

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

**TENDER**

**FOR**

**Construction of Guru Tegh Bahadur Diagnostic  
Centre at Government Medical College, Amritsar  
under PMSSY**

**VOLUME –V**

**BILL OF QUANTITIES**

**MAY 2011**



**HSCC (INDIA) LTD.  
(CONSULTANTS & ENGINEERS FOR MEGA HOSPITALS & LABORATORIES)  
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**Tender No. MoHFW/HSCC/PMSSY/ASR/GTB/2011**

# CIVILWORKS

**PROJECT NAME:- Construction of Diagnostic centre at Amritsar, Punjab.**

**BOQ Civil Work**

<b>Item No</b>	<b>Description Of Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Rate in figures (in Rs.)</b>	<b>Rate in words (in Rs.)</b>	<b>Amount in figures (in Rs.)</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
<b>1.00</b>	<b>EARTH WORK</b>					
1.01	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed.					
a)	All kinds of soil	112.00	cum			
1.02	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.					
a)	All kinds of soil.	5515.00	cum			
1.03	Extra for every additional lift of 1.5 m or part there of in.					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
a)	All kinds of soil.					
l)	1.5m to 3.0m	375.00	cum			
1.04	Extra for disposal of excavated earth for every additional lead of 50m or part thereof upto 500m					
a)	All kinds of soil up to 0.5 Km					
i)	Up to 0.5 - 1 Km	4917.00	cum			
1.05	Supplying and stacking of good earth at site including royalty and carriage upto 1 km. (earth measured in stacks will be reduced by 20% for payment)	618.00	cum			
1.06	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.	3855.00	cum			
1.07	Supplying and filling in plinth with River bed sand under floors including, watering, ramming consolidating and dressing complete.	710.00	cum			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
1.08	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	30.00	100sqm			
1.09	Supplying chemical emulsion in sealed containers including delivery as specified.					
a)	Chlorpyriphos/Lindane emulsifiable concentrate of 20%	353.37	Litres			
1.10	Diluting and injecting chemical emulsion for POST-CONSTRUCTION anti-termit treatment (excluding the cost of chemical emulsion) :					
a)	Along external wall where the apron is not provided using chemical emulsion @ 7.5 litres / sqm of the vertical surface of the substructure to a depth of 300 mm including excavation channel along the wall & rodding etc. complete:					
i)	With Chlorpyriphos/ Lindane E.C. 20% with 1% concentration.	1766.84	Sqm			
b)	Along the external wall below concrete or masonry apron using chemical emulsion @ 2.25 litres per linear metre including drilling and plugging holes etc.					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
i)	With Chlorpyriphos/ Lindane E.C. 20% with 1% concentration.	1766.84	Sqm			
	<b>Total</b>					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
<b>2.00</b>	<b>Concrete Work</b>					
2.01	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:					
a)	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	10.00	cum			
b)	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size).	144.00	cum			
c)	1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size)	20.00	cum			
d)	1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size)	5.00	cum			
2.02	Providing and laying damp-proof course 40mm thick with cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 12.5mm nominal size).	150.00	sqm			
2.03	Applying a coat of residual petroleum bitumen of penetration 80/100 of approved quality using 1.7kg per square metre on damp proof course after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.	150.00	sqm			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
2.04	Extra for providing and mixing water proofing material in cement concrete work @ 1 kg per 50kg of cement.	142.00	per 50 kg cement			
	<b>Total</b>					



Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
<b>3.00</b>	<b>REINFORCED CEMENT CONCRETE</b>					
3.01	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete work 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. M-25 grade reinforced cement concrete by using 410 kg. of cement per cum of concrete. All work up to floor V level.	4178.00	cum			
3.02	Add or deduct for providing richer or leaner mixes respectively at all floor levels.					
a)	Providing M-30 grade concrete by using 420kg of cement per cum of concrete instead of M-25 grade B.M.C/ R.M.C..	25	cum			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
b)	Providing M-35 grade concrete by using 428kg of cement per cum of concrete instead of M-25 grade B.M.C/ R.M.C..	4153.00	cum			
3.03	Extra for R.C.C./ B.M.C/ R.M.C. work above floor V level for each four floors or part thereof.	200.00	cum			
3.04	Centering and shuttering including strutting,proping etc and of form for					
a)	Foundation footings, bases of columns etc	143.48	sqm			
b)	Walls (any thickness) including attached pilasters, butresses, plinth and string courses etc.	410.00	sqm			
c)	Suspended floors, roofs, landings, balconies and access platform.	7568.72	sqm			
d)	Shelves (Cast in situ)	200.00	sqm			
e)	Lintels , Beam , plinth beams, girder	3423.54	sqm			
f)	Columns, Pillers, Piers, Abutments, Posts and Struts	3235.20	sqm			
g)	Stairs, (excluding landings) except spiral-staircases.	306.00	sqm			
h	Vertical and horizontal fins individually or forming box louvers band, facias and eaves boards.	560.00	sqm			
i	Small lintels not exceeding 1.5m clear span. moulding as in cornices, window sills, string courses, bands, copings, bed plates. anchor blocks and the like.	100.00	sqm			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
j	Small surfaces such as cantilever ends, brackets and ends of steps, caps and bases to pilasters and columns and the like.	300	sqm			
3.05	Centring and shuttering in domes, arches, shell roof etc spanning more than 6 meters at all heights and height upto 10 meters, inclusive cost of design of form and all temporary works required for the execution of the work all complete	1513.75	sqm			
3.06	Extra for shuttering in circular work					
i)	Column	485.28	sqm			
ii)	Beams	513.53	sqm			
iii)	Slab	1135.31	sqm			
3.07	Extra for additional height in centering, shuttering wherever required with adequate bracing, propping etc including cost of deshuttering and decentering at all levels , over a height of 3.5 m for every additional height of 1 meter or part thereof	3013.12	sqm			
3.08	Reinforcement for R.C.C. work including straightening. cutting, bending, placing in position and binding all complete.					
	Thermo-Mechanically Treated bars. Fe500	693.98	MT			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
3.09	Providing precast cement concrete Jali 1 :2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 6mm nominal size) reinforced with 1.6 mm dia mild steel wire including centering and shuttering, roughening cleaning, fixing and finishing in cement mortar 1:3 (1 cement: 3 fine sand) etc. complete excluding plastering of the jambs, sills and soffits.					
a)	25 mm thick	100.00	Sqm			
3.10	Providing and fixing in position 12mm thick bitumen impregnated fibre board conforming to IS: 1838 including cost of primer, sealing compound in expansion joints.	150	per cm depth per per 100m			
3.11	Providing and fixing sheet covering over expansion joints with iron screws as per design to match the colour / shade of wall treatment.					
a)	Aluminium fluted strips 3.15mm thick.					
i)	200 mm wide.	100	metre			
	<b>Total</b>					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
<b>4.00</b>	<b>BRICK WORK</b>					
4.01	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in:					
a)	Cement mortar 1:6 (1 cement: 6 coarse sand)	150.88	cum			
4.02	Brick work with F.P.S. bricks of class designation 75 in superstructure above plinth level up to floor V level in all shapes and sizes in :					
a)	Cement mortar 1:6 (1 cement: 6 coarse sand)	254.93	cum			
4.03	Half brick masonry with F.P.S. brick of class designation 75 in foundations and plinth in.					
a)	cement mortar 1:4 (1 cement: 4 coarse sand)	509.20	sqm			
4.04	Half brick masonry with F.P.S. bricks of class designation 75 in superstructure above plinth level up to floor V level.					
a)	Cement mortar 1:4 (1 cement :4 coarse sand)	12362.01	sqm			
4.05	Extra for half brick masonry in superstructure, above floor V level for every four floors or part thereof by mechanical means by lifting material using mobile crane.	302.89	sqm			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
4.06	Extra for providing and placing in position 2 Nos. 6mm dia. M.S. bars at every third course of half brick masonry (with F.P.S. bricks).	12664.89	sqm			
4.07	Extra for forming Cavity in cavity walls with necessary weep and vent holes including use of cores and cost of providing and fixing bitumastic coated M.S. ties 600 mm long of 25mmx3mm section at not less than 3 ties per sqm as per approved design.	1108.38	sqm			
4.08	Brick work in gauged arches in superstructure in cement mortar 1:3 (1 cement : 3 coarse sand) including centering and shuttering complete, for span up to 6 meters with F.P.S. brick of class designation 75	38.24	Cum			
4.09	Extra for half masonry in superstructure, above floor V level for every four floors or part thereof by mechanical means by lifting material using mobile crane.	91.54	sq m			
	<b>Total</b>					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
<b>5.00</b>	<b>DOORS &amp; WINDOWS</b>					
5.01	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections / appropriate Z sections and other sections of approved make conforming to IS: 733 and IS : 1285, 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 / panelling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing and panelling to be paid for separately) :					
5.01.1	For fixed portion					
a)	Powder coated aluminium (minimum thickness of powder coating 50 micron)	4069.00	kg			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
5.01.2	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of PVC / neoprene gasket required (Fittings shall be paid for separately).					
a)	Powder coated aluminium (minimum thickness of powder coating 50 micron)	1477.00	kg			
5.02	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge. (Cost of aluminium snap beading shall be paid in basic item) :					
a)	With float glass panes of 5.50 mm thickness	256.00	sqm			
5.03	Providing and fixing double action hydraulic floor spring of approved brand and manufacture IS : 6315 marked, for doors including cost of cutting floors as required, embedding in floors and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate etc. complete as per the direction of Engineer-in-charge.					
	With stainless steel cover plate	20.00	each			



Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
5.04	Extra for providing frosted glass panes 5.5 mm thick instead of ordinary float glass panes 5.5 mm thick in doors, windows and clerestory window shutters. (Area of opening for glass panes excluding portion inside rebate shall be measured).	51.20	sqm			
5.05	Providing and fixing ISI marked flush door shutters conforming to IS: 2202 (Part I) decorative type, core of block board construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters.					
a)	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws.	492.00	sqm			
5.06	Providing and fixing wooden moulded beading to door and window frames with iron screws, plugs and priming coat on unexposed surface etc. complete:					
5.06.1	2nd class teak wood					
a)	50x12 mm	2153.00	metre			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
5.07	Providing and fixing IS : 3564 marked Aluminium die cast body tubular type universal hydraulic door closer with necessary accessories and screws etc. complete.	229.00	each			
5.08	Providing and fixing door frame as per BS 476 part 22, IS 3612 as per proto type certified by CBRI Roorkey made out of second class of CP teak wood of minimum section 115 mm x 60 mm nominal for fire resistant door of 120 minutes fire rating with heat activated intumescent fire seal strips of size 10 mm x 4 mm ( for smoke sealing ) provided in grooves on all the three sides of the frame with one coat of fire retarding primer and two coats of fire retardant paint FR 881 or equivalent of approved brands @ 3.5 sq m per liter per coat including preparation of base surface as per recommendations of manufacturer to make the surface fire retardant including fixing the frame with 6 no 75 mm 10 mm dia metal dash fasteners complete as per directions of engineer .( Cost of seal strip, dash fasteners etc are included in the item and nothing extra will be paid for if size of component mentioned exceeds as per site requirements)	90.00	metre			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
5.09	Extra for providing vision panel not exceeding 0.1 sqm in all type flush doors (cost of glass excluded) (overall area of door shutter to be measured).					
a)	Rectangular / square	470.00	sqm			
5.10	Providing and fixing minimum 6 mm thick of approved make piroshield fire rated clear glass of 120 minutes fire rating having a minimum 13 mm square electrically welded chemically treated steel wire mesh of dia 0.51 mm sandwitched in the centre during the continuous rolling process to be fixed in vision panel including cost of fire rated gasket channel and moulding/ beading all complete	5.00	sqm			
5.11	supply and fixing of Fire retardant boards to be fixed at the bottom with necessar screws etc and filling of vermiculite based cementious type fire proof sealing system mixed with concrete of retrim design for sealing of openings through floor shafts etc duly tested and certified by CBRI Roorkey as per IS 1245 1988 and other national and international standards	30	sq m			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
5.12	Providing and fixing of fire rated automatic door closer tested in accordance with BS:476 Part 22 for fire rating) and BSEN 1154 with 10 year warranty.	7	Each			
5.13	Providing and fixing of fire rated door latch tested in accordance with BS:476 Part 22 for fire rating) and BSEN 1154	16	Each			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
5.14	providing and installation of minimum 42 mm thick non metallic asbestos free fire resistant doors of 120 minutes rating conforming to IS 476 part 22 and IS 3614 part II as per prototype tested and certified by CBRI Roorkey suitable for mounting on door frame as per above item and comprising of two non combustible boards 12 to 18 mm thick sandwiching 10 mm to 20 mm thick fire resistant insulating filler , veneered with 3mm thick commercial ply on both the face and pasting of 1 mm thick laminate over fire door with second class CP teak wood lipping on all the sides with heat activated intumescent fire seal strip of minimum size 10 x 4 mm on all the sides of the shutter except bottom provided in suitable groove The shutter shall be fixed with stainless mounted steel ball bearing butt hinges grade 304 ( 100x 76x 2 mm ) with necessary screws etc along with cut out for providing vision panel glass complete as per drawing					
	single / double shutter	70	SqM			
	<b>ALUMINIUM FITTINGS</b>					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
5.15	Providing and fixing aluminium sliding door bolts ISI marked anodised (anodic coating not less than grade AC 10 as per IS: 1868) transparent or dyed to required colour or shade with nuts and screws etc. complete:					
a)	250x16 mm	229.00	each			
5.16	Providing and fixing aluminium tower bolts ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868 ) transparent or dyed to required colour or shade with necessary screws etc. complete:					
a)	250x10 mm	231.00	each			
b)	150x10 mm	318.00	each			
5.17	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. c.omplete :					
a)	125 mm	462.00	each			
b)	100 mm	318.00	each			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
5.18	Providing and fixing aluminium hanging floor door stopper ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade with necessary screws etc. complete.					
a)	Single rubber stopper	230.00	each			
5.19	Providing and fixing bright finished brass 100 mm mortice latch and lock IS: marked with six levers and a pair of anodised (anodic coating not less than grade AC 10 as per IS : 1868) aluminium lever handles with necessary screws etc. complete (Best make of approved quality).	15.00	each			
5.20	Providing and fixing powder coated aluminium grills made out with special extruded sections fixed with suitable means approved and as directed by Engineer in Charge including all complete.	783.00	kg			
5.21	Providing and fixing 1mm thick M.S sheet door with frame of 40x40x6mm angle iron and 3mm M.S gusset plate at the junction and corner all necessary fittings complete including applying a priming coat of approved steel primer					
a)	Using M.S angle 40x40x6mm for diagonal braces	6.00	Sqm			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
5.22	Providing and fixing fly proof galvanised stainless steel wire guage to windows and clerestory windows using approved quality stainless wire gauge with average width of aperture 1.4mm in both direction with wire if dia 0.63mm including the cost of using hollow EPDM gasket all around.	60.00	sqm			
5.23	Providing and fixing Aluminium Composite sheet cladding using 4 mm thick of approved make consisting of a core of 3 mm natural polyethylene core sandwiched between two skins of 0.5 mm each of aluminium alloy with outer surface in all colour coating of PVDF paint in fully automatic coil coating process . The PVDF coated finish surface to be factory protected with self adhesive peel off foil tested to withstand at least 6 months exposure to local weather conditions The composite sheet cut and bend to shape profile as required, including perimeter extrusion base frame frame extruded stiffners expansion fastners & silicon sealent ( Dow Corning 789) required for installation as per approved elevation drawing work included accessories complete All complete for plain and curved surfaces as per drawings.	1800.00	sqm			



Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
5.24	Extra for Providing etching on glass panes in doors, windows shutters, partition etc in desired pattern complet as per drawing and as directed.(Area of etching shall be measered for payment)	130.00	sqm			
5.25	Providing and fixing M.S. Tubular frames for doors , windows, ventilators and cupboard with L-Type section made of 1.60mm thick M.S. Sheet, joints mitred and welded and grinded finish profiles required size with 15x3mm lugs 10cm long embedd in cement concrete blocks 15x10x10cm of 1:3:6 (1 cement: 3 coarse sand :6 graded stone aggregate 20mm nominal size) or with wooden plugs and screws or rawl plugs and screws or with fixing clips or nuts as required including fixing of necessary butt hinges and screws and applying a priming coat of approved steel primers.	70.00	Kg			
	<b>Total</b>					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
<b>6.00</b>	<b>Steel Works</b>					
6.01	Providing and fixing M.S. grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. all complete.					
a)	Fixed in position by welding/ dash fastners and screws, rawl plug etc	950.00	kg			
6.02	Steel work welded in built up sections/ framed work including cutting ,hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.					
a)	In stringers, treads ,landings etc of stair cases including use of chequered plate wherever required, all complete.	100.00	Kg			
b)	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works.	1800.00	Kg			
6.03	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing and staircase railing including applying a priming coat of approved steel primer.					
a)	M.S. tube.	1500.00	Kg			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
6.04	Providing and fixing circular Hexagonal cast iron or M.S sheet box for ceiling fan clamp of internal dia 140mm, 73mm height, top lid of 1.5mm thick M.S. sheet with its top surface hacked for proper bonding , top lid shall be screwed into the cast iron / M.S. sheet box by means of 3.3mm dia. round headed screws, one lock at the corners. Clamp shall be made of 12mm dia M.S. bar.bento shape as per standad drawing.	300.00	Each			
6.05	Design Supplying, Fabricating, Erecting & installation of M.S steel structure for Polycarbonate sheet / roofing consisting of various M.S structural members such as M.S tubuler sections, space frame /gurder /purlins of required size including the cost of gasket screws, nut bolts, rivets, welding ,cutting ,grinding etc. and other accesories as per architectural drawing for supporting Polycarbonate/sheeting all complete and as directed	1500.00	Kg			
6.06	Providing and fixing staircase railing 90cm high from nosing of steps , made of following specifications: 50 mm dia . SS pipe handrail.					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
	50 mm dia . SS pipe baluster at every third step (or 900 mm c/c at landings floor levels, etc.)upto 650 mm from FFL, embedded in RCC step/landing etc. to a minimum depth of 65mm and extended by 20mm dia SS pipe up to bottom of hand rail.					
	2 Nos 20mm dia . SS pipe intermediate runners parallel to handrail haviing two no 20mm dia SS vertical intermediate runners.					
	SS. Shoe 5mm thick -75mm outer dia at each baluster.					
	Baluster to be anchored in RCC step/landing by providing and pouring 5mm thick molten lead alround baluster.					
	The stainless steel work shall be brushed steel finish with all joints/ welds properly grinded to final finish . The stainless steel shall be 304 grade , 20 SWG and shall conform to relevant IS specifications.					
	Complete as per Archtectural drawing and as directed .	150.00	kg			
	<b>Total</b>					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
<b>7.00</b>	<b>Flooring</b>					
7.01	Cement concrete flooring 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate) finished with a floating coat of neat cement including cement slurry, but excluding the cost of nosing of steps etc. complete.					
a)	40mm thick with 20mm nominal size stone aggregate.	200.00	sqm			
7.02	Cement plaster skirting (up to 30 cm height) with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement.					
a)	18 mm thick.	50.00	sqm			
7.03	Providing and fixing glass strips in joints of <i>terrazo</i> / cement concrete floors.					
a)	40 mm wide and 4 mm thick.	400.00	Metre			
7.04	Marble stone flooring with 18mm thick marble stone (sample of marble shall be approved by Engineer-in-charge) over 20 mm (average) thick base of cement mortar 1:4 (1 cement: 4 coarse sand) laid and jointed with grey cement slurry including rubbing and polishing complete with:					
a.1	MAKRANA White	1251.48	sqm			
b)	Udaipur green marble	417.16	sqm			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
c)	Jaisalmer Stone	417.16	sqm			
7.05	Tile work skirting, risers of steps and dado (up to 2 m height) over 12 mm thick bed of cement mortar 1:3 (1cement : 3 coarse sand) and jointed with grey cement slurry @ 3.3kg/sqm including pointing in white cement mixed with pigment to matching shade complete.					
a)	Udaipur green (8mm nominal thickness)	330.15	sqm			
b)	Rajnagar white marble Stone Tile (8mm nominal thickness)	125.15				
7.06	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) :					
a)	25 mm thick.	457.00	sqm			
7.07	Kota stone slabs 25 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	58.29	sqm			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
7.08	Providing and fixing 1st quality ceramic glazed wall tiles 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 @ 3.3kgper sqm including pointing in white cement mixed with pigment of matching shade complete.	100	sqm			
7.09	Providing and fixing 1st quality Vitrified Wall tiles (thickness to be specified by the manufacture) of approved make in all colours, shades 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 @ 3.3kgper sqm including pointing in white cement mixed with pigment of matching shade complete.	2044.88	sqm			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
7.10	Providing and laying polished vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption's less than 0.08% and conforming to IS : 15622 of approved make in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement: 4 coarse sand) including grouting the joints with white cement and matching pigments etc., complete					
a)	Size of Tile 60x60 cm	3060.95	sqm			
7.11	Providing and laying polished antiskid vitrified floor tiles 600mm x 600mm (thickness to be specified by the manufacturer) with water absorption's 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	453.15	sqm			



Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
7.12	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					
7.12a	Granite of any colour and shade					
i	Area of slab upto 0.50 sqm	80.00	sqm			
ii	Area of slab over 0.50 sqm.	120.00	sqm			
7.13	Extra for providing edge moulding to 18mm thick Granite stone counters, Vanities etc. including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer-in-Charge.					
a)	Granite work.	25.00	metre			
7.14	Extra for mirror polishing on kota / marble stone work where ever required to give high gloss finish complete.	457.55	sqm			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
7.15 a.	Extra for marble stone flooring in treads of steps and risers using single length up to 2.00 m.	500.00	sqm			
7.15 b	extra for making pattern with marble flooring where ever required as per drawings and directions of engineer in charge	1000.00	sqm			
7.16	Providing and laying of Carpet Tile over the speicified area with folowing specification. The floor which receives the carpet to be thoroughly cleaned as per manufactuer's specification. The carpet is to be laid over a bed of manufacturer's approved adhesive spread evenly over the entire floor. The rate shall include cutting, trimming, fixing anbd clearing away of residual material to a location as directed. The rate shall also include supplying and laying of a protective layer of PVC or HDPE sheet of 50 microns thickness, held together with scotch tape. The laid carpet to be vacuumed after the removal of protective cover/on commissioning. If after the protective layer is removed and stains observed in the carpet because of in adequate protection, the same shall be shampooed and made good to the satisfaction of the project managers. The measurements of carpet will be the actual laid area.					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
	Providing & laying carpet tile with following specification:					
	Style : Level Loop					
	Type : Carpet Tile					
	Construction : Graphic					
	Pile density / YD2 : 4972					
	Pile height average : minimum 5mm					
	Yarn / Fibre content : 100% Nylon					
	Dye method : Solution Dye / Yan Dye					
	Face yarn weight : 28 Oz/Sq.yard.					
	Secondary backing : Ultra Set Modular system					
	Stitches : 11 ends / inch					
	Guage : 5/64					
	Protectice treatment : Sentry Plus					
	Flammability : Shall meet ASTM E648 - Class-1 requirements in glue down condition					
	Smoke propensity : Less than 450 - shall confirm to ASTM - E - 662					
	Warranties : Lifetime modular warranty & 10 years stain Warranty					
	Fire resistance : As per NFPA	900.00	sqm			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
7.17	38 mm thick parquet (wood block) flooring of first class teak wood laid over 25 mm thick levelling layer of cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 10 mm nominal size) to be paid separately coated with a thin layer of hot bitumen( blown type) @ 2.45 kg per sqm, including fixing blocks in position after dipping in hot bitumen (blown type) upto half depth, planed, levelled smooth and finished complete	70.00	sqm			
	<b>Total</b>					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
<b>8.00</b>	<b>CEILING &amp; ROOFING</b>					
8.01	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 edge sand making and finishing the outlet complete.	15.00	each			
8.02	Providing and laying water proofing treatment to vertical and horizontal surfaces of depressed pprtions of W.C., kitchen and the like consisting of :					
i)	1st course of applying cement slurry @ 4.4 Kg/sqm mixed with water proofing compound conforming to 18 2645 in recommended proportions including rounding off junction of vertical and horizontal surface.					
ii)	IInd course of 20mm cement plaster 1:3 (1 cement: 3 coarse sand) mixed with water proofing compound in recommended proportion including rounding off junction of vertical and horizontal surface.					
iii)	IIIrd course of applying blown or residual bitumen applied hot at 1.7 Kg. per sqm of area.					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
iv)	IVth course of 400 micron thick PVC sheet. (Overlaps at joints of PVC sheet Should be 100 mm wide and pasted to each other with bitumen @ 1:7 Kg/sqm.)	200.00	sqm			
8.03	Providing and filling cement concrete 1:5:10 (1 Cement : 5 Coarse sand : 10 broken brick bats 40 to 80 mm nominal size) including watering, ramming etc. complete as directed.	40.00	Cum			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
8.04	Providing and fixing minimum 10 mm thick light weight calcium silicate based false ceiling tiles having densified edges and 100 % humidity resistance incombustible as per BS 476 part IV with thermal conductivity of 0.0043 w/m Kcof size 600x 600 mm in true horizontal level suspended on inter locking metal grid of hot dip galvanised steel sections ( galvanised @ 171 gm/sqm ) consisting of main Tee runner suitably placed at joints to get required length and size 24x 38 mm made from 0.30 mm thick sheet spaced at 1200 mm centre to centre and cross T of size 24x 25 mm made of 0.30 mm thick sheet to be interlocked at middle of the 1200 x 600 mm panel to form grids of 600 x 600 mm and laying min 10 mm thick calcium silicate based false ceiling tiles of approved texture in the grid including where ever required cutting / making opening for vservices lioke diffusers grills light fittings fixtures smokr detectors etc					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
a)	main T runners to be suapended from ceiling using GI slotted cleatsfixed to ceiling with 6 mm dia 50 mm long dash fastner 4 mm dia Gi adjustable rods with galvanised level clips spaced at 1200 m centre to centre along main T bottom exposed width of 24 mm of all T sections shall be pre painted with polyster paint all complete at all heights as per specification and drawings and directed by engineer	6214.00	sqm			



Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
8.05	Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of following operations: a) Applying a slurry coat of neat cement using 2.75 kg/sqm. of cement admixed with water proofing compound conforming to IS. 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls upto 300mm height including cleaning the surface before treatment. b) Laying brick bats with mortar using broken bricks/brick bats 25 mm to 115mm size with 50% of cement mortar 1:5 (1 cement: 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge over 20 mm thick layer of cement mortar of mix 1:5 (1 cement :5 coarse sand) admixed with water proofing compound to IS : 2645 and approved by Engineer - in - charge to					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
	adjoining walls upto 300 mm height including rounding of junctions of walls and slabs c) After two days of proper curing applying a second coat of cement slurry using 2.75kg/sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge. d) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 (1 cement: 4 coarse sand) admixed with water proofing compound conforming to IS: 2645 and approved by Engineer-in-charge including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making pattern of 300x300 mm square 3mm deep. e) The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test. All above operations to be done in order and as directed and specified by the Engineer-in-Charge :					
a)	With average thickness of 120mm and minimum thickness at khurra as 65 mm.	1750.00	sqm			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
8.06	Providing and fixing thermal insulation of ceiling (under deck insulation) with Resin Bonded Fibre glass wool conforming to IS : 8183 density 24kg/m <sup>3</sup> , 50mm thick, wrapped in 200 G Virgin Polythene bags fixed to ceiling with metallic cleats (50x50x3 mm) @ 60 cm and wire mesh of 12.5mm x 24g wire and mesh, for top most ceiling of building.	1750.00	sqm			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
8.07	Providing and fixing at all heights acoustical false ceiling of approved make and brand conforming to IS: 476 including providing and fixing of frame work made of color anodised (min. AC-15) aluminium T-Sections 25x25x1.5mm @ 1200mm c/c generally in one direction and aluminium Tee-sections 35x25x1.5mm @ 600mm c/c generally on other direction, at wall/beam ends aluminium angle sections of 25x25x1.5mm , suspended with 4mm dia G.I. suspenders with nuts and washer of required length including painting all exposed steel surfaces with synthetic enamel paint over a coat of primer, and the other end of bar to be fixed to slab with dash fastner of suitable size & fixing of ceiling mineral fibre acoustical tiles with granulated surface of butt/tegular / SLT edges conforming to humidity RH-95, IS476 class-I complete suitable for nominal panel of size 600 x 600mm as specified in					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
	detailed drawing and including providing cut outs/openings for light fixtures AC diffusers, P.A. system speakers, fire alarm system fixture & cut outs for fire fighting & any other work with necessary frames etc. as required complete including cutting and making good the walls / ceiling wherever necessary as directed. as per direction of Engineer-in-Charge .	420.00				
8.08	Providing and fixing 8mm thick clear multi wall polycarbonate sheets of approved quality and shade in desired shape in roofing including the cost of EPDM gaskets , sealing tape , aluminium profile and all necessary accessories complete as per architectural drawings and as directed by Engineer incharge. The item includes designing the complete system and supplying & getting approved from client and / or reputed engineering institue like IIT etc. The detailed shop drawings including supplying structural design calculations based on relevent codal provisions and carrying out water penetration test as per standards followed in India.					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
	The whole work is to be done through reputed and approved vendor having experience in polycarbonate work in Commercial/Govt/Corporate buildings as per architectural elevation drawings including filling of joints with silicon sealent and also with masonry/RCC work, at all heights including double heights, straight or curved etc. complete in all respect. ( Surface Area of polycarbonate sheet shall be measured for the payment) ( Framing to be paid seprately )	170.00	Sqm			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
8.09	Providing water proofing treatment by chemical injection grout process on horizontal surfaces like rafts & 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 ) 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 acrylic latex cementitious coatings in the ratio 3:1 (3 parts of cement :1 part acrylic polymer latex) keeping water cement ratio as per manufacture's specifications , 20mm cement plaster of mix 1:4 (1 cement :4 coarse sand) mixed with liquid waterproofing admixture & finally embedding with 12mm size stone aggregate @ 8cudm per sqm complete as per manufacturer's specifications & as (Work to be got executed through a specialized agency and covered by a 10 years guarantee by the main contractor.)	100.00	SQM			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
8.10	<p>Providing water proofing treatment by chemical injection grout process on vertical surfaces like walls &amp; 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 &amp; expansive plasticizing agent (a non shrinkage compensating grout ) 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 &amp; applying two coats of acrylic polymer latex cementitious coatings in the ratio 3:1 (3 parts of cement :1 part acrylic polymer latex) keeping water cement ratio as per manufacture's specifications , 20mm cement plaster of mix 1:4 (1 cement :4 coarse sand) mixed with liquid waterproofing admixture complete as per manufacturer's specifications &amp; as directed.</p>					



Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
	(Work to be got executed through a specialized agency and covered by a 10 years guarantee by the main contractor.)	150.00	SQM			
	<b>Total</b>					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
<b>9.00</b>	<b>Finishing</b>					
9.01	12 mm cement plaster of mix:					
a)	1:6 (1 cement: 6 fine sand)	8217.10	sqm			
9.02	Extra for plastering exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.	8217	sqm			
9.03	15 mm cement plaster on the rough side of single or half brick wall of mix:					
a)	1:4 (1 cement 4 fine sand)	8217.10	sqm			
b)	1:6 (1 cement: 6 fine sand)	200.00	sqm			
c)	1:6 (1 cement: 6 Coarse sand)	100.00	sqm			
9.04	20 mm cement plaster of mix:					
a)	1:4 (1 cement: 4 fine sand)	4092.32	sqm			
9.05	6 mm cement plaster of mix:					
a)	1:3 (1 cement: 3 fine sand)	6521.00	sqm			
9.06	Neat cement punning	500.00	sqm			
9.07	Providing and applying plaster of paris putty of 2mm thickness over plastered surface to prepare the surface even and smooth complete.	16741.13	sqm			
9.08	White washing with lime to give an even shade:					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
a)	New work (three or more coats)	200.00	sqm			
9.09	Distemping with oil bound washable distemper of approved brand and manufacture to give an even shade					
a)	New work (two or more coats) over and including priming coat with cement primer.	5022.00	sqm			
9.10	Finishing walls with textured exterior paint of required shade:					
a)	New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including base coat of water proofing cement paint applied @ 2.20kg/1 0 sqm.	2045.86	sqm			
9.11	Finishing walls with Acrylic Smooth exterior paint of required shade:					
a)	New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including base coat of water proofing cement paint applied @ 2.20 kg/10 sqm).	100.00	Sqm			
9.12	Painting with synthetic enamel paint of approved brand and manufacture of required color to give an even shade:					
a)	Two or more coats on new work with ready mixed red oxide zinc chromate primer of approved brand and manufacture on steel galvanised iron / steel work..	400.00	sqm			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
9.13	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade:					
a)	Two or more coats on new work	6696.45	sqm			
9.14	Providing and fixing glass mosaic tiles of approved make and shade ( multi colour ) ( except premium colours) of 20 mm x 20 mm x 4 mm size using rubber latex adhesive of approved quality in cladding on 12 mm thick cement plaster 1: 3 of (1cement : 3 coarse sand )joints grouted with white cement mixed with pigment to match the shade of the tiles complete at all heights including double scaffolding etc as directed	1000.00	SqM			
9.15	Providing and fixing 24 gauge and 18mm mesh size chicken wiremesh at junction of concrete and brick work and other locations at all heights including cutting to required size and side laps of minimum 75mm and fixing in positions with cement and nails as directed.	300.00	sqm			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
9.16	Stone work, plain in copings, cornices, string courses and plinth courses, upto 75 mm thick in Cement mortar 1:6 (1 cement : 6 coarse sand) including pointing with white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade.					
a)	Red sand stone	30	Cum			
b)	White sand stone	75	Cum			
9.17	Providing and fixing stone jali 40mm thick throughout in cement mortar 1:3 (1 cement : 3 coarse sand) including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment, matching the stone shade, jali slab without any chamfers etc.					
a)	Red sand stone	40	sqm			
b)	White sand stone	35	sqm			
9.18	Stone tile work for wall lining up to 10 meters in height with special adhesive over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand ) including pointing in white cement with an admixture of pigment to match the stone shade					
	8 mm thick (mirror polished and machine cut edge)					
a	Rajnagar plain white marble	1600.00				

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
9.19	Extra for stone work for wall lining on exterior walls of height more than 10 m from ground level for every additional height of 3 m or part there of.	700	sqm			
9.20	Providing and fixing cramps of required size and shape in RCC / CC backing with cement mortar 1:2 ( 1 cement: 2 coarse sand ) including drilling necessary hole in stones and embedding the cramp in the hole including cost of suitable fastner	80.00	Each			
9.21	Providing and fixing decorative concrete tiles ( of approved make) of required shade and color of required sizes 3" x 6" or 3"x 9" or 4"x8"on wall cladiing upto an height of 10 meters with special adhesive over a bed of 12 mm thick cement mortar 1:3 (1 cement :3 fine sand) including pointing I white cement with admixture of pigment matching to tile shade all complete as per architectural drawings	50	sq m			
9.22	Applying one coat of cement primer of approved brand and manufacture on wall surface :	6696.45	sq m			
9.23	French spirit polishing :					
a)	Two or more coats on new works including a coat of wood filler.	1180.80	sq m			
	<b>Total</b>					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
<b>10.00</b>	<b>MISCELLANEOUS</b>					
10.01	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 75 mm bed of dry brick ballast 40 mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.	360	SQM			
10.02	Supply, design, fabrication and installation of semi unitised structural glazing system in the form of fixed panels using specially designed aluminium extruded sections, mullions, and transoms having 25 micron anodic coating of approved colour and shade and make and fixed on the RCC beams /columns through adequately designed brackets including providing masking tape on the profile for safety against external scratches on site complete with approved silicon sealant EPDM gasket etc to make the structural glazing air tight and water tight as per standards and as per Architects drawings and specification > The design to be as per BIS code for required wind pressure as per IS 875part III and use of alluminum section alloy as per relevent BIS standard					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
a)	System design to strictly consider for thermal movements, air infiltration water penetration seismic movement and structural movement. Contractor to supply shop drawing along with sequence of work and approval of engineer in charge. The minimum section shall be 131 x 66 x 2 mm and per sqm weight shall be 10 kg aprox . The item shall be measured and paid for actual surface area of structural glazing / aluminium composite panel supported on the frame.	2214	sqm			



Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
10.03	Extra for providing 24 mm made up thickness insulated glass over and above corresponding item, hermetically sealed with 6 mm heat strengthened toughened solar control off line coated high performance temprable glass of approved colour having reflective soft coating and 6 mm clear toughened float glass inside with 12 mm dry air cavity between two glass panes seperated by a hallow aluminium spacer bar with twin lines of micro holes as approved , filled with molecular desiccant of approved make and using primary hot meld duly and secondary polysulphide or silicon sealent of approved make all complete over and above item. ( U value less than 5.7 w/ sqm, k shadding coefficient less than .65 solar factor less than 0.58 light transmission minimum 40%)( U value less than 5.7 w/ sqm, k shadding coefficient less than .65 solar factor less than 0.58 light transmission minimum 40%)	414	Sqm			
10.04	Extra for corresponding item for providing and fixing of openable window / door in structural glazing including all associated hard ware minimum weight of shutter shall not be less than 6 kgs per square meter.	200	sq m			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
10.05	Providing and fixing Push back type Auditorium chairs 21" width total height of 38"-40" with powder coated M.S. frame work, PU seat and back and upholstered with inherent fire retardant fabric complete with recline arrangement and fixing over floor with necessary nuts bolts fasteners etc complete as per approved design and sample. Basic rate of fabric shall be Rs.350-400/- per metre	225	Each			
	<b>SUB-TOTAL</b>					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
11	<b>ROAD WORK</b>					
11.01	Preparation and consolidation with power road roller 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 subgrade and disposal of surplus earth lead upto 50 Metres.	500	SQM			
11.02	Supplying & stacking at site					
a)	90 mm to 45 mm size stone aggregate.	110	CuM			
b)	63 mm to 45 mm size stone aggregate.	55	CuM			
c)	53 mm to 22.4 mm size stone aggregate.	55	CuM			
d)	Stone screening 13.2 mm nominal size (Type A)	35	CuM			
e)	Stone screening 11.2 mm nominal size (Type B)	10	CuM			
f)	Moorum	10	CuM			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
11.03	Laying sprading and compacting stone aggregate of specified sizes to WBM specification 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 inerstices of coarse aggregate watering and compacting to the required density	160	CuM			
11.04	Cutting road and making good the same including supply of extra quantities of materials I.e. aggregate, moorum screening, red bajri and lbour required.					
	Bituminious portion	7	Cum			
11.05	Providing & applying tack coat using hot straight run bitumen of grade 80/100 including heating the bitumen, spraying bitumen with mechanically operated spray unit fitted on bitumen boiler, cleaning & preparing existing road surface as per specifications					
a)	On W.B.M. @ 0.75 kg/SqM	360	SQM			
b)	On bituminous surface @ 0.50 Kg/sqm.	180	SQM			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
11.06	Providing and laying Bitumen Penetration Macadam with hard stone aggregate of quality, size and grading as specified, with bitumen of suitable penetration grade including required key aggregate as specified, spreading coarse aggregate with the help of self propelled/ tipper tail mounted aggregate spreader and applying bitumen by a pressure distributor and then sprading key aggregate with the help of aggregate spreader complete including consolidation with road roller of minimum 8 to 10 tonne capacity to achieve specified values of compaction and surface accuracy.					
a)	For 50mm compacted thickness using coarse aggregate of size 50-20 mm graded @0.60CUM per 10 sqm key aggregate of size 12.5 mm graded @0.15 cum per 10 SqM With paving asphalt 80/100 @ 50 kg/10 SqM	540	SQM			
11.07	Providing and laying seal coat of premixed fine aggregate (passing 2.36 mm and retained on 180 micron sieve) with bitumen using 128 kg of bitumen of grade 80/100 bitumen per CuM of fine aggregate and 0.60 CuM of fine aggregate per 100 SqM of road surface including rolling and finishing with road roller all complete.	540	SQM			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
11.08	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 coarse sand etc. all complete as per the direction of Engineer-in-charge.	600	SqM			
11.09	Providing and fixing at or near ground level factory made of kerb stone of M-25 grade cement in position to the required line, level and curvature jointed with cement mortar 1:3 (1cement:3coarse sand) including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5 mm) including making drainage opening wherever required complete etc. as per direction of Engineer-incharge (length of finished kerb edging shall be measure for payment). (Precast C.C. kerb stone shall be approved by Engineer -in-charge)	10	CUM			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
11.1	Scarifying the existing bituminous road surface to a depth of 50mm and disposal of scarified material within all lifts and lead upto 1000 metre( by mechanical means,)	250	SQM			
	<b>SUB-TOTAL</b>					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
<b>12</b>	<b>LAND DEVELOPMENT &amp; HORTICULTURE</b>					
12.01	Filling available approved earth, free of vegetation & rock etc. in layers not exceeding 20 cm in depth, breaking clods, watering, rolling each layer with 1/2 tonne roller, or wooden or steel rammers, and rolling every 3rd and top-most layer with power roller of minimum 8 tonnes, grading and finishing to final levels including royalty, if any at source and carriage including all leads and lifts loading in & unloading complete as directed.	150	Cum			
12.02	Supplying and stacking of good earth at site including royalty. (Earth measured in stacks will be reduced by 20% for payment)	150	Cum			
12.03	Supplying & stacking sludge or manure at site including royalty & carriage upto 1 km (sludge measured in stacks will be reduced by 8% for payment)	200	Cum			
12.04	Mixing earth & sludge in proportion specified or directed and spreading the same in required thickness (cost of sludge and good earth to be paid separately).	350	Cum			



Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
12.05	Trenching in ordinary soil upto a depth of 0.60m including removal stacking & disposing of by spreading and neatly levelling with in 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 the trench with water (excluding the cost of imported earth, sludge or manure).	15	Cum			
12.06	Rough dressing the trenched ground including breaking colds & uprooting weeds from the trenched are after 10 to 15 days of its flooding with water (including disposal of uprooted vegetation)	200	Sqm			
12.07	Supply & sprinkling of Neem cake ( at the rate of 6 kg per 100 sq. metres) and fine dressing the ground.	200	Sqm.			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
12.08	Supply & grassing with "Calcutta Doob" grass in rows 7.5cms, apart in either direction including fine dressing the ground to be levelled, supply and filling with good earth if needs, watering & maintenance of the lawn for 30 days or more till the grass forms a thick lawn free from weeds & fit for mowing. Anti-termite shall be applied with CHLOROPYRIPHOS (DURSBAN make or equivalent) at the rate of 2ml per litter in the first watering.	300	Sqm.			
12.09	Tree Pit Preparing pits of size 1.2m x 1.2m x 1.2m by excavation in all kind of soil / ordinary rock, applying anti-termite treatment, planting the tree & refilling the pit with compost (manure & sweet earth mixed in ratio 1:4) breaking clods, flooding with water, filling with more compost if necessary & fine dressing including removal and disposal of rubbish unserviceable materials & surplus earth if any with all leads and lifts. Anti-termite treatment shall be in form of 200 gms neem cake mixed with compost followed by CHLOROPYRIPHOS (DURSBAN make or equivalent) applied at 2ml per litre in the first watering of 30 litres. (Composed to be paid for separately)	20	Each			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
12.1	Shrub Pit Preparing pits of size 0.90m x 0.90m x0.90m by excavation in all kind of soil / ordinary rock, applying anti-termite treatment, planting the shrub & refilling of the pit with compost (manure & sweet earth mixed in ratio 1:4) breaking clods, flooding with water, filling with more compost if necessary & fine dressing including removal and disposal of rubbish unserviceable materials & surplus earth if any with all leads & lifts (Cost of manure & extra sweet earth will be paid separately). Anti-termite treatment shall be in form of 200gms neem cake mixed with compost followed by CHLOROPYRIPHOS (DURSBAN make or equivalent) applied at 2ml per litre in the first watering.	20	Each			
12.11	Ground Cover Pit					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
	Preparing pits of size 0.25m x 0.25m x 0.25m by excavation in all kind of soil / ordinary rock, applying anti-termite treatment, planting the ground cover & refilling of pit with compost (manure, sand & sweet earth mixed in ratio 1:1:2) breaking clods, flooding with water, filling with more compost if necessary & fine dressing including removal and disposal of rubbish unserviceable materials & surplus earth if any with all leads & lifts (manure, sand & sweet earth will be paid separately). Anti-termite treatment shall be in form 200gms neem cake mixed with compost followed CHLOROPYRIPHOS (DURSBAN make or equivalent) applied at the rate of 2ml per litre in the first watering.	20	Each			
	<b>SUB TOTAL</b>					

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
<b>13</b>	<b>SIGNAGES</b>					
13.01	Providing and fixing sinages of varing sizes and shapes using stainless steel sheet of minimum 16g thickness brass finished including engraving / etching of letters of required size filled with colour as desired by the engineer, fixing with ss screws on walls.	5000	sqinch			
13.02	Providing and laying and making kerb channel 30cm wide and 50mm thick cement concrete 1:3:6 over 75mm bed of dry brick ballast 40mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth etc. complete and as per direction of engineer in charge	200	m			
13.03	Providing fabricating and fixing of signages of varying sizes and shapes using three mm thick PVC sheet at base with self adhesive coloured vinyl with graphicson top of glow tape complete including fixing on wall with screws and washers or hanging on ceiling with GI chain/GI Bar complete as per technical specifications and directions of Engineer.	10000	sq inch			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
13.04	Providing and fixing of sinages of varying sizes and shapes using 12mm prelaminate MDF board of approved shade , colour and shape with allround lipping of anodised/powder coated aluminum section including hanging with aluminum/GI/MS with painting rods of minimum 10/12mm dia.or lipping with alround SS pipe of suitable dia and SS lipping welded with SS rod to hang it from the ceiling complete including lettering and pictogram on vinyle as per technical specifications and directions of Engineer.	150	sqft			
13.05	Providing and fixing of sinages of varying sizes and shapes using stainless steel sheet of minimum 16G thickness brush finish including engraving/etching of letters of required size filled with colour as desired by engineer,fixing with ss screws on walls	2000	sqinch			
13.06	Providing and fixing of external sinages of varying sizes and shapes using GI sheet of atleast 22 G / aluminium sheet of suitable gauge complete as per technical specifications and directions of Engineer.	600	sqft			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
13.07	Providing and fixing MS support frame for external signages made of structural steel including welding, priming, painting foundation with 1:1.5:3 cement concrete complete as per drawing, technical specifications and directions of engineer.	2000	Kg			
13.08	Providing,fabricating and fixing neon glow signages of approved make with 100% handcraft glass tubes in letter shape of required colour of dia 9-12 mm including making the electrical wiring for illumination,transformer,connection complete as per technical specifications and directions of engineer.	100	sqft			
13.09	Providing,fabricating and fixing digitally printed translites(Technova) with multicolour design on roland /HP printers mounted on acrylic sheet 3mm further mounted on 22 gauge powder coated GI box with phylips /surya tubes inside including installtion on wall electric fittings etc on walls or otherwise complete .	100	sq ft			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
13.1	Providing fabricating installation and fixing of backlit flex signages on Hanwa/star 18 ounce flex signages printed on high resolution printermounted on MS sheet on framed MS structure further fixed on 24 gauge MS /GI box with phylips/surya fittings inside including tranformers etc, electri wiring etc complete.	250	sqft			
13.11	Providing,fabricating installation and fixing of glass finish SS letters made of 20 gauge SS 304 sheet of required size and shape with neatly fabricated joints properly welded and grinded with all corners rubbed and polished with arrangement of screws in the letter itself for mounting on the walls including cost of screws and fixing complete as per directions of Engineer.	1000	sqinch of each letter			
13.12	Providing fabricating and fixing of retroreflective vinyle sinages of varying sizes and shapes pasted on aluminium/GI sheet of 18 gauge with provision of fixing on MS structure complete as per technical specifications and directions of Engineer.	5000	sqinch			



Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
13.13	Providing. Fabricating and fixing of ACP aluminium composite plastic signs with 3 mm acp sheet, using 1" ms pipe frame, with anti rust coating, back with g.i. and 5 sides with acp sheet, lettering to be done with 5mm acrylic sheet and vinyls if needed backlit with philips slim lite tubelight fittings, acrylic letters to protrude out and be lit, together with a timer for switching on and off at required timings, including transportation and fixing at site as per the direction of the site engineer	1000	sq.ft.			
13.14	Providing, fabricating and fixing of frontlit signages with solvent printing on 13 oz hanwa/lg make flex printing on vutek/ sytec/ edgeprint etc with uv cure inks with minimum life of 1 year for non fading, stretched on 25mm sq m.s. pipe, with 28 guage tin sheet on the back for withstanding wind pressure with adequate lights in the front. The front lighting to be metalite (white light) of 150 watts and philips make to be fixed with metal arms atleast 4ft protruding outside.	1000	sq.ft.			

Item No	Description Of Item	Quantity	Unit	Rate in figures (in Rs.)	Rate in words (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
13.15	Providing, fabricating and fixing digital posters inside the hospitals on 5mm sunboard sheet with 1440 dpi digital printing on technova/ lg coated vinyl duly laminated and pasted on the sheet and fixed on the walls with help of steel studs or mirror screws as per the direction of the engineer	200	sq.ft.			
13.16	Providing fabricating and fixing of name plate pockets outside rooms made of 5mm opaque, milky white acrylic sheet in various sizes and with provision of fixing acrylic plates as per boq-1 on the same, the pockets should be well crafted using high quality adhesives and should be fixed on the wall with the help of screws etc.and as per the direction of the engineer.	1000	sq.inch			
<b>SUB TOTAL</b>						

<b>PROJECT:- Construction of Diagnostic centre at AMRITSAR,Punjab</b>		
<b>ABSTRACT OF COST(CIVIL WORK)</b>		
<b>S.No</b>	<b>DESCRIPTION OF WORK</b>	<b>Amount in Figures (RS)</b>
1	EARTHWORK	
2	CONCRTE WORK	
3	RCC WORK	
4	BRICK WORK	
5	DOORS & WINDOWS	
6	STEEL WORK	
7	FLOORING	
8	CEILING & ROOFING	
9	FINISHING	
10	MISCELLANEOUS	
11	ROAD WORK	
12	LAND DEVELOPMENT & HORTICULTURE	
13	SIGNAGES	
	<b>TOTAL</b>	

# PLUMBING WORKS

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
1.00		<b>SANITARY FIXTURES</b>					
		<b>Note: Based on tender drawings the agency has to prepare the internal &amp; external plumbing shop drawing and obtain the approval of the same before execution.</b>					
1.01	17.1	Providing & Fixing water closet squatting pan (Indian W.C. pan) with 100 mm sand cast iron P or S trap, 10 litre low level white P.V.C. flushing cistern with manually controlled device (handle lever) conforming to IS: 7231 with all fittings & fixture complete including cutting and making good the walls & floors wherever required					
a)	17.1.1	White vitreous china orissa pattern W.C. pan of size 580 x 440 mm with integral type foot rests	Each	25			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
1.02	17.3	Providing and fixing white vitreous china pedestal type water closet (European type) with seat and lid, 10 litre low level white vitreous flushing cistern and C.P. flush bend with fittings & C.I. brackets, 40mm flush bend, overflow arrangement with specials of standard make and mosquito proof coupling of approved municipal design complete including painting of fittings and brackets, cutting and making good the walls and floors wherever required:					
a)	17.3.2	W.C. pan with ISI black solid plastic seat & lid.	Each	45			
1.03	17.4	Providing and fixing white vitreous China flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standard flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting or fittings and brackets, cutting and making good the walls and floors wherever required.					
a)	17.4.2	Range of two urinal basin with 5 litre white PVC automatic flushing cistern.	Each	2			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab****Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
c)	17.4.3	Range of three urinal basin with 10 litre white PVC automatic flushing cistern.	Each	14			
1.04	17.7	Providing and fixing wash basin with C.I. brackets, 15mm C.P. brass pillar taps, 32mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever required:					
a)	17.7.3	White vitreous china wash basin size 550x 400 mm with a pair of 15mm C.P. brass pillar tap.	Each	60			
b)	17.7.9	White Vitreous Surgeon type wash basin of size 660 x 460 mm with a pair of 15 mm C.P. brass pillar taps, with elbow operated levers.	Each	20			
1.05	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:					
a)	17.10.1.2	510x1040 mm bowl depth 225 mm	Each	10			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
1.06	17. 11	Providing and fixing white vitreous china laboratory sink with C.I. brackets, C.P. brass chain with rubber plug 40 mm C.P. brass waste and 40 mm brass trap with necessary C.P. brass unions complete including painting of fittings and brackets, cutting and making good the walls and floors wherever required:					
a)	17.11.2	Size 600x450x200 mm	Each	35			
1.07	17. 14	Extra for using coloured W.C. pan instead of white W.C pan					
a)	17.14.1	Orissa pattern W.C. pan 580x440 mm	Each	25			
1.08	17. 16	Extra for using coloured pedestal type W.C. pan (European type) with low level cistern of same colour instead of white vitreous china W.C. pan and cistern	Each	45			
1.09	17. 29	Providing and fixing 100 mm sand cast grating for gully trap	Each	15			
1.10	17. 32	Providing and fixing superior glass (of approved quality) and of required shape and size with plastic moulded frame of approved make and shape with 6 mm thick hard board backing.					
a)	17.32.2	Rectangular shape 453x357 mm	Each	60			



**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab****Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
1.11	17. 33	Providing and fixing 600x120x5 mm glass shelf with edges round of supported and anodised aluminium angle frame with C.P. brass brackets and guard rail complete fixed with 40 mm long screws, rawl plugs etc., complete.	Each	20			
1.12	17. 34	Providing and fixing toilet paper holder .					
a)	17.34.2	Vitreous china	Each	45			
1. 13	17. 70	Providing and fixing PTMT Bottle Trap for Wash basin and sink					
a)	17.70.1	Bottle trap 31 mm single piece moulded with height of 270 mm, effective length of tail pipe 260 mm from the centre of the waste coupling 77 mm breadth with 25 mm minimum water seal, weighing not less than 260 gms.	Each	20			
b)	17.70.2	Bottle trap 38 mm single piece moulded with height of 270 mm, effective length of tail pipe 260 mm from the centre of the waste coupling 77 mm breadth with 25 mm minimum water seal, weighing not less than 263 gms.	Each	20			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab****Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
1.14	NS	Providing and fixing CP brass liquid soap container/dispenser of standard shape with bracket of the same materials with snap fittings of approved quality .	Each	38			
1.15	NS	Providing and fixing water Jet Nozzle with hose pipe and haif turn CP brass angle valve to be fitted with seat cover of european water closet complete in all respect of approved quality	Each	45			
1.16	NS	Providing and fixing soap tray with CP brass lid and brackets fixed to wooden cleats with CP brass screws.	Each	10			
1.17	NS	Providing and fixing CP brass towel rail size of 600x20 mm of approved make complete with CP brackets fixed to wooden cleats with CP brass screws	Each	58			
1.18	NS	Providing and fixing brass coat hook of approved quality and make complete with material of fixing	Each	58			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
1.19	NS	Extra for providing and fixing white vitreous china oval shape wash basin in place of normal wash basin with CI/MS brackets painted white, 15 mm CP brass pillar taps, 32 mm CP brass waste of standard pattern, including painting of fittings and brackets cutting and making good the walls wherever required					
a)		Counter top oval shape wash basin size 550x470 mm with centre tap hole, single 15 mm CP brass swan neck type pillar tap	Each	58			
1.20	NS	Providing and fixing white vitreous china wall hung type water closet (European type) with white solid plastic seat and lid concealed flushing cystem 9 ltrs capacity( min) approximate size(400x300x100)comprising of SS actuating panel with dual flush with fittings ,specials of standard make(Viega,ACO,Kohler,Jaquar) and complete including painting , cutting and making good the walls and floors wherever required:					
			Each	20			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab****Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
1.21	NS	Supply , installation, testing and commissioning of compact floor mounted pedestal base surgical scrub sink tailor made to suit the site available compatible with all the regular and standard plumbing system, with inbuilt geyser designed for use in operation theatre fabricated from 16 gauge 304 type stainless steel seamless welded,polished to satin finish including connecting to drainage and water points and making good cutting of walls and floor surface all complete and as directed.					
	a)	Tailor made surgical scrub sink (3 bay) Approximate size 2.4mX0.54mX0.84m with 3 user elbow operated mixture tap, two soap dispensers, two drain outlet ,thermostatic control of water temperature	Each	4			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
	b)	Tailor made surgical scrub sink (2 bay) Approximate size 1.4 mX0.54mX0.84m with 1 user elbow operated mixture tap, soap dispensers, drain outlet ,thermostatic control of water temperature	Each	1			
	c)	Tailor made surgical scrub sink (1 bay) Approximate size 0.9mX0.54mX0.84m with 1 user elbow operated mixture tap, soap dispensers, drain outlet ,thermostatic control of water temperature	Each	1			
	c)	Tailor made surgical scrub sink (1 bay) Approximate size 0.9mX0.54mX0.84m with 1 user elbow operated mixture tap, soap dispensers, drain outlet ,thermostatic control of water temperature	Each	1			
1. 22	NS	Providing and fixing stainless steel grab bar 20mm dia of required length with PVC cleats, C.P. brass screws etc. complete.	Meter	65			
<b>SUB TOTAL( SANITARY FIXTURES)</b>							

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
<b>2.00</b>		<b>SOIL, WASTE AND VENT PIPES</b>					
2.01	17. 35	Providing and fixing soil, waste and vent pipes.					
a)	17.35.1	100 mm dia.					
a i)	17.35.1.2	Centrifugally cast (spun) iron socketed pipe as per IS:3989	Metre	2350			
b)	17.35.2	75 mm dia					
b ii)	17.35.2.2	Centrifugally cast (spun) iron socketed pipe as per IS:3989	Metre	1500			
c)	NS	150 mm dia	Metre	300			
2.02	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 10x10x10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including cost of cutting holes and making good the walls etc.					
a)	17.37.1	for 100 mm dia. pipe	Each	390			
b)	17.37.2	for 75 mm dia. pipe	Each	104			
c)	NS	for 150 mm dia pipe	Each	50			
2.03	17. 38	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.					

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
a)	17.38.1	100 mm					
a ii)	17.38.1.2	Sand cast iron S&S as per IS-3989	Each	80			
	17.38.2	75 mm					
b)	17.38.2.2	Sand cast iron S&S as per IS-3989	Each	12			
c)	NS	150 mm	Each	20			
2.04	17. 39	Providing and fixing plain bend of required degree.					
a)	17.39.1	100 mm					
a ii)	17.39.1.2	Sand cast iron S&S as per IS:3989	Each	150			
b)	17.39.2	75 mm					
b i)	17.39.2.1	Sand cast iron S&S as per IS:3989	Each	30			
c)	NS	150 mm	Each	20			
2.05	17. 40	Providing and fixing heel rest sanitary bend.					
a)	17.40.1	100 mm dia					
a.ii)	17.40.1.2	sand cast iron S&S as per IS-3989	Each	30			
b)	17.40.2	75 mm					
	17.40.2.2	sand cast iron S&S as per IS-3989	Each	10			
c)	NS	150 mm dia	Each	20			
2.06	17. 43	Providing and fixing single equal plain junction of required degree with access door, insertion rubber washer 3mm thick, bolts and nuts complete.					

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
a)	17.43.1	100x100x100mm					
a.ii)	17.43.1.2	sand cast iron S&S as per IS-3989	Each	56			
b)	17.43.2	75x75x75mm Centrifugally cast (spun) iron S&S					
b.ii)	17.43.2.2	sand cast iron S&S as per IS-3989	Each	16			
c)	NS	150x150x150 mm	Each	20			
2.07	17.44	Providing and fixing single equal plain junction of required degree					
a)	17.44.1	100x100x100mm					
a.ii)	17.44.1.2	sand cast iron S&S as per IS-3989	Each	213			
b)	17.44.2	75x75x75mm Centrifugally cast (spun) iron S&S					
b.ii)	17.44.2.2	sand cast iron S&S as per IS-3989	Each	114			
c)	NS	150x150x150 mm	Each	20			
2.08	17.47	Providing and fixing single unequal junction of required degree with access door, insertion rubber washer 3mm thick, bolts and nuts complete.					
a)	17.47.1	100x100x75mm	Each	10			
b)	NS	150x150x100 mm	Each	20			
2.09	17.48	Providing and fixing single unequal plain junction of required degree					
a)	17.48.1	100x100x75 mm					



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**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
a.ii)	17.48.1.2	sand cast iron S&S as per IS-3989	Each	114			
b)	NS	150x150x100 mm	Each	10			
2. 10	17. 55	Providing and fixing door piece, insertion rubber washer 3mm thick, bolts and nuts complete					
a)	17.55.1	100 mm					
a.ii)	17.55.1.2	sand cast iron S&S as per IS-3989	Each	10			
2.11	17. 56	Providing and fixing terminal guard.					
a)	17.56.1	100 mm	Each	30			
a.ii)	17.56.1.2	sand cast iron S&S as per IS-3989					
b)	17.56.2	75 mm					
b.ii)	17.56.2.2	sand cast iron S&S as per IS-3989	Each	8			
c)	NS	150 mm	Each	20			
2.12	17. 58	Providing lead caulked joints to sand cast iron /centrifugally cast (spun) iron pipes and fittings of diameter:					
a)	17.58.1	100 mm	Each	1762			
b)	17.58.2	75 mm	Each	810			
c)	NS	150 mm	Each	112			

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
2.12a	NS	Providing Drip seal joint of approved make for the sand cast iron/centrifugally cast iron pipes where the workability of lead joint can be effected due to space constraints.					
a)		100 mm	Each	588			
b)		75 mm	Each	270			
c)		150 mm	Each	38			
2.13	17. 59	Providing and fixing M.S. stays and clamps for sand cast iron / centrifugally cast (spun) iron pipes of diameter :					
a)	17.59.1	100 mm	Each	30			
b)	17.59.2	75 mm	Each	8			
c)	NS	150 mm	Each	10			
2.14	17. 60	Providing and fixing trap of self cleansing with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors:					
a)	17.60.1	100 mm inlet and 100 mm outlet					
a i)	17.60.1.1	Sand cast iron S&S as per IS-3989	Each	130			

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
2.15	17.61	Cutting chases in brick masonry walls for following diameter sand cast iron/centrifugally cast (spun) iron pipes and making good the same with cement concrete 1:3:6 (1 cement:3 coarse sand:6 graded stone aggregate 12.5 mm nominal size) including necessary plaster and pointing in cement mortar 1:4 (1 cement: 4 coarse sand):					
a)	17.61.1	100 mm diameter pipe	Metre	50			
b)	17.61.2	75 mm diameter pipe	Metre	10			
2.16	17.65	Painting sand cast iron / centrifugally cast (spun) iron soil, waste vent pipes and fittings with paint of any colour such as chocolate, grey, or buff etc. over a coat of primer (of approved quality) for new work:					
a)	17.65.1	100 mm diameter pipe	Metre	662			
b)	17.65.2	75 mm diameter pipe	Metre	493			
c)	NS	150 mm diameter pipe	Metre	300			
2.17	NS	Providing and fixing floor drain points formed out of 65 mm dia GI elbow, including with 75mm dia Stainless Steel grating with frame, embedded in floor, all complete as directed.	Each	56			

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
2.18	NS	Providing and fixing C.P. brass bottle trap for wash basin including CP waste fittings complete 32 mm dia complete in all respect of approved quality.	Each	50			
2.19	NS	Providing and fixing C.P. brass bottle trap for sinks & urinal basin including CP waste fittings complete 40 mm dia complete in all respect of approved quality.	Each	56			
2.20	NS	Providing and laying cement concrete 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size) 80 mm thick all-round the SCI/centrifugally S&S pipe diameter.					
	a)	100 mm dia	Metre	1186			
	b)	75 mm dia	Metre	336			
	c)	150 mm dia	Metre	15			
2.21	NS	Providing and fixing dash fastner made of rust proof plated steel for holding the soil/waste supply pipes complete in all respect					

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SI. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
	a)	Dash fastner for pipe more than 25 mm dia to 150 mm dia pipe of size 15 mm dia and 40mm long minimum & shall be capable of taking 6 tonnes load and also include the supporting angles 35x35x5 mm or 10 mm bar steel structures as per drawing.	Each	100			
2. 22	NS	Providing and fixing floor clean out plug consist of CI bend & GI socket heavy class with cap & key for opening male threaded cap etc. including lead caulked to CI pipes complete in all respects as per drawing/ sample approved by Engineer -in -Charge FCO (floor clean out plug shall be flushed with floor finish 150/100/75 mm dia	Each	50			
2. 23	NS	Providing and fixing cleaning eye on horizontal CI soil & waste pipes of 300 mm long GI medium class pipe with one plain end lead caulked in to the collar of CI pipe and the other end with flange which in covered by neoprene rubber gasket and blank flange, complete with nuts, bolts etc and hot dip galvanization after fabrication to the satisfaction of Engineer in Charge					

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
	a)	150 mm dia	Each	20			
	b)	100 mm dia	Each	30			
2. 24	NS	Providing and fixing G.I EXTENSION PIECE for 100 mm dia floor trap formed out of main pipe( Type A) with multiple side inlets, suitable for various dia pipes, side connections, including all fixtures and fittings as per site conditions and as per standard details and water tight sealing of joints and area surrounding the grating and as directed.	Each	130			
2. 25	17. 57	Providing and fixing collar					
	a)	17.57.1 100 mm					
	a.ii)	17.57.1.2 Sand cast iron S&S as per IS-3989	Each	360			
	b)	17.57.2 75 mm					
	b.ii)	17.57.2.2 Sand cast iron S&S as per IS-3989	Each	96			
	c)	NS 150 mm	Each	55			
2. 26	NS	Providing & fixing 9 mm thick thermal insulation tubing of elastomeric flexible material on Soil & Waste pipes to be laid below ceiling level having hermetic blistered closed cell structure of expanded synthetic rubber over pipes/ fitting as per manufacturer's specifications etc.complete.					

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<b>Sl. No.</b>	<b>Ref No.</b>	<b>Description of Item</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate in Figures</b> <b>(in Rs)</b>	<b>Rate in Words (in Rs)</b>	<b>Amount in Figures</b> <b>(in Rs)</b>
<b>1</b>		<b>2</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>6</b>
	a)	100 mm to 150 mm diameter CI pipe	Each	500			
<b>SUB TOTAL(SOIL, WASTE AND VENT PIPES)</b>							

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
<b>3.00</b>		<b>WATER SUPPLY</b>					
3.01	18.7	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings 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. Internal work- Exposed on wall					
a)	18.7.1	15 mm nominal outer dia pipes (SDR-11)	Metre	110			
b)	18.7.2	20 mm nominal outer dia pipes (SDR-11)	Metre	200			
c)	18.7.3	25 mm nominal outer dia pipes (SDR-11)	Metre	160			
d)	18.7.4	32 mm nominal outer dia pipes (SDR-11)	Metre	150			
e)	18.7.5	40 mm nominal outer dia pipes (SDR-11)	Metre	160			
f)	18.7.6	50 mm nominal outer dia pipes (SDR-11)	Metre	350			
g)	NS	62.5 mm nominal outer dia pipes (SDR-11)	Metre	335			
	<b>NS</b>	80 mm nominal outer dia pipes (SDR-11)	Metre	40			



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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
3.02	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.					
a)	18. 8.1	15 mm nominal outer dia pipes (SDR-11)	Metre	750			
b)	18.8.2	20 mm nominal outer dia pipes (SDR-11)	Metre	300			
c)	18. 8.2	25 mm nominal outer dia pipes (SDR-11)	Metre	200			
d)	18.8.3	32 mm nominal outer dia pipes (SDR-11)	Metre	150			
e)	NS	40 mm nominal outer dia pipes (SDR-11)	Metre	125			
f)	NS	50 mm nominal outer dia pipes (SDR-11)	Metre	225			

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
3.03	18.9	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings 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.					
		External Work					
a)	18.9.2	20 mm nominal outer dia pipes (SDR-11)	Metre	200			
b)	18.9.6	50 mm nominal outer dia pipes (SDR-11)	Metre	100			
c)	18.9.7	62.5 mm nominal outer dia pipes (SDR-11)	Metre	100			
3.04	18.10	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, including cutting and making good the walls etc.					
		Internal work-Exposed on wall					
a)	NS	65 mm dia nominal bore	Metre	100			
b)	NS	80 mm dia nominal bore	Metre	200			
c)	NS	100 mm dia nominal bore	Metre	150			

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
3.05	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 including obtaining approval for connection from DJB/Municipal corporation :					
a)	18.13.2	50 to 80 mm nominal bore (SDR-11)	Each	2			
3.06	18.17	providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end)					
b)	18.17.1	25 mm nominal bore	Each	3			
c)	18.17.2	32 mm nominal bore	Each	10			
d)	18.17.3	40 mm nominal bore	Each	9			
e)	18.17.4	50 mm nominal bore	Each	1			
f)	18.17.5	65 mm nominal bore	Each	1			
g)	18.17.6	80 mm nominal bore	Each	1			
3.07	18.18	Providing and fixing ball valve (brass) of approved quality, High or low pressure with plastic floats complete					
a)	18.18.3	25 mm nominal bore	Each	4			
3.08	18.20	Providing and fixing brass ferrule with C.I. mouth cover including boring and tapping the main					
a)	18.20.3	25 mm nominal bore	Each	4			

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
3.09	18. 21	Providing and fixing unplasticised PVC connection pipe with brass unions:					
a)	18.21.2	45 cm length					
a i)	18.21.2.1	15 mm nominal bore	Each	170			
3. 10	18. 32	Constructing masonry chamber 30x30x50 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement: 4 coarse sand) for stop cock, with C.I. surface box 100x100x75 mm (inside) with hinged cover fixed in cement concrete slab 1:2:4 mix (1 cement: 2 coarse sand:4 graded stone aggregate 20 mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement :3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design					
a)	18.32.1	With F.P.s bricks	Each	4			

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
3.11	18.33	Constructing masonry chamber 60x60x75 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement: 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement: 2 coarse sand:4 graded stone aggregate 20 mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement :3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design					
a)	18.33.1	With F.P.s bricks	each	4			

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
3.12	18.37	Constructing masonry chamber 60x45x50 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement: 4 coarse sand) for water meter complete with C.I. double flap surface box 400x200x200 mm (inside) with locking arrangement and RCC top slab 1:2:4 mix (1 cement: 2 coarse sand:4 graded stone aggregate 20 mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement :3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design					
a)	18.37.1	With F.P.s bricks	each	2			
3.13	18.38	Painting CPVC/G.I. pipes and fittings with synthetic enamel white paint over a ready mixed priming coat, both of approved quality for new work					
a)	18.38.1	15 mm nominal outer dia pipes	Metre	110			
b)	18.38.2	20 mm nominal outer dia pipes	Metre	200			
c)	18.38.3	25 mm nominal outer dia pipes	Metre	160			
d)	18.38.4	32 mm nominal outer dia pipes	Metre	150			
e)	18.38.5	40 mm nominal outer dia pipes	Metre	160			

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1		2	3	4	4	5	6
f)	18.38.6	50 mm nominal outer dia pipes	Metre	350			
g)	NS	65 mm nominal outer dia pipes	Metre	335			
h)	NS	80 mm nominal outer dia pipes	Metre	40			
3.14	18.40	Painting G.I. /CPVC pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality.					
a)	18.40.2	20 mm diameter pipe	Metre	200			
b)	18.40.6	50 mm diameter pipe	Metre	100			
c)	18.40.7	65 mm diameter pipe	Metre	100			
3.15	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					
a)		Treated water Tank and Untreated water tank	per litre	50000			
3.16	18.49	Providing and fixing C.P brass bib cock of approved quality .(Jaquar ,Marck,Aqua Bath)					
a)	18.49.1	15 mm nominal bore	Each	50			

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
3. 17	18. 50	Providing and fixing C.P. brass long nose bib cock of approved quality conforming to IS standards and weighing not less than 810 gms.					
a)	18.50.1	15 mm nominal bore	Each	47			
3. 18	18. 52	Providing and fixing C.P. brass stop cock (concealed) of standard design and of approved make confirming to IS:8931					
a)	18.52.1	15 mm nominal bore	Each	2			
3.19	18. 53	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931.					
a)	18.53.1	15 mm nominal bore	Each	250			
3. 20	18. 54	Providing and fixing PTMT bib cock of approved quality and colour					
b)	18.54.2	15 mm nominal bore, 122 mm long. Weighing not less than 99 gms.	Each	20			
3. 20	18. 55	Providing and fixing PTMT stop cock of approved quality and colour					
a)	18.55.1	15 mm nominal bore, 86 mm long. Weighing not less than 88 gms.	Each	50			



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1		2	3	4	4	5	6
3. 21	18. 56	Providing and fixing PTMT pillar cock of approved quality and colour					
b)	18.56.2	15 mm nominal bore, 125mm long foam flow. Weighing not less than 120 gms.	Each	20			
3. 22	18. 60	Providing and fixing enclosed type water meter ( bulk type) conforming to IS : 2373 and tested by municipal board complete with bolts,nuts rubber, insersions etc. ( the tail plases if required will be paid seperatly )					
a)	18. 60. 1	80mm dia nominal bore	Each	1			
3. 23	18. 62	Providing and fixing PTMT ball cock of approved quality, colour and make complete with Epoxy coated aluminium rod with L.P./H.P.H.D. plastic ball.					
a)	18.62.5	50 mm nominal bore, 242 mm long weighin not less than 1240 gms	Each	4			
3. 24	18. 76	Cutting holes up to 30x30 cm in walls including making good the same					
a)	18.76.1	With F.P.S. bricks	Each	10			

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
3.25	18.77	Cutting holes up to 15x15 cm in R.C.C. floors and roofs for passing drain pipe etc. and repairing the hole after insertion of drain pipe etc. with cement concrete 1:2:4 (1 cement:2 coarse sand: 4 graded stone aggregate 20 mm nominal size) including finishing complete so as to make it leak proof	Each	50			
3.26	NS	Providing and fixing C.P. brass Overhead (Rain Fall) shower (100mm) with arm and wall flange complete including cutting and making good the walls wherever required.	Each	2			
3.27	NS	Extra for providing wash basin mixer pillar tap in place of normal pillar tap	Each	60			
3.28	NS	Extra for providing shower mixer in place of ordinary concealed stop cock	Each	1			
3.29	NS	Providing & fixing full way lever operated forged brass ball valve of brass body with forged brass hard chrome plated steel ball tested to a pressure not less than 10 Kg / sqcm with threaded / flanged joints complete with nuts, bolts, gaskets, washers etc.					
	a)	15 mm diameter	Each	10			
	b)	20 mm diameter	Each	17			

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
3.30	NS	Providing and fixing mosquito proof coupling of approved Municipal design for scour and vent pipes for RCC overhead tanks complete in all respects					
	b)	15 mm diameter	Each	10			
	a)	20 mm diameter	Each	10			
	c)	40 mm diameter	Each	4			
	d)	50 mm diameter	Each	4			
	e)	65 mm diameter	Each	4			
3.31	NS	Providing & fixing 9 mm thick thermal insulation tubing of elastomeric flexible material on hot water supply/return pipes having hermetic blistered closed cell structure of expanded synthetic rubber over pipes/ fitting as per manufacturer's specifications etc.complete.					
	a)	15 mm to 25 mm diameter	Each	680			
	b)	32 mm to 50 mm diameter	Each	760			
	c)	65 to 80 mm diameter	Each	20			
3.32	NS	Extra for providing and installing INFRA-RED controlled electrically operated (220V, AC mains) automatic flushing system of approved make instead of urinals with flushing cistern. The automatic flushing system shall comprising of :					

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
	a)	Light sensing device fixed in recessed metallic box with tamper resistant stainless steel outercase Solenoid valve housed in a recessed metallic box with openable cover mounted at high level ( at desired height from finished floor level) complete with interconnecting control wiring in recessed PVC conduit between solenoid valve and sensing unit, including cutting and making good the walls & floor complete and all necessary fittings to make it operational as directed	Each	46			
3.33	NS	Extra for in place of pillar trap in wash basin/scrub sink providing and installing INFRA-RED controlled electrically operated (220V, AC mains) automatic tap of approved make instead of pillar tap, comprising of :					
		Light sensing device fixed in tap, Solenoid valve housed in a recessed metallic box with openable cover mounted at high level ( at desired height from finished floor level) complete with interconnecting control wiring in recessed PVC conduit between solenoid valve and sensing unit, including cutting and making good the walls & floor complete and all necessary fittings to make it operational as directed	Each	60			

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
3.34	NS	Providing and fixing C.P. brass lab sink pillar tap with long elbow operating lever handle of approved model and make complete in all respect ( Jaguar,Marck)	Each	35			
3.35	NS	Providing and fixing CP brass single lever scrub mixer with pop up and long lever elbow operated handle of approved model and make complete in all respect ( Jaguar,Marck)	Each	4			
3.36	NS	Providing & fixing solid state fully hygienic no touch hand drier of approved make rated for continuous repeat usage with solid state time delay LSF protection, with independent ambient light level & seasonal control temperatures including providing necessary C.I./M.S. brackets painted with two or three coats of enamel paint of approved shade over a coat of primer, wiring cables from drier to plug, plug tops etc. complete including cutting and making good the walls wherever required.	Each	12			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
3.37	NS	Supplying, fixing, testing and commissioning of storage type water heater (Geyser) etc. with Stainless steel body , copper container , automatic thermostatic control electric element, pressure release valve, M.S. nuts and bolts etc. conforming to IS: 2082					
	a)	35 Litre Capacity	Each	12			
	b)	25 Litre Capacity	Each	2			
3.38	NS	Providing & fixing water storage cooler of approved make and brand with SS body having minimum flow rate of 40 ltrs. Per hour and storage capacity 80 ltrs. Complete in respects.(VOLTAS/ BLUE-STAR/ USHA SHRIRAM )	Each	10			
3.39	NS	Providing and fixing approved make & suitable model of Water treatment plant with UV Disinfection unit with flow rate of 40 ltrs. Per hour flow The operating voltage to 230 volt AC +/- 10% alongwith required capacity pump and solenoid valves, dry run protection of pump, non-wird automatic tank level control, inbuilt auto flush timer for periodic flushing of membranes, hydro pneumatic tank, over voltage and over current protection with switch mode power supply system complete in all respects including installation and fittings with the following provisions: (IONIEXCHANGE/ KENT/Fontus/Aquaplus )					

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
	a)	(online instrumentation & display for TDS ,online antiscaling dosing provision)					
	b)	10 micron polypropylene sediment pre filter					
	c)	10 micron bacteriostatic activated carbon block					
	d)	3 Nos. U.V. Disinfection Unit					
	e)	Bacteriostatic activated carbon cartridge	Each	10			
		<b>HYDROPNEUMATIC SYSTEM</b>					
3.40	NS	Providing and fixing of package type skid mounted hydropneumatic system comprising of:					
	a)	Horizontal / Vertical inline single/multistage centrifugal pumping set with stainless steel SS stage casing and SS impellers with stainless steel shaft, cast iron suction & discharge casing, connected to suitable capacity TEFC ventilated induction motor of 2 pole, 2900rpm, suitable for 415+10% Volts, 3 phase, 50 Hz A.C. supply.suitable to operate on variable speed ( as per demand of water in the system)					
	b)	Pressure vessel of non corrosive FRP composite construction lined with NSF and/or FDA listed material, like high density polyethylene with fully replaceable polyurethane. Air cell burst pressure of minimum of 5 times the vessel operating pressure and cycle tested for 2,50,000 cycles.					

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
	c)	No. and capacity of Pressure Vessel - 01 Nos. x 500 Ltrs.					
	d)	Electrical Control Panel including provision for cyclic operation of pumps - Pump working sequence should change after every operation. Control panel with programmable logic controller (PLC) with inbuilt PID controller , digital display with fluorescent screen, one no. 3 ph, 415±10%V, AC variable speed drive of suitable capacity rating with inbuilt EN55011 class A RFI filters, having standard function of BI loop, energy saving catching a spinning load with speed search, auto hunting jog preset speeds, controlled stop on loss of supply power loss side through, DDC injection breaking fast stop. Drive should have selectable rated input frequency 50/60 Hz and output frequency range of 0.5-32 Hz, contactors, overload relays and MCBs should conform to IEC 898-1995 standards Ammeter, voltmeter. All trip indications should blink in case of trip and panels should only be accessible through an access code.					
	e)	Electronic Pressure switches having maximum pressure and differential scale should confirming BS-6134 standards and IP55 protection class.					
	f)	Complete set system to be mounted on a common MS base frame and shall follow following duty.					



**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
	g)	The cost will include making necessary flanged suction and delivery headers in GI (C class) Motor to be of the same make as the pump/or as approved by HSCC/client (Vendor to submit performance curves and technical catalog of the proposed model for review and obtaining approval from HSCC/client before start of work) The pump shall be selected for (HYDROPNEUMATIC SYSTEM) performance at best efficiency point. However, the pump selection shall be suitable for performance with set point @ + 20% of the rated head.					
3.40.1	a)	Capacity : 400 LPM Each Pump (1set comprising of 3pump Working system + 1pump as Standby) @ 80 M head. (Flushing)	Set	1			
3.40.2	b)	Capacity :250 LPM Each Pump (1set comprising of 3pump Working system + 1pump as Standby) @ 80 M head. (Normal water supply)	Set	1			
3.41	NS	Supply of Testing Kits: Complete with, initial supply of reagents, instruction booklets, measuring instructions etc. for Residual Chlorine,pH value Hardness etc	Set	1			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab****Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
3.42	NS	Supply, installation, testing and commissioning of solar water heating system, Thermosyphon type, all complete based on Flat plat collector system (Cu-Cu Type only) comprising of but not limited to the following:					
	a)	Requisite number of Flat plate collectors of 2 sq. mtr. collector area. Collector absorber plate to be made of copper tubes & copper fins only					
	b)	Hot water storage tank made of stainless steel 304- food grade quality with 100 mm Glass wool insulation and cladding with 24 SWG Aluminum sheet. One temperature measuring device and suitable inlet, outlet and drain connections on the storage tank to be provided. Suitable Electrical Heater backup to be provided inside the tank along with thermostat					
	c)	Heat Exchanger - Cage type Internal Heat Exchanger made of SS pipes shall be provided inside the Solar Tank. Heat exchangers shall have min. heat transfer area of 0.24 sq. mtrs. for every 100 LPD calacity. Suitable make up tank for the Heat Exchanger circuit shall also be provided					

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
	d)	Interconnecting system piping shall consist of B Class insulated GI pipes covered with 50mm thick glasswool & clad with 26 SWG Aluminium Sheet. All Gate/Ball valves shall be of ISI make.					
	e)	Electrical control panel, cabling from panel to pumps and electrical heaters shall also be provided					
	f)	The solar collector shall be arranged on roof of building in such a way that shadow can be avoided and requisite number of MS support for collector/tanks of minimum 35x35x5 MS angle adequate for 150 Km/Hr wind pressure.					

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
	g)	Solar water heating system based on Flat plat collector system technology with output capacity of as mentioned below with hot water at 60 degree centigrade having required Nos. solar collectors and required nos. of electric heating element of 3 KW each controlled by thermostat. as per complete item as per technical specification of make BHEL/TATA/EMMVEE. The system has to be installed by Manufacturers authorised distributors/approved specialised firms of Solar water heating of approved make. The shop drawing of the systems shall be provided by the agency as per site condition obtain the proper efficiency The system shall be procured after obtaining the approval of shop drawings from HSCC / Engineer-in-charge.					
	i)	Solar System of Capacity 1500 Litre/day (With minimum 12 nos of Collect) of 2.0 Sqm area	each	4			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

<b>Sl. No.</b>	<b>Ref No.</b>	<b>Description of Item</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate in Figures</b>	<b>Rate in Words (in Rs)</b>	<b>Amount in Figures</b>
					<b>(in Rs)</b>		<b>(in Rs)</b>
<b>1</b>		<b>2</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>6</b>
3.43	NS	Recirculation system (on return line) -Designing, Supply, Installation, Commissioning & Integration with Solar System of Recirculation System consisting of - Insulated Auxiliary Tank SS with epoxy paints (minimum capacity equal to 1.5 times the capacity of hot water piping network) and with Electrical Backup, Pump, of requisite capacity DTC, Sensor PT100, Control Panel wiring, RS 485 mod bus communication port for BMS as per technical specification, MS standard etc. (but does not include the return piping & fitting)	each	2			
<b>SUB TOTAL(water Supply)</b>							

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**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
<b>4.00</b>		<b>SEWARAGE &amp; DRAINAGE</b>					
4.01	19.1	Providing laying and jointing glazed stoneware pipes grade 'A' with stiff mixture of cement mortar in the proportion of 1:1 (1 cement : 1 fine sand) including testing of joints etc. complete.					
a)	19.1.1	100 mm diameter	Metre	50			
4.02	19.2	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) all-round S.W. pipes including bed concrete as per standard design:					
a)	19.2.1	100 mm diameter S.W. pipe/RCC NP2	Metre	50			
b)	19.2.2	150 mm diameter S.W. pipe/RCC NP2	Metre	300			
c)	19.2.5	250 mm diameter S.W. pipe/RCC NP2	Metre	50			
4.03	19.3	Providing and laying cement concrete 1:5:10 (1 cement:5 coarse sand:10 graded stone aggregate 40 mm nominal size) up to haunches of S.W. pipes including bed concrete as per standard design:					
a)	19.3.1	150 mm diameter S.W. pipe	Metre	100			
b)	19.3.2	250 mm diameter s.W. pipe	Metre	50			

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**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
4.04	19.4	Providing and fixing square-mouth S.W. gully trap grade 'A' complete with C.I. grating, brick masonry chamber with water tight C.I. cover with frame of 300x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design.					
a)	19.4.2	150x100mm size P type					
a.i)	19.4.1.1	F.P.S. Bricks class designation 75	Each	15			
4.05	19.6	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement:2 fine sand) including testing of joints etc. complete					
a)	19.6.2	150 mm dia R.C.c. pipe	Metre	400			
b)	19.6.3	250 mm dia R.C.C. pipe	Metre	100			

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**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
4.06	19.7	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand), R.C.C. top slab with 1:2:4 mix ( 1cement : 2 coarse sand : 4graded stone aggregate 20 mm nominal size ), foundation concrete 1:4:8 ( 1cement : 4 coarse sand : 8graded stone aggregate 40 mm nominal size ), inside plastering 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, and making necessary channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement all complete as per standard design.					
a)	19.7.1	Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg):					
a i)	19.7.1.1	With F.P.S. bricks with class designation 75	Each	10			
4.07	19.8	Extra depth for manholes					
a)	19.8.1	Size 90 x 80 cm					
a i)	19.8.1.1	With F.P.S. bricks class designation 75	Metre	2			



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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
4.08	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:					
a)	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) :					
a i)	19.9.1.1	With F.P.S. bricks class designation 75	Each	15			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab****Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
4.09	19. 10	Extra depth for circular type manhole 0.91m dia (at bottom) with beyond 0.91m to 1.67 m					
a)	19.10.1	With F.P.S. bricks class designation 75	Metre	2			
4.10	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 mix (1 cement :3 coarse sand : 6 graded stone aggregate 40mm nominal size) and making necessary channel in cement concrete 1:2:4 (1 cement :2 coarse sand : 4 graded stone aggregate 20mm nominalsize) finished with a floating coat of neat cement complete as per standard design.					

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab****Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
a)	19.11.1	1.68 m deep with SFRC cover and frame (heavy duty HD-20 grade designation) 560 mm internal diameter conforming to IS: 12592, total weight of cover and frame to be not less than 182 kg. fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including centering shuttering all complete. (Excavation, foot rests and 12 mm tick cement plaster at the external surface shall be paid for separately)					
a.i)	19.11.1.1	With F.P.S. bricks with class designation 75	Each	5			
4.11	19.12	Extra depth for circular type manhole 1.22 m internal dia (at bottom) with beyond 1.68 m to 2.29 m					
a)	19.12.1	With F.P.S. bricks with class designation 75	Metre	1			

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
4.12	19.16	Providing and fixing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS: 10910 on 12 mm dia steel bar conforming to IS: 1786 having minimum cross section as 23 mm x 25 mm and over all minimum length 263 mm and width as 165 mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specification mark to be visible even after fixing, including fixing in manholes with 30x20x15 cm cement concrete block 1:3:6 ( 1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) complete as per design.	Each	150			

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
4.13	19.21	Making connection of drain or sewer line with existing manhole including breking into and making good the walls, floors with cement concrete 1:2:4 mix (1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size) cement plastered on both sides with cemnet mortar 1:3 (1 cement:3 coarse sand) finished with a floating coat of neat cement and making necessary channels for the drain etc. complete (including obtaining approval from DJB/Municipal corporation					
a)	19.21.1	For pipes 100 to 230 mm dia	Each	2			

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**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
4.14	19.22	Providing sand cast iron drop connection externally for 60 cm drop from branch sewer line to main sewer manhole including inspection and cleaning eye with chain and lid sand cast Iron drop pipe and bend encased all-round with cement concrete 1 :5:1 0 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) with all centering and shuttering required, cutting holes in walls and making good with brick work in cement mortar 1:4 (1 cement: 4 coarse sand) plastered with cement mortar 1:3 (1 cement: 3 coarse sand) on, inside of the manhole wall lead caulked joints between sand cast iron pipes and fittings, stiff cement mortar 1:1 (1 cement: 1 fine sand) joints between sand cast iron tee and S.W. pipe, making required channels complete as per standard design and specifications:					
a)	19.22.2	150 mm dia. sand cast iron drop connection	Each	6			
4.15	19.27	Constructing brick masonry road gully chamber 50x45x60 cm with bricks of class designation 75 in cement mortar 1:4 (1 cement:4 coarse sand) including 500x450 mm pre-cast R.C.C. horizontal grating with frame complete as per standard design:					
	19.27.1	With F.P.S. bricks	Each	50			

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**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
4.16	19.34	Providing and fixing S.W.intercepting trap in manholes with stiff mixture of cement mortar 1:1 (1 cement:1 fine sand) including testing of joints etc. complete					
a)	19.34.2	150 mm dia	Each	2			
4.17	NS	Constructing brick masonry open surface drain with bricks of class designation 75 in cement mortar 1:4 (1 cement : 4 fine sand) including earth excavation, 10cm thick bed concrete 1:5:10 (1 cement: 5 fine sand :10 graded stone aggregate 40mm nominal size) and 25mm thick cement concrete 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate 12.5 mm nominal size) for filling hunches including 12mm cement plaster 1:4 (1 cement:4 coarse sand) with a floating coat of neat cement inside the drain, its top and exposed side including disposal of surplus earth complete as per standard design. 30cm drain 45cm average depth					
	a)	With F.P.S bricks	Metre	300			

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
4. 18	NS	Providing and laying UPVC pipes for laboratory drainage confirming to IS:4985 (6 kg/sq.m) unless specified otherwise including all upvc fittings/accessories like assembled traps, bends, junctions, cowls, offsets, reducers, Tees, clean out plugs etc. fusion jointed, making holes in RCC slab/walls and making good the slab/walls					
	a)	160 mm OD	Metre	250			
	b)	200 mm OD	Metre	50			
4. 19	NS	Constructing brick masonry neutralisation chamber with 75 class designation bricks in cement mortar 1:4 (1 cement: 4 coarse sand) RCC top slab 1:2:4 mix (1 cement: 2 coarse sand:4 graded stone aggregate 20 mm nominal size) foundation concrete 1:4:8 (1 cement:4 coarse sand: 8 graded stone aggregate 40 mm nominal size) inside plastering 12 mm thick with cement mortar 1:3 (1 cement:3 coarse sand) finished with a floating coat of neat cement complete and making channels in cement concrete 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement as per standard design.					



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<b>Sl. No.</b>	<b>Ref No.</b>	<b>Description of Item</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate in Figures</b> <b>(in Rs)</b>	<b>Rate in Words (in Rs)</b>	<b>Amount in Figures</b> <b>(in Rs)</b>
<b>1</b>		<b>2</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>6</b>
	a)	Inside size 2.0x1.5 m and 1.5m deep including C.I. cover with frame (medium duty) 500 mm internal diameter, total weight of cover and frame to be not less than 116 kg (weight of cover 58 kg and weight of frame 58 kg)	Each	2			
<b>SUB TOTAL(SEWERAGE AND DRAINAGE)</b>							

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
<b>5.00</b>		<b>EARTH WORK</b>					
5.01	2.6	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 up to 50 m and lift up to 1.5 m , disposed earth to be levelled and neatly dressed.					
a)	2.6.1	All kinds of soil	cum	120			
5.02	2.10	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m:					
a)	2.10.1	All kinds of soil					
a.i)	2.10.1.1	pipes, cables etc, not exceeding 80 mm dia	metre	800			

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<b>Sl. No.</b>	<b>Ref No.</b>	<b>Description of Item</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate in Figures</b>	<b>Rate in Words (in Rs)</b>	<b>Amount in Figures</b>
					<b>(in Rs)</b>		<b>(in Rs)</b>
<b>1</b>		<b>2</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>6</b>
5.03	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 up to 1.5 m	cum	40			
<b>SUB TOTAL(EARTH WORK)</b>							

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
<b>6.00</b>		<b>EXTERNAL WATER SUPPLY</b>					
6.01	2.10	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m:					
a)	2.10.1	All kinds of soil					
a.ii)	2.10.1.2	Pipes, cables etc, not exceeding 80 mm dia but not exceeding 300 mm dia	metre	250			
6.02	18.12	Providing and fixing G.I.pipes complete with G.I. fittings including trenching and refilling etc. <b>(External work)</b>					
a)	18.12.2	20 mm dia nominal bore	metre	50			
b)	NS	100 mm dia nominal bore	metre	200			
6.03	18.19	Providing and fixing gun metal non-return valve of approved quality (screwed end)					
a)	18.19.6	80 mm nominal bore					
a.i)	18.9.6.1	Horizontal	each	4			

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Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
b)	18.19.5	65 mm nominal bore					
b.i)	18.19.5.1	Horizontal	each	2			
6.04	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):					
a)	18.31.1	100 mm diameter					
a.i)	18.31.1.1	Class I	each	6			
c)	18.31.3	150 mm diameter					
c.i)	18.31.3.1	Class I	each	2			
d)	18.31.4	200 mm diameter					
d.i)	18.31.4.1	Class I	each	2			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab****Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
6.05	18.33	Constructing masonry chamber 60x60x75 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement: 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement: 2 coarse sand:4 graded stone aggregate 20 mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement :3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design					
a)	18.33.1	With F.P.S. bricks	each	4			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab****Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
6 .06	18. 34	Constructing masonry chamber 90x90x100 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement: 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement: 2 coarse sand:4 graded stone aggregate 20 mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement :3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design					
a)	18.34.1	With F.P.S.bricks	each	4			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
6.07	18.36	Constructing masonry chamber 60x60x100 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement: 4 coarse sand) for fire hydrant, 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) necessary excavation foundation concrete 1:5:10 (1 cement: 5 fine sand: 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design					
a)	18.36.1	With F.P.S.bricks	each	4			
6.08	18.40	Painting G.I./CPVC pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality					
a)	18.40.2	20 mm diameter pipe	metre	50			
b)	NS	100 mm diameter pipe	metre	200			
6.09	18.41	Providing and filling sand of grading zone V or coarser grade all-round the G.I./CPVC pipes in external work					
a)	18.41.2	20 mm diameter pipe	metre	50			
b)	18.41.9	100 mm diameter pipe	metre	200			



**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab****Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
6. 10	18. 47	Providing and fixing G.I. Union in existing G.I. pipe line, cutting and threading the pipe and making long screws including excavation, refilling the earth or cutting of wall and making good the same complete wherever required:					
a)	18.47.6	50 mm nominal bore	each	4			
b)	18.47.7	65 mm nominal bore	each	4			
c)	18.47.8	80 mm nominal bore	each	4			
b)	NS	100 mm diameter pipe	metre	2			
6. 11	18. 59	Providing and fixing C.I. double acting air valve of approved quality with bolts, nuts, rubber insertions etc. complete (The tail pieces, tapers etc. if required will be paid separately):					
a)	18.59.1	50 mm dia	each	1			
b)	18.59.2	80 mm dia	each	3			
6. 12	18. 68	Providing and laying D.I. specials of class k-12 suitable for push-on jointing as per IS:9523					
a)	18.68.1	Upto 600 mm dia	quintal	10			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
6. 13	18. 70	Providing push-on-joints to Centrifugally (Spun) Cast Iron pipes or Ductile Iron Pipes including testing of joints and including the cost of rubber gasket					
a)	NS	80 mm dia pipes	joint	90			
a)	18.70.1	100 mm dia pipes	joint	150			
	18.70.2	150 mm dia pipes	joint	10			
	18.70.3	200 mm dia pipes	joint	10			
6. 14	18. 72	Providing and laying S&S Centrifugally Cast (Spun)/Ductile Iron pipes conforming to is:8329:					
a)	18.72.1	100 MM DIA Ductile Iron Class k-7 pipes	metre	350			
	18.72.2	150 MM DIA Ductile Iron Class k-7 pipes	metre	20			
a)	NS	80 MM DIA Ductile Iron Class k-7 pipes	metre	200			
	18.72.3	200 mm dia Ductile Iron Class K-7 pipes	metre	25			
6. 15	18. 80	Disinfecting C.I./D.I. water mains by flushing with water containing bleaching powder at 0.5 gms per litre of water and cleaning the same with freash water, operation to be reaeated three times including getting the sample of water from the disinfected main tested in the municipal laboratory					
a)	18.80.2	100 mm diameter C.I./D.I. pipe	100 metre	4			
	18.80.4	150 mm diameter C.I./D.I. pipe	100 metre	1			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
a)	18.80.1	up to 80 mm diameter C.I. pipe	100 metre	2			
e)	18.80.5	200 mm diameter C.I. pipe	100 metre	1			
6. 16	NS	Providing and fixing G.I. pipes complete with G.I. fittings and clamp including cutting and making good the walls etc. Internal work-Exposed on wall					
	a)	65 mm diameter	metre	50			
	b)	80 mm diameter	metre	50			
6. 17	NS	Providing and fixing puddle flanged including 40 cm long GI pipe piece welded/threaded with MS plates 450x450x6 mm thick with both end screwed/flanged.					
	a)	For 80 mm dia pipe	Each	4			
	b)	For 100 mm dia pipe	Each	6			
	c)	For 150 mm dia pipe	Each	1			
6. 18	NS	Providing and fixing suitable G.I. vent pipe upto 1m high Class-B (medium quality) with fittings complete as per drawing and as directed.					
	a)	100mm Dia	Metre	6			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
6. 19	NS	Providing and fixing double seal type D.I. Manhole cover of 560 mm clear internal diameter of over all heavy duty with locking arrangement complete in all respects.	Each	6			
6. 20	NS	Providing all materials and labour for supplying and fixing multi-level indicator cum controller, operating in electronic sensing probe and having the controller equipped with level monitoring system and phase monitoring system for automatic operations of various pumps and indicating water levels for various tanks and having multi-level 4 nos. visual indications on panel with alarm system and timer including necessary cable and acknowledge facilities as per requirement and all complete as approved.					
		<b>Water tanks</b>					
	a)	controller/Multilevel indicators					
	b)	Electronic sensing probe to cut-off raw water pumps at low level in raw water tank.					
	c)	Electronic sensing probe to cut-off pumps at high level in receiving tanks.	set	1			
6. 21	NS	Providing and fixing gun metal foot valve with stainer of approved quality/model complete in all respect					
	a)	80 mm dia	each	2			
	b)	100 mm dia	each	1			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
	c)	200 mm dia	each	1			
6.22	NS	Providing and fixing garden hydrant of approved quality and make complete in all respect	each	50			
6.23	NS	Testing Underground tank for water seepage before fixing of tiles or any other finishing including pressure grouting (if required). The tank should be disinfected and cleaned before use as per instruction of Engineer-in-charge	set	1			
6.24		Providing and fixing of <b>Oxilyte(Mixed Oxidant ) Generation System</b> of approved make & model based on ECA Technology, producing non toxic mixed Oxidant solution at 1000 ppm of oxidant Concentration. The solution should be at pH 3 +-0.5 suitable for 24x7 operations should produce 720 L per day. The appropriate dosing pump(2 nos.) ,valves,piping,fittings,chemical dosing tanketc. complete in all respect.	Each	2			
		<b>SUBTOTAL (EXTERNAL WATER SUPPLY)</b>					

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
7.00		<b>EXTERNAL SEWORAGE ( Upto STP)</b>					
7.01	19.6	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement:2 fine sand) including testing of joints etc. complete					
a)	19.6.2	250 mm dia R.C.c. pipe	Metre	200			
b)	19.6.3	300 mm dia R.C.C. pipe	Metre	100			
7.02	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:					

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab****Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
a)	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) :					
a.i)	19.9.1.1	With F.P.S. bricks class designation 75	Each	15			
7.03	19.10	Extra depth for circular type manhole 0.91m dia (at bottom) with beyond 0.91m to 1.67 m					
a)	19.10.1	With F.P.S. bricks class designation 75	Metre	1			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
7.04	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 mix (1 cement :3 coarse sand : 6 graded stone aggregate 40mm nominal size) and making necessary channel in cement concrete 1:2:4 (1 cement :2 coarse sand : 4 graded stone aggregate 20mm nominalsize) finished with a floating coat of neat cement complete as per standard design.					
a)	19.11.1	1.68 m deep with SFRC cover and frame(heavy duty HD-20 grade designation) 560 mm internal diameter conforming to IS: 12592, total weight of cover and frame to be not less than 182 kg. fixed in cement concrete 1:2:4 (1 cement :2 coarse sand : 4 graded stone aggregate 20mm nominalsize) including centering shuttering all complete. (Excavation, foot rests and 12 mm tick cement plaster at the external surface shall be paid for separately)					



**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
a.i)	19.11.1.1	With F.P.S. bricks with class designation 75	Each	5			
7.05	19.12	Extra depth for circular type manhole 1.22 m internal dia (at bottom) with beyond 1.68 m to 2.29 m					
a)	19.12.1	With F.P.S. bricks with class designation 75	Each	1			
7.06	19.1	Constructing brick masonry circular manhole 1.52 internal dia at bottom and 0.56 mm dia at top in cement mortar 1:4 ( 1 cement : 4 coarse sand) inside cement plaster 12mm 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 40mm 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 floating coat of neat cement all complete as per standard design.					

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
a)	19.13.1	2.30 m deep with SFRC cover and frame ( heavy duty HD-20 grade designation) 560 mm internal diameter conforming to IS:12592 total weight of cover and frame to be not less than 182 kg fixed in cement concrete 1:2:4 ( 1 cement :2 coarse sand : 4 graded stone aggregate 20mm nominal size) including centering shuttering all complete ( excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately).					
a.i)	19.13.1.1	With FPS bricks class designation 75	Each	2			
7.07	19.1	Extra depth for circular type manhole 1.52 internal dia ( at bottom ) beyond 2.30m)					
a)	19.14.1	With FPS bricks class designation 75	Each	1			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab****Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
7.08	19.16	Providing and fixing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS: 10910 on 12 mm dia steel bar conforming to IS: 1786 having minimum cross section as 23 mm x 25 mm and over all minimum length 263 mm and width as 165 mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specification mark to be visible even after fixing, including fixing in manholes with 30x20x15 cm cement concrete block 1:3:6 ( 1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) complete as per design.	Each	50			
		<b>SUBTOTAL (EXTERNAL SEWARAGE )</b>					

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
<b>8.00</b>		<b>EARTH WORK (for External Sewerage )</b>					
8.01	2.6	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 up to 50 m and lift up to 1.5 m , disposed earth to be levelled and neatly dressed.					
a)	2.6.1	All kinds of soil	cum	50			
8.02	2.10	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m:					
a)	2.10.1	All kinds of soil					
a.ii)	2.10.1.2	Pipes, cables etc, not exceeding 80 mm dia but not exceeding 300 mm dia	metre	200			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

<b>Sl. No.</b>	<b>Ref No.</b>	<b>Description of Item</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate in Figures</b>	<b>Rate in Words (in Rs)</b>	<b>Amount in Figures</b>
					<b>(in Rs)</b>		<b>(in Rs)</b>
<b>1</b>		<b>2</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>6</b>
8.03	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 up to 1.5 m	cum	15			
		<b>SUBTOTAL(EARTH WORK for External Sewarage )</b>					

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
<b>9.00</b>		<b>RAIN WATER HARVESTING</b>					
9.01	NS	Designing and Constructing of percolation pit cum perforated well 3000mm. dia upto 4000mm deep, 230 mm thick brick masonry work around upto 1.5 m deep with 35 class brick in cement mortar 1:4, 200 mm foundation concrete in 1:4:8 mix below brick work only, 150 mm thick precast removable RCC top slab with required steel reinforcement in cement concrete 1:2:4 mix, filled with coarse aggregate, SFRC covers, river pebbles of requisite size stone as shown in the drawing including centering and shuttering, as shown complete as per detailed drawings complete.	Each	3			
9.02	NS	Drilling as per IS : 2800-1964 ( with percussion or combination rig ) from ground level in all kind of soils including boulders (excluding rock ) diameter of bore 450mm.					
	a)	0-50m	Metre	60			
9.03	NS	Extra for drilling in Ordinary Rock	Metre	15			
9.04	NS	Extra for drilling in Hard Rock	Metre	15			
9.05	NS	Providing and lowering of 200 mm dia uPVC blank/ slotted pipe with ribs, special fittings, jointing conforming to IS 12818 - 1992.	Metre	90			

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab****Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
9.06	NS	Constructing bar screen / settling tank, of sizes 4500x2500 with suitable depth up to 2.0 m in 1: 4 Cement Mortar (one cement : 4 coarse sand) height as per site requirement, in brick masonry 350mm thick walls upto water level and 230mm thick walls above water level & upto ground level, including all excavation, 20 cm thick bed concrete in 1:4:8 (one cement 4 fine sand 8 stone aggregate 40 mm), cement plaster 1:3 (one cement :3 coarse sand) with a floating coat of neat cement as inside finish , top slab in RCC 1:2:4, including centring, shuttering and steel work, also providing and fixing D.I. manhole cover & frame of size 605mm x 450mm of weight not less than 38 kg (frame + cover) and cost of 100mm dia C.I. vent pipe with C.I. Ventilating Cowl and suitable wire mesh provision for inlet, 115mm baffle walls extending 2/3 the width spaced@500mm c/c including finishing with 1:3 cement plaster 15mm thick with floating coat of neat cement slurry , all complete in every respect as per drawing and as directed to suit site condition.	Each	3			
		<b>SUBTOTAL (RAIN WATER HARVESTING)</b>					

**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

Sl. No.	Ref No.	Description of Item	Unit	Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1		2	3	4	4	5	6
<b>10.00</b>		<b>RAIN WATER PIPING</b>					
10.01	12.40	Providing and fixing on wall face/Concealed unplasticised rigid PVC rain water pipes conforming to IS:13592 Type A including jointing with seal ring confirming to IS:5382 leaving 10 mm gap for thermal expansion. (i) Single socketed pipes					
	a)	110 mm diameter (6 kg/sq. cm)	Metre	750			
	b) NS	160 mm diameter (6 kg/sq. cm)	Metre	500			
10.02	12.42	Providing and fixing on wall face/Concealed unplasticised - PVC moulded fittings/accessories for unplasticised rigid PVC rain water pipes conforming to IS:13592 Type A including jointing with seal ring confirming to IS:5382 leaving 10 mm gap for thermal expansion.					
	a)	12.42.4 Single tee without door					
	a ii)	12.42.4.2 110x110x110mm	Each	30			
		NS 160x160x160 mm	Each	20			
	b)	12.42.5 Bend 87.5 degree					
	b ii)	12.42.5.2 110 mm bend	Each	30			
		NS 160 mm bend	Each	20			
	c)	12.42.6 Shoe (Plain)					
	c ii)	12.42.6.2 110 mm shoe	Each	30			
		NS 160 mm shoe	Each	20			



**PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab**

**Name of Work: Bill of Quantities of Plumbing Work**

<b>Sl. No.</b>	<b>Ref No.</b>	<b>Description of Item</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate in Figures</b>	<b>Rate in Words (in Rs)</b>	<b>Amount in Figures</b>
					<b>(in Rs)</b>		<b>(in Rs)</b>
<b>1</b>		<b>2</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>6</b>
10.03	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	50			
<b>SUB TOTAL(Rain Water pipe &amp; fitting)</b>							

PROJECT: Construction of Diagnostic Centre at Amritsar, Punjab

Name of Work: Bill of quantities of Plumbing work of Diagnostic Centre at Amritsar, Punjab

S.No.		Amount in figures(Rs)
A	<b>INTERNAL PLUMBING</b>	
1.00	SANITARY FIXTURES	
2.00	SOIL, WASTE AND VENT PIPES	
3.00	WATER SUPPLY	
4.00	SEWERAGE AND DRAINAGE	
5.00	EARTH WORK	
B	<b>EXTERNAL PLUMBING</b>	
6.00	EXTERNAL WATER SUPPLY	
7.00	EXTERNAL SEWARAGE	
8.00	EARTH WORK (FOR EXTERNAL SEWARAGE )	
9.00	RAIN WATER HARVESTING	
10.00	RAIN WATER PIPE	

**TOTAL**

**COST OF PLUMBING WORK**

# FIRE-FIGHTING WORKS

**PROJECT NAME : Construction of Diagnostic Centre in Amritsar, Punjab**

<b>Bill of Quantities of Fire Fighting Work of Diagnostic Centre in Amritsar, Punjab</b>						
<b>Sl. No.</b>	<b>Description of Item</b>	<b>Unit</b>	<b>Diagnostic Qty</b>	<b>Rate in Figures (in Rs)</b>	<b>Rate in Words (in Rs)</b>	<b>Amount in Figures (in Rs)</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>			
<b>1.00</b>	<b>FIRE FIGHTING SYSTEM</b>					
1.01	Providing and laying Double flanged (Screwed/Welded) centrifugally (spun) Ductile iron pipes of class K-9 conforming to IS: 8329					
1.011.1	150 mm dia Ductile Iron Double Flanged	Metre	280			
1.02	Providing & Laying D.I. Specials of class K-12 suitable for double flanged jointing/ mechanical jointing as per IS:9523					
	Upto 600 mm dia	quintal	10			
1.02.1						
	Providing flangrd joints to double flanged C.I./D.I. pipes and specials including testing of joints .					
1.03	150 mm dia pipes	joints	100			

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1.04	Excavating trenches of required width for pipes, cables etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5m includong getting out the excavated soil, and then returning the soil as required, inlayers 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					
1.04.1	Pipes, cables etc exceeding 80 mm dia but not exceeding 300 mm dia	Metre	300.00			

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1.05	Heavy class M.S. pipes conforming to IS with accessories like tees, elbows, flanged joints, rubber insertion, nuts, bolts or welded joints including fixing the pipe with suitable flat iron strip clamps/brackets, structural members, dash fastener , cutting hole and chases in walls, floor, R.C.C. slab etc. and making good the same, including painting pipes and fittings with a primer coat of steel primer and two coats of postal red enamel paint etc. complete as required.					
	200 mm dia (5.2 mm thick)	Metre	50.00			

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1.06	Heavy class G.I. pipes conforming to IS with accessories like tees, elbows, flanged joints, rubber insertion, nuts, bolts or welded joints including fixing the pipe with suitable flat iron strip clamps/brackets, structural members, dash fastener , cutting hole and chases in walls, floor, R.C.C. slab etc. and making good the same, including painting pipes and fittings with a primer coat of steel primer and two coats of postal red enamel paint etc. complete as required.					
a)	150 mm dia (with Flanged joints)	Metre	320.00			
b)	100 mm dia (with Flanged joints)	Metre	200.00			
c)	80 mm dia (with Flanged joints)	Metre	500.00			
d)	65 mm dia	Metre	150.00			
e)	50 mm dia	Metre	300.00			
f)	40 mm dia	Metre	630.00			
g)	32 mm dia	Metre	800.00			
h)	25 mm dia	Metre	2800.00			

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1.07	Providing and fixing Single headed hydrants flanged inlet with 63 mm female instantaneous outlet of gunmetal complete with male blank caps, chains conforming to IS:5290 type A with stainless steel orifice plate (if required) to keep the pressure not more than 3.5 kg/sq.cm at any point.	Each	16.00			
1.08	Providing 63mm dia 15 m long reinforced rubber lined hose pipe conforming to IS: 636-1992 Part-II with gunmetal male & female coupling wire wound with pipe as required.	Each	16.00			
1.09	Providing and fixing 63mm dia 15 m long canvas hose pipe complete with gunmetal male & female coupling wire wound with the pipe The pipe shall confirm to IS: 4927.	Each	16.00			



Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1.10	Providing and fixing Gunmetal branch pipe with 20mm dia nozzle conforming to IS:903. suitable for installation connections to hose coupling etc. as required.	Each	8.00			
1.11	Providing and fixing Four way fire brigade connection housed in steel cabinet of size 900mm x 750mm x 400mm fabricated from 1.5mm thick M.S. sheet having lockable arrangement, openable glazed door with 4mm thick glass, including painting a coat of steel primer and two coats of postal red enamel paint, with necessary supports for the cabinet etc. with 150 mm dia. non return and butterfly valves complete in all respects.					
a)	4 Way - 150mm dia	Each	8.00			

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1.12	Providing and fixing Set of "Siamese" quadraplet instantaneous fire brigade connections comprising of two gunmetal instantaneous male inlet coupling 63mm dia with plug and cap, chain bends, tees etc for inlet to the static tank.	Each	1.00			
1.13	Providing & Fixing 150 mm dia, 4 way suction coupling for firebrigade withdrawal of water from the fire tank	Each	1.00			

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1.14	Providing and fixing glazed door shutter and frame for brick masonry fire hose cabinet with hold fasts ( frame fabricated from 40 x 40 x 5mm and shutter from angle) 2100 mm high x 1200 mm wide x 600mm deep with locking arrangement, 4mm thick glass with M.S. flats including all accessories, painting with one coat of steel primer and two coats of postal red enamel paint complete as per drawing and as directed. The words " hose cabinet" to be painted on the box complete in all respects.	Each	8.00			

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1.15	Providing and fixing Weather proof standard stand post type hose cabinet (900mm x 750 mm x 400 mm) out door type made of 1.5mm thick M.S. sheet having central opening glazed door with 4mm thick glass suitable for accommodating hydrants, 2 Nos. canvas hose pipe and branch pipe including necessary locking arrangements, painting one coat of primer and two coats of postal red enamel paint.. The shutters are to be lockable type. The words " hose cabinet" to be painted on the box.	Each	8.00			
1.16	Providing and fixing cast iron body IS: 210 FG 220 and double flange gear simple operation type butterfly valve conforming to IS: 13095 with SS304 disc and shaft NITNLE rubber replaceable seat of the following size complete with bolts, nuts, washers and rubber insertions as per specification.					
a)	150 mm dia	Each	16.00			
b)	80 mm dia	Each	15.00			

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1.17	Supplying, testing, installation & commissioning of pressure switches for pumps including necessary wiring upto the control panel.	Each	10.00			
1.18	Constructing masonry chamber 90x90x100 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement: 4 fine sand) for sluice valve, with C.I. surface box 100mm top diameter, 160mm bottom diameter and 180mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design.					
	with F.P.S. bricks	Each	4.00			

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1.19	Supplying and Fixing <b>First Aid Hose Reel</b> , wall mounting swinging type complete with drum & bracket of MS construction, spray painted in Post office Red, confirming to IS 884/1995 with upto date amendments, complete with the following as required.					
	36 Meter long 20 mm dia water hose Thermoplastic (Textile reinforced) Type - 2 as per IS : 12585					
	20 mm dia gun metal ball valve & nozzle.					
	Drum and brackets for fixing the equipments on wall.					
	Connection from riser with stop valve (gun metal) & M.S. Pipe	Each	8.00			
1.20	Providing and fixing C.I. sluice valves (With cap) of approved quality complete with bolts, nuts, rubber insertions etc. ( the tail pieces if required will be paid separately ) Class II					
a)	200 mm dia	Each	1.00			
b)	150 mm dia	Each	2.00			

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
c)	80 mm dia	Each	8.00			
1.21	Supply, Installation, Testing and Commissioning of 100 mm dia Bourden type, Stainless Steel dial type <b>Pressure Gauge</b> including brass isolation valve and siphon pipe having calibration of 0 - 16 Kg / cm <sup>2</sup> .	Each	9.00			
1.22	Supplying and Fixing of Fire Man's axe with heavy insulated rubber as per standard conforming to IS 926	Each	8.00			
1.23	Supplying and Fixing vane type waterflow switch with contacts suitable for installation on 50 mm to 150 mm dia pipeline for a service pressure upto 20 Kg/sq.cm.	Each	7.00			

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1.24	Providing, Fixing, Testing and Commissioning of <b>Sprinkler Installation Control Valve</b> of Cast iron body and brass / bronze working parts comprising of water motor, alarm, bronze seat clapper and clapper arm, hydraulically driven mechanical gong bell to sound continuous alarm when the Sprinkler system activates, pressure gauges, emergency releases, strainer, pressure switch, cock valve complete with drain valve and bypass, test control box, ball valves, MS pipe of required size, flanges, orifice plate, gasket etc. of size 200 mm dia, as required.	Each	1.00			
1.25	Providing and Fixing 15 mm dia gunmetal / brass quartzoid type <b>Sprinkler Head</b> with quartz bulb and set to operate at specified temperature.					
a)	Pendent / Upright type, 68 C, Chrome plated	Each	2000.00			



Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
b)	Side wall extended throw 20 mm dia 68 C, Chrome plated	Each	250.00			
1.26	Fabricating, Supplying, Installation, Testing and Commissioning <b>Air Vessel</b> of continuous welded construction with flanged discharge header on the top of each riser fabricated out of 10 mm thick dished ends and 8 mm thick MS sheet, Air Release Valve complete with suitable drain arrangement with 25 mm dia gun metal wheel valve complete with all accessories etc. as required of the following sizes					
	1.2 Metre high and 250 mm dia	Each	2.00			

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1.27	Supply, Installation, Testing and Commissioning <b>External Yard Hydrant Stand Post</b> comprising of GI pipe 80 mm dia (heavy duty C class) from existing ringmain to about 1 meter above ground level and Single Headed Yard Hydrant Valve with 80 mm dia flanged inlet, instantaneous gunmetal coupling of 63 mm dia with cast iron wheel ISI marked, conforming to IS : 5290 (Type A), with ABS cap and chain etc.complete with all accessories as required.	Each	8.00			
1.28	Providing and placing on terrace polyethylene water storage tank ISI : 12701 MARKED indicating the BIS license No with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	Ltrs	20000.00			

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1.29	Supply, erection, testing & commissioning of exit glow sign board of size 200mm x 350 mm wall mounting signage consisting of photo luminescent coating on acrylic cover	Each	100.00			
1.30	Providing and fixing fire extinguisher of carbon dioxide type consisting of brand new high pressure steel cylinder bearing IS: 7285 mark and having the approval of controller of explosives Nagpur, wheel type valve bearing IS:3224 mark internal discharge tube, 1 meter long high pressure discharge hose, non conducting horn, suspension bracket, fully charged bearing IS: making fixed to wall as directed.					
	4.5kg capacity cylinder	Each	60.00			
1.31	Providing and fixing 9 liters capacity fire extinguisher water type gas pressure conforming to IS marking, fixed to wall.	Each	60.00			

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1.32	Providing and fixing ABC type fire extinguishers complete in all respects.					
	Capacity 5.0 Kg.	Each	30.00			
1.33	Fabricating, Supplying, Installation, Testing and Commissioning <b>Air Vessel</b> of continuous welded construction with flanged discharge header in pump house fabricated out of 10 mm thick dished ends and 8 mm thick MS sheet, Air Release Valve, complete with drain arrangement with 25 mm dia gun metal wheel valve complete with all accessories etc. as required of the following sizes					
	2 Metre high and 450 mm dia suitable to operate Jockey Pump, Main Fire Pump & Diesel Engine Driven Fire Pump	Each	1.00			
1.34	Providing and fixing C.I. non-return valve complete with gunmetal seat, bolts, nuts washer & rubber insertions as required conforming to IS:5312.					
a)	150 mm dia	Each	6.00			
b)	80 mm dia	Each	2.00			

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
1.35	Supplying, installing, testing and commissioning of electric driven fire pump suitable for automatic operation consisting of the following (as per CPWD specification Part V-1985 for Fire Fighting and its amendments).					
a)	Fire pump with SS-316 impeller shall be horizontal split casing centrifugal suction type multistage having following capacity and head so as to ensure a minimum pressure of 3.0 kg per square cm. at the highest and farthest outlet at the specified flow complete with necessary strainer / foot valve suction side and pressure gauge on the delivery side including by pass arrangement for periodical testing of the working of the pumping set as required. The pump shall be provided with mechanical seals.					

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
b)	Squirrel cage type TEFC motor suitable for operation on 415V, 10%, 3 phases 50 Hz. system of suitable HP for the above pump with synchronous speed of 1500 RPM and flexible coupling. The pump motor should conform to IS: 325-1978.					
c)	Common bed plate fabricated from mild steel channel or cast iron type.					
d)	Suitable cement concrete pump foundation & vibration damping arrangement with cushy foot mounting as required.					
l)	Capacity 2280 LPM and Head 90 Metres	Set	2.00			
1.36	Supplying, installing, testing and commissioning of diesel engine driven fire pump suitable for automatic operation consisting of the following (as per CPWD specifications PartV 1985.)					

SI. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
a)	Horizontal centrifugal type multi-stage, fire pump with SS-316 impeller complete of following capacity and Head so as to ensure a minimum pressure of 3.0 kg per sq.cm. at the highest & farthest outlet at the specified flow, complete with necessary strainer pressure gauge on the delivery side etc. including by pass arrangement for periodical testing of the working of the pump set as required. The pump shall be provided with mechanical seals.					

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
b)	Water cooled cold starting type multi cylinder 4 stroke diesel engine, developing suitable BHP at 1500 RPM for the above pump set with automatic starting mechanism, cooling system shall be with radial cool engine, maintenance free batteries, battery charge unit, flexible coupling with the pump, common bed plate for mounting diesel engine fuel day tank fuel piping and pump and vibration damping arrangement by cushy foot mounting as required complete in all respects.					
c)	The engine shall be capable to drive the pump at 150% rated discharge at 65% head and shall be suitable for 10% overload capacity for one hour in any period of 12 hrs. continuous run.					
d)	Common bed plate fabricated from mild steel channel or cast iron type.					
e)	Isolation Valve					



Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
f)	Suitable cement concrete pump foundation & vibration damping arrangement with cushy foot mounting as required.					
l)	Capacity 2280 LPM and Head 90 Metres	Set	2.00			
1.37	Supplying, installation, testing and periodic commissioning of electric motor driven automatic pressurization pump set consisting of the following (as per specification)					
a)	Centrifugal pump of 180 LPM capacity capable of building up pressure lost in any leakage in the system against atotal head (mentioned as under) complete with C.I. casing SS-316 impellor ; mechanical seal & S.S. shaft necessary strainer, pressure gauge on delivery side etc. including by-pass arrangement for testing of the working of the pumping set as required .					

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
b)	Squirrel cage A.C. induction motor suitable for operation on 415 V, 10% 3 phase 50 Hz. A.C. supply and of minimum 20 HP for the above pump with flexible coupling as per specification and conforming to IS: 325/ 1978 and shall be TEFC type only.					
c)	Common bed plate fabricated from mild steel channel or cast iron type.					
d)	Suitable cement concrete pump foundation with vibration damping arrangement with cushy foot or similar mounting as per required.					
l)	Head - 90 Metres	set	2.00			
1. 38	Providing & fixing puddle flanged including 40 cm long GI pipe piece welded / threaded with MS plates 450x450x6mm thick with both end screwed / flanged					
	For 80 mm dia pipe	Each	4.00			
	for 150 mm dia pipe	Each	8.00			

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
	for 200 mm dia pipe	Each	4.00			
B	<b>Fire Fighting works(Electical )</b>					
1.39	ESDB-FIRE PUMP PANEL (amritsar)					
	Supply, installation, testing and commissioning of M.V. cubicle type, front access, totally enclosed free standing type, Compartmentalised, dust, damp and vermin proof Motor Control Centre complete with busbars, M.V. danger notice plate, ammeter, voltmeter, selector switch, Relays, Starters, Single Phase Preventer, Pressure Sensor, indicating lamps, CT's, interconnections with suitable capacity aluminium leads/solid aluminium strips/rods, including interconnections of control cables from pressure Sensor to contactor of Jockey pump, connection of incoming and outgoing cables with thimbles, stove enamelled painted and having following incoming and outgoing switchgears complete as required.					
	INCOMER :					
	630 Amp 415 volts, 35 KA (Isc), FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.					

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 Set of phase indicating lamp with 2A SP control MCBs					
	1 No 0-630 A ampere meter with ASS & CT					
	1 No. 0-500 V volt meter with VSS & HRC fuse.					
	1 set of 630/5A CTs					
	BUSBARS :					
	800 Amp TPN busbars of aluminium					
	OUTGOINGS :					
	2 Sets of following					
	1 No. 250 Amp. 415/500 volts,35 KA, three Pole, Moulded Case Circuit Breaker with variable current setting of 0.8 to 1.0					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 3 Phase, fully automatic star-delta starter of 100 HP with thermal overload relay, Timer, Push Buttons and Auto-manual selector switch etc complete as required.					

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
	Single Phase preventer					
	1 No. 0-250 Amp. Ammeter with selector switch and CT's.					
	1 Set of phase indicating lamp with 2A SP control MCBs					
	Neon indicating Lamps for "ON" and "OFF" indication with 2A SP control MCBs.					
	2 Sets of following					
	1 No. 100 Amp. 415/500 volts,35 KA, three Pole, Moulded Case Circuit Breaker with variable current setting of 0.8 to 1.0					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 3 Phase, fully automatic star-delta starter of 45 HP with thermal overload relay, Timer, Push Buttons and Auto-manual selector switch etc complete as required.					
	Single Phase preventer					
	1 No. 0-100 Amp. Ammeter with selector switch and CT's.					
	1 Set of phase indicating lamp with 2A SP control MCBs					
	Neon indicating Lamps for "ON" and "OFF" indication with 2A SP control MCBs.					

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
	4 Sets of following					
	1 No. 32 Amp. 415/500 volts,35 KA, three Pole, Moulded Case Circuit Breaker with variable current setting of 0.8 to 1.0					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 3 Phase, DOL starter of 5 HP with thermal overload relay, Push Buttons and Switches etc complete as required.					
	Single Phase preventer					
	1 No. 0-32 Amp. Ammeter with selector switch and set of CTs.					
	1 Set of phase indicating lamp with 2A SP control MCBs					
	Neon indicating Lamps for "ON" and "OFF" indication with 2A SP control MCBs.					
	3 Set of following					
	1 No. 40 Amp. 415/500 volts, three Pole, Moulded Case Circuit Breaker					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
	1 No. 3 Phase, DOL starter of 7.5 HP with thermal overload relay, Push Buttons and Switches.					
	Single Phase preventer					
	1 No. 0-40 Amp. Ammeter with selector switch and CT's.					
	1 Set of phase indicating lamp with 2A SP control MCBs					
	Neon indicating Lamps for "ON" and "OFF" indication with 2A SP control MCBs.					
	2 Set of following					
	1 No. 40 Amp. 415/500 volts, three Pole, Moulded Case Circuit Breaker					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 3 Phase, DOL starter of 10 HP with thermal overload relay, Push Buttons and Switches.					
	Single Phase preventer					
	1 No. 0-40 Amp. Ammeter with selector switch and CT's.					
	1 Set of phase indicating lamp with 2A SP control MCBs					
	Neon indicating Lamps for "ON" and "OFF" indication with 2A SP control MCBs.					

Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
	4 Set of following					
	1 No. 63 Amp. 415/500 volts, three Pole, Moulded Case Circuit Breaker					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 3 Phase, star delta starter of 12.5 HP with thermal overload relay, Push Buttons and Switches.					
	Single Phase preventer					
	1 No. 0-63 Amp. Ammeter with selector switch and CT's.					
	1 Set of phase indicating lamp with 2A SP control MCBs					
	Neon indicating Lamps for "ON" and "OFF" indication with 2A SP control MCBs.					
	6 Set of following					
	1 No. 16 Amp. 415/500 volts, three Pole, Moulded Case Circuit Breaker					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 3 Phase, DOL starter of 1 HP with thermal overload relay, Push Buttons and Switches.					



Sl. No.	Description of Item	Unit	Diagnostic Qty	Rate in Figures (in Rs)	Rate in Words (in Rs)	Amount in Figures (in Rs)
	Single Phase preventer					
	1 No. 0-5 Amp. Ammeter with selector switch and CT's.					
	1 Set of phase indicating lamp with 2A SP control MCBs					
	Neon indicating Lamps for "ON" and "OFF" indication with 2A SP control MCBs.					
	2 Set of following (in a separate cubicle)					
	One no. Diesel engine auto starting kit with all necessary relay, controls, wiring etc to start 100 HP diesel engine when electrical driven fire pump fail to start.					
	One no rectifier circuit, battery charger, batteries, DC Voltmeter, DC Ammeter etc.					
	ESDB-FIRE PUMP Panel as mentioned above	Set	1.00			
	<b>TOTAL</b>					

**PROJECT NAME : Construction of Diagnostic Centre Amritsar, Punjab**

Name of Work **Bill of Quantities of Fire Fighting Work of Diagnostic Centre in Amritsar, Punjab**

<b>S.No.</b>		<b>Amount in Figures(Rs)</b>
	<b>Fire Fighting System</b>	
1	Fire Fighting works	
	<b>TOTAL</b>	

<b>COST OF FIRE FIGHTING SYSTEM</b>	
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# ELECTRICAL WORKS

**COST ESTIMATE FOR THE ELECTRICAL WORKS OF GURUTEG BAHADUR DIAGNOSTICS CENTRE , AMRITSAR.**

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
<b>1.00</b>	<b>SUBHEAD 1: H.T. SUB STATION SUBSTATION EQUIPMENTS</b>					
1.01	<b>HT Panel.</b> Supply, delivery, erection, testing and commissioning of seven (7) panel, 630A, 11KV, 3 Phase, 50 Hz., metal clad, dead front, 350MVA rupturing capacity Vacuum Circuit Breaker as per the detailed specifications and drawings including connections etc. complete with following incomers and outgoings as required.					
	<b>A. INCOMER :</b>					
	i) <b>2 No. VCB Panel having following</b>					
	1 No. 630A, 11kV, 3 Phase, 50Hz., metal clad, dead front, 350 MVA; rupturing capacity, Fully Drawout type, Vacuum Circuit Breaker (VCB)					
	1 Set of Phase indicating lamps with HRC fuses					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP, SPRING CHARGED, TRIP CIRCUIT HEALTHY					
	Push button for ON, OFF, TRIP & TRIP circuit healthy					
	1 set of 11kV/110-110 V Potential Transformers with HRC fuses					
	1 set of 100/5-5A Current Transformer for metering and protection					
	1 No. 0-15 kV Digital voltmeter with selector switch					
	1 No. 0-100 digital Amps ammeter with selector switch					
	Digital frequency meter, Digital Tri vector meter.					
	1 No. Digital Power factor meter					
	1 No. Frequency meter					
	1 Set of CDG 61 (2 No. O/C, 1 No. E/F) relay					
	1 Set of undervoltage relay and Overvoltage relay					
	Trip circuit supervision relay, Auxiliary relays with shunt trip coil					
	1 No. Master Trip relay					
	<b>B. BUS BAR</b>					
	11kV, 350 MVA, 630 Amps Three Phase busbars of aluminium					
	<b>C. OUTGOINGS :</b>					
	<b>4 No. VCB Panel having following</b>					
	1 No. 630A, 11kV, 3 Phase, 50Hz., metal clad, dead front, 350 MVA; rupturing capacity, Fully Drawout type, Vacuum Circuit Breaker (VCB)					
	1 Set of Phase indicating lamps with HRC fuses					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP, SPRING CHARGED, TRIP CIRCUIT HEALTHY					
	Push button for ON, OFF, TRIP & TRIP circuit healthy					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	1 set of 11kV/110-110 V Potential Transformers with HRC fuses					
	1 set of 50/5-5A Current Transformer for metering and protection					
	1 No. 0-15 kV Digital voltmeter with selector switch					
	1 No. 0-63 digital Amps ammeter with selector switch					
	1 Set of CDG 61 (2 No. O/C, 1 No. E/F) relay					
	Trip circuit supervision relay.Auxiliary relays with shunt trip coil					
	1 No. Master Trip relay					
	<b>D. BUS COUPLER</b>					
	<b>1 No. VCB Panel having following</b>					
	1 No. 630A, 11kV, 3 Phase, 50Hz., metal clad, dead front, 350 MVA rupturing capacity, Fully Drawout type, Vacuum Circuit Breaker (VCB)					
	1 Set of Phase indicating lamps with HRC fuses					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP, SPRING CHARGED, TRIP CIRCUIT HEALTHY					
	Push button for ON, OFF, TRIP & TRIP circuit healthy					
	1 set of 50/5-5A Current Transformer for metering and protection					
	1 No. 0-63 digital Amps ammeter with selector switch					
	<b>HT Panel as mentioned above</b>	1	Set			
1.02	<b>TRANSFORMER</b>					
	Supply, erection, testing and commissioning of <b>1000 KVA</b> , 11/0.433 kV, 3 Phase, 4 wire, 50 Hz., ON-AN Transformer for Indoor duty with on load tap changer (OLTC) range -15%, +5% in the steps of 1.25% per step with RTCC panel , cable box at primary (HT side) and secondary end (LT side) shall be connected through busduct, the transformer shall be complete with first filling of oil, with double float buchholz relay protection, high winding temperature/oil temp. sensors, complete with all fittings and accessories, interconnection of control cables and accessories as per detailed technical specifications.	2	Each			
1.03	<b>BATTERY CHARGER PANEL</b>					
	Supply, erection, testing and commissioning of the battery charger panel complete with battery, control cabling etc. as required. Capacity of battery charger suitable for above mentioned H.T. Panels.					
	Sealed Maintenance Free (SMF) battery of suitable ampere hour capacity for above 11kV VCB panels in HT Panel Room of the building as specified above.					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	Boost and Trickle charger suitable for above items.					
	1 No. AC Voltmeter (0-500Volt)					
	1 No. DC Voltmeter					
	1 No. DC Ammeter					
	1 set of AC and DC indicating lamps					
	1 No. DC Battery charging position indicator					
	DC distribution board suitable for above application to incoming & outgoing MCBs include tripping, closing and indication etc.					
	Control cabling between DC Distribution panel to the HT panel of the Substation with suitable core 1.5 sqmm copper cable					
	<b>Battery charger Panel as mentioned above.</b>	1	Each			
1.04	<b>BUS DUCTS</b>					
	Supply, Installation, testing and commissioning of <b>1600</b> phase and neutral TPN, 415 V, 3 Phase, 4 Wire, air insulated construction					
	i) Aluminium Bus Duct including bends, flexible joints, earth bus (2 runs of aluminium strips), supports for installation, supporting arrangements, etc. complete as per technical specifications and as required as per layout.	30	Meter			
1.05	<b>H.T. CABLE</b>					
	Supply of following sizes of 11 kV grade multicore aluminium conductor XLPE armoured power cable as per IS : 7098.					
	i) 3 Core, 240 sq mm	1000	Metre			
1.06	Laying of one number 3 core XLPE power cable of grade 1.1 KV of size 3X240 sq. mm direct into ground including excavation, sand cushioning, protective covering and refilling the trench complete as required.	1000	Metre			
1.07	Supplying and making end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size 3 Core, XLPE aluminium conductor cable of 11kV grade as required.					
	i) 240 sqmm	6	Each			
	<b>TOTAL FOR SUB HEAD 1: H.T. SUB STATION</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
2.00	<b>SUB HEAD 2: MAIN LT PANEL</b>					
2.01	<b>MAIN LT PANEL</b>					
	Supply, installation, testing and commissioning of LT Panel, cubicle type, totally enclosed, free standing type, dust, damp and vermin proof Panel made up of 14 SWG CRCA sheet, complete with aluminium busbars, danger notice plate, interconnections with suitable capacity aluminum leads/solid aluminum strips/rods, necessary interlocking, powder coat painted and having incoming and outgoing switchgears as mentioned below and complete as required.					
	<b>Note :</b>					
	1. All relays to operate at 240Volts, Single phase, 50Hz., AC supply through UPS					
	A. <b>INCOMERS :</b>					
	i) <b>3 No. ACB Panels each having following:</b>					
	1 No. 1600A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth Fault trip including under voltage release and lockable trip push button. ACB should have Icw=Ics = 50 KA for 1 sec.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	Push button to CLOSE the ACB.					
	1 set of 1600/5-5 set of CT for measurement and protection.					
	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
	1 set of Digital multi function meter with LCD display and measurement of parameters like voltages, currents, p.f, frequency, active and reactive power and energies etc					
	1 set of CAG 14 relay for restricted earth fault protection with all the accessories.					
	1 set of 1600/5A CTs with CT shorting links for power factor improvement panel suitable for giving signal to APFCR at less than 10% of secondary ratio current					
	B. <b>BUSBARS :</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	2000 Amps Phase TPN busbars of aluminium.					
	<b>C. BUS COUPLER :</b>					
	<b>i) 1 No. ACB Panels each having following:</b>					
	1 No. 1600 A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit, Instantaneous & earth Fault trip including under voltage release and lockable trip push button. The ACB should have Icw=Ics= 50KA for 1 sec.					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP.					
	Push button to CLOSE the ACB.					
	1 Set of Ameter with ASS and CTs.					
	<b>D. OUTGOING.</b>					
	<b>i) 3 No. ACB Panels each having following:</b>					
	1 No. 800A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth Fault trip including under voltage release and lockable trip push button. ACB should have Icw=Ics = 50 KA for 1 sec.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	Push button to CLOSE the ACB.					
	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
	1 set of 800/5-5 set of CT for measurement and protection.					
	1 Set of Ameter with ASS.					
	1 set of digital energy metre.					
	<b>ii) 3 Nos. MCCB as per following details / specifications:</b>					
	630 Amp 415 volts, 50 KA ( Ics) FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamp with 2A control SP MCB to indicate OPEN ,CLOSE, TRIP for MCCB.					
	1 set of 600/5-5 set of CT for measurement and protection.					
	1 Set of Ameter with ASS.					
	1 set of digital energy metre.					



S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>iii) 3 Nos. MCCB as per following details / specifications:</b>					
	500 Amp 415 volts, 50 KA ( lcs) FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamp with 2A control SP MCB to indicate OPEN ,CLOSE, TRIP for MCCB.					
	1 set of 500/5-5 set of CT for measurement and protection.					
	1 Set of Ameter with ASS.					
	1 set of digital energy metre.					
	<b>iv) 1 Nos. MCCB as per following details / specifications:</b>					
	315 Amp 415 volts, 50 KA ( lcs) FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamp with 2A control SP MCB to indicate OPEN ,CLOSE, TRIP for MCCB.					
	1 set of 300/5-5 set of CT for measurement and protection.					
	1 Set of Ameter with ASS.					
	1 set of digital energy metre.					
	<b>v) 4 Nos. MCCB as per following details / specifications:</b>					
	100 Amp 415 volts, 50 KA ( lcs) FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamp with 2A control SP MCB to indicate OPEN ,CLOSE, TRIP for MCCB.					
	1 set of 100/5-5 set of CT for measurement and protection.					
	1 Set of Ameter with ASS.					
	1 set of digital energy metre.					
	<b>vi) 2 Nos. MCCB as per following details / specifications:</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	63 Amp 415 volts, 50 KA ( lcs) FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamp with 2A control SP MCB to indicate OPEN ,CLOSE, TRIP for MCCB.					
	1 set of 60/5-5 set of CT for measurement and protection.					
	1 Set of Ameter with ASS.					
	1 set of digital energy metre.					
viii)	<b>UPS</b> A UPS of suitable capacity single phase input and single phase output, 240V 50 Hz AC online, with inbuilt 1 Hour battery back up in the form of sealed maintenance free (SMF) batteries with power wiring to the control bus for supply to relays.					
ix)	<b>ENCLOSURE :</b> Fabrication, PVC Sleeving, Control/Power Wiring and hardware Interlocking between incoming breakers and buscouplers as per interlocking scheme with cabling, necessary hardware and auxiliary contacts					
	<b>Main LT Panel as mentioned above</b>	1	Set			
2.02	<b>CAPACITOR PANELS</b> Supply, installation, testing and commissioning of Capacitor panel, cubicle type, totally enclosed, free standing type, dust, damp and vermin proof indoor capacitor Panel made up of 14 SWG CRCA sheet, complete with aluminium busbars, M.V. danger notice plate, indicating lamps, CTs, interconnections with suitable capacity aluminum leads/solid aluminum strips/rods, powder coat painted and having incoming and outgoing switchgears as mentioned below and complete as per specifications & as required.					
A.	<b>INCOMER :</b> 1 No. 630A, 415/500V, 35 KA ( lcs) FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In. Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers. Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP.					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
	10 steps Intelligent microprocessor based Automatic Power factor Correction relay having measurement sensitivity of 1 %.					
	Extension of incoming busbars for connection of multicore armoured aluminium cables.					
	<b>B. METERING :</b>					
	1 set of digital Amp. Meter, digital Power factor meter and Digital voltmeter					
	<b>BUSBARS :</b>					
	630 Amp FP busbars of aluminum					
	<b>B. OUTGOINGS :</b>					
	<b>i) 4 Nos . MCCB as per following details/ specification:</b>					
	100 Amp 415 volts, 50 KA ( lcs) FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	100Amps, 415 volts, TP, Power Contactor suitable for capacitive switching including current limiting contactor circuit to suppress switching inrush current					
	ON/ OFF delay timers for switching capacitor circuit.					
	"ON" and "OFF" LED indicating lamp and 2A control SP MCBs					
	Push button for CLOSE and TRIP					
	Extended rotary operating mechanism					
	50kVAR super heavy duty mix dielectric low loss Capacitors suitable for non linear loads upto 20% (L&T model MD-XL ultra or equivalent)					
	<b>ii) 4 Nos . MCCB as per following details/ specification:</b>					
	63 Amp 415 volts, 50 KA ( lcs) FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	63 Amps, 415 volts, TP, Power Contactor suitable for capacitive switching including current limiting contactor circuit to suppress switching inrush current.					
	ON/ OFF delay timers for switching capacitor circuit.					
	"ON" and "OFF" LED indicating lamp and 2A control SP MCBs					
	Push button for CLOSE and TRIP					
	Extended rotary operating mechanism					
	25kVAR super heavy duty mix dielectric low loss Capacitors suitable for non linear loads upto 20% (L&T model MD-XL ultra or equivalent)					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1		2	3	4	5	6	7
	iii)	<b>1 Nos . MCCB Panel consisting of the following</b>					
		32 Amp 415 volts, 50 KA ( lcs) FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		32 Amps, 415 volts, TP, Power Contactor suitable for capacitive switching including current limiting contactor circuit to suppress switching inrush current.					
		ON/ OFF delay timers for switching capacitor circuit.					
		"ON" and "OFF" LED indicating lamp and 2A control SP MCBs					
		Push button for CLOSE and TRIP					
		Extended rotary operating mechanism					
		10kVAR super heavy duty mix dielectric low loss Capacitors suitable for non linear loads upto 20% (L&T model MD-XL ultra or equivalent)					
		<b>Capacitor Panels as mentioned above</b>	2	Set			
		<b>TOTAL SUBHEAD 2: MAIN LT PANEL</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>SUB HEAD 3 : DG SETS</b>					
<b>3.00</b>	<b>DG Set and Accessories</b>					
3.01	<b>SOUND PROOF DG SETS OF 500 KVA</b>					
	Supply, installation, testing and commissioning of sound proof (silent type) Diesel Generating set having 500 KVA Prime Power Ratings, 415 volt at 1500 RPM, 0.8 power factor at 415 V suitable for 50 Hz, 3 phase system & for 0.85 load factor, suitable bhp, water cooled type diesel engine- alternator set mounted on common base frame, return fuel cooler, battery & battery charger, Anti Vibration mounting pads, Engine alternator safeties, electronic governor including all accessories & their wiring as per technical specification. This includes the following:					
	- Supplying and fixing of suitable sizes High class MS pipe for DG exhaust complete with bends, elbow, flanges etc including silencer and catalytic convertor exhaust pipe length above the building top as per pollution control board norms and as required.					
	- Supply and fixing of 50mm thick compressed mineral wool insulation (Rock wool) for D.G. exhaust pipe with 22 gauge aluminium sheet cladding etc. as required for the under mentioned dia pipe.					
	- Supply, installation, testing and commissioning of suitable size fuel pipe for connecting diesel engine to individual day service tank including supply and fixing of required valves & filters etc. as required.					
	- Fabrication of supports for exhaust pipe, fuel pipe or for any other purpose out of suitable M.S. structural steel including supplying and applying of enamel paint of approved shade after one coat of steel primer of reputed company.					
	- Supplying and fixing of suitable capacity cable adapter box for alternator.					
	- Providing and fixing oil tank of 990 litres capacity complete with suitable M.S. fabricated MS stand oil level indicator gauge tank and stand duly painted, complete with float switches etc. as required.					
	- Supply, installation and testing of mild steel "C" class cooling water piping complete with fittings supports, strainers, valves etc. as per specifications and schematic drawings.					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	Factory assembled Sound proof Canopy as per pollution control board requirement to achieve noise level desired during night condition, with base frame, doors, inspection window, fresh air supply fans, light fixtures for illumination with switch, two no. 15A power sockets, wiring for light fixtures and power sockets, etc.					
	- Any other item required for completion of system above (D.G. set)					
	<b>DG Set (500 KVA) as mentioned above.</b>	2	Set			
	<b>SYNCHRONISING-CUM-AMF PANEL (for 2 nos. DG Sets mentioned above)</b>					
	Supply, installation, testing and commissioning of Synchronising Panel, M.V. cubicle type, totally enclosed, free standing type, dust, damp and vermin proof indoor type Panel made up of 14 SWG CRCA sheet, complete with aluminium busbars, M.V. danger notice plate, interconnections with suitable capacity aluminum leads/solid aluminum strips/rods, powder coat painted and having incoming and outgoing switchgears as mentioned below and complete as required. Panels shall have IP-42 Protection.					
	Note :					
	1. All ACBs shall have 5 NO + 5 NC contacts					
	2. All relays to operate at 240Volts, Single phase, 50Hz., AC supply through UPS					
	3. Panel shall be suitable for manual synchronising & auto synchronising and automatic operation (AMF) for 2 nos. DG Sets.					
	4. Auto change over arrangement to be provided for change over in Main LT panel.					
	A. <b>INCOMER :</b>					
	i) <b>2 Nos .ACB as per following details/ specification:</b>					
	- 800A, 415/500V, Fully Drawout type (EDO) (Breaking Capacity=50kA), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth fault release including under voltage release.					
	- Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	- Push button for CLOSE and TRIP with lock & key arrangement					
	- R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
	- Digital multi function meter with one set of suitable CTs, CT shorting links, R/Y/B LED indicating lamps and 2A cobntrol SP MCBs					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
ii)	<b>BUSBARS :</b>					
-	1250 Amp FP busbars of aluminum					
B.	<b>OUTGOING :</b>					
i)	<b>1 Nos .ACB Panel consisting of the following</b>					
-	1600A, 415/500V, Fully Drawout type (EDO) (Breaking Capacity=50kA), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth fault release including under voltage release.					
-	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
-	Push button for CLOSE and TRIP with lock & key arrangement					
-	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
-	Digital multi function meter with one set of suitable CTs, CT shorting links, R/Y/B LED indicating lamps and 2A cobntrol SP MCBs					
C.	<b>SYNCHRONISING COMPONENTS :</b>					
	<b>Metering &amp; Indication :</b>					
-	Power and Energy Monitor					
-	Set running indicating lights : 230 volts AC-22mm dia					
-	Emergency stop push button 230 volts AC-22 mm dia					
-	Governor/AVR raise/lower joy stick					
-	12 window annunciation with hooter, test accept & reset push button					
-	Motorised potential AVR					
-	Time Totalizer					
D.	<b>Auto/ Manual Synchronising :</b>					
-	144 mm sq. Double voltmeter					
-	144 mm sq. Double frequency meter					
-	144 mm.sq. synchroscope					
-	Check Synchronizing relay					
-	Synchronizing switch					
-	Selector swtich					
-	Dark and Bright lamps					
-	Breaker Control Switch					
-	Mode selector switch (Manual/Auto/stand alone)					
-	Engine Cranking Relay.					
-	Main supply voltage monitor, alternator voltmeter monitor and Engine Starting Relays					
-	Auxillary relays, timer, push button and control fuses.					
-	Timer for AMF Circuit (2 sets)					
-	DG Start/stop push button					
-	Auxilliary relays for overspeed, low lub oil pressure (LLOP) & high water temperature					
-	8 channel temperature controller for winding/bearing protection					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
-	Pulsating cable required to connect field RTD's/PTC's to temperature scanners.					
E	<b>DG PROTECTION AND AMF COMPONENTS:</b>					
-	Reverse power and Reactive power relay					
-	Over Voltage relay					
-	Under Voltage relay					
-	Over frequency relay					
-	Trip circuit supervision relay					
-	Master lockout relay					
-	Master trip/supervisory relay					
-	Battery charger (with trickle and boost charging).					
-	DC voltmeter and ammeter.					
-	DC ammeter.					
-	8 window Alarm annunciator with separate hooter, accept, reset and rest push button.					
-	Hooter.					
-	Engine Cranking Relay.					
-	Main supply voltage monitor, alternator voltmeter monitor and Engine Starting Relays.					
-	Auxillary relays, timer, push button and control fuses.					
-	Phase sequence relay					
G.	<b>ENCLOSURE :</b>					
-	Fabrication, PVC Sleeving, Control/Power Wiring and necessary hardware for complete synchronisation and load sharing					
	<b>SYNCHRONISING-CUM-AMF PANEL (for 2 nos. DG Sets mentioned above)</b>	1	Set			
	<b>TOTAL SUBHEAD 3: DG SETS</b>					



S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>SUBHEAD 4: RISING MAINS</b>					
<b>4.00</b>	<b>RISING MAINS</b>					
4.01	Supply, installation, testing and commissioning of plug in type indoor type air insulated 415 V,3 phase, 4 wire, vertical Aluminium Rising main in following sizes including bends, flexible, provision of the tap off's as per the drawing on each floor, 2 nos of aluminium earthing strips 50 X 6mm through out the length of the rising mains, end cover, including all types of support and necessary hardware for installation of the rising main etc. complete as per specifications and as required. (Exact lengths to be measured at site).					
	i) 500 A,415 volts Capacity Rising Main	36	Metre			
4.02	Supply, fixing, testing and commissioning of Direct End Feed Unit of following ratings, wall mounted, dust, damp and vermin proof complete with M.V. danger notice plate, interconnections with suitable capacity aluminium strips / bars, connection of incoming cables with thimbles, powder coat painted and having following incoming switchgears for rising main complete as required.					
	i) <b>1 No. MCCB Panels each having following</b> 1 no. 500 Amps , 415 volts, four pole, 35 KA, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In). Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB. Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers. 1 No. 0 to 500 V digital voltmeter with selector switch. 1 No. 0 to 600 Amp digital ammeter with selector switch with 500/5A C.T.'s. Direct End Feed unit as mentioned above	1	Set			
4.03	Supply, fixing, testing and commissioning of distribution tap off box of following Capacity on the existing rising mains complete with Four Pole, Moulded Case Circuit Breaker, interconnection, earthing etc. complete as required.					
	i) 200 A Tap Off Box	1	Each			
	ii) 160 A Tap Off Box	1	Each			
	iii) 125 A Tap Off Box	1	Each			
	iv) 100 A Tap Off Box	4	Each			
	<b>TOTAL SUBHEAD - 4: RISING MAINS</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
5.00	<b>SUB HEAD 5 : MV PANELS</b>					
5.01	<b>MV PANELS</b> Supply, installation, testing and commissioning of following M.V. cubicle type totally enclosed, wall mounted type, dust, damp and vermin proof, indoor type Distribution Board/Panel complete with busbars, M.V. danger notice plate, interconnections with suitable capacity aluminium leads/solid aluminium strips/rods, connection of incoming and outgoing cables with thimbles, powder coat painted and having following incoming and outgoing switchgears complete as required. Panel shall have IP-42 protection.					
	<b>i MV panel - Equipments :</b>					
	<b>a) INCOMER:</b>					
	1 no. 500 Amps , 415 volts, 35KA (Isc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V voltmeter with selector switch.					
	1 No. 0 to 500 Amp ammeter with selector switch with 500/5A C.T.'s.					
	<b>b) BUSBARS:</b>					
	630 Amp TPN Aluminium busbars					
	<b>c) OUTGOING:</b>					
	<b>i) 3 Nos . MCCB as per following details/ specification:</b>					
	200Amps,415 volts, four pole, 35 KA Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	"ON" LED indicating lamp and 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	Ampere Metre of suitable range with suitable set of CT's and ASS.					
	<b>ii) 3 Nos . MCCB as per following details/ specification:</b>					
	100Amps,415 volts, four pole, 35 KA Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	"ON" LED indicating lamp and 2A control SP MCB					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	Ampere Metre of suitable range with suitable set of CT's and ASS.					
	iii) <b>1 Nos . MCCB as per following details/ specification:</b>					
	63Amps,415 volts, four pole, 35 KA Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	"ON" LED indicating lamp and 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	Ampere Metre of suitable range with suitable set of CT's and ASS.					
	<b>MV - Panel Equipments as mentioned above</b>	1	Set			
	ii <b>MV - Panel Ground Floor</b>					
	a) <b>INCOMER:</b>					
	1 no. 160 Amps , 415 volts, 25KA (Isc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V voltmeter with selector switch.					
	1 No. 0 to 160 Amp ammeter with selector switch with 160/5A C.T.'s.					
	b) <b>BUSBARS:</b>					
	200 Amp TPN Aluminium busbars					
	c) <b>OUTGOING:</b>					
	i 5 No. 63 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
	ii 8 No. 32 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
	<b>MV - Panel Ground Floor as mentioned above</b>	1	Set			
	iii <b>MV Panel- First Floor</b>					
	a) <b>INCOMER:</b>					
	1 no. 200 Amps , 415 volts, 25KA (Isc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V voltmeter with selector switch.					
	1 No. 0 to 200 Amp ammeter with selector switch with 200/5A C.T.'s.					
	b) <b>BUSBARS:</b> 250 Amp TPN Aluminium busbars					
	c) <b>OUTGOING:</b> 16 nos 32 Amp 415 volts, 9 KA, Four Pole, Miniature circuit Breaker.					
	5 nos 40 Amp 415 volts, 9 KA, Four Pole, Miniature circuit Breaker.					
	<b>MV Panel-First Floor as mentioned above</b>	1	Set			
iv	<b>MV Panel-Second Floor</b>					
a)	<b>INCOMER:</b> 1 no. 125 Amps , 415 volts, 25KA (Isc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V voltmeter with selector switch.					
	1 No. 0 to 125 Amp ammeter with selector switch with 125/5A C.T.'s.					
	b) <b>BUSBARS:</b> 150 Amp TPN Aluminium busbars					
	c) <b>OUTGOING:</b> 8 No.32 Amp,9 KA, Four Pole, Miniature circuit Breaker.					
	3 No.40 Amp,9 KA, Four Pole, Miniature circuit Breaker.					
	2 No.63 Amp,9 KA, Four Pole, Miniature circuit Breaker.					
	<b>MV Panel-Second Floor as mentioned above</b>	1	Set			
v	<b>MV Panel-Third Floor</b>					
a)	<b>INCOMER:</b> 1 no. 100 Amps , 415 volts, 25KA (Isc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V voltmeter with selector switch.					
	1 No. 0 to 100 Amp ammeter with selector switch with 100/5A C.T.'s.					
	b) <b>BUSBARS:</b> 150 Amp TPN Aluminium busbars					
	c) <b>OUTGOING:</b> 7 No.32 Amp,9 KA, Four Pole, Miniature circuit Breaker.					
	2 No.40 Amp,9 KA, Four Pole, Miniature circuit Breaker.					
	2 No.63 Amp,9 KA, Four Pole, Miniature circuit Breaker.					
	<b>MV Panel- Third Floor as mentioned above</b>	1	Set			
vi	<b>MV Panel- Fourth Floor</b>					
a)	<b>INCOMER:</b> 1 no. 100 Amps , 415 volts, 25KA (Isc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V voltmeter with selector switch.					
	1 No. 0 to 100 Amp ammeter with selector switch with 100/5A C.T.'s.					
	b) <b>BUSBARS:</b> 150 Amp TPN Aluminium busbars					
	c) <b>OUTGOING:</b> 8 No.32 Amp,9 KA, Four Pole, Miniature circuit Breaker.					
	2 No.40 Amp,9 KA, Four Pole, Miniature circuit Breaker.					
	2 No.63 Amp,9 KA, Four Pole, Miniature circuit Breaker.					
	<b>MV Panel- Fourth Floor as mentioned above</b>	1	Set			
vii	<b>MV Panel- Fifth Floor</b>					
a)	<b>INCOMER:</b> 1 no. 100 Amps , 415 volts, 25KA (Isc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V voltmeter with selector switch.					
	1 No. 0 to 100 Amp ammeter with selector switch with 100/5A C.T.'s.					
	b) <b>BUSBARS:</b> 150 Amp TPN Aluminium busbars					
	c) <b>OUTGOING:</b> 2 No.32 Amp, 9 KA, Four pole, Miniature circuit Breaker.					
	2 No.63 Amp, 9 KA, Four pole, Miniature circuit Breaker.					
	<b>MV Panel- Fifth Floor as mentioned above</b>	1	Set			
viii	<b>MV Panel -LIFTS</b>					
a)	<b>INCOMER:</b> 1 no. 100 Amps , 415 volts, 25KA (Isc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V voltmeter with selector switch.					
	1 No. 0 to 100 Amp ammeter with selector switch with 100/5A C.T.'s.					
	b) <b>BUSBARS:</b> 150 Amp TPN Aluminium busbars					
	c) <b>OUTGOING:</b> 03 No. 63 Amp 415 volts, 10 KA, Four Pole, Moulded Case Circuit Breaker, with phase indicating lamps.					
	01 No. 32 Amp 415 volts, 10 KA, Four Pole, Moulded Case Circuit Breaker, with phase indicating lamps.					
	<b>MV Panel - Lifts as mentioned above</b>	1	Set			
ix	<b>UPS Panels</b>					
a)	<b>INCOMER:</b> 1 no. 32 Amps , 10 KA, DP, Miniature circuit breaker (MCB)					
	1 No. 0 to 500 V voltmeter with selector switch.					
	1 No. 0 to 30 Amp ammeter with selector switch with 30/5A C.T.'s.					
	b) <b>BUSBARS:</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	63 Amp TPN Aluminium busbars					
	c) <b>OUTGOING:</b>					
	04 No 25 Amp, 9 KA, Four pole, Miniature circuit Breaker.					
	<b>UPS Panels as mentioned above</b>	6	Set			
	<b>TOTAL SUB HEAD 5 : MV PANELS</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>SUB HEAD 6 : UPS SYSTEM</b>					
<b>6.00</b>	<b>UPS OF 20 KVA.</b>					
6.01	i) Supply of 20 KVA True Online double conversion and fully Microprocessor Controlled UPS system with IGBT based Rectifier with minimum input pf 0.95 with minimum 94% overall efficiency at 50% load condition and THDI less than 5% on non linear loads including RS 485 Modbus Communication port with accessories and suitable Power Management software in each UPS including IGBT/PWM technology based inverter, automatic bi - directional static switch, manual bypass switch, galvanic isolation transformer, input phase reversal protection, provision for separate input for rectifier and for bypass.					
	ii) Rack mounted external battery bank of 12 V Sealed Maintenance Free batteries for 30 mins backup.					
	UPS DB should be with 63 A incomer MCCB with extended rotary operating mechanism and 10 nos outgoing DP MCB of 32 Amp.					
	iii) Installation & commissioning of 20 KVA UPS with battery and accessories.					
	<b>Supply, installation , testing and commissioning of 20 KVA UPS as mentioned above.</b>	1	Set			
	<b>TOTAL SUBHEAD 6 : UPS SYSTEM</b>					



S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>SUB HEAD-7: MCB DISTRIBUTION BOARDS.</b>					
<b>7.00</b>	<b>MCB DISTRIBUTION BOARD</b>					
7.01	Supplying, installation, testing and commissioning of following way, three phase and neutral, pre wired, double door MCB distribution board with incomers(RCCB + MCB) and out goings (MCB) as per drawings, Before procurement of DB the contractor has to take approval of DB schedule/ drawing of each DB from the Electrical Engineer, HSCC, as per technical specifications and as required (Inclusive of RCCB & MCB).					
	i 4 Way ( 8+12 )	5	Each			
	ii 6 Way ( 8+18)	29	Each			
	iii 8 Way (8+24)	8	Each			
7.02	Supplying, installation, testing and commissioning of following way, Single phase and neutral, pre wired, double door MCB distribution board with incomers(RCCB + MCB) and out goings (MCB) as per drawings, Before procurement of DB the contractor has to take approval of DB schedule/ drawing of each DB from the Electrical Engineer, HSCC, as per technical specifications and as required (Inclusive of RCCB & MCB).					
	i 4 Way (4+4)	12	Each			
	<b>TOTAL SUBHEAD: 7- MCB DISTRIBUTION BOARD.</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
8.00	<b>SUB HEAD: 8 - WIRING</b>					
8.01	<b>WIRING</b>					
	i Wiring for light point/fanpoint/ exhaust fan point/call bell point with 1.5 sq.mm. PVC insulated, fire retardant low smoke (FRLS) copper conductor cable, single core/ multi strand, in steel conduit (Including supplying & recess laying of ISI marked MS conduit and accessories) including the following and complete as required.					
	ii Supplying and Fixing Modular type switches (modular Bell push in case of call bell points) in suitable size modular metal boxes, base plate & modular cover plates, space for fixing electronic fan regulator in case of fan point wiring & space for fixing 5A socket on the board etc.					
	iii Supplying and fixing Hexagonal fan Boxes with 3 mm thick hylem sheet covers in case of Fan Points					
	iv Supplying & Fixing Ceiling Rose in case of Exhaust Fan Points etc.					
	<b>Note :</b>					
	i) Unless otherwise specified all the conduiting work to be done in recess					
	ii) Two or more circuit can be drawn in the same conduit, however, all the circuits in the same conduit shall be on the same phase.					
	<b>Point wiring as mentioned above</b>	1440	Point			
8.02	i Wiring for twin control light points with 1.5 sq.mm. PVC insulated, FRLS copper conductor cable in ISI marked MS conduit (including supplying and recess laying of ISI marked MS conduit) including the following and complete as required.					
	ii Supplying and Fixing Modular type two numbers 2 Way switches in suitable size modular metal boxes, base plate & modular cover plates etc.					
	<b>Note :</b>					
	Two or more circuit can be drawn in the same conduit, however, all the circuits in the same conduit shall be on the same phase.					
	<b>Wiring for twin control light points as mentioned above</b>	20	Point			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
8.03	Wiring for 5A light plugs with 1.5 sq.mm. PVC insulated, FRLS copper conductor cable including one number 1.5 sq.mm. PVC insulated, copper conductor cable for earthing in surface/recessed ISI marked MS conduit (including supply and recess laying of ISI marked MS conduit) as per technical specifications and as required.	60	Point			
8.04	Wiring for 16 amp power plug with 2X4 sqmm PVC insulated, FRLS copper conductor, single core cable in surface/recessed ISI marked MS conduit (including supply and recess laying of ISI marked MS conduit with all accessories) along with 2.5 sqmm PVC insulated, copper conductor, single core cable for loop earthing etc per technical specifications & as required. Directly from MCB-Distribution Board to the Socket Outlets	270	Point			
8.05	Wiring for 20 amp power plug with 2X6 sq.mm. PVC insulated, FRLS copper conductor, single core cable in surface/recessed ISI marked MS conduit (including supply and recess laying of ISI marked MS conduit with all accessories) along with 2.5 sqmm PVC insulated, copper conductor, single core cable for loop earthing, as per technical specifications & as required.	5	Point			
8.06	Wiring for computer points (Three sockets & one switch) with 2.5 sq.mm. PVC insulated, FRLS copper conductor cable including one number 1.5 sq.mm. PVC insulated, copper conductor cable for earthing in surface/recessed ISI marked MS conduit (including supply and recess laying of ISI marked MS conduit) as per technical specifications and as required.	50	Point			
8.07	Wiring for 32 amp TPN SDFU with 3X6 sq.mm. PVC insulated, FRLS copper conductor, single core cable in surface/recessed ISI marked MS conduit (including supply and recess laying of ISI marked MS conduit with all accessories) along with 6 sqmm PVC insulated, copper conductor, single core cable for loop earthing, as per technical specifications & as required.	16	Point			
8.08	Wiring for submain/ circuit wiring with following sizes of PVC insulated, FRLS copper conductor single core cable in surface/recessed ISI marked MS conduit( including and recess laying of ISI marked MS conduit) as required.					
i	2X2.5 Sqmm with 1 No. 2.5 sqmm PVC insulated, copper conductor for earthing for circuit wiring.	1825	Metre			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1		2	3	4	5	6	7
	ii	2X6 Sqmm with 1 No. 6 sqmm PVC insulated FRLS copper conductor for earthing	100	Metre			
	iii	4X6 Sqmm with 2 No. 6 sqmm PVC insulated, FRLS copper conductor for earthing	110	Metre			
	iv	4X10 Sqmm with 2 nos 10 sq mm PVC insulated, FRLS copper conductor for earthing	525	Metre			
	v	4X16 Sqmm with 2 nos 16 sq mm PVC insulated, FRLS copper conductor for earthing.	279	Metre			
8.09		Supplying and fixing suitable Module metal box on surface or in recess including providing and fixing 3 pin 5/6 amps. modular socket outlet with shutters and 5/6 amps. modular type switch, base plate, modular cover plate, connections etc. and all civil works 'complete as required.	60	Each			
8.10		Supplying and fixing suitable module modular metal box on surface or in recess including providing and fixing 6 pin 15/16 A modular socket outlet with shutters and 15/16 A modular switch, base plate, modular cover plate, connections, etc. and all civil works complete as required.	270	Each			
8.11		Supply and fixing following 20 Amps, 240 volts, 2P+E, Industrial Socket Outlet (with plugs) in a metal box with 20 SP MCB in a sheet steel cover on surface or recess complete with all accessories including connections, testing and commissioning etc. as required.	5	Each			
8.12		Supplying and fixing suitable Module metal box on surface or in recess including providing and fixing three nos 6 pin 5/6 amps. modular socket outlet with shutters and one no. 10 amps. modular type switch, base plate, modular cover plate, connections etc. and all civil works 'complete as required. <b>( For computer Points)</b>	50	Each			
8.13		Supply and fixing 32 Amps, TPN SDFU in a sheet steel enclosure on surface or recess complete with all accessories including fuse, connections, testing and commissioning etc. as required.	16	Each			
8.14		Supply and fixing 200 Amps, TPN SDFU in a sheet steel enclosure complete with all accessories including fuse, connections, testing and commissioning etc. as required.	2	Each			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
8.15	Supplying, providing & fixing cordless musical bell, batteries etc of approved make complete as required.	25	Each			
	<b>TOTAL SUBHEAD: 8- WIRING</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>SUB HEAD: 9 - LIGHT FIXTURE AND FANS</b>					
<b>9.00</b>	<b>LIGHT FIXTURES AND FANS</b>					
9.01	Supply of following light fixture with high efficiency electronic ballast, starter, capacitor, tubes/lamps, reflector, diffuser, MS body/housing holder etc. complete with all fixing accessories as required.					
	i 1X28 watt box type flourescent light fixture (Philips TMS 122/128 HF or approved equivalent)	58	Each			
	ii 1X36watt surface mounted flourescent light fixture with opal acrylic cover (Philips TCS 19/136 HPF or approved equivalent)	50	Each			
	iii 1X36watt recess mounted flourescent light fixture (Philips TBS 50/136 HPF or approved equivalent) 136RMO1/136RMO2/136RMO3/136RMO4	50	Each			
	iv 2X TL5 28 watt recess mounted mirror optics type 1 (Philips TBS 669/ 228 MD GN HF or approved equivalent).236RMO1	65	Each			
	v 2X 36 watt recess mounted mirror optics type 2 (Philips TBS 90/ 236 HPF or approved equivalent).236RMO2	45	Each			
	vi 2X 36 watt recess mounted mirror optics type 3 (Philips TBS 515/ 236 HPF or approved equivalent).236RMO3	60	Each			
	vii 2X 36 watt recessed mounted clean room flourescent light fixture (Philips TBS 670 2X36W TL-D EB BO GT or approved equivalent).236CRF	100	Each			
9.02	Supply of following compact flourescent light fixture with electronic ballast, starter, capacitor, lamps, reflector, diffuser, MS body/housing holder etc. complete with all fixing accessories as required.					
	i Surface mounted Batten holder (Plastic) with 13 watt CFL	5	Each			
	ii 1x9 watt Bulk Head light fixture (Philips FXC 101 HPF or approved equivalent)	20	Each			
	iii 1x10 watt CFL recessed ceiling mounted ( GE CFL C 1x10 DN R (V) or approved equivalent) used as a night lamp NLCM	12	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1		2	3	4	5	6	7
	iv	2 x 13 watt CFL recessed light fixture Down Light fixture Type-1 (GE CFLC 2X13 DN PA R (H) OVOLO or approved equivalent) DL1	293	Each			
	v	2 x 13 watt CFL surface mounted fixture Down light fixture type 2 (GE: GE CFL C 2X18 DN FG S(Lento) or approved equivalent) DL2	17	Each			
	vi	1 x 18 watt CFL recessed light fixture Down Light fixture Type-3 with frosted glass cover (GE CFLC 1X18 DN FG R (H) STREW or approved equivalent) DL3	30	Each			
	vii	2 x 42 watt CFL recessed mounted fixture Down light fixture type 4 (Philips: FBH225/242 HF W/o ZZG or approved equivalent) DL4	30	Each			
	viii	2 x 75 watt CFL lamp recessed mounted fixture Down light fixture type 5 ( GE: GE HAL C 2X75 DN R or approved equivalent) DL5	20	Each			
	ix	2 x 26 watt CFL lamp pendant mounted fixture Down light fixture type 6 ( GE: GE CFL C 2X26 DN PR or approved equivalent) DL6	10	Each			
	x	2X10 watt Mirror top (Decon 05UB or approved equivalent) Wtoilet	62	Each			
	xi	2X11 watt surface mounted mirror optics (Philips FCS 31/211 or equivalent)211CFLRECT	135	Each			
	xii	1x11 watt CFL Bedside light fixture ( Decon 05 GF or approved equivalent) TL	82	Each			
	xiii	Exit Light with LED lamp, ceiling/ suspended maintained type EXIT LED light with in built battery pack for one hour duration replace suffix/DD with following DL- direction left/ DR- direction Right for emergency LED exit signs with written 'EXIT' in foreign language: english/ hindi/ local language. Crompton greaves model no. EXL/T/1/DE/S/DD or equivalent.	4	Each			
	xiv	2 x 13 watt CFL wall recessed fixture (Path light) with height 100mm & frosted glass, louvered small. (Decon 54OJ or approved equivalent)	10	Each			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
9.03	Supply of following ceiling fans complete with double ball bearing, motor, blades, downrod, canopies, capacitor, modular type electronic fan regulator, MS Fan Box with MS Hook etc. suitable for operation on 230 volts, 50 Hz., 1 phase, AC supply complete as required					
	i 1200 mm sweep	213	Each			
	ii 900 mm sweep	12	Each			
9.04	Supply of 1400 RPM, 225 mm heavy duty exhaust fan suitable for single phase 230 volts, 50 Hz., AC supply complete with motor, louvers/shutters etc. complete as required.	24	Each			
9.05	Supply of 225 mm sweep, 1400 RPM, heavy duty wall mounted fan complete with double ball bearing, motor, blades, capacitor etc. suitable for single phase 230 volts, 50 Hz., AC supply, complete as required.	5	Each			
9.06	Installation, testing and commissioning of prewired, fluorescent fittings of all types, complete with all accessories and tube etc. directly on ceiling/wall, including connections with 1.5 sq.mm. PVC insulated, FRLS copper conductor, single core/ multi strand cable etc. as required.	428	Each			
9.07	Installation, testing and commissioning of prewired, compact fluorescent lamp fixture (CFL fixtures) of all types, complete with all accessories and lamp etc. directly on ceiling/wall, including connections with 1.5 sq.mm. PVC insulated, FRLS copper conductor, single core/ multi strand cable etc. as required.	706	Each			
9.08	Installation, testing and commissioning of ceiling fan and modular type electronic fan regulator (Electronic regulator to be fixed in switch board) including wiring the down rod and connection with 1.5 sqmm PVC insulated, copper conductor single core cable as required.	225	Each			
9.09	Installation, testing and commissioning of exhaust fan up to 300 mm sweep in the opening, including making the hole to suit the size of the above fan including, fixing of louvers/ shutters with frame making good the damages etc. as required.	24	Each			
9.10	Installation, testing and commissioning of wall mounted fan up to 450 mm sweep including supply and fixing wall bracket arrangement complete as required.	5	Each			
	<b>TOTAL SUBHEAD 9: LIGHT FIXTURE &amp; FANS</b>					



S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>SUB HEAD 10: TELEPHONE SYSTEM</b>					
<b>10.00</b>	<b>TELEPHONE SYSTEM</b>					
10.01	Supply & laying two pair 0.5 Sq. mm solid, annealed bare copper conductor insulated with high density polythlene. The insulated cores twisted to form pairs, helically wrapped with polyester tape, over all insulation of FR PVC, unarmoured telephone cable in ISI marked MS conduit including providing & fixing of two module modular metal box on surface or on recess with following pair cord outlet, connections etc. complete as required. This also includes conduiting, wiring from floor Tag blocks to individual telephone outlets.					
	i 1 pair cord outlet (Jack Type)	63	Each			
	ii 2 pair cord outlet (Jack Type)	15	Each			
10.02	Supplying, Installation, testing and commissioning of following sizes of telephone distribution board in M.S. hinged type lockable box duly painted complete with Krone type tag block etc. including terminations of cable as required.					
	i 100 Pair	1	Each			
	ii 20 Pair	1	Each			
	iii 10 Pair	4	Each			
10.03	Providing & laying multi pair telephone cable jelly filled, PVC insulated & sheath 0.61mm dia annealed tinned copper conductor on surface including clamping & fixing , including connection in Tag blocks at both ends.					
	i 10 Pair	100	Metre			
	ii 20 Pair	20	Metre			
	<b>TOTAL SUBHEAD 10: TELEPHONE SYSTEM</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>SUB HEAD 11 : FIRE DETECTION AND ALARM</b>					
<b>11.00</b>	<b>FIRE DETECTION AND ALARM SYSTEM</b>					
11.01	Supply and drawing of following sizes of PVC insulated FRLS copper conductor single core cable in surface/recessed ISI marked MS conduit (including Supplying and fixing of ISI marked MS Conduit) complete as required.					
	i 2X1.5 sqmm	3100	Metre			
11.02	Supply, installation, testing and commissioning of the following intelligent, analog, addressable type fire detection and alarm accessories as per technical specification & complete with connections etc. as required.					
	i Optical type Smoke Detector	130	Each			
	ii Heat Detector	2	Each			
	iii Manual Break Glass Unit in MS enclosure	8	Each			
	iv Fire Alarm Bell / Hooter of suitable range to cover the complete floor, in MS enclosure.	8	Each			
	v Response indicator	30	Each			
11.03	Supply, Installation, testing and commissioning of minimum two loop microprocessor based addressable type networkable Fire Detection & Alarm control Panel complete with inbuilt power supply, battery charger with SMF batteries for minimum 24Hrs backup. The panel shall have communication module & HI-485 network card. The panel should have rectifier, loop card, minimum 80 character LCD unit to indicate fire/ fault signals with addresses including external/ internal printer to print the details complete system as per technical specifications and requirement of Local Fire Authority and as required. RS 485 modbus communication port should be provided for BMS.	1	Set			
11.04	Supply testing and commissioning of isolator module as per specifications.	18	Set			
11.05	Supply, Installation, testing and commissioning of intelligent addressable control modules.	47	Each			
11.06	Supply, Installation, testing and commissioning of intelligent addressable type monitor modules.	1	Each			
11.07	Supply, Installation, testing and commissioning of flow switch	1	Each			
	<b>TOTAL SUB HEAD 11 : FIRE DETECTION AND ALARM</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>SUB HEAD 12: CONDUITING FOR TV OUTLETS</b>					
<b>12.00</b>	<b>CONDUITING FOR TV OUTLETS</b>					
12.01	Supply and fixing of following sizes of ISI marked MS conduit alongwith the accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required					
	i 20 mm dia	150	Metre			
	ii 25 mm dia	38	Metre			
12.02	Supplying and fixing 2 module modular metal box in recess with modular cover plate including fixing 1 no. coaxial TV outlet connection and all accessories complete as required	10	Each			
12.03	Supply and drawing Coaxial TV Cable RG - 6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed steel/ PVC conduit as required.	250	Metre			
	<b>TOTAL SUB HEAD 12: CONDUITING FOR TV OUTLETS</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>SUB HEAD 13: NURSE CALL BELL SYSTEM.</b>					
<b>13.00</b>	<b>NURSES CALL BELL SYSTEM</b>					
13.01	Supplying, fixing testing and commissioning of nurses station terminal monitor with in built LED display & alarm, suitable for following way complete with back up, batteries, battery charger etc. as per technical specifications and as required.					
	i) 30 Way	3	Each			
13.02	Supplying, fixing testing and commissioning of call push button (with cord), call reset, call indication station for each bed complete as required.	80	Each			
13.03	Supply and fixing of following sizes of steel conduit alongwith the accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of conduit as recessed required					
	i) 25 mm dia	1200	Metre			
13.04	Supply & laying of CAT 5 cable copper conductor in existing conduit.	2004	Metre			
13.05	Supplying, fixing testing and commissioning of LED's Indicators outside each ward	15	Each			
	<b>TOTAL SUB HEAD 13: NURSE CALL BELL SYSTEM.</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>SUB HEAD 14: PUBLIC ADDRESS SYSTEM.</b>					
<b>14.00</b>	<b>PUBLIC ADDRESS SYSTEM</b>					
	<b>A. PUBLIC ADDRESS SYSTEM FOR HOSPITAL.</b>					
14.01	Supply, installation, testing and commissioning of master announcement along with Amplifier console minimum of suitable wattage duly wired with terminal strip etc complete with housing, including the following main components and as required. (Contractor has to design and submit the details of PA equipment as per the requirement of this block for approval)					
	i) 1 Mic & 1 Aux Inputs, with individual volume control & Aux inputs jacks for each floor (Ground + five floors) at two different loactions on each floor.					
	ii) CD Player with 3 CD changer, with auto/ manual programming					
	iv) Terminals & patch cables					
	v) Any other item required for proper working of PA system.					
	<b>Public Address System for Hospital as mentioned above</b>	1	Set			
14.02	Supply and installation of system junction box complete as required .	1	Each			
14.03	Supplying and fixing of suitable module modular metal box on surface or in recess with modular cover plate and all accessories complete as required	10	Each			
14.04	Supply and fixing of following sizes of steel conduit alongwith the accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of conduit as recessed required					
	i) 20 mm dia	500	Metre			
14.05	Supply and drawing twin twisted 32/0.2mm PVC insulated copper conductor speaker wire in existing conduit including earth wire complete as required (for speakers).	1200	Metre			
14.06	Supply and installation of metal enclosed suitable wattage speaker with adjustable volume to cover all areas of floor, to be mouted in corridors complete as required .	12	Each			
	<b>B. AUDIO SYSTEM FOR AUDITORIUM</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	Supplying, Installation testing and commissioning of the complete PA system for auditorium. This should include the supply, installation, testing and commissioning of the following items and any other item required for complete functioning of the system including wiring of the same.					
	a. Floor podium Mic phone with stand.- 1 set					
	b. Suspended Mic- 2 set					
	c. Collar Mic- 2 set					
	d. Supplying, installation, testing and commissioning of dual channel power Amplifier according to the capacity of the auditorium.					
	e. PA audio mixer.					
	f. Audio Cassette Player required for smooth operation.					
	g. 5 CD Changer required for smooth operation etc. or any other item.					
	<b>Audio System for Auditorium as mentioned above</b>	1	Lot			
	<b>TOTAL SUB HEAD - 14.00 PUBLIC ADDRESS SYSTEM</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>SUB HEAD 15 : STAGE LIGHTING</b>					
<b>15.00</b>	<b>STAGE LIGHTING</b>					
15.01	Supply, Installation, Testing and commissioning of 1000W 150mm double plano-convex lens profile spot light complete with T-11 or equiv. lamps, barn door, filter frame, C-clamp, 1.5M 3x2.5 sq.mm. copper cable, plug top etc. complete. Model Modern-220 or equivalent	3	Each			
15.02	Supply, Installation, Testing and commissioning of 1000W Solar Fresnel spot light complete with all accessories and T-11 lamp or equiv. lamps with imported glass, side/bottom sliding knob, 1.5M 3x2.5 sq.mm. copper cable, plug top etc. as required. Model Modern-Sapphire-1000 or equivalent	3	Each			
15.03	Supply, Installation, Testing and commissioning of 1000W Flood light complete with 1000W 189mm halogen tube and other accessories and 1.5 m. 3x2.5 sq.mm. copper cable, plug top, etc. weather proof complete. Model Modern HL-44 or equivalent.	4	Each			
15.04	Providing and fixing 3 Section telescopic stands made of steel tube for stage lighting mentioned above. Model : Modern N-1 or equivalent	4	Each			
15.05	Supply, installation, testing and commissioning of Electronic Type <b>Dimmer Panel</b> with Suitable Number of circuits for controlling Compact Fluorescent Lights in Auditorium duly wired with terminal strip etc with centralised knob for complete control, and five station separate control with suitable MCB at incoming, fuse, complete with incoming cable <b>For controlling Auditorium Hall Lights</b> . This includes connection between control console and dimmer through suitable PVC copper conductor as required & its connection, connecting the existing light circuits in outgoing of the panel complete as required.	1	Set			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
15.06	Supplying, installation, connection & commissioning of Electronic type dimmer console panel with 12 dimmers of 2.5KW each in wall mounting, sheet steel housing with 12 nos. patch panel. There shall be two plug sockets for each dimmer for controlling <b>stage light and eight plug socket for each dimmer controlling 1000 watts spot lights</b> . This will include connection between control console and dimmer through suitable PVC copper conductor as required including light control desk suitable for controlling the intensity of 12 channels with 2-scene preset arrangement, group & master faders, Cross Fade, flasher, chaser Music on selected channels complete as per specifications and as directed for proper functioning of the system .	1	Set			
	<b>TOTAL SUB HEAD - 15.00 STAGE LIGHTING</b>					



S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>SUB HEAD 16 : LIFTS</b>					
<b>16.00</b>	<b>LIFT</b>					
16.01	Design, manufacture, supply, installation, testing and commissioning of 26 passenger (1768 kg) lift <b>(one of the 2 lifts will be a fire lift as per fire norms)</b> , with travel speed 0.5 MPS serving different floors in the lift shaft including lift well pressurization as per detailed specification/ drawing enclosed and as under: Speed 0.5 MPS Floors G+5 (Total six floors) Travel: As per architectural drawing. Stops & opening: 6 stops & 6 openings Controller: A.C. variable voltage & variable frequency Automatic rescue device complete with dry maintenance free batteries as required. Operation:Microprocessor based single automatic push button/ simplex selective collective/duplex collective selective with / without attendant. 415 V, 3 phase, 50 Hz, 4 wire system Type of doors: a) Car : Power operated, centre opening for passenger lift and telescopic opening for hospital lift, horizontal sliding stainless steel scratch proof. (b) Landing doors: Stainless steel scratch proof. Lift car door and landing doors shall have a fire resistance of one hour. A hand rail guide not less than 600 mm long at 900 mm above floor level or stretcher guide as the case may be to be fixed adjacent to control panel in the lift car.					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	Mirror of suitable size to be fixed inside the lift car.					
	Voice announcement system in the car to announce the position of the elevator in the hoistway as the car passes or stops at a floor served by the elevator.					
	Telephone with minimum two connections one at operator's room; and other at guard/ security room and the emergency signal with re-chargeable batteries as source of supply be made in the lift car.					
	Toe guard, PA speaker, IR curtain on full height, two phase fireman's drive control/ switch and potential free contacts etc to be provided in the lift.					
	<b>Bed cum Passenger Lift as mentioned above.</b>	2	Each			
	<b>TOTAL SUB HEAD 16: LIFTS</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>SUB HEAD 17: LT CABLES</b>					
<b>17.00</b>	<b>LT CABLES</b>					
17.01	Supply of following sizes of 1.1 kV grade multicore aluminium conductor PVC sheathed armoured AYYF cable as per IS 1554.					
	i 3.5 Core 25 Sqmm.	360	Metre			
	ii 3.5 Core 50 Sqmm.	240	Metre			
	iii 3.5 Core 95 Sqmm.	41	Metre			
	iv 3.5 Core 120 Sqmm.	480	Metre			
	v 3.5 Core 150 Sqmm.	54	Metre			
	vi 3.5 Core 240 Sqmm.	200	Metre			
	vii 3.5 Core 300 Sqmm.	300	Metre			
	viii 3.5 Core 400 Sqmm.	540	Metre			
	ix 2 Core 4 Sqmm.	100	Metre			
	x 2 Core 6 Sqmm.	100	Metre			
	xi 3 Core 4 Sqmm.	100	Metre			
	xii 4 Core 10 Sqmm.	100	Metre			
17.02	Laying of one number PVC insulated and PVC sheathed power cable; 1.1kV grade direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required					
	i Size not exceeding 25 sq.mm	360	Metre			
	ii Size exceeding 25 sq.mm but not exceeding 120 sq.mm	281	Metre			
	iii Size exceeding 120 sq.mm but not exceeding 300 sq.mm	834	Metre			
	iv Size exceeding 300 sq.mm but not exceeding 400 sq.mm	540	Metre			
17.03	Laying of one number PVC insulated and PVC sheathed power cable; 1.1kV grade direct in the existing RCC/ Hume/Stoneware/Metal pipe as required					
	i Size not exceeding 25 sq.mm	30	Metre			
	ii Size exceeding 25 sq.mm but not exceeding 120 sq.mm	30	Metre			
	iii Size exceeding 120 sq.mm but not exceeding 300 sq.mm	30	Metre			
17.04	Laying of one number PVC insulated and PVC sheathed power cable; 1.1kV grade on surface or on existing cable tray complete as required.					
	i Size not exceeding 25 sq.mm	100	Metre			
	ii Size exceeding 25 sq.mm but not exceeding 120 sq.mm	100	Metre			
	iii Size exceeding 120 sq.mm but not exceeding 240 sq.mm	100	Metre			
	iv Size exceeding 240 sq.mm but not exceeding 400 sq.mm	100	Metre			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
17.05	Supplying and making end termination with suitable size Copper lugs including double compression glands of following sizes of 1.1. kv grade multicore aluminium conductor PVC insulated and PVC sheathed					
	i 3.5 Core 25 Sqmm.	2	Each			
	ii 3.5 Core 50 Sqmm.	12	Each			
	iii 3.5 Core 95 Sqmm.	2	Each			
	iv 3.5 Core 120 Sqmm.	4	Each			
	v 3.5 Core 150 Sqmm.	2	Each			
	vi 3.5 Core 240 Sqmm.	12	Each			
	vii 3.5 Core 300 Sqmm.	12	Each			
	viii 3.5 Core 400 Sqmm.	10	Each			
	ix 2 Core 4 Sqmm.	4	Each			
	x 2 Core 6 Sqmm.	4	Each			
	xi 3 Core 4 Sqmm.	6	Each			
17.06	Fabricating and installing following size of perforated M.S. cable trays including horizontal and vertical bends, reducers, tees, cross members and other accessories as required and duly suspended from the ceiling with M.S. suspenders and including painting etc. as required :-					
	i 150 mm. width x 50 mm. depth x 1.6 mm. thickness	50	Metre			
	ii 300 mm. width x 62.5 mm. depth x 2.0 mm. thickness	50	Metre			
	iii 450 mm. width x 62.6 mm. depth x 2.0 mm. thickness	50	Metre			
	iv 600 mm. width x 62.6 mm. depth x 2.0 mm. thickness	50	Metre			
	<b>TOTAL SUB HEAD 17: LT CABLES</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>SUB HEAD 18: EARTHING SAFETY EQUIPMENT AND MISC. ITEMS</b>					
<b>18.00</b>	<b>EARTHING, SAFETY EQUIPMENTS AND MISC. ITEMS</b>					
18.01	Earthing with copper plate 600mmX600mmX3mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. (but without charcoal or coke and salt) complete as required	8	Set			
18.02	Earthing with GI plate 600mmX600mmX6mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. (but without charcoal or coke and salt) complete as required	8	Set			
18.03	Extra for using charcoal and salt for GI or copper plate earth electrode as required.	16	Set			
18.04	Supplying and laying 25mmX5mm Copper strip at 0.5 m below ground level as strip earth electrode, including soldering etc. as required.	100	Metre			
18.05	Supplying and laying 25mmX5mm GI strip at 0.5 m below ground level as strip earth electrode, including soldering etc. as required.	400	Metre			
18.06	Providing and fixing 40mmX6mm GI strip on surface/on existing cable trench/RCC pipe or in recess for earth electrode as required.	50	Metre			
18.07	Providing and fixing 25mmX5mm GI strip on surface/on existing cable trench/RCC pipe or in recess for earth electrode as required.	100	Metre			
18.08	Supplying and laying 50mmX6mm copper strip at 0.5mm below ground level as strip earth electrode as required as required.	50	Metre			
18.09	Providing and fixing 50mmX6mm copper strip in 65 mm dia class B GI Pipe on surface/existing cable trench/RCC pipe for connections etc. as required.	20	Metre			
18.10	Providing and laying of following sizes non pressure NP2 class (light duty) RCC pipe with colar joint with stiff mixture of cement (1 cement : 2 fine sand) including testing the joints etc. as required.					
i	100 mm dia	20	Metre			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1		2	3	4	5	6	7
	ii	150mm dia	20	Metre			
	iii	200mm dia	20	Metre			
	iv	300mm dia	20	Metre			
18.11		Providing and fixing M.V. danger notice plate of 200mmX150mm; made of mild steel, atleast 2mm thick and vitreous enamelled; white on both sides and with inscription in signal red colour on front side as required.	20	Each			
18.12		Supplying and laying of 1.1kV grade 1 metre wide anti skid chequered type rubber mat.	25	Metre			
18.13		Design, manufacture, supply and installation of Fire Buckets 13 litre capacity 4 Nos. duly filled with sand and GI pipe support stand for these buckets including painting etc. complete as required.	5	Set			
18.14		Supply and fixing shock treatment chart in English, Hindi and local language mounted on 5mm thick Plywood and 3mm thick plain glass; front complete as required.	4	Set			
18.15		Supplying and fixing Foam type 9 ltrs capacity fire extinguishers as approved by ISI complete as required.	2	Set			
18.16		Supplying and fixing CO2 type 9 ltrs capacity fire extinguishers as approved by ISI complete as required.	4	Set			
18.17		Supplying and fixing CO2 type 4.5 ltrs capacity fire extinguishers as approved by ISI complete as required.	6	Set			
18.18		Supplying and fixing DCP type 5 KG capacity fire extinguishers as approved by ISI complete as required.	6	Set			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
18.19	Supplying and fixing DCP type 10 KG capacity fire extinguishers as approved by ISI complete as required.	4	Set			
18.20	Supplying, storing, handling and fixing in position First Aid Medical Box and an 'Artificial Respirator' complete as per tech. specifications as required.	2	Each			
18.21	Providing & laying of 100 mm dia class B G.I. pipe underground/ surface as per site requirement including all accessories & excavation & back filling etc. complete as required	100	Metre			
	<b>TOTAL SUB HEAD 18: EARTHING, SAFETY EQUIPMENT AND MISC. ITEMS</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
19.00	<b>SUB HEAD 19: CONDUITING FOR COMPUTER NETWORKING</b>					
19.01	Supply and fixing of following sizes of steel conduit alongwith the accessories in recess ( including supply & fixing of conduit with all accessories) including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required					
	i) 20 mm dia	300	Metre			
	ii) 25 mm dia	200	Metre			
19.02	Supplying and fixing 2 module modular metal box in recess with modular cover plate, blanking plates and all accessories complete as required	54	Each			
	<b>TOTAL FOR SUBHEAD 19.00 CONDUITING FOR COMPUTER NETWORKING.</b>					



S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7
	<b>SUB HEAD 20: LIGHTENING PROTECTION</b>					
20.00	<b>LIGHTENING PROTECTION</b>					
20.01	Earthing with 600 mm X 600 mm X 6 mm thick GI plate including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. (but without charcoal or coke and salt) complete as required.	4	Set			
20.02	Extra for using charcoal and salt for GI or copper plate earth electrode as required.	4	Set			
20.03	Providing and fixing of lightening conductor finial, made of 25mm. dia. 300mm., long GI tube, having single prong at top, with 85 mm. dia. 6 mm. thick GI base plate including holes etc. complete as required.	12	Each			
20.04	Providing and and fixing GI tape 20mm X 3 mm thick on parapet or surface of wall for lightning conductor as required. (For horizontal runs).	500	Metre			
20.05	Providing and and fixing GI tape 20mm X 3 mm thick on parapet or surface of wall for lightning conductor as required. (For vertical runs).	200	Metre			
20.06	Providing and fixing testing joint, made of 20mmX3mm thick GI strip, 125 mm. long, with 4 no.'s of GI bolts, nuts, check nuts, bar shaddles, and spring washers etc. complete as required.	4	Each			
20.07	Providing and laying GI tape, 32 mm X 6 mm thick, from test joint upto earth electrode directly in ground as required.	80	Metre			
	<b>TOTAL SUB HEAD 20: LIGHTENING PROTECTION</b>					
	<b>GRAND TOTAL FOR ALL ELECTRICAL WORKS</b>					

**SUMMARY OF COST ESTIMATE - ELECTRICAL WORKS**

<b>S.No.</b>	<b>Description</b>	<b>Amount Figure (In Rs.)</b>	<b>In</b>	<b>Amount in Words (Rs.)</b>
1	<b>Sub Head 1: H.T. Substation</b>			
2	<b>Sub Head 2: Main LT Panel</b>			
3	<b>Sub Head 3: DG Sets</b>			
4	<b>Sub Head 4: Rising Mains</b>			
5	<b>Sub Head 5: MV Panels</b>			
6	<b>Sub Head 6: UPS System</b>			
7	<b>Sub Head 7: MCB Distribution</b>			
8	<b>Sub Head 8: Wiring.</b>			
9	<b>Sub Head 9: Light Fixtures &amp; Fans</b>			
10	<b>Sub Head 10: Telephone System</b>			
11	<b>Sub Head 11: Fire Detection &amp; Alarm System</b>			
12	<b>Sub Head 12: Conduiting For TV Outlets</b>			
13	<b>Sub Head 13: Nurse Call Bell System</b>			
14	<b>Sub Head 14: Public Address System</b>			
15	<b>Sub Head 15: Stage Lighting</b>			
16	<b>Sub Head 16: Lifts</b>			
17	<b>Sub Head 17: LT cables</b>			
18	<b>Sub Head 18: Earthing, Safety Equipments &amp; Misc. Items</b>			
19	<b>Sub Head 19: Conduiting For Computer Networking</b>			
20	<b>Sub Head 20: Lightening Protection.</b>			
	<b>GRAND TOTAL FOR ALL ELECTRICAL WORKS</b>			

# HVAC WORKS

<b>BILL OF QUANTITIES - GTB Diagnostic Centre at Govt. Medical College, AMRITSAR under PMSSY Project</b>						
<b>Item No.</b> 1	<b>Description</b> 2	<b>Unit</b> 3	<b>Quantity</b> 4	<b>Rate In Rs ( in Figure)</b> 5	<b>Rate in Rs (in Words)</b> 6	<b>Amount (Rs.)</b> 7
The prices are to be quoted in the below mentioned form and shall include the supply, installation, testing & commissioning at site of all the equipments, ancillary materials as specified and all such items what so ever which may be required to fulfill the intent and purpose as laid down in the specifications and or the drawings.						
The tenderer shall quote rates in figures and in words under column 5&6 and extend amount to column 7						
<b>1.0</b>	<b>WATER CHILLING UNITS.</b>					
	<b>WATER CHILLING UNITS</b>					
1.1	Supply, installation, testing & commissioning of 175 TR (actual) capacity water cooled water chilling units as specified and shown in equipment schedule complete as per specifications with.					
	a. Screw Compressor with motor.					
	b. Drive package.					
	c. Mounting frames for all components					
	d. Water cooled condenser with accessories.					
	e. Chiller with accessories.					
	f. Refrigerant piping, fittings, accessories and valves etc.					
	g. Insulation of chiller and suction line.					
	h. First charge of refrigerant and oil.					
	i. Base frame with Vibration isolators					
	j. Automatic capacity control arrangement.					
	k. Lot Safety controls, flow switches, pressure gauge, thermometer etc. as per specifications.					
	l. Suitable capacity motor with necessary insulation , starter panel complete with all necessary switchgears and control complete as required					
	m. Necessary water drain & air purge valves wherever required					
	n. Necessary lubrication device as per specifications complete.					
	o. Microprocessor based control panel complete with accessories as per specifications. ( 2 Working +1 Stand by )	Nos	3			
<b>2.0</b>	<b>WATER CIRCULATION PUMPS &amp; OTHER EQUIPMENT</b>					
	<b>Chilled water Pumps</b>					

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
2.1	Supply, installation, testing and commissioning of vertical split casing type centrifugal chilled water recirculation pumps mounted on a common base etc each capable of delivering specified flow rate complete with following as per specifications & schedule of equipments.					
	a. Pump with TEFC induction motor					
	b. Channel base with vibration isolators, coupling, coupling guard etc.					
	c. Pump insulation of chilled water pump, etc					
	d. 2 Nos.- 150 mm dia dial type pressure gauge					
	e. Pumps shall be suitable for 415V/3ph/ 50 Hz/AC power supply.					
	Rated capacity of each pump 420 USGPM at 32 m head chilled water pump. (2 Working+1 Stand by )	Nos	3			
	<b>Condenser water Pumps</b>					
2.2	Supply, installation, testing and commissioning of vertical split casing type centrifugal condenser water recirculation pumps mounted on a common base etc each capable of delivering specified flow rate complete with following as per specifications & schedule of equipments.					
	a. Pump with TEFC induction motor					
	b. Channel base with vibration isolators, coupling, coupling guard etc.					
	d. 2 Nos.- 150 mm dia dial type pressure gauge					
	e. Pumps shall be suitable for 415V/3ph/ 50 Hz/AC power supply.					
	Rated capacity of each pump 700 USGPM at 25 m head chilled water pump. (2 Working+1 Stand by )	Nos	3			
2.3	<b>COOLING TOWER</b>					
	Supply, installation, testing and commissioning of induced draft cooling towers for air conditioning system. Each tower shall be complete with distribution system, filling, louvers, ladder, fan and motor. Motor shall be suitable for 415±10% volts, 50 cycles, 3 phase power supply. Isolator enclosed in weather proof panel complete with earthing shall be included. Tower shall be selected on basis of water temperature 97.5-90 degree F, ambient wet bulb 83 deg F and capacity shall be as follows:-					
	225 TR capacity (2Working+1 Standby)	Nos	3			

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
<b>3.0</b>	<b>AIR HANDLING UNITS</b>					
3.1	Supply, installation, testing and commissioning of Air Handling Units (double skin type) of horizontal type as specified & shown in schedule of equipment complete with the following :-					
	a. Fan Section and canvas connection,mixing box,thermal break profile as required. (double skin type)					
	b. Centrifugal blower					
	c. Coil section with cooling coil/s as per specifications.					
	d. Pre filters with filter section as required in all AHUs.					
	e. Fine filters with filter section wherever specifically specified.Wherever fine filters are specified, item shall include factory fabricated double skin plenum of same specifications as AHU panels and complete with filter frameworks.Fine filter section along with discharge plenum shall be part of AHU in upper tier.					
	f.Hepa filters with filter section wherever specifically specified.Wherever hepa filters are specified, item shall include factory fabricated double skin plenum of same specifications as AHU panels and complete with filter frameworks.Hepa filter section along with discharge plenum shall be part of AHU in upper tier.					
	f. Drain pan, drain connection.					
	g. Drive motor, drive arrangement, guard etc.					
	h. Necessary vibration isolators & supporting arrangement.					
	i. Fresh air intake arrangement,necessary water drain & air purge valves wherever required etc.					
	j. Canvass connections,necessary foundations, 2 nos pressure gauge, 2 nos thermometer etc					
	k Controls for AHUs comprising of a set of 3 way modulating proportional linear type motorised diverting/ mixing valve of required size having manual override facility alongwith proportional thermostat & wiring for interconnection with 1.5 sq. mm Cu Conductor multicore armoured complete as required.					
3.1.1	AHU GF01- 14000cfm/4 RD Cooling Coil/50 mm static	Nos.	1			
3.1.2	AHU GF02- 16500cfm/6 RD Cooling Coil/50 mm static	Nos.	1			
3.1.3	AHU GF03- 14000cfm/4 RD Cooling Coil/50 mm static	Nos.	1			
3.1.4	AHU GF04- 14000cfm/6 RD Cooling Coil/50 mm static	Nos.	1			

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
3.1.5	AHU FF01- 11000cfm/4 RD Cooling Coil/50 mm static	Nos.	1			
3.1.6	AHU FF02- 11000cfm/4 RD Cooling Coil/50 mm static	Nos.	1			
3.1.7	AHU FF03- 3150cfm/6 RD Cooling Coil/65 mm static( with fine filters)	Nos.	1			
3.1.8	AHU SF01- 9000cfm/4 RD Cooling Coil/50 mm static	Nos.	1			
3.1.9	AHU SF02- 9000cfm/4 RD Cooling Coil/50 mm static	Nos.	1			
3.1.10	AHU 3F 01- 9000cfm/4 RD Cooling Coil/50 mm static	Nos.	1			
3.1.11	AHU 3 F-02- 9000cfm/6 RD Cooling Coil/50 mm static	Nos.	1			
3.1.12	AHU 4F01- 9000cfm/4 RD Cooling Coil/50 mm static	Nos.	1			
3.1.13	AHU 4F02- 9000cfm/4 RD Cooling Coil/50 mm static	Nos.	1			
3.1.14	AHU 5F01- 7500cfm/6 RD Cooling Coil/50 mm static( VERTCAL)	Nos.	1			
3.1.15	AHU 5F02- 7500cfm/6 RD Cooling Coil/50 mm static	Nos.	1			
3.2	<b>CEILING SUSPENDED UNITS</b>					
	Supply, installation, testing and commissioning of Air Handling Units (double skin type) of ceiling suspended type as specified & shown in schedule of equipment complete with the following :-					
	a. Casing and canvas connection. (double skin type)					
	b. Centrifugal blower					
	c. Coil as per specifications.					
	d. Pre filters as required					
	e. Drain pan, drain connection.					
	f. Drive motor, drive arrangement, guard etc.					
	g. Necessary vibration isolators & supporting arrangement.					
	h. Fresh air intake arrangement,necessary water drain & air purge valves wherever required etc.					
	i. Canvass connections,suspension arrangement, 2 nos pressure gauge, 2 nos thermometer etc					
	j Controls for AHUs comprising of a set of 3 way modulating proportional linear type motorised mixing valve of required size having manual override facility alongwith proportional thermostat & wiring for interconnection with 1.5 sq. mm Cu Conductor multicore armoured complete as required.					
	<b>Diagnostic Center</b>					
3.2.1	AHU CSU 1F01-3000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.2	AHU CSU 1F02-3000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
3.2.3	AHU CSU 1F03-3000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.4	AHU CSU 1F04-2000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.5	AHU CSU 1F05-2000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.6	AHU CSU 1F06-3500cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.7	AHU CSU 1F07-3500cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.8	AHU CSU 1F08-2500cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.9	AHU CSU 1F09-2000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.10	AHU CSU 2F01-4500cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.11	AHU CSU 2F02-1000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.12	AHU CSU 2F03-1000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.13	AHU CSU 2F04-2000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.14	AHU CSU 2F05-2000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.15	AHU CSU 2F06-2000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.16	AHU CSU 2F07-2000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.17	AHU CSU 2F08-2000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.18	AHU CSU 3F01-4000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.19	AHU CSU 3F02-2000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.20	AHU CSU 3F03-2000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.21	AHU CSU 3F04-2000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.22	AHU CSU 3F05-2000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.23	AHU CSU 4F01-4000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.24	AHU CSU 4F02-2000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.25	AHU CSU 4F03-2000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.26	AHU CSU 4F04-2000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.27	AHU CSU 4F05-2000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			
3.2.28	AHU CSU 5F01-2000cfm/4 RD Cooling Coil/32 mm static	Nos.	1			



Item No. 1	Description 2	Unit 3	Quantity 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
4.0	<b>Inline Fans</b> Supply, installation, testing and commissioning of Inline Fans as shown in drawings and as per equipment schedule . Each fan shall be complete with centrifugal blowers, totally enclosed fan cooled motor. Fan motor shall be suitable for single phase, 220 +/- 6% V, 50 Hz AC supply. Item shall be complete with starter & cabling.					
4.1	Air Quantity : 200 CFM Static Pressure : 30 mm wg	Nos.	2			
4.2	Air Quantity :300 CFM Static Pressure :30 mm wg	Nos.	6			
4.3	Air Quantity :400 CFM Static Pressure :30 mm wg	Nos.	1			
4.4	Air Quantity : 500 CFM Static Pressure :30 mm wg	Nos.	24			
4.5	Air Quantity : 600 CFM Static Pressure :30 mm wg	Nos.	1			
4.6	Air Quantity : 800 CFM Static Pressure :30 mm wg	Nos.	1			
5.0	<b>Propeller Fans</b> Supplying, installing, testing and commissioning of direct driven Propeller fan for exhaust air as shown in drawings. Each fan shall be complete with permanent split capacitor or shaded pole motor, mounting plate, accessories like wire guard, bird screen and fixed louvers for weather protection as required. Fan selection arrangement and Electrical characteristics shall be as follows:					
5.1	450 mm dia 900 RPM fan suitable for 220 +/- 10% volts, 50 Cycles, 1 Phase AC Supply	Nos	2			
5.2	225 mm dia 900 RPM fan suitable for 220 +/- 10% volts, 50 Cycles, 1 Phase AC Supply	Nos	6			

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
6.0	Supply , installation , testing and commisioning of air cooled split air conditioner with scroll compressors suitable for 3 Phase 50 Hz AC supply comprising of the following.					
	a) Outdoor condensing Units					
	b) Indoor Evaporative Units					
	c) Interconnecting Refrigerant and drain piping with insulation wherever required, refrigerant and oil. The unit shall include refrigerant piping, power cabling and drain piping as required.					
	d) Safety and operational controls					
	e) The unit shall have advanced microcomputer controller with run time equalization, auto restart after power failure, fuzzy logic, self fault diagnostics .  The controller shall have 2 digit 7 segment LED display, LED indicators and touch key pad. The controller shall have faults and alarm dispay and it shall be mounted in fire retardant box.					
	Capacity :5.5 TR	Nos	1			
7.0	<b>Tube Axial Flow fans</b> Supply, installation,testing and commisioning of tube axial flow fans as shown in drawings, Each fan shall be direct driven.. Fan motor shall be suitable for 3 Phase, 415+/- 10% V, 50Hz AC supply					
7.1	Duty: Lift well pressurisation Air Quantity : 10000 CFM Static Pressure : 20 mm wg	Nos.	2			
8.0	<b>Hot Water Generator</b> Supply, installation, testing & commissioning of Hot Water Generator as per specifications.					
8.1	Capacity : 100 KW Status : 2(W) + 0(S) USGPM: 170 Temp IN/OUT : 46.6/ 48.8 Deg C	Nos.	2			

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
9.0	<b>Fan Coil Units</b>					
	Supply, installation, testing and commissioning of Fan Coil Units blow through type of approved make, each complete with Three Row deep cooling coil, one or more centrifugal fan(s), cleanable type aluminium filters and complete as per specifications. Control wiring between thermostat, valve as reqd is included in the item.					
9.1	Capacity : 2.0 TR Air Quantity : 800 CFM	No.	4			
10.0	<b>MONSOON REHEAT ARRANGEMENT FOR OT AHUs</b>					
	Supply, installation, testing & commissioning of monsoon reheating arrangements fixed in ducts/ plenums complete with strip heaters, fixing frame work, insulators, fire protection insulation in duct, controls such as heating thermostats, humidistats etc. The heaters banks shall be controlled by independent thermostats/ humidistats through electro magnetic type contactors and safety thermostats/ geyserstats as specified complete with wiring for interconnections with 1.5 sq.mm copper conductor multi core armoured cable. The heater capacity shall be as per schedule of equipment and specifications, drawing etc.					
10.1	3KW x 2 banks	sets	2			
10.2	6KW x 1 banks	sets	3			
<b>11.0</b>	<b>CONDENSER WATER PIPING &amp; VALVES</b>					
11.1	Supply, laying/fixing, testing and commissioning of M.S. heavy class ERW piping conforming to IS : 3589/IS:1239 with necessary clamps, supports, anti vibration mountings, hangers and fittings such as bends, tees, reducers etc. duly painted as per specifications :					
11.1.1	250 mm dia	RM	125			
11.1.2	200 mm dia	RM	100			
11.1.3	150 mm dia	RM	20			

Item No. 1	Description 2	Unit 3	Quantity 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
<b>11.2</b>	<b>Butterfly valves :</b> Supply, fixing and testing of following valves, strainers, in the chilled water piping complete with companion flanges, nut bolts, gaskets, supports etc. duly insulated and painted as per specifications:					
11.2.1	250 mm dia.	Nos	3			
11.2.2	200 mm dia	Nos	16			
11.2.3	150 mm dia.	Nos	2			
<b>11.3</b>	<b>Balancing valves :</b>					
11.3.1	200 mm dia.	Nos	5			
<b>11.4</b>	<b>Non return/Check valves :</b>					
11.4.1	200 mm dia	Nos	3			
<b>11.5</b>	<b>Pot strainer with drain valve</b>					
11.5.1	250 mm dia.	Nos	1			
<b>12.0</b>	<b>CHILLED WATER PIPING</b>					
	Supply, laying/fixing, testing and commissioning of M.S. heavy class ERW piping confirming to IS : 3589/IS:1239 with necessary clamps, supports, anti vibration mountings, hangers and fittings such as bends, tees, reducers etc. duly insulated and painted as per specifications :					
12.1	200 mm dia	RM	120			
12.2	150 mm dia	RM	50			
12.3	125 mm dia	RM	100			
12.4	100 mm dia	RM	50			
12.5	80 mm dia	RM	180			
12.6	65 mm dia	RM	180			

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
12.7	50 mm dia	RM	300			
12.8	40 mm dia	RM	125			
12.9	32 mm dia	RM	500			
12.10	25 mm dia	RM	50			
<b>13.0</b>	<b>VALVES &amp; STRAINERS</b>					
	Supply, fixing and testing of following valves, strainers, in the chilled water piping complete with companion flanges, nut bolts, gaskets, supports etc. duly insulated and painted as per specifications:					
<b>13.1</b>	<b>Butterfly valves :</b>					
13.1.1	200 mm dia.	Nos	2			
13.1.2	125 mm dia	Nos	16			
13.1.3	65 mm dia	Nos	12			
13.1.4	50 mm dia.	Nos	18			
13.1.5	32 mm dia	Nos	50			
13.1.6	25 mm dia	Nos	4			
<b>13.2</b>	<b>Balancing valves :</b>					
13.2.1	125 mm dia	Nos	6			
13.2.2	65 mm dia	Nos	6			
13.2.3	50 mm dia.	Nos	9			
13.2.4	32 mm dia	Nos	25			
13.2.5	25 mm dia	Nos	2			
<b>13.3</b>	<b>Non return/Check valves :</b>					
13.3.1	125 mm dia	Nos	3			

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
<b>13.4</b>	<b>Y- strainers with drain valve</b>					
13.4.1	125 mm dia.	Nos	3			
13.4.2	65 mm dia	Nos	6			
13.4.3	50 mm dia.	Nos	9			
13.4.4	32 mm dia	Nos	25			
13.4.5	25 mm dia	Nos	2			
<b>13.5</b>	Providing and fixing in position the following Ball Valves duly insulated as per specifications:					
13.5.1	32 mm dia Valves	Nos.	4			
<b>13.6</b>	Providing and fixing in position the following Ball Valves with Strainer and duly insulated as per specifications:					
13.6.1	25 mm dia Valves	Nos.	4			
<b>13.7</b>	Providing and fixing in position the following Globe Valves duly insulated as per specifications:					
13.7.1	25mm dia Valves	Nos.	4			
<b>13.8</b>	Providing and fixing in position the following Gate Valves duly insulated as per specifications:					
13.8.1	50 mm dia Valves	Nos.	2			
13.8.2	40 mm dia Valves	Nos.	2			
13.8.3	32 mm dia Valves	Nos.	2			
<b>13.9</b>	Supply, installation, testing and commissioning of motorized valves for following sizes complete with actuator, control wiring & cabling upto thermostat. Valve actuator shall have suitable provision for interface with microprocessor based control system.					
	Motorized valve for FCU	Sets	4			
<b>13.10.0</b>	Supply, installation, testing and commissioning cooling thermostats for various Air Handling Units					

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
13.10.1	Proportional thermostats for Air Handling Units	Nos.	42			
13.10.2	Snap acting thermostat for FCU	Nos.	4			
<b>14.0</b>	<b>DRAIN PIPING</b>					
	Supply, laying/fixing, testing and commissioning of G.I. medium class ERW piping conforming to IS:1239 with necessary clamps, supports, anti vibration mountings, hangers and fittings such as bends, tees, reducers etc. duly insulated and painted as per specifications for condensate drain from air handling units and chillers etc.					
14.1.1	50 mm dia	RM	70			
14.1.2	40 mm dia	RM	50			
14.1.3	32 mm dia	RM	50			
14.1.4	25 mm dia	RM	50			
<b>15.0</b>	<b>EXPANSION TANK</b>					
	Supply, installation, testing and commissioning of PVC., expansion tank of capacity 1000 litres made of PVC 2 layer sheet complete with 50 mm thick fire retardant type expanded polystyrene insulation finished with two layers of sand cement plaster and painted complete with vent, drain connections , float valve, quick fill connection, manhole cover etc as specified. (Of double layered Sintex or equivalent make.	No.	1			
<b>16.0</b>	<b>DUCTING</b>					
<b>16.1</b>	<b>GSS DUCTING</b>					
	Supply, installation, testing and balancing of G.S.S ducting of following thickness including necessary supports, hangers, nut bolts, gaskets, splitter dampers, vanes canvass connections etc. complete as per specifications & drawings:					
16.1	1.25 mm(18 G) GSS	Sqm.	300			

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
16.2	1.0 mm (20 G ) GSS	Sqm.	700			
16.3	0.80 mm (22 G) GSS	Sqm.	1400			
16.4	0.63 mm (24 G) GSS	Sqm.	6000			
<b>16.2</b>	<b>ALUMINIUM DUCTING</b>					
	Supply, fabrication, installation and testing of aluminium ducts in accordance with the approved shop floor drawing and specifications. Material should confirm to IS 737 latest edition.					
18.1	22 gauge	Sqm.	25			
18.2	20 gauge	Sqm.	10			
18.3	18 gauge	Sqm	15			
<b>17.0</b>	<b>FIRE DAMPERS</b>					
	Supply, installation, testing and commissioning of motorized combined smoke & fire dampers made out of GI sheet of at least 90 minutes fire rating complete with GI damper of required size, smoke sensor, etc as per specifications and shop drawings.	Sqm	15			
	Actuator & control panel	sets	30			
<b>18.0</b>	<b>VOLUME CONTROL DAMPERS</b>					
	Supply, installation and testing of volume control dampers of GI sheet, box type to be provided in ducts complete with suitable links, levers and quadrants for manual control of air volume and air balancing as per specifications and drawings.	Sqm.	15			
<b>19.0</b>	<b>CEILING DIFFUSERS</b>					
19.1	Supply, Installation, testing and balancing of square/circular supply air diffusers of powder coated aluminium construction with attached volume control dampers as per specs. and drawings.	Sqm.	40			
19.2	Supply, installation, testing and balancing of square/circular return air diffusers of powder coated aluminium construction without volume control dampers as per specifications and drawings	Sqm.	40			
<b>20.0</b>	<b>GRILLES</b>					



Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
	Supply, installation, testing and balancing of supply/return air grilles with/without volume control dampers of powder coated aluminium construction suitable for installation in walls, false ceiling boxing etc as per specifications and drawings.					
20.1	Supply air grilles in single louvers with volume control dampers.	Sqm.	10			
20.2	Return air grilles in single louvers without volume control dampers.	Sqm.	10			
<b>21.0</b>	<b>LINEAR GRILLES</b>					
	Supply, installation and balancing of supply/return air linear grilles of powder coated aluminium construction suitable for installation in walls/false ceiling, boxing etc as per specifications and drawings.	Sqm.	10			
<b>22.0</b>	<b>DUCTING INSULATION</b>					
<b>22.1</b>	<b>Concealed Ducting</b>					
	Supply and fixing resin bonded fibre glass insulation on supply/return air ducts covered with polythene and finished as specified.					
22.1.1	50 mm thick insulation	Sqm.	1000			
22.1.2	25 mm thick insulation	Sqm.	6000			
<b>23.0</b>	<b>DUCT LINING</b>					
23.1	Supply and fixing resin bonded fibre glass hard board acoustic insulation in supply air ducting covered with tissue paper and perforated aluminium sheet as specified.	Sqm.	100			
<b>24.0</b>	<b>PLANT ROOMS ACOUSTIC INSULATION</b>					
24.1	Supply and fixing of acoustic insulation on walls and ceiling of Air handling units rooms with 50mm thick resin bonded fibre glass slabs fixed in frame work and finished with vapour barrier and perforated aluminium sheet complete as per specifications and drawings.	Sqm.	700			

Item No. 1	Description 2	Unit 3	Quantity 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
25.0	<b>AIR- CONDITIONING PANELS</b>					
	Supply, installation, testing and commissioning of A/C panels suitable for 415 V, 3 phase, 4 wires, 50 Hz power distribution system. The panel shall be cubicle non draw out type free standing floor mounting sheet metal enclosed flush front with aluminium busbars, separate earth bus bars to be provided throughout the length of the panel. The incoming & outgoing feeder breakers, fuses, indicating lamps etc. shall be accomodated in a modular multitier arrangement. The painting shall be done as per relavant 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 outgoing feeders inside the panel shall be connected through solid bus bar. Flexible cable links are not acceptable. Bus bars shall be provided with sleeves or heat resistant insulated paint. The panel shall be suitable for cable entry from top. The panel shall be fabricated after the approval of fabrication drawings.All the panels shall have minimum 20%spare capacity.					
	i)All doors to have pad locking and shrouding arrangement.					
	ii)All switches to be heavy duty type base mounted having operating handle.					
25.1	<b>Main/ Emergency Air-conditioning MCC in plant room in basement (Service Block)</b>					
	<b>INCOMER</b>					
	2 nos. 800 A, 415/500 V, 35 MVA rupturing capacity, fully draw out type , TPN, ACB with thermal & short circuit release with electrical & mechanical interlock with with bus coupler & other breaker, 1 set indication lamps with control fuses, 1 no. (0-500V) voltmeter with selector switch, 1 no. 0-1000A & 1 no. 0-800 A) ammeter with selector switch with suitable CT's, 2 No. Push button for CLOSE and TRIP, 1 set of CAG-14 relay, 1 No power factor meter, 1 no. Wattmeter					
	<b>BUSBARS :</b>					
	1000 A, TPN Aluminium bus bar 415V , 50 Hz. (31 MVA )					

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
	<b>Bus Couplers</b>					
	1 no. 800 A, 415V, 35 MVA rupturing capacity fully draw out type FP, ACB to be electrically mechanically interlocked with incomer switches with thermal overload & short circuit release, 1 set of indicating lamps, 2 push button for CLOSE and trip					
	<b>OUTGOING</b>					
	3set -400 A, 415 V , 35 MVA fully draw out type ACB, ammeter with selector switch and CTs of suitable rating and ON OFF indication lamps for Water chilling machine.( 2 W+1S)					
	3set - 63 A, 415 V TPN-FSU with HRC fuses of suitable rating, ammeter with selector switch and CTs of suitable rating( 20 HP motor min) and ON OFF indication lamps and suitable starters for chilled water pumps .( 2 W+1S)					
	2set - 32 A, 415 V TPN-FSU with HRC fuses of suitable rating, ammeter with selector switch and CTs of suitable rating( 10 HP motor min) and ON OFF indication lamps and suitable starters for cooling towers.( 2 W+0S)					
	3set - 63 A, 415 V TPN-FSU with HRC fuses of suitable rating, ammeter with selector switch and CTs of suitable rating ( 25 HP motor min)and ON OFF indication lamps for condenser water pumps .( 2 W+1S)					
	1set -400 A, 415 V TPN-FSU with HRC fuses of suitable rating, ammeter with selector switch and CTs of suitable rating and ON OFF indication lamps for incoming supply to main distribution board.					
	2set -250 A, 415 V TPN-FSU with HRC fuses of suitable rating, ammeter with selector switch and CTs of suitable rating and ON OFF indication lamps for hot water generators( 100 KW).					
	<b>Complete item as above</b>	Panel	1			
<b>26.0</b>	<b>AHU MAIN DISTRIBUTION PANEL ( in plant room) (Service Block)</b>					

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
	Supply, installation, testing and commissioning of AHU panel suitable for 415 V, 3 phase, 4 wires, 50 Hz power distribution system. The panel shall be cubicle non draw out type free standing floor mounting sheet metal enclosed flush front with aluminium busbars, separate earth bus bars to be provided throughout the length of the panel. The incoming & outgoing feeder breakers, fuses, indicating lamps etc. shall be accommodated in a modular multitier arrangement. The painting shall be done as per relevant 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 outgoing feeders inside the panel shall be connected through solid bus bar. Flexible cable links are not acceptable. Bus bars shall be provided with sleeves or heat resistant insulated paint. The panel shall be suitable for cable entry from top. The panel shall be fabricated after the approval of fabrication drawings. All the panels shall have minimum 20% spare capacity.					
	i) All doors to have pad locking and shrouding arrangement.					
	ii) All switches to be heavy duty type base mounted having operating handle.					
26.1	<b>AHU PANEL AHP I</b>					
	<b>INCOMER</b>					
	1 no. 400 A, 415/500 V, TPN, FSU					
	1 set indication lamps with control fuses.					
	1 no. (0-500V) voltmeter with selector switch.					
	1 no. (0-400A) ammeter with selector switch with CT's					
	<b>BUSBARS :</b>					
	600 A TPN Aluminium bus bar 415V , 50 Hz.					
	<b>OUTGOING</b>					
	1 set-125 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for AHP-GF on GF					
	1 set-125 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for AHP-FF on FF					

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
	1 set-125 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for AHP-SF on SF					
	1 sets-125 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for AHP-3F ON 3F					
	1 sets-125 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for AHP-4F ON 4F					
	1 sets-63 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for AHP-5F ON 5F					
	2 sets-16 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps as spares					
	<b>Complete item as above</b>	Panel	1			
<b>26.2</b>	<b>AHU PANEL AHP GF ( For AHUs on GF)</b>					
	<b>INCOMER</b>					
	1 no.125A, 415/500 V, TPN, FSU					
	1 set indication lamps with control fuses.					
	1 no. (0-500V) voltmeter with selector switch.					
	1 no. (0-125A) ammeter with selector switch with CT's					
	<b>BUSBARS :</b>					
	150 A TPN Aluminium bus bar 415V , 50 Hz.					
	<b>OUTGOING</b>					
	2 set-32 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for AHSP-GF01,03					
	2 set-63A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for AHSP-GF02, GF04					
	1 set-16 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps as spares.					
	<b>Complete item as above</b>	Panel	1			

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
26.3	<b>AHU PANEL AHP FF ( For AHUs on FF)</b>					
	<b>INCOMER</b>					
	1 no.125A, 415/500 V, TPN, FSU					
	1 set indication lamps with control fuses.					
	1 no. (0-500V) voltmeter with selector switch.					
	1 no. (0-250A) ammeter with selector switch with CT's					
	<b>BUSBARS :</b>					
	150 A TPN Aluminium bus bar 415V , 50 Hz.					
	<b>OUTGOING</b>					
	2 sets-32 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for AHSP FF01,02					
	10 sets-16 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for AHSP FF03, CSU FF 01 TO 09					
	1 set-16 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps as spares.					
	1 set-32 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps as spares.					
	<b>Complete item as above</b>	Panel	1			
26.4	<b>AHU PANEL AHP SF ( For AHUs on SF)</b>					
	<b>INCOMER</b>					
	1 no.125A, 415/500 V, TPN, FSU					
	1 set indication lamps with control fuses.					
	1 no. (0-500V) voltmeter with selector switch.					
	1 no. (0-250A) ammeter with selector switch with CT's					
	<b>BUSBARS :</b>					
	150 A TPN Aluminium bus bar 415V , 50 Hz.					

Item No. 1	Description 2	Unit 3	Quantity 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	<b>OUTGOING</b>					
	2 sets-32 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for AHSP SF01,02					
	8 sets-16 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for AHSP FF03, CSU 2F 01 TO 08					
	1 set-16 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps as spares.					
	1 set-32 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps as spares.					
	<b>Complete item as above</b>	Panel	1			
26.5	<b>AHU PANEL AHP TF ( For AHUs on TF)</b>					
	<b>INCOMER</b>					
	1 no.125A, 415/500 V, TPN, FSU					
	1 set indication lamps with control fuses.					
	1 no. (0-500V) voltmeter with selector switch.					
	1 no. (0-250A) ammeter with selector switch with CT's					
	<b>BUSBARS :</b>					
	150 A TPN Aluminium bus bar 415V , 50 Hz.					
	<b>OUTGOING</b>					
	2 sets-32 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for AHSP 3F01,02					
	5sets-16 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for CSU 3F 01 TO 05					
	1 set-16 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps as spares.					

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
	1 set-32 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps as spares.					
	<b>Complete item as above</b>	Panel	1			
26.6	<b>AHU PANEL AHP 4F ( For AHUs on 4F)</b>					
	<b>INCOMER</b>					
	1 no.125A, 415/500 V, TPN, FSU					
	1 set indication lamps with control fuses.					
	1 no. (0-500V) voltmeter with selector switch.					
	1 no. (0-250A) ammeter with selector switch with CT's					
	<b>BUSBARS :</b>					
	150 A TPN Aluminium bus bar 415V , 50 Hz.					
	<b>OUTGOING</b>					
	2 sets-32 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for AHSP 4F01,02					
	5sets-16 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for CSU 4F 01 TO 05					
	1 set-16 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps as spares.					
	1 set-32 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps as spares.					
	<b>Complete item as above</b>	Panel	1			
26.7	<b>AHU PANEL AHP 5F ( For AHUs on 5F)</b>					
	<b>INCOMER</b>					
	1 no.63A, 415/500 V, TPN, FSU					
	1 set indication lamps with control fuses.					
	1 no. (0-500V) voltmeter with selector switch.					
	1 no. (0-250A) ammeter with selector switch with CT's					



Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
	<b>BUSBARS :</b>					
	100 A TPN Aluminium bus bar 415V , 50 Hz.					
	<b>OUTGOING</b>					
	2 sets-32 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for AHSP 5F01,02					
	1sets-16 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps for AHSP CSU 5F01					
	1 set-16 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps as spares.					
	1 set-32 A, 415 V TPN-FSU with HRC fuses of suitable rating , ON-OFF indication lamps as spares.					
	<b>Complete item as above</b>	Panel	1			
<b>27.0</b>	<b>AHU STARTER PANELS (AHSP)</b>					
	Supply, installation, testing and commissioning of cubicle type totally enclosed wall/floor mounted free standing type, dust, damp and vermin proof for AHU made of 2mm thick CRCA sheet steel in compartmentalized design as per specification and drawings. These distribution boards shall be mounted on 50x50x6 MS angle frame work grouted to floor/walls of recessed. The rate includes the angle iron frame, support, painting, numbering, earthing etc. as required					
<b>27.1</b>	<b>AHU STARTER PANEL (AHSP - GF-02)</b>					
	<b>INCOMER :</b>					
	1 No. 100 Amps TPN FSU with suitable HRC fuse, 1 no of 0-150 amp ammeter with selector switch & CT's , 1 no. 0-500 volt voltmeter with selector switch & fuses , 1set of indicating lights (RYB).					
	<b>Bus Bar</b>					
	150 A TPN Aluminium bus bar 415V , 50 Hz.					
	<b>OUTGOINGS :</b>					

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
	1 set -63 A, 415 V TPN-FSU with HRC fuses of suitable rating, single phase preventor, suitable starter for 12.5 HP motor with thermal overload protection and spare NO-NC contacts for interlocking, ON-OFF indication lamps with push button for AHU motor as required.					
	1 sets - 32 A, 415 V TPN-FSU with HRC fuses of suitable rating , contactors of suitable rating for each bank , ON-OFF indication lamps for monsoon reheating complete as required.					
	1 set - 32 A, 415 V TPN-FSU with HRC fuses of suitable rating , as spares.					
	<b>Complete item as above</b>	Nos	1			
<b>27.2</b>	<b>AHU STARTER PANEL (AHSP - GF-04)</b>					
	<b>INCOMER :</b>					
	1 No. 63 Amps TPN FSU with suitable HRC fuse, 1 no of 0-150 amp ammeter with selector switch & CT's , 1 no. 0-500 volt voltmeter with selector switch & fuses , 1set of indicating lights (RYB).					
	<b>Bus Bar</b>					
	100 A TPN Aluminium bus bar 415V , 50 Hz.					
	<b>OUTGOINGS :</b>					
	1 set -63 A, 415 V TPN-FSU with HRC fuses of suitable rating, single phase preventor, suitable starter for 10 HP motor with thermal overload protection and spare NO-NC contacts for interlocking, ON-OFF indication lamps with push button for AHU motor as required.					
	1 sets - 32 A, 415 V TPN-FSU with HRC fuses of suitable rating , contactors of suitable rating for each bank , ON-OFF indication lamps for monsoon reheating complete as required.					
	1 set - 32 A, 415 V TPN-FSU with HRC fuses of suitable rating , as spares.					
	<b>Complete item as above</b>	Nos	1			
<b>27.3</b>	<b>AHU STARTER PANEL (AHSP - CSU 2F01,3F01,4F01)</b>					

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
	<b>INCOMER :</b>					
	1 No. 63 Amps TPN FSU with suitable HRC fuse, 1 no of 0-150 amp ammeter with selector switch & CT's , 1 no. 0-500 volt voltmeter with selector switch & fuses , 1set of indicating lights (RYB).					
	<b>Bus Bar</b>					
	100 A TPN Aluminium bus bar 415V , 50 Hz.					
	<b>OUTGOINGS :</b>					
	1 set - 16 A, 415 V TPN-FSU with HRC fuses of suitable rating, single phase preventor, suitable starter for 3.0 HP motor with thermal overload protection and spare NO-NC contacts for interlocking, ON-OFF indication lamps with push button for AHU motor as required.					
	1 sets - 16A 415 V TPN-FSU with HRC fuses of suitable rating , contactors of suitable rating for each bank , ON-OFF indication lamps for monsoon reheating complete as required.					
	1 set - 32 A, 415 V TPN-FSU with HRC fuses of suitable rating , as spares.					
	<b>Complete item as above</b>	Nos	1			
<b>27.4</b>	<b>AHU STARTER PANEL (AHSP - GF01,03)</b>					
	<b>OUTGOING :</b>					
	1 set - 32 A, 415 V TPN-FSU with HRC fuses of suitable rating, single phase preventor, 10 HP suitable starters for motor with thermal overload protection and spare NO-NC contacts for interlocking, ON-OFF indication lamps with push button for AHU motor as required.	Nos	2			
<b>27.5</b>	<b>AHU STARTER PANEL (AHSP - FF01,FF-02,SF01,SF02,3F01,3F02,4F01,4F02,5F01,5F02)</b>					
	<b>OUTGOING :</b>					

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
	1 set - 32 A, 415 V TPN-FSU with HRC fuses of suitable rating, single phase preventor, 7.5 HP suitable starters for motor with thermal overload protection and spare NO-NC contacts for interlocking, ON-OFF indication lamps with push button for AHU motor as required.	Nos	10			
27.6	<b>AHU STARTER PANEL (AHSP - FF03, CSU 1F06,1F07,2F01,3F01,4F01)</b>					
	<b>OUTGOING :</b>					
	1 set - 16 A, 415 V TPN-FSU with HRC fuses of suitable rating, single phase preventor, 3.0 HP suitable starters for motor with thermal overload protection and spare NO-NC contacts for interlocking, ON-OFF indication lamps with push button for AHU motor as required.	Nos	6			
27.7	<b>AHU STARTER PANEL (AHSP - CSU 1F01,1F02,1F03,1F08,3F02,3F03,3F04,3F05,4F02,4F03,4F04,4F05,5F01)</b>					
	<b>OUTGOING :</b>					
	1 set - 16 A, 415 V TPN-FSU with HRC fuses of suitable rating, single phase preventor, 2.0 HP suitable starters for motor with thermal overload protection and spare NO-NC contacts for interlocking, ON-OFF indication lamps with push button for AHU motor as required.	Nos	13			
27.8	<b>AHU STARTER PANEL (AHSP - 1F04,1F05,1F09,2F04,2F05,2F06,2F07,2F08)</b>					
	<b>OUTGOING :</b>					
	1 set - 16 A, 415 V TPN-FSU with HRC fuses of suitable rating, single phase preventor, 1.5 HP suitable starters for motor with thermal overload protection and spare NO-NC contacts for interlocking, ON-OFF indication lamps with push button for AHU motor as required.	Nos	8			

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
27.9	<b>AHU STARTER PANEL (AHSP - CSU 2F02,2F03)</b>					
	<b>OUTGOING :</b>					
	1 set - 16 A, 415 V TPN-FSU with HRC fuses of suitable rating, single phase preventor, 1.0 HP suitable starters for motor with thermal overload protection and spare NO-NC contacts for interlocking, ON-OFF indication lamps with push button for AHU motor as required.	Nos	2			
27.10	<b>FOR LIFTWELL PRESSURISATION FANS</b>					
	<b>OUTGOING :</b>					
	1 set - 16 A, 415 V TPN-FSU with HRC fuses of suitable rating, single phase preventor, 2.0 HP suitable starters for motor with thermal overload protection and spare NO-NC contacts for interlocking, ON-OFF indication lamps with push button for AHU motor as required.	Nos	2			
<b>28.0</b>	<b>CABLING</b>					
	Supplying, laying, effecting proper connections, testing & commissioning of following size of 1.1 kv PVC insulated aluminium conducting armoured cables as per IS 1554 Part- 1laid underground/cable tray/on surface of wall/hume pipe etc. & termination with brass compression glands as required.					
28.1	3.5Cx 185 sq.mm cable	Metre	180			
28.2	3.5C x 150 sq.mm cable	Metre	65			
28.3	4Cx 25 sq.mm Cable	Metre	70			
28.4	4 C X 16 sq. mm. Cable	Metre	380			
28.5	3.5 C X10 sq. mm. Cable	Metre	75			
28.6	4 C X 6 sq. mm. Cable	Metre	200			
28.7	3 .5 C X 4 sq. mm. Cable	Metre	1200			
28.8	4C X6 sq. mm. Cable	Metre	500			

Item No. 1	Description 2	Unit 3	Quantity 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
29.0	<b>CABLE TRAYS</b>					
	Supply & installation of following sizes of perforated MS cable trays including horizontal & vertical bends, reducers, tees, cross members and other accessories as required and duly supported from the ceiling/wall/floor with MS suspenders/supports and including painting etc. as required					
29.1	300 mm widthx50 mm deep x1.6 mmthickness	Metre	100			
29.2	200 mm widthx50 mm deep x1.6 mmthickness	Metre	200			
29.3	150 mm widthx50 mm deep x1.6 mmthickness	Metre	300			
29.4	100 mm widthx50 mm deep x1.6 mmthickness	Metre	500			
30.0	<b>EARTHING</b>					
30.1	Earth pits with GI earth plate of size 600mmx600mmx6mm thick including all accessories , down watering GI pipes 40mm dia and providing masonry enclosure with cover plate having interlocking arrangement and watering pipe etc. with charcoal of or coke and salt) complete as required	Set	1			
30.2	Providing & fixing GI earth strip 40mm x 6mm on surface or in recess for earth connections etc. as required	Metre	50			
30.3	Providing and fixing GI earth strip on walls/ trenches complete as per specifications and as required.					
30.3.1	38mmx 6mm	Metre	100			
30.3.2	25mm x 3mm	Metre	150			
30.4	Providing and fixing earth wire of complete as per specifications as required.					
30.4.1	4 SWG wire	Metre	200			
30.4.2	6 SWG wire	Metre	1000			
30.4.3	8 SWG wire	Metre	400			

Item No. 1	Description 2	Unit 3	Quantity	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
			4			
<b>31.0</b>	<b>CONTROL CABLING</b>					
	Supply, laying, effecting proper connections, testing & commissioning of 1.5 sq.mm. PVC insulated copper multicore cables from AHU's and AC equipments to central control console					
31.1	44 core cable	Metre	145			
31.2	37 core cable	Metre	55			
31.3	27 core cable	Metre	80			
31.4	19 core cable	Metre	60			
31.5	14 core cable	Metre	50			
31.6	10 core cable	Metre	500			
31.7	8 core cable	Metre	250			
31.8	6 core cable	Metre	230			
31.9	5 core cable	Metre	450			
31.10	3 core cable	Metre	100			
<b>32.0</b>	<b>CONTROL CONSOLE /DESK</b>					
	Supply, installation, testing and commissioning of status indication and control panel made out of 14 SWG CRCA sheet steel free standing inclined control panel with push buttons/ control switches on inclined face and indication lamps, meter annunciation etc. on the vertical face and control wiring as per specifications.	Set	1			
	<b>Total</b>					

SUMMARY SHEET FOR CONSTRUCTION OF GURU TEGH BAHADUR DIAGNOSTIC  
CENTRE AT GOVERNMENT MEDICAL COLLEGE, AMRITSAR UNDER PMSSY

<b>S.No</b>	<b>Name of Head</b>	<b>Total Quoted Amount</b> (In Indian Rupees)
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- |   |                           |  |
|---|---------------------------|--|
| 1 | Civil Works               |  |
| 2 | Public Health Engineering |  |
| 3 | Fire Fighting             |  |
| 4 | Electrical works          |  |
| 5 | HVAC Works                |  |

Total in Figures :-

Total in Words :-