Following provisions to be made in the fire panel:						
a		Audio visual alarm & indications having disconnect/reset facility with a range of 1/2 km. Annunciator to be provided in the Fire panel with hooter and acknowledge, test and reset P Bs. The indication shall come on when electrical driven pump set fails to start on pressure drop or when there is power failure during pressure drop.						
b		Facility for mode selection ie auto or manual test & local/remote.						
c		Protection failure & control cabling.						
d		Panel shall be interlocked in such a way when fire pump starts on pressure drop in the header, supply to working chiller A/c panel is disconnected.						
e		Remote indication of ON/OFF/TRIP shall be provided through potential free contact.						
f		Provision of remote starting/stopping (manuals) of the engine shall be made.						
g		All pumps operation shall be controlled by flow switches.						
h		The logic of control panel based on specification attached.						
i		All pumps shall be working automatically or manually.	Lot	1				
5.2	NDSR	<b>POWER, CONTROL CABLING &amp; EARTHING</b>						

SL. NO.	DSR-2013 ITEM NO./NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
		Supply, laying, testing and commissioning of power and control cabling, as per Standard specification including end termination as required. It should be complete as per manufacturer's specifications & as directed by Engineer-in-charge.						
5.2.1	NDSR	Power Cabling (XLPE) insulated and PVC sheathed, armoured, Aluminium Conductor of 1.1 KV grade on existing cable trays).						
5.2.1.1	NDSR	3.5C x 185 Sq. mm	RMT	100				
5.2.1.2	NDSR	3C x 10 Sq. mm	RMT	100				
5.2.1.3	NDSR	3C x 6 Sq. mm	RMT	30				
5.2.2	NDSR	Supplying, laying and connecting of following size 1.1 kV grade <b>copper</b> conductor armoured <b>control cable as well as power cable</b> (conforming to IS:1554 Part I) on wall or on existing cable tray with clamping, dressing or drawn in existing ducts all as required.						
5.2.2.1	NDSR	5C x 1.5 Sq. mm	RMT	300				
		<b>TOTAL C/F TO SUMMARY (Rs.)</b>						
<b>SUBHEAD-V (B): ELECTRICAL WORKS</b>								
5.3	DSR	<b>Earthing Strip / Wires.</b>						
	Item No.5.20 DSR-13	Providing and fixing earth bus of 50 mm X 6 mm copper strip on surface for connections etc. as required.	RMT	600				
		<b>NOTE : Contractor shall obtain, from the local fire authority, pre-NOC and completion certificate with respect to his work as required for occupation of the building without any extra cost.</b>						

SL. NO.	DSR-2013 ITEM NO./ NDSR	DESCRIPTION	UNIT	QTY	RATE (RS.)	RATE (RS.)	AMOUNT (Rs.)	AMOUNT (Rs.)
					(In Figures)	(In Words)	(In Figures)	(In Words)
		TOTAL C/F TO SUMMARY (Rs.)						
		GRAND TOTAL (Rs.)						



Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha			
SUMMARY FOR IBMS WORKS			
SL.NO.	DESCRIPTION	QUOTED AMOUNT (In Rs.) In Figures	QUOTED AMOUNT (In Rs.) In Words
1	BMS Works including required Electrical Works etc.		
	<b>Total Amount (Rs.)</b>		

Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha								
BoQ FOR INTEGRATED BUILDING MANAGEMENT SYSTEMS								
Sl. No.	DSR 2013 Item No. / NDSR	Description	Unit	Qty	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Rate (In Rs.) In Figures	Amount (In Rs.) In Words
		<b>Central Works Station :</b>						
1	NDSR	Supply,Installation,testing and commissioning of Central Works Station and as per manufacturer's specifications & as directed by Engineer-in-charge.						
1.1	NDSR	Intel core i-5 machine with 3.0 GHz speed, 2 GB RAM 1 TB HDD, Multimedia external modem as per manufacturer's specifications & as directed by engineer-in-charge. This should be server base suitable for data points as required.	Lot	1				
1.2	NDSR	TFT Colour Monitor - 21 inch						
1.3	NDSR	132 column 240 CPS printer (Alarm and report)						
1.4	NDSR	Optical Mouse						
1.5	NDSR	1KVA UPS with 20 minutes battery backup						
2	NDSR	<b>Software and System Interface Units :</b>						
2.1	NDSR	Supply,Installation,testing and commissioning of the following Web Based software for BAS as per specifications. Developing,testing and commissioning of the software for the building automation system. It should be complete as per manufacturer's specifications & as directed by Engineer-in-charge.	No.	1				
2.2	NDSR	Supply,Installation,testing and commissioning of all necessary software and hardware for the interface of the following system/equipment including providing necessary integrators/modules (modbus Bacnet/Lonworks output to be provided by other vendors). It should be complete as per manufacturer's specifications & as directed by Engineer-in-charge.						
a)	NDSR	Chilling Machines	Lot	1				

Sl. No.	DSR 2013 Item No. / NDSR	Description	Unit	Qty	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Rate (In Rs.) In Figures	Amount (In Rs.) In Words
3		Supply,Installation,testing and commissioning of following controllers as per the manufacturer's specifications & as directed by Engineer -in-charge:. Standalone intelligent Ionworks based controllers with 32 bit microprocessor, real time clock and EEPROM as per the specifications. The controller shall be housed in a vandal proof, lockable and secure MS cabinets to be supplied along with controllers. It should be complete as per manufacturer's specifications & as directed by Engineer-in-charge.						
3.1	NDSR	DDC For HVAC System (Chillers, Cooling Tower, AHUs, FCUs Chilled water & condensate water pumps) & UG & OHT Tanks	Lot	1				
4	NDSR	Supply, Installation, testing & commissioning of Web Based system interface modules consisting of gateways, other interface units as required as per specifications. The units shall be housed in vandal proof lockable and secure wall mounted MS cabinets to be supplied along with the controllers. It should be complete as per manufacturer's specifications & as directed by Engineer-in-charge. (For chilling machines-2 Nos.)	Lot	1				
5	NDSR	Supply, Installation, testing & commissioning of Hand Held Portable Operator Terminals Sensors and Field Devices.	Lot	1				
6	NDSR	Supply,Installation,testing and commissioning of the following sensors/transmitters/transducers/ field devices as per the manufacturer's specifications & as directed by engineer-in-charge.						
6.1	NDSR	Immersion type temperature sensors for measuring chilled water supply and return /condensate water supply & return temperature in the Range 32F-160F.	Nos.	10				
6.2	NDSR	Duct type temperature sensor for measuring supply air temperature at the AHUs units of the (Range 45°F-150°F).	Nos.	55				
6.3	NDSR	Out side air temperature and RH sensor for measuring the outside air temperature (35°F-130°F) and humidity .	No.	1				

Sl. No.	DSR 2013 Item No. / NDSR	Description	Unit	Qty	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Rate (In Rs.) In Figures	Amount (In Rs.) In Words
6.4	NDSR	Differential Pressure switch across the AHUs /FCUs for indicating the fan status of pessure differential range 10mm-50mm.	Nos.	55				
6.5	NDSR	Level switches for indicating water levels in sumps /tanks/Cooling Tower.	Nos.	22				
6.6	NDSR	Differential Pressure switch for pumps status .	Nos.	6				
6.7	NDSR	Room Temperature + RH Sensor .	No.	1				
6.8	NDSR	Water Flow Switch.	Nos.	4				
7	NDSR	<b>Cable &amp; Conduits</b>						
	NDSR	Supply,Installation,testing and commissioning of the following cables as per manufacturer's specifications & as directed by Engineer-in-charge :						
7.1	NDSR	Signal cable ( 2 Core 1.5 Sqmm, FR PVC Insulated, PVC sheathed ATC conductor multistranded).	Rmt	7000				
7.2	NDSR	Communication cable ( 2 x 1.5 Sq. mm., stranded tinned Cu conductor, flexible, PVC Sheilded type).	Rmt	4000				
7.3	NDSR	Power Cable, 3 Core 1.5 Sqmm, FR PVC Insulated, PVC Sheathed ATC conductor multistranded, cable for Powering DDC , Actuators etc.	Rmt	100				
7.4	NDSR	Cat 5 / Cat 6 Cable	Rmt	100				
8	NDSR	Supply,Installation,testing and commissioning of the following conduits for running cables complete as per manufacturer's specifications & as directed by Engineer-in-charge :						

Sl. No.	DSR 2013 Item No. / NDSR	Description	Unit	Qty	Rate (In Rs.) In Figures	Rate (In Rs.) In Words	Rate (In Rs.) In Figures	Amount (In Rs.) In Words
8.1	NDSR	PVC Conduit (25 mm)	Rmt	5600				
8.2	NDSR	PVC Conduit (20 mm)	Rmt	3500				
9	NDSR	<b>GS Cable Tray</b>						
		Supply, installation, testing and commissioning of 2 mm thick perforated galvanised steel Cable tray of the following complete with angle iron support/hangers etc. as per manufacturer's specifications & as directed by Engineer-in-charge :						
9.1	NDSR	40mm(depth)x300mm (width)x2mm (thick)	Rmt	125				
9.2	NDSR	40mm(depth)x200mm (width)x2mm (thick)	Rmt	50				
9.3	NDSR	40mm(depth)x150mm (width)x2mm (thick)	Rmt	50				
		<b>Total Amount (In Rs.)</b>						

Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha			
SUMMARY FOR WTP			
SL.NO.	DESCRIPTION	Quoted Amount (Rs.) (In Figures)	NDSR AMOUNT (Rs.) (In Words)
1	WATER TREATMENT PLANT FOR GENERAL WATER SUPPLY		
	TOTAL AMOUNT (In Rs.)		

Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha								
BoQ FOR WATER TREATMENT PLANT								
SL.NO.	DSR 2013/ NDSR	DESCRIPTION	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In words
1.0		<b>WATER TREATMENT PLANT FOR GENERAL WATER SUPPLY</b>						
1.1	NDSR	Supplying, installing, testing and commissioning of <b>raw water feed pump</b> as per the following details : It should be complete as per manufacturer's Specifications & as directed by engineer-In Charge.						
		The filter feed pump unit shall be complete with :						
		<b>a) Pumps:</b> Vertical Inline pump with <b>mechanical seal</b>						
		<b>Material of Construction (M.O.C):</b> Corrosion Resistant in general Pump Casing—Cast Iron						
		Impeller — Stainless Steel						
		Shaft — Stainless Steel						
		Shaft Sleeve — Stainless Steel						
		(1Working+1 Standby)						
		<b>Duty:</b>						
		Discharge ( each pump) : 22.5 M <sup>3</sup> /hr.						
		Head : 30M	Nos.	2				
1.2	NDSR	Providing, installing, testing and commissioning vertical down flow type multi grade sand bed filter capable of filtering water at prescribed filtration rate of 15 cum/sq.m/hr. The filter shall comprise of Composite FRP PP lined shell, suitable for a test pressure of 6 kg/sq.cm. , complete with pedestal, access cover, PVC underbed, 4 inch dia frontal piping, valves, pressure guage, first charge of filter media. etc. It should be complete as per Technical Specifications & as directed by engineer-In Charge.						
		<b>Filteration unit as described above having following parameters</b>						
		Dia - 1400 MM (Minimum)						
		Height of Vessel - 1800MM (Minimum)						

SL.NO.	DSR 2013/ NDSR	DESCRIPTION	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In words
		Test Pressure - 6Kg/cm <sup>2</sup>						
		Media Bed Depth - 800MM	Set	1				
1.3	NDSR	Providing, installing, testing and commissioning <b>Iron Removal Filter</b> capable of filtering water at prescribed filtration rate of 15 cum/sq.m/hr. The filter shall comprise of Composite FRP PP lined shell, suitable for a test pressure of 6 kg/sq.cm. , complete with pedestal, access cover, PVC underbed, 4 inch dia frontal piping, valves, pressure guage, first charge of filter media. etc. It should be complete as per manufacturer's Specifications & as directed by engineer-In Charge.						
		<b>Filtration unit as described above having following parameters</b>						
		Dia - 1400 MM (Min.)						
		Height of Vessel - 1800MM (Min.)						
		Test Pressure - 6Kg/cm <sup>2</sup>						
		Media Bed Depth - 800MM	Set	1				
1.4	NDSR	Providing, installing, testing and commissioning vertical down flow <b>activated carbon filter</b> capable of filtering water at prescribed filtration rate of 15 cum/sq.m/hr. The filter shall comprise of Composite FRP PP lined shell, suitable for a test pressure of 6 kg/sq.cm. , complete with pedestal, access cover, PVC underbed, 65 mm dia frontal piping, pressure guage, first charge of filter media. etc. It should be complete as per manufacturer's Specifications & as directed by engineer-In Charge.						
		Make : As per tech. specifications						
		<b>Details of Filter</b>						
		Filter Shell MOC : Fibre glass and polyester resin						
		Dia : 1400 MM (Min.)	Sets	2				



SL.NO.	DSR 2013/ NDSR	DESCRIPTION	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In words
1.5	NDSR	Providing, installing, testing and commissioning chemical doser comprising 100 litres capacity Polypropylene ( chemical grade) tank, electronic metering pump of 0 - 6 litres/hr. capacity injection fitting, solution delivery tube etc. including making electrical connection including interlocking with domestic supply pumping system, all complete. It should be complete as per manufacturer's Specifications & as directed by engineer-In Charge.	Sets	2				
1.6	NDSR	Providing, installing, testing and commissioning <b>UV Disinfection System</b> for the complete disinfection of the final treated water as per approved make.	Sets	2				
1.7	NDSR	Providing, fixing, jointing, testing and commissioning interconnecting pipe work in PVC (Schedule 40), minimum 100 mm dia isolating valves, bye-pass connection of solenoid valves, pressure gauges with isolating cocks etc. (Battery limits of pipework: suction header with isolating valves of raw water feed pumps upto treated water tanks). It should be complete as per manufacturer's Specifications & as directed by engineer-In Charge.	Set	1				
1.8	NDSR	Providing, fixing, connecting, testing and commissioning of electrical panel, power and control cabling between pump panel, pumps, dosers, level controller, solenoid valves etc. The panel should have sufficient no. of potential free contacts for connectivity with Building Management System for monitoring purposes. It should be complete as per manufacturer's Specifications & as directed by engineer-In Charge.	Set	1				
1.9	NDSR	Automation : The entire system is to be made fully automatic and intelligent.using state of the art automation components. The system shall start and stop as per the treated water level in the treated water reservoirs. Provision of level controllers in the treated water tank reservoirs is to be included in the Scope of Work. It should be complete as per manufacturer's Specifications & as directed by engineer-In Charge.	Set	1				

SL.NO.	DSR 2013/ NDSR	DESCRIPTION	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In words
1.10	NDSR	Supplying, installing, testing and commissioning of following water quality monitoring devices.						
	NDSR	a) Online digital pH indicator	No.	1				
	NDSR	b) Water Meter for 50 mm dia size	No.	1				
	NDSR	c) Water Meter for 100 mm dia size	No.	1				
		Note:Wherever mechanical seal has been asked for, it must be 'factory fitted' at pump manufacturer's works.						
		<b>GRAND TOTAL (In. Rs.)</b>						

Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha			
SUMMARY FOR SEWAGE TREATMENT PLANT			
SR. NO.	Description	Quoted Amount (Rs.) (In Figures)	Quoted Amount (Rs.) (In words)
1	Preliminary Works		
2	Sewage Treatment Plant		
3	Electrical Installation for STP		
4	Maintenance Contract		
	TOTAL AMOUNT (In Rs.)		

Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha								
BoQ FOR SEWAGE TREATMENT PLANT								
SR.NO.	DSR- 2013 ITEM NO./ NDSR.	DESCRIPTION	UNIT	QTY	RATE (Rs.) In Figures	RATE (Rs.) In Words	AMOUNT(Rs.) In Figures	AMOUNT(Rs.) In Words
<b>1</b>		<b>Preliminary Works</b>						
1.1		<b>Shop Drawings for 300 KLD Plant.</b>						
1.1.1	NDSR	Detailed GA drawing, flow diagram, equipment list, power load requirement	Job	1				
1.1.2	NDSR	Design, calculations of all elements of the plant, electrical and mechanical work to satisfy adequacy of design	Job	1				
1.1.3	NDSR	Submission of detailed GOOD FOR CONSTRUCTION' stage architectural, structural, construction, electrical, mechanical and piping drawing for approval.	Job	1				
		Note: Approval from pollution board at initial & various other stages of works including preparation of report / drawings as per pollution board requirement, arrangement of raw sewage for testing & commissioning. Contractor shall include the cost of all chemicals (consumed during testing & commissioning and the cost of such items of works which are not explicitly mentioned above, but are mandatory to have pollution board approval. Nothing extra shall be payable in this regard.						
		<b>TOTAL Preliminary Works (Rs.)</b>						
<b>2</b>		<b>SEWAGE TREATMENT PLANT</b>						
		Design, supplying, installing, testing & commissioning of Sewage Treatment Plant based on attached growth process using the 'Moving Aerated Bio-media Reactor' (MBBR) process. The plant proposed shall be suitable to treat 300 kld (daily average flow) with a common pump room. The plant is proposed to be installed below ground in a space dedicated for STP in the complex. The plant offered shall be in civil construction with all electrical and mechanical equipments (If required, including necessary earth work in excavation, back filling & disposal of surplus earth with all civil construction works in foundation or super structure) as required for the following duty: It should be complete as per technical specifications & as directed by Engineer-In-Charge.						
		Nature of effluent - Domestic Sewage from Toilet use and kitchen waste.						
		Daily average flow - 300 Cum / Day						
		pH - 6.5 - 8.0						
		BOD5 - upto 250-350 Mg/L						

SR.NO.	DSR- 2013 ITEM NO./ NDSR.	DESCRIPTION	UNIT	QTY	RATE (Rs.) In Figures	RATE (Rs.) In Words	AMOUNT(Rs.) In Figures	AMOUNT(Rs.) In Words
		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 - 8.0						
		BOD5 - Less than 20 Mg/L						
		S. Solids - Less than 10 Mg/L						
		COD - Less than 70 Mg/L						
		Oil & Grease < 5						
		<b>Sewage treatment plant shall include the following items:</b>						
		The Structure for STP alongwith necessary excavation, refilling, foundations, required shall be finished with water proofing, plaster, snowcem, structure duly tested for leakproofing, plant room flooring, supply and fixing of Puddle Flanges, Inserts, supports, handrails, Manholes, gratings, grills, Doors, ventilators etc., compete in all respects shall be measured & paid separately in relevant civil items.						
		Screen Chamber in civil construction						
		Oil and Grease removal unit for minimum 20min. Retention in civil construction.						
		Under ground effluent Equalization Tank / Sump with submersible sewage lifting pumps. (Inlet to sump shall be as per Sewer Invert level) . Cap. 60-70 kl (effective) - 1 No.						
		Sewage Lift Pumps in Equalisation Chamber -1 Set						
		Floating/Moving Aerated Bio-media Reactor- 2 Nos. in civil construction. Cap. 15KLX2 Nos.						
		Secondary Settling tank in Civil construction. Area 5 Sqm net. (60KL)- 1 No.						
		Sludge holding tank in Civil construction Cap: 15 KL- 1 No.						
		Clear Water Tank in civil construction Cap: 60 KL-1 No.						
		M.S. epoxy coated Multi Grade Pressure Sand Filter						
		M.S. epoxy coated Activated Carbon Filter						
		U.V. Disinfection Chamber						
		M.S. epoxy coated Softener						
		Filter Press with screw pump						
		Treated Water Tank in civil construction Cap: 100 KL- 1 No.						
		Soft water tank in civil construction Cap: 25 KL- 1 No. (At Required Location)						
		Air Blowers, Pumps & equipments						
		All piping, valves & level indicator/controller etc. within plant room.						
		Electrical Panel & Cabling						
		Common plant room adjacent to STP.						

SR.NO.	DSR- 2013 ITEM NO./ NDSR.	DESCRIPTION	UNIT	QTY	RATE (Rs.) In Figures	RATE (Rs.) In Words	AMOUNT(Rs.) In Figures	AMOUNT(Rs.) In Words
2.1	NDSR	Supply, installation, testing & commissioning of 2 Nos. Stainless Steel Perforated Screen with suitable lifting arrangement (size 500mm wide x 600mm high approx) with 10 mm clear spacing.	Set	1				
2.2	NDSR	Supply, installation, testing & commissioning of electronic type level indicator and controller for automatic operation of the system with high/low level alarm complete with auxillary NO/NC contacts. (Contractor shall ensure submission of detailed GA drawings (Plan & Section), P & I diagram, schematic diagram for the above mentioned components and additional components such as inserts, puddle flanges, vent pipes etc. if so required for the complete working of the STP and got it approved by the Client.	Set	1				
2.3		Supply, installation, testing & commissioning of non clogging type pumps, having CI 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.						
2.3.1	NDSR	Submersible Sump Pumps (2 Nos. - 1 working & one standby,						
		(Solid handling cap. 28 mm)						
		Flow rate (each) = 15 m <sup>3</sup> / hr						
	NDSR	Head = 8-10 Mtr	Set	1				
2.3.2	NDSR	Plant room sump pump 2 Nos (1 working + 1 standby						
		Flow rate = 27.0 cum/hr						
	NDSR	Head = 12-15 Mts						
		(Solid handling size for this pump shall be minimum 15 mm).						
		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 MSEF shall be made by the STP contractor.	Set	1				
2.4	NDSR	Centrifugal monoblock self priming Sludge Transfer pumps 2 Nos (1 working + 1 standby)						
		Flow rate (each) =15 m <sup>3</sup> / hr						
		Head = 10 Mtr						
	NDSR	(Solid handling size for this pump shall be 8.5 mm).	Set	1				
2.5	NDSR	Complete Air Diffusion System including following:						
	NDSR	2 Nos. twin type rotary air blowers (one working & one standby, capable of delivering 320 cum/hr 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				

SR.NO.	DSR- 2013 ITEM NO./ NDSR.	DESCRIPTION	UNIT	QTY	RATE (Rs.) In Figures	RATE (Rs.) In Words	AMOUNT(Rs.) In Figures	AMOUNT(Rs.) In Words
2.6	NDSR	Air piping shall comprise of droppers and laterals (submerged in SS304) connected 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				
2.7	NDSR	Non clog tubular 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 easily from platform at the top. (fine bubble membrane diffusers).						
		Fine bubble diffusers						
2.7.1	NDSR	For equalization tank -1 No.	Lot	1				
2.7.2	NDSR	For sludge holding tank - 1 No.	Lot	1				
2.7.3	NDSR	Moving Bed Bio-media Reactor - 2 Nos.	Lot	1				
Note :		Air dispersion system shall be provided for Equalisation Tank, Sludge holding Tank and Floating Aerated Bio-media Reactors'.						
2.8	NDSR	Providing and fixing all piping (as described below) and isolation control valves for making the system complete.						
		MS Epoxy : Air piping from blower and header to tanks.						
		PVC piping : Pumped effluent & tank overflow pipe line	Job	1				
2.9	NDSR	Supply, installation, testing and commissioning of Media for different tanks:						
2.9.1	NDSR	Supply, installation, testing and commissioning of PVC floating media to be installed in Floating Aerated Bio-media having total surface area 6500 m2 (min) in Fluidised/moving bed bio-Reactor -2 Nos.	Lot	1				
2.9.2	NDSR	Supply, installation, testing and commissioning of PVC tube deck settling media to be installed in Secondary Settling Tank.	Lot	1				
2.10	NDSR	Supplying, installing, testing & commissioning of <b>centrifugal water transfer pumps</b> along with motor, pressure gauge with isolation cock, isolation valve, NRV on delivery line. Isolation valve, stainer at suction. The pump shall be suitable for 415±10% volts 3 phase AC supply.						
2.10.1	NDSR	Filter feed pumps						
		Capacity : 20 M <sup>3</sup> /hr.						
		Head : 25-30 M						
	NDSR	Each Set No. of Pumps 2 (1 working + 1 standby)	Set	1				
2.10.2	NDSR	Softener feed pumps (for Cooling Towers at required location)						
		Capacity : 5 M <sup>3</sup> /hr.						
		Head : 25 M						

SR.NO.	DSR- 2013 ITEM NO./ NDSR.	DESCRIPTION	UNIT	QTY	RATE (Rs.) In Figures	RATE (Rs.) In Words	AMOUNT(Rs.) In Figures	AMOUNT(Rs.) In Words
	NDSR	Each Set No. of Pumps 2 (1 working + 1 standby)	Set	1				
2.10.3	NDSR	Garden Irrigation Water transfer pumps						
		Capacity : 15 M <sup>3</sup> /hr.						
		Head : 45 M						
	NDSR	Each Set No. of Pumps 2 (1 working + 1 standby)	Set	1				
Note:		Operation of pumps 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.						
2.11	NDSR	Supplying, installing, testing and commissioning of MS epoxy vessel filter with frontal piping and associated valves and accessories. Filter shall be suitable for minimum working pressure of 3.5 kg/cm <sup>2</sup> & test pressure of 5.0kg/cm <sup>2</sup> and shall include media, standard fittings like pressure.						
2.11.1	NDSR	Multigrade pressure sand filter media						
		Flow rate : 20.0 cum/hr						
		Filtration velocity : 15 cum/hr/sqm						
		Shell/Disc thickness : 8/10 mm						
	NDSR	Filter Diameter : 1300 mm.	Set	1				
2.11.2	NDSR	Activated Carbon Filter						
		Flow Rate : 20.0 cum/hr						
		Filtration velocity : 12.5 cum/hr/sqm						
		Shell/Disc thickness : 8/10 mm						
	NDSR	Filter Diameter : 1450 mm	Set	1				
2.12	NDSR	Supply, installation, testing & commissioning of U.V. disinfection system for treated waste water suitable for waste water flow rate of 20 cum/ hr. approx, suitable nos. of UV lamps, MPN count less than 1 per 100 ml.	Job	1				
2.13	NDSR	Supply, installation, testing and commissioning of Filter Press of plate with screw feed pumps for required capacity (1Working+1Standby), with interconnecting piping and poly dosing system all complete.						
		Size: 600 mm X 600 MM with 21 nos. plates						
		MOC: CI/ MS frame with Poly Proplene (PP) plates						
	NDSR	Sludge Feed Pumps: a) Type : Screw Type b) Nos : 2 Nos.(1 Working + 1 Standby) c) Duty : 2 Cum/Hr at 35-40 M Head	Set	1				



SR.NO.	DSR- 2013 ITEM NO./ NDSR.	DESCRIPTION	UNIT	QTY	RATE (Rs.) In Figures	RATE (Rs.) In Words	AMOUNT(Rs.) In Figures	AMOUNT(Rs.) In Words
2.14	NDSR	Supply, installation, testing & commissioning of <b>water softening plant</b> comprising of MS epoxy vessel test pressure 5.0 kg/cm <sup>2</sup> , multiport valve with brine ejector and plastic piping complete with brine tank with fittings and brine filtering media and complete charge of cation exchange resin as per requirement.(At required location)						
		Water Flow -5.0 cum/hour for 10 hr						
		Incoming hardness 300-350 mg / Ltr (Approx)						
		Working pressure 3.0 Kg / sq cm)						
		Outgoing hardness less than 50 ppm						
	NDSR	Water Softening plant as described above	Set	1				
2		<b>TOTAL of Sewage Treatment Plant (Rs.)</b>						
3		<b>ELECTRICAL INSTALLATION FOR STP</b>						
3.1	NDSR	Design, fabrication, assembling, wiring, supply, installation, testing and commissioning of motor control centre fabricated out of 14 gauge CRCA sheet steel. Cable gland plates 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. It should be complete as per technical specifications & as directed by Engineer-In-Charge.						
		<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.						

SR.NO.	DSR- 2013 ITEM NO./ NDSR.	DESCRIPTION	UNIT	QTY	RATE (Rs.) In Figures	RATE (Rs.) In Words	AMOUNT(Rs.) In Figures	AMOUNT(Rs.) In Words
		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:						
		c. MCBs and motor starters in control panel with all accessories of required rating for connection to variable speed hydroneumatic systems comprising of 2 Nos 7.5 H.P. motors and another 2 Nos of 20 H.P. Motors (variable speed hydropneumatic system shall be provided by others in STP plant room).						
		d. 16 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.						
Notes :		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 mototrs below 10HP and Star-Delta Starters for other motors .						
		d. Provision shall be made for providing potential free contacts to all pumps starters.						
	NDSR	MCC for all STP equipments/pumps as described in sub head II.	Job	1				
3		<b>TOTAL of Electrical Installation in STP (Rs.)</b>						
4		<b>MAINTENANCE CONTRACT</b>						
4	NDSR	O&M Contract: " to Maintain & Operate the entire STP for a period of defect liability period plus 6 MONTHS thereafter round the clock basis under first available load conditions as per availability . Required trained operating staff is to be deputed during above period. All tools, equipment & testing devices to be provided by the contractor. Consumables including lubricants & chemicals will be provided by owners after the defect liability period only."						
		<b>TOTAL of Maintenance Contract (Rs.)</b>	Month	6				
		<b>GRAND TOTAL (In Rs.)</b>						

Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha			
SUMMARY OF PUMPS & MACHINARIES			
SL.NO.	DESCRIPTION	QUOTED AMOUNT (In Rs.) In Figures	QUOTED AMOUNT (In Rs.) In Words
1.0	FRESH WATER SUPPLY PUMPS AND CONTROL PANEL FOR DOMESTIC USAGE		
2.0	RECYCLED WATER SUPPLY PUMPS AND CONTROL PANEL FOR FLUSHING		
3.0	SUMP DRAINAGE PUMPS		
4.0	CABLING AND MAIN PANEL		
5.0	PIPE WORK AND VALVES		
6.0	LEVEL CONTROLLERS IN OVERHEAD TANKS		
	<b>TOTAL (Rs.)</b>		

Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha								
BoQ FOR PUMPS & MACHINARIES								
SL. NO.	DSR 2013 Item No./ NDSR	DESCRIPTION	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In Words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In Words
1.0		<b>FRESH WATER SUPPLY PUMPS AND CONTROL PANEL FOR DOMESTIC USAGE</b>						
1.1	NDSR	Supply, installing, testing and commissioning of clear water pumps for general water supply as per following details: It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
		The pump unit shall be complete with :						
a)		<b>Pumps:</b> Vertical monoblock booster pumpset with mechanical seal. (2W+1 S)						
		<b>Material of Construction (M.O.C):</b> <b>Corrosion Resistant in general</b> : Casing — Cast Iron						
		: Impeller — stainless Steel						
		: Shaft — stainless Steel						
		<b>Motor:</b> 2900 RPM; 3Ph 415V 50Hz						
		Insulation Class - B Min						
		Protection - IP44 Min.						
		Efficiency- Class I						
		<b>Duty:</b>						
		Discharge : 15 M <sup>3</sup> /hr.						
		Working Head : 58 M						
b)		<b>Common fabricated base frame, duly painted.</b>	Nos.	3				
1.2	NDSR	Supply, installing, testing and commissioning of FRP pressure vessel with replacable polyetheruethane (PEU) bladder certified for drinking water. Minimum 8 Bar pressure rating. It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
1.2.1		Capacity 450 Ltr.	Nos.	2				

SL. NO.	DSR 2013 Item No./ NDSR	DESCRIPTION	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In Words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In Words
1.3	NDSR	Supply, installation, testing and commissioning of <b>electric pump control panel</b> metal clad cubicle type suitable for 415 V AC three phase 4 wire 50Hz supply system. The panel shall be completely compartmentalised and complete with relays, contactors, starters, <b>PLC logic and sequence controller</b> , Copper Bus Bars, designation labels as per requirement, continuous earth bar, panel separators, protective screens, cable clamping support system, top/bottom cable gland plates for incoming and out going cable entries as per details given below: It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
		<b>Programmable Control System</b> for the following logic:						
		i) Pump 1 starts at set cut in pressure.						
		ii) Pump 1 stops if the cut out pressure is achieved otherwise Pump 2 starts if pressure keeps on falling.						
		iii) Pump 1 and Pump 2 stop the moment cut out pressure is achieved.						
		iv) Pump 3 starts at set cut in pressure						
		v) Pump 3 stops if the cut out pressure is achieved otherwise Pump 2 starts if pressure keeps on falling.						
		vi) Pump 3 and Pump 2 stop the moment cut out pressure is achieved.						
		vii) Pump 1 starts at set cut in pressure and so on.						
		The idea is to keep all the three pumps operational but with one standby at any particular moment.						
		<b>Note:</b> The start stop operation of the pumps shall be controlled with pressure switches. <b>Pressure switches and interconnecting control cabling</b> to be paid separately.						
		There shall be an audio alarm in case any pump fails to start.						
		<b>INCOMING</b>						
		160A TPN 25KA MCCB with rotary handle - 1 No.						
		<b>BUSBARS</b>						
		A set of 200A 415V 50Hz 3 Ph 4 wire Copper busbars.						
		<b>INSTRUMENTS FOR INCOMER</b>						
		— Ammeter 0-100A with Selector Switch (including a set of CTs 100/5A) — Voltmeter 0-500V with selector switch. — A set of phase indicating light with HRC fuses.						

SL. NO.	DSR 2013 Item No./ NDSR	DESCRIPTION	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In Words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In Words
		<b>INSTRUMENTS ON OUTGOINGS</b>						
		— Ammeter with selector switch for each pump. — Indication lights for ON-OFF indication for each pump						
		<b>Selector switch for auto/manual mode selection for the pumping system</b>						
		<b>OUTGOING FEEDERS</b>						
		<b>For Pumps</b>						
		40A 10KA TP MCB 12.5 HP star-delta starter, overload relay, single phase preventer, timer etc. - 3 Nos.	Set	1				
		<b>Note: Switchgear and starter ratings are indicative. The Tenderer shall quote for the actual rating required as per the pump model proposed by him.</b>						
		<b>TOTAL for " Fresh Water Supply Pumps For Domestic Usage" carried over to SUMMARY (Rs.)</b>						
2.0		<b>RECYCLED WATER SUPPLY PUMPS AND CONTROL PANEL FOR FLUSHING</b>						
2.1	NDSR	Supply, installing, testing and commissioning of clear water <b>pumps for flushing water supply</b> as per following details: It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
		The pump unit shall be complete with :						
a)		<b>Pumps:</b> Vertical monoblock booster pumpset with mechanical seal - <b>(1W+1S)</b>						
		<b>Material of Construction (M.O.C):</b> Corrosion Resistant in general : Casing — Cast Iron						
		: Impeller — Stainless Steel						
		: Shaft — stainless Steel						
		<b>Motor:</b> 2900 RPM; 3Ph 415V 50Hz						
		Insulation Class - B Min						
		Protection - IP44 Min.						
		Efficiency- Calss I						
		<b>Duty:</b>						
		Discharge : 15 M <sup>3</sup> /hr.						
		Working Head : 58 M						

SL. NO.	DSR 2013 Item No./ NDSR	DESCRIPTION	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In Words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In Words
b)		Common fabricated base frame, duly painted.	Nos.	2				
		<b>Pressure Vessel for Flushing supply line</b>						
2.2	NDSR	Supply, installing, testing and commissioning of FRP pressure vessel with replacable polyetheruethane (PEU) bladder certified for drinking water. Minimum 8 Bar pressure rating. It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
2.2.1		Capacity 450 Ltr.	No.	1				
2.3	NDSR	Supply, installation, testing and commissioning of <b>electric pump control panel</b> metal clad cubicle type suitable for 415V AC three phase 50Hz supply system. The panel shall be completely compartmentalised and complete with relays, contactors, starters, sequential pump controller, Copper Bus Bars, designation labels as per requirement, continuous earth bar, panel separators, protective screens, cable clamping support system, top/bottom cable gland plates for incoming and outgoing cable entries as per details given below: It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
		The idea is to keep both the pumps operational but with one standby at any particular moment.						
		<b>Note:</b> The start stop operation of the pumps shall be controlled with pressure switches. <b>Pressure switches and interconnecting control cabling</b> to be paid separately.						
		There shall be an audio alarm in case any pump fails to start.						
		<b>INCOMING</b>						
		160A TPN 25KA MCCB with rotary handle - 1 No.						
		<b>BUSBARS</b>						
		A set of 200A 415V 50Hz 3 Ph 4 wire Copper busbars.						
		<b>INSTRUMENTS FOR INCOMER</b>						
		— Ammeter 0-100A with Selector Switch ( including a set of CTs 100/5A) — Voltmeter 0-500V with selector switch. — A set of phase indicating light with HRC fuses.						
		<b>INSTRUMENTS ON OUTGOINGS</b>						

SL. NO.	DSR 2013 Item No./ NDSR	DESCRIPTION	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In Words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In Words
		— Ammeter with selector switch for each pump. — Indication lights for ON-OFF indication for each pump						
		<b>Selector switch for auto/manual mode selection for the pumping system</b>						
		40A 10KA TP MCB 12.5HP star-delta starter, overload relay, single phase preventer, timer etc. - 2 Nos.	Set	1				
		<b>Note: Switchgear and starter ratings are indicative. The Tenderer shall quote for the actual rating required as per the pump model proposed by him.</b>						
		<b>TOTAL for " Recycled Water Supply Pumps for Flushing" carried over to SUMMARY (Rs.)</b>						
3.0		<b>SUMP DRAINAGE PUMPS</b>						
3.1	NDSR	Supply, installing, testing and commissioning of <b>drainage pumping system in the sump of Under ground Pump Rooms</b> comprising of the following: It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
a)		<b>2 Nos.</b> (l W+1 S) Vertical fully floodable type <b>submersible drainage pumps</b> in close coupled design single stage, suitable for handling minimum <b>12 mm dia</b> solids.						
		<b>Duty</b>						
		Discharge of each pump : 75 LPM						
		Working Head : 15 M						
		<b>Material of Construction (M.O.C):</b>						
		Corrosion Resistant in general						
		: Casing — Cast Iron						
		: Impeller — Stainless Steel						
		: Shaft — stainless Steel						
		: Bearings — Anti friction, prelubricated ball bearings, packed with grease for life.						
		<b>Motor:</b> — Dry Motor with built in over load protection						
		Protection - IP 68.						
		Insulation Class - F						



SL. NO.	DSR 2013 Item No./ NDSR	DESCRIPTION	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In Words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In Words
b)		Electric control panel for automatic operation of pumps as per the water level in the sump. The pump operation shall be controlled with <b>magnetic float type level controller</b> . The Panel shall comprise of incoming switch/MCB, voltmeter & ammeter, On-Off lamps, starters with circuit breakers for each pump, rotating start sequence, <b>both pumps to work simultaneously to meet peak flow</b> . There shall be an audio-visual alarm, if any pump fails to start.						
c)		Power cabling between panel and pumps.						
d)		Pump suspension system with Stainless Steel Sling wire with 'U' clamp.	Sets.	2				
		<b>TOTAL for " Sump Pumps and Control Panel" carried over to SUMMARY (Rs.)</b>						
4.0		<b>CABLING AND MAIN PANEL</b>						
4.1	NDSR	Supplying and fixing of following types and sizes of 1.1 KV grade PVC insulated conductor armoured cable conforming to IS : 1554. It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
4.1.1	NDSR	2C 2.5 sq.mm. Copper conductor	Rmt	60				
4.1.2	NDSR	3C 2.5 sq.mm. Copper conductor	Rmt	60				
4.1.3	NDSR	3C 4 sq.mm. Copper conductor	Rmt	80				
4.1.4	NDSR	3C 6 sq.mm. Copper conductor	Rmt	90				
4.1.5	NDSR	3C 10 sq.mm. Al conductor	Rmt	45				
4.1.6	NDSR	4C 10 sq.mm. Al conductor	Rmt	50				
4.1.7	NDSR	4C 16 sq.mm. Al conductor	Rmt	40				
4.1.8	NDSR	3.5C 25 sq.mm. Al conductor	Rmt	50				

SL. NO.	DSR 2013 Item No./ NDSR	DESCRIPTION	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In Words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In Words
4.2	NDSR	Supplying, laying & terminating of following types and size of 1.1 KV grade PVC insulated armoured control cables conforming to IS : 1554 Part-II. It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
4.2.1	NDSR	2C 1.5 sq.mm.Cu. Conductor	Rmt	250				
4.2.2	NDSR	3C 1.5 sq.mm.Cu. Conductor	Rmt	100				
4.3	NDSR	Supplying and making end termination with brass single compression glands and copper/aluminium lugs for following size of PVC insulated and PVC sheathed/XLPE copper/aluminium conductor cable of 1.1 KV grade as required : It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
4.3.1	NDSR	2C 2.5 sq.mm. Copper conductor	Set	4				
4.3.2	NDSR	3C 2.5 sq.mm. Copper conductor	Set	4				
4.3.3	NDSR	3C 4 sq.mm. Copper conductor	Set	10				
4.3.4	NDSR	3C 6 sq.mm. Copper conductor	Set	10				
4.3.5	NDSR	3C 10 sq.mm. aluminium conductor	Set	2				
4.3.6	NDSR	4C 10 sq.mm. Al conductor	Set	4				
4.3.7	NDSR	4C 16 sq.mm. Al conductor	Set	4				
4.3.8	NDSR	3.5C 25 sq.mm. Al conductor	Set	4				
4.4	NDSR	Providing and fixing following size G.I. strip / wire on surface or in recess for body earthing of motors as required. It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
4.4.1	NDSR	25x3 mm G.I. strip	Rmt	100				

SL. NO.	DSR 2013 Item No./ NDSR	DESCRIPTION	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In Words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In Words
4.4.2	NDSR	8 SWG dia.	Rmt	150				
4.5	NDSR	Supply, fabricating and installing following size of perforated M.S. powder coated (0.65 micron) 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 etc. as required : It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
4.5.1	NDSR	100 mm. width x 40 mm. depth x 1.6 mm. thickness	Rmt	30				
4.5.2	NDSR	200 mm. width x 50 mm. depth x 1.6 mm. thickness	Rmt	30				
4.5.3	NDSR	300 mm. width x 50 mm. depth x 1.6 mm. thickness	Rmt	30				
4.6	NDSR	Supply, installation, testing and commissioning of <b>electric pump control panel</b> metal clad cubicle type suitable for 230V AC single phase 50Hz supply system. The panel shall be completely compartmentalised and complete with Copper Bus Bars, designation labels as per requirement, continuous earth bar, panel eparators, protective screens, cable clamping support system, top/bottom cable gland plates for incoming and out going cable entries as per details given below: It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
		<b>MAIN PANEL WATER PUMPING SYSTEM</b>						
		<b>INCOMER</b>						
		250 A 25KA FP MCCB with rotary handles - 1 No.						
		<b>BUSBARS</b>						
		A set of 300A 415V 50Hz 3 Ph 4 wire aluminium busbars.						
		<b>INSTRUMENTS FOR INCOMER</b>						
		A set of instrumentation with a set of Current transformer 250/5A with Ammeter 0-250A, Selector Switch, Voltmeter 0-500V with selector switch, a set of phase indicating lights with HRC fuses and energy meter (KWH).						
		<b>OUTGOING FEEDERS</b>						
		25A DP 10KA MCB - 2 No.						
		32A DP 10KA MCB - 2 Nos.						
		25A FP 10KA MCB - 2 Nos.						
		32A FP 10KA MCB - 2 Nos.						
		40A FP 10KA MCB - 6 Nos.						

SL. NO.	DSR 2013 Item No./ NDSR	DESCRIPTION	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In Words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In Words
		63A TPN 25KA MCCB with rotary handle - 1 Nos.	Set	1				
		<b>TOTAL for "Cabling and Main Panel" carried over to SUMMARY (Rs.)</b>						
5.0		<b>PIPE WORK AND VALVES</b>						
5.1	NDSR	Providing,fixing, jointing, testing and commissioning GI pipe work (Heavy Class) with all fittings, flanges,specials & clamps effecting proper connections, including painting with two coats of epoxy paint of approved quality and shade over a coat of primer on exposed pipework,complete in all respects :{ <b>Pipe work restricted within the plant room for suction and delivery headers and delivery pipe of submersible pumps</b> }. It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
5.1.1	NDSR	a) 200 mm dia pipe (6 mm thick)	Rmt	20				
5.1.2	NDSR	b) 150 mm dia pipe	Rmt	35				
5.1.3	NDSR	c) 100 mm dia pipe	Rmt	25				
5.1.4	NDSR	d) 80 mm dia pipe	Rmt	20				
5.1.5	NDSR	e) 65 mm dia pipe	Rmt	75				
5.1.6	NDSR	f) 50 mm dia pipe	Rmt	150				
5.1.7	NDSR	g) 40 mm dia pipe	Rmt	25				
5.2	NDSR	Providing and fixing <b>Cast Iron butterfly valve</b> as per IS: 13095 of <b>Class PN 16</b> , having epoxy coated disc, carbon steel shaft, EPDM / nitrile rubber field replaceable body lining and of approved make. including a set of MS flanges, required nos. of nut & bolts all complete. It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
5.2.1	NDSR	200 mm dia.(with worm gear assembly)	Nos.	4				
5.2.2	NDSR	150 mm dia(with worm gear assembly)	Nos.	6				
5.2.3	NDSR	100 mm dia ( with lever)	Nos.	6				
5.2.4	NDSR	80 mm dia ( with lever)	Nos.	5				

SL. NO.	DSR 2013 Item No./ NDSR	DESCRIPTION	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In Words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In Words
5.2.5	NDSR	65 mm dia ( with lever)	Nos.	4				
5.3	NDSR	Providing and fixing <b>Dual plate (Wafer type) check valve (non return valve) of Class PN 16</b> , having cast iron body, stainless steel disc ( AISI 316), trim and spring of approved make. including a set of MS flanges, required nos. of nut & bolts all complete. It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
5.3.1	NDSR	150mm dia	Nos.	2				
5.3.2	NDSR	100 mm dia	Nos.	5				
5.3.3	NDSR	80 mm dia	Nos.	2				
5.3.4	NDSR	65 mm dia.	Nos.	4				
5.3.5	NDSR	50 mm dia.	Nos.	2				
5.4	NDSR	Providing and fixing of flanged C.I strainer on suction ends submerged in water tanks, all complete. It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
5.4.1	NDSR	200 mm dia.	Nos.	4				
5.4.2	NDSR	150 mm dia.	Nos.	2				
5.4.3	NDSR	100 mm dia.	Nos.	2				
5.5	NDSR	Providing and fixing of nickel plated <b>brass/ nonferrous alloy fullyway ball valve</b> ( minimum working pressure of 20 bar ) with operating handle of approved make. It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
5.5.1	NDSR	a) 50 mm dia	Nos.	5				
5.6	NDSR	Providing and fixing heavy duty resilient rubber neoprene lined single arch vibration eliminators suitable for raw water up to 70 deg.C temperature, pressure upto 15 Bar and vacuum rating upto 700 mm Hg. It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						

SL. NO.	DSR 2013 Item No./ NDSR	DESCRIPTION	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In Words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In Words
5.6.1	NDSR	200 mm dia	Nos.	4				
5.6.2	NDSR	150 mm dia	Nos.	6				
5.6.3	NDSR	100 mm dia	Nos.	6				
5.6.4	NDSR	80 mm dia.	Nos.	2				
5.6.5	NDSR	65 mm dia	Nos.	4				
5.7	NDSR	Supplying, installation, setting, testing and commissioning of differential type <b>pressure switches</b> for operation of pumps. It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
5.7.1	NDSR	150 mm dia.	Nos.	2				
5.7.2	NDSR	100mm dia.	Nos.	5				
5.8	NDSR	Supplying, installation, setting, testing and commissioning of <b>pressure gauge</b> with isolation cock. It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.	Nos.	6				
		<b>TOTAL for "Pipe work and Valves" carried over to SUMMARY (Rs.)</b>						
6.0		<b>LEVEL CONTROLLERS IN OVERHEAD TANKS</b>						
6.1	NDSR	Supplying, fixing and commissioning of <b>magnetic float type</b> automatic level controller comprising of magnetic float type level sensors of Stainless Steel (Grade 304) construction (low & high level sensing in over head water tank) and level control unit with manual override facility in a weather proof enclosure (Minimum IP 65 Rating) for auto opening and closing of solenoid valves, including control cabling between sensor, controller and solenoid valves/motorised valve etc. It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.	Sets	18				

SL. NO.	DSR 2013 Item No./ NDSR	DESCRIPTION	UNIT	QTY	RATE (In Rs.) In Figures	RATE (In Rs.) In Words	AMOUNT (In Rs.) In Figures	AMOUNT (In Rs.) In Words
6.2	NDSR	Providing, fixing, wiring and commissioning <b>Motorised Valves</b> as per following sizes. It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
6.2.1	NDSR	25 mm dia (ND)	Nos.	2				
6.2.2	NDSR	40 mm dia (ND)	Nos.	12				
6.2.3	NDSR	50 mm dia (ND)	Nos.	4				
6.3	NDSR	Providing, fixing, testing and commissioning of motorised valve bypass arrangement with one no.full bore ball valves including taping the G.I main of upto 65 mm dia ( Tees with plugs already provided in the main), fixing neccessary fittings like tees, elbows, unions and nipples etc, complete as required. It should be complete as per manufacturer's specifications & as directed by Engineer-In-Charge.						
6.3.1	NDSR	25 mm dia (ND)	Nos.	2				
6.3.2	NDSR	40 mm dia (ND)	Nos.	12				
6.3.3	NDSR	50 mm dia (ND)	Nos.	4				
		<b>TOTAL for "Level Controllers in Overhead Tanks" carried over to SUMMARY (Rs.)</b>						
		Note: Wherever mechanical seal has been asked for, it must be 'factory fitted' at pump manufacturer's works.						
		<b>GRAND TOTAL (In Rs.)</b>						

Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha			
SUMMARY FOR SOLAR HOT WATER SYSTEM			
SR. NO.	DESCRIPTION	QUOTED AMOUNT (In Rs.) In Figures	QUOTED AMOUNT (In Rs.) In Words
1	ADMIN & ACADEMIC (Laboratories+Cafeteria)		
2	GUEST HOUSE		
3	GIRLS HOSTEL & MESS		
4	BOYS HOSTEL & MESS		
	TOTAL AMOUNT (In Rs.)		



Construction of Regional Institute of Allied Health Sciences (RIAHS) at Bhubaneswar, Odisha								
BoQ FOR SOLAR HOT WATER SYSTEM								
SR. NO.	DSR-2013 ITEM NO. / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) In Figures	RATE (Rs.) In words	AMOUNT (Rs.) In Figures	AMOUNT (Rs.) In Words
1.0	NDSR	Admin cum Academic Building (Laboratories+Cafeteria)						
1.1		Supplying, Installing, Testing and Commissioning of <b>Solar Water Heating System</b> capable of generating 3,200 litres of hot water per day at 60°C as per the following specifications. It should be complete as per manufacturer's specifications & as per direction of Engineer-In-Charge.						
a)		<b>Collectors Specification:</b> The collector would be EN12975 accredited and capable of gaining solar radiation even with very low emittance values through Sputtered aluminium <b>TiNOX</b> Surface Absorber Plate. The emittance of the surface would not exceed 4% + 2%, whereas absorption of surface would be greater than 95 + 2%. In order to Maximizes available solar radiation, the Glazing would be Low iron Matt/Tempered Glass with iron oxide content no more than 0.01%.The risers would be of copper so that heat transfers are best possible and at the same time would have excellent corrosion resistance. The backing tray would be of strong Aluminium Tray in order to provide all weather protection. The collector would be in position to work up to 6 Bar pressure. <b>Total Collectors 22 Nos</b>						
b)		Hot Water Storage Tank — to be installed in 2000 Liters + 1000 Liter ( <b>Total 3,000 litres</b> ) configuration ; constructed with SS 304 sheet; suitable for a working pressure of 2 kg/cm <sup>2</sup> ; complete with inlet, outlet, vent connections and temperature gauges, etc.; fully insulated with 40 mm thick closed cell insulation foam, with Propertitory UV and mechanical Protection to make is water and weather resistant. mounted on an MS frame and provided with access ladder. The hot water storage tank shall be suitable for installing on terrace in open. The hot water storage tank of 1000 liter shall be fitted with 10 nos. of electric heating elements of 6KW each, switchable by their own individual thermostat. Inlet and outlet dia as per the recommendation in the drawings.						
c)		Primary Hot Water Circulating Pumps — 2 Nos. (1 working + 1 standby) each of 10LPM flow and 3 M head, suitable for hot water application upto 95 Deg C, to be controlled by temperature based control panel to be functional as per the specifications provided in the control panel technicals.						
d)		Hot Water Returns Pumps — 2 Nos. (1 working + 1 standby) as per manufacturer recommendation.						
e)		Pump starter panel with starters of suitable rating for all pumps & all interconnecting power & control cables from panel to respective motors						

SR. NO.	DSR-2013 ITEM NO. / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) In Figures	RATE (Rs.) In words	AMOUNT (Rs.) In Figures	AMOUNT (Rs.) In Words
f)		Interconnecting Pipework : All interconnecting pipework in SS304 with Crimp Fittings	Set	1				
		<b>TOTAL OF STAFF APARTMENTS (Rs.)</b>						
2.0	NDSR	<b>GUEST HOUSE</b>						
2.1		Supplying, Installing, Testing and Commissioning of <b>Solar Water Heating System</b> capable of generating 1650 litres of hot water per day at 60°C as per the following specifications. It should be complete as per manufacturer's specifications & as per direction of Engineer-In-Charge.						
a)		<b>Collectors Specification:</b> The collector would be EN12975 accredited and capable of gaining solar radiation even with very low emittance values through Sputtered aluminium <b>TiNOX</b> Surface Absorber Plate. The emittance of the surface would not exceed 4% + 2%, whereas absorption of surface would be greater than 95 + 2%. In order to Maximize available solar radiation, the Glazing would be Low iron Matt/Tempered Glass with iron oxide content no more than 0.01%. The risers would be of copper so that heat transfers are best possible and at the same time would have excellent corrosion resistance. The backing tray would be of strong Aluminium Tray in order to provide all weather protection. The collector would be in position to work up to 6 Bar pressure. <b>Total Collectors 12 Nos</b>						
b)		Hot Water Storage Tank — to be installed in 1,000 Liters + 500 Liter ( <b>Total 1,500 litres</b> ) configuration ; constructed with SS 304 sheet; suitable for a working pressure of 2 kg/cm <sup>2</sup> ; complete with inlet, outlet, vent connections and temperature gauges, etc.; fully insulated with 40 mm thick closed cell insulation foam, with Proprietary UV and mechanical Protection to make it water and weather resistant. mounted on an MS frame and provided with access ladder. The hot water storage tank shall be suitable for installing on terrace in open. The hot water storage tank of 500 liter shall be fitted with 4 nos. of electric heating elements of 6KW each, switchable by their own individual thermostat. Inlet and outlet dia as per the recommendation in the drawings.						
c)		Primary Hot Water Circulating Pumps — 2 Nos. (1 working + 1 standby) each of 6LPM flow and 3 M head, suitable for hot water application upto 95 Deg C, to be controlled by temperature based control panel to be functional as per the specifications provided in the control panel technicals.						

SR. NO.	DSR-2013 ITEM NO. / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) In Figures	RATE (Rs.) In words	AMOUNT (Rs.) In Figures	AMOUNT (Rs.) In Words
d)		Hot Water Returns Pumps — 2 Nos. (1 working + 1 standby) as per manufacturer recommendation.						
e)		Pump starter panel with starters of suitable rating for all pumps & all interconnecting power & control cables from panel to respective motors						
f)		Interconnecting Pipework : All interconnecting pipework in SS304 with Crimp Fittings	Set	1				
2.0		<b>TOTAL OF GUEST HOUSE (Rs.)</b>						
3.0	NDSR	<b>GIRLS HOSTEL (Including MESS Hot Water Requirement)</b>						
3.1		Supplying, Installing, Testing and Commissioning of <b>Solar Water Heating System</b> capable of generating 13000 litres of hot water per day at 60°C as per the following specifications. It should be complete as per manufacturer's specifications & as per direction of Engineer-In-Charge.						
a)		<b>Collectors Specification:</b> The collector would be EN12975 accredited and capable of gaining solar radiation even with very low emittance values through Sputtered aluminium <b>TiNOX</b> Surface Absorber Plate. The emittance of the surface would not exceed 4% + 2%, whereas absorption of surface would be greater than 95 +_ 2%. In order to Maximize available solar radiation, the Glazing would be Low iron Matt/Tempered Glass with iron oxide content no more than 0.01%.The risers would be of copper so that heat transfers are best possible and at the same time would have excellent corrosion resistance. The backing tray would be of strong Aluminium Tray in order to provide all weather protection. The collector would be in position to work up to 6 Bar pressure. <b>Total Collectors 87 Nos</b>						

SR. NO.	DSR-2013 ITEM NO. / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) In Figures	RATE (Rs.) In words	AMOUNT (Rs.) In Figures	AMOUNT (Rs.) In Words
b)		Hot Water Storage Tank — to be installed in 4,000 Liters + 4,000 Liter + 5,000 Liter ( <b>Total 13,000 litres</b> ) configuration ; constructed with SS 304 sheet; suitable for a working pressure of 2 kg/cm <sup>2</sup> ; complete with inlet, outlet, vent connections and temperature gauges, etc.; fully insulated with 40 mm thick closed cell insulation foam, with Propertory UV and mechanical Protection to make is water and weather resistant. mounted on an MS frame and provided with access ladder. The hot water storage tank shall be suitable for installing on terrace in open. One of the last in line hot water storage tank of 4,000 liter shall be fitted with 20 nos. of electric heating elements of 6KW each, switchable by their own individual thermostat. Inlet and outlet dia as per the recommendation in the drawings.						
c)		Primary Hot Water Circulating Pumps — 3 Nos. (2 working + 1 standby) each of 20LPM flow and 3 M head, suitable for hot water application upto 95 Deg C, to be controlled by temperature based control panel to be functional as per the specifications provided in the control panel technicals.						
d)		Hot Water Returns Pumps — 2 Nos. (1 working + 1 standby) as per manufacturer recommendation.						
e)		Pump starter panel with starters of suitable rating for all pumps & all interconnecting power & control cables from panel to respective motors						
f)		Interconnecting Piepwork : All interconnecting pipework in SS304 with Crimp Fittings	Set	1				
3		<b>TOTAL OF GIRLS HOSTEL (Rs.)</b>						
4.0	NDSR	<b>BOYS HOSTEL (Including MESS Hot Water Requirement)</b>						
4.1		Supplying, Installing, Testing and Commissioning of <b>Solar Water Heating System</b> capable of generating 13000 litres of hot water per day at 60°C as per the following specifications. It should be complete as per manufacturer's specifications & as per direction of Enginneer-In-Charge.						

SR. NO.	DSR-2013 ITEM NO. / NDSR	DESCRIPTION	UNIT	QTY.	RATE (Rs.) In Figures	RATE (Rs.) In words	AMOUNT (Rs.) In Figures	AMOUNT (Rs.) In Words
a)		<b>Collectors Specification:</b> The collector would be EN12975 accredited and capable of gaining solar radiation even with very low emittance values through Sputtered aluminium <b>TiNOX</b> Surface Absorber Plate. The emittance of the surface would not exceed 4% + 2%, whereas absorption of surface would be greater than 95 + 2%. In order to Maximizes available solar radiation, the Glazing would be Low iron Matt/Tempered Glass with iron oxide content no more than 0.01%.The risers would be of copper so that heat transfers are best possible and at the same time would have excellent corrosion resistance. The backing tray would be of strong Aluminium Tray in order to provide all weather protection. The collector would be in position to work up to 6 Bar pressure. <b>Total Collectors 87 Nos</b>						
b)		Hot Water Storage Tank — to be installed in 4,000 Liters + 4,000 Liter + 5,000 Liter ( <b>Total 13,000 litres</b> ) configuration ; constructed with SS 304 sheet; suitable for a working pressure of 2 kg/cm <sup>2</sup> ; complete with inlet, outlet, vent connections and temperature gauges, etc.; fully insulated with 40 mm thick closed cell insulation foam, with Properitory UV and mechanical Protection to make is water and weather resistant. mounted on an MS frame and provided with access ladder. The hot water storage tank shall be suitable for installing on terrace in open. One of the last in line hot water storage tank of 4,000 liter shall be fitted with 20 nos. of electric heating elements of 6KW each, switchable by their own individual thermostat. Inlet and outlet dia as per the recommendation in the drawings.						
c)		Primary Hot Water Circulating Pumps — 3 Nos. (2 working + 1 standby) each of 20LPM flow and 3 M head, suitable for hot water application upto 95 Deg C, to be controlled by temperature based control panel to be functional as per the specifications provided in the control panel technicals.						
d)		Hot Water Returns Pumps — 2 Nos. (1 working + 1 standby) as per manufacturer recommendation.						
e)		Pump starter panel with starters of suitable rating for all pumps & all interconnecting power & control cables from panel to respective motors						
f)		Interconnecting Piepwork : All interconnecting pipework in SS304 with Crimp Fittings	Set	1				
4.0		<b>TOTAL OF BOYS HOSTEL (Rs.)</b>						
		<b>GRAND TOTAL (Rs.)</b>						