

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)

Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
1.00	EARTH WORK					
1.01	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50m and lift upto 1.5m, disposed earth to be levelled and neatly dressed.					
a)	All kinds of soil	13130.00	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.	50.00	cum			
1.03	Extra for every additional lift of 1.5 m or part there of in.					
a)	All kinds of soil.					
i)	1.5m to 3.0m	3601.00	cum			
ii)	3.0m to 4.5m	3927.00	cum			
1.04	Extra for disposal of excavated earth for additional lead beyond 50m or part thereof upto 200m					
a)	All kinds of soil	5959.00	CUM			
1.05	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.					
		6652.00	cum			

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1.06	Supplying and filling in plinth with river sand under floors including, watering, ramming consolidating and dressing complete.	248.00	cum			
1.07	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.	31.00	100sqm			
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2.00	Concrete Work					
2.01	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:					
a)	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	21.00	cum			
b)	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size).	459.00	cum			
c)	1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size)	100.00	cum			
2.02	Providing and laying cement concrete in retaining walls, return walls, walls (any thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets etc. up to floor five level, excluding the cost of centering, shuttering and finishing:					
a)	1:2:4 (1 Cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	5.00	cum			
2.03	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).	131.00	sqm			
2.04	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.	131.00	sqm			
2.05	Extra for providing and mixing water proofing material in cement concrete work @ 1 kg per 50kg of cement.	34.00	per 50 kg cement			

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3.00	REINFORCED CEMENT CONCRETE					
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 centring, 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 380 kg. of cement per cum of concrete. All work up to floor V level.	6188.00	cum			
3.02	Add or deduct for providing richer or leaner mixes respectively at all floor levels.					
i)	Providing M-30 grade concrete by using 400kg of cement per cum of concrete instead of M-25 grade B.M.C/ R.M.C..	539.00	cum			
3.03	Deduct for using less cement than the quantity as provided in the item of batch mix concrete/RMC as arrived as per mix design.	100.00	Qtl			
3.04	Centering and shuttering including strutting, propping etc. and removal of form for:					
a)	Foundations, footings, bases of columns, etc. for mass concrete.	1653.00	sqm			
b)	Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.	3723.00	sqm			
c)	Suspended floors, roofs, landings, balconies and access platform.	8377.00	sqm			
	Extra for specially designed shuttering to support slab of thickness 1.0- 1.5 mtr	301.00	sqm			
d)	Shelves (Cast in situ)	58.00	sqm			

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e)	lintels, beams, plinth beams. girders. bressumers and cantilevers.	10874.00	sqm			
f)	Columns, Pillars, Piers, Abutments, Posts and Struts.	3122.00	sqm			
g)	staircases (including landing).	311.00	sqm			
h)	Extra for shuttering in circular work (20% of respective centering and shuttering items).					
i)	Beams	105.00	sqm			
ii)	Column	53.00	sqm			
j)	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.	440.00	sqm			
k)	Edges of slabs and breaks in floors and walls. Under					
i)	20 cm wide	105.00	Metre			
ii)	Above 20 cm wide	53.00	sqm			
l)	Cornices and mouldings	53.00	sqm			
3.05	Extra for additional height in centering, shuttering where ever required with adequate bracing, propping etc. including cost of decshuttering and decentering at all levels, over a height of 3.5 m, for every additional height of 1 metre or part thereof (Plan area to be measured)					
a)	Suspended floors, roofs, landing, beams and balconies (Plan area to be measured).	8016.00	sqm			
3.06	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete.					
a)	Thermo-Mechanically Treated bars Fe500	805.00	tonne			

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3.07	Providing and fixing machine moulded aluminium covering of approved pattern & design, made out of machine cut aluminium sheet and machine holed for receiving screws, over expansion joints on vertical surfaces/ceilings with full threaded, cadmium plated steel screws 4mm dia. stem, 30mm long and aluminium washers 2mm thick, 15mm dia. at a staggered pitch of 200mm centre to centre including drilling holes in the receiving surface and providing expandable plastic sleeves in holes etc. complete.					
	Powder coated aluminium sheet 2.5mm thick (minimum thickness of powder coating 50 micron)	156.00	Metre			
3.08	Providing and filling in position bitumen mix filler of Proportion 80 kg. of hot bitumen, 1 kg. of cement and 0.25 cubicmetre of coarse sand for expansion joints.	51.00	per cm depth per cm width per 100m			
3.09	Providing and fixing in position 12mm thick bitumen impregnated fibre board conforming to IS: 1838 including cost of primer, sealing compound in expansion joints.	252.00	per cm depth per cm width per 100m			
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4.00	BRICK WORK					
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)	286.00	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)	1605.00	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)	10.00	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)	4397.00	sqm			
4.05	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).	4407.00	sqm			
4.06	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.	20.00	sqm			
4.07	Brick edging 7 cm wide 11.4 cm. deep to plinth protection with bricks of class designation 75 including grouting with cement mortar 1:4 (1 cement : 4 fine sand)	349.00	metre			
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5.00	DOORS & WINDOWS					
5.01	Providing and fixing pressed steel door frames confirming to IS: 4351 manufactured from commercial mild steel sheet of 1.25 mm thickness including hinges jamb, lock jamb, bead and if required angle threshold of mild steel angle of section 50x25mm, or base ties of 1.25mm pressed mild steel welded or rigidly fixed together by mechanical means, adjustable lugs with split end tail to each jamb including steel butt hinges 2.5mm thick with mortar guards, lock strike-plate and shock absorbers as specified and applying a coat of approved steel primer after pre-treatment of the surface as directed by Engineer-in-charge:					
a)	Profile B	1453.00	Mtr			
5.02	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular <i>sections</i> / 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) :					
5.02.1	For fixed portion					
a)	Powder coated aluminium (minimum thickness of powder coating 50 micron)	3418.00	kg			

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5.02.2	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)	1495.00	kg			
5.03	Providing and fixing anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868. Minimum anodic coating of grade AC 15) sub frame work for windows and ventilators a with extruded built up standard tubular sections of approved make conforming to IS: 733 and IS : 1285 fixed with rawl plugs and stainless steel screws etc.	880.00	kg			
5.04	Providing and installation of fully insulated wooden fire rated shutter of 120min. fire rating conforming to BS: 476 part 22 and IS:3614 Part II as per the prototype tested and certified by CBRI Roorkee, of 55mm thickness, comprising of 75mm x 49mm hardwood internal timber frame work, with infill of 96 kg/m ³ , ceramic fiber blankets, coated with VIPER FR or equivalent intumescent coating on both sides for insulation. The coated insulation shall be sandwiched between 12mm thick, Non combustible Boards (Calcium Silicate) on both sides (edge to edge on internal Hardwood frame) and clad with 3mm thick commercial ply of approved quality & 1mm thick laminate of approved brand and manufacture on both sides, with 55mm x 14mm 2nd class teak wood lipping all round the shutter.					

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	The shutter is suitable for mounted on the door frame, as per the item given below.. Both frame and shutter shall be fitted with fire & smoke intumescent seal of Viper or equivalent make of size 20 x 4mm on all the three sides except bottom. The pasting of the ply/veneer/laminate should be done using automatic machine and should be free from any nails or perforations. The board shall be Resistant to vermin, mould growth, minor impact, abrasion and short term water attack. The shutter shall be fixed with the frame with the help of SS 304 grade ball bearing hinges of size 100x76x2mm with necessary screws and making cut out for vision panel. Provisions/reinforcement for fixing all fixtures shall be built in on the door prior to the supply.					
a)	Single/Double Shutter	45.00	sqm			

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5.05	Providing and fixing door frames as per BS: 476 part 22, IS:3614 Part II as per the prototype certified by CBRI Roorkee made out of 2nd class C.P. Teak Wood frame of section 140x65mm for fire resistant doors of 120 minutes fire rating, with heat activated intumescent fire seal strips of size 20 x 4 mm(for smoke sealing) provided in grooves on all three sides of the frame with one coat of approved brand of fire retardant primer including two coats of fire retardant paint FR 881 or equivalent un thinned on cleared hard wood surface of door frames (@3.5 sq.m. per litre per coat) including preparation of base surface as per recommendations of manufacturer to make the surface fire retardant, including fixing the frame with 8 nos. 100 mm long, 10 mm dia metal dash fastners complete as per directions of the Engineer in charge NOTE:- cost of fire seal strips, dash fastners are included in the item. Nothing extra shall be paid if size of any component of material exceeds the limit mentioned in the item.					
	The rebate shall be of 20mm x 57mm in Door Frame to accommodate the shutter in frame	66.00	Mtr			
5.06	Providing and fixing of UL listed fire rated single/double leaf panic exit devices tested in accordance with BS EN 1125: 1997 & BS EN 179: 1997, EN 1670 (Corrosion Resistant), & BS 476 Part 22 (for fire rating) with min one year warrantee.					
a)	Single/Double Leaf	11.00	Each			
5.07	Providing and fixing of fire rated door closer tested in accordance with BS:476 Part 22 for fire rating) and BS EN 1154 with min one year warranty.	11.00	Each			

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5.08	Providing and fixing 2 hrs, fire rated mortice lock with lever handle tested in accordance with BS:476 Part 22.with min one year warranty.	11.00	Each			
5.09	Providing and fixing stainless steel grade 304 D type pull handle with screws complete.	11.00	Each			
5.10	Supply and fixing of Fire Retardant board to be fixed at bottom with necessary screws etc. and filling of vermiculite based cementitious type fire proof sealing system mixed with concrete of retrofit design for sealing of openings through floors shafts etc. duly tested and certified at CBRI, Roorkee as per IS : 1245 (1988) and other national and international standards. The Joints etc shall also be sealed with similar material.	2.00	sqm			
5.11	Providing and fixing 6 mm thick piroshield fire rated clear glass of approved make, of 120 minutes fire rating having a minimum 13 mm square electrically welded chemically treated steel wire mesh of dia 0.51 mm sandwiched 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	2.00	sqm			
5.12	Providing and fixing ISI marked flush door shutters conforming to IS 2202 (Part I) non-decorative type, core of block board construction with frame of 1 st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters:					
a)	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws.	646.00	sqm			

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5.13	Providing & Fixing decorative high pressure laminated sheet of plain / wood grain in gloss / matt / suede finish with high density protective surface layer and reverse side of adhesive bonding quality conforming to IS : 2046 Type S including cost of adhesive of approved quality					
a)	1.0 mm thick.	1291.00	sqm			
5.14	Extra for providing lipping with 2nd class teak wood battens 25 mm minimum depth on all edges of shutters (over all area of door shutter to be measured)	646.00	sqm			
5.15	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	299.00	sqm			
5.16	Providing and fixing IS : 3564 marked Aluminium die cast body tubular type universal hydraulic door closer with necessary accessories and screws etc. complete.	79.00	each			
5.17	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	264.00	each			
5.18	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	342.00	each			

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b)	150x10 mm	849.00	each			
5.19	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	683.00	each			
b)	100 mm	451.00	each			
5.20	Providing and fixing aluminium hanging floor door stopper ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade with necessary screws etc. complete.					
a)	Twin rubber stopper	342.00	each			
5.21	Filling the gap in between. aluminium frame & adjacent RCC / Brick / Stone work by providing weather silicon sealant over backer rod of approved quality as per architectural drawings and direction of Engineer-in-charge complete.					
a)	Upto 5mm depth and 5 mm width	250.00	metre			
5.22	Providing and fixing stainless steel (SS 304 grade) adjustable friction windows stays of approved quality with necessary stainless steel screws etc. to the side hung windows as per direction of Engineer-in-charge complete.					
a)	255 X 19 mm	849.00	each			
5.23	Providing and fixing 100mm brass locks (best make of approved quality) for aluminium doors including necessary cutting and making good etc. complete.					
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5.24	Providing and fixing bright finished brass 100 mm mortice latch and lock ISI marked with six levers and a pair of anodised (anodic coating not less than grade AC 10 as per IS : 1868) aluminium lever handles with necessary screws etc. complete (Best make of approved quality).	264.00	each			
5.25	Providing fixing aluminium round shape handle of outer dia 100mm with SS screws etc. complete as per direction of Engineer-in-charge					
a)	Powder coated minimum thickness 50 micron aluminium	6.00	each			
5.26	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.					
a)	With stainless steel cover plate	6.00	each			

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5.27	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 Anodised of approved colour and shade and make with mullions fixed on the RCC beams/columns through adequately designed brackets including providing masking tape on the profiles 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 Architect's drawings and specifications. The design to be as per BIS code for required wind pressure IS: 875 part III and use of aluminium section alloy as per IS:8147.					
a)	System design to strictly consider for thermal movements, air infiltration, water penetration, seismic movement and structural movement. Contractor to furnish shop drawings along with sequence of work and for approval of Engineer-in-charge.The minimum section shall be 131x66x2mm and per sqmt weight shall be 10kg approx, the item shall be measured and paid for actual surface area of structural glazing/aluminium composite panel supported on the frame.(Cost of glass/ACP to be paid seperately under respective items)	420.00	SqM			

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5.28	Providing & fixing 24mm th. insulated glass over above corresponding item hermetically sealed with 6mm heat strengthend toughened solar control off line coated high performance temperable glass of approved colour having reflective soft coating and 6mm clear toughned float glass inside with 12mm dry air cavity between two glass panes separated by a hollow aluminium spacer bar with twin lines of micro holes as approved filled with molecular desiccant of approved make and using primary hot meld duty and secondary polysulphide or silicon sealant of approved make all complete over above item. (U value less than 2.85w/sqm k, shading cofficent less than 0.55, solar factor less than 0.50, light transmittion minimum 40%)	420.00	Sqm			
5.29	Extra over corresponding item for providing and fixing of openable window/door in structural glazing, including all associated hardware minimum weight of shutter shall not be less than 6kg per SQM	20.00	Sqm			
5.30	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.	997.00	kg			
5.31	Extra of providing vision panal not exceding 0.1sqm in all type of flush doors. (Cost of glass excluded) over all area of doors shutters to be measured.					
a)	Rectalgular of square	646.00	sqm			
5.32	Providing glass panes, with wooden fillets wherever necessary.					
a)	4mm thick Glass panes weighing 10 kg./sqm.	11.00	Sqm			

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5.33	Providing, Fixing, Supply, Installation, and Commissioning of Fully Automatic Hermetically Seal Sliding Doors of size 1500mm width and height 2100mm and doorframe of high quality anodised aluminium consisting of reinforced plasterboard panels faced with same laminate as the doors and the door panel of compact laminate vision panels (300x300mm) to be provided in the doors .The door moves on nylon wheels within a single piece aluminium extruded track for smooth sliding . Microprocessor based electronic automation unit (CE Marked) for controlling door movement with low noise level level motor.The acceleration and speed of the door can be adjusted .The controller will be capable of either being operated by elbow switches/foot switches,radar switch (touch less sensor).All doors will be able to be operated manually in the event of failure of the power supply or the automation unit	7.00	Each			
5.34	Radar Switch - Touchless Sensor for opening and closing of Hermetically Sealed Sliding Door	13.00	Each			
	Total					

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6.00	Steel Works					
6.01	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.	525.00	Kg			
b)	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works.	525.00	Kg			
6.02	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.	525.00	Each			
6.03	Providing & fixing in position SS Railing at staircase made out of 304 grade 16 SWG SS handrail -50 mm dia with SS end Cap and fixed into wall at end: Midrail - 12mm dia X 3 Row 1st Balustrade 75mm X 2Nos. and other Balustrade -38 mm dia X 5 Steps per side with base plate of 5 mm with SS base cover and complete with all fittings as per design and diagram	67.00	Metre			

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)						
Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
6.04	Providing & fixing in position SS guard railing in passages made out of 304 grade 16 SWG SS pipe/builtup section with SS end Cap and fixed into wall at suitable intervals with base plate connector, cover plate of SS and fixing etc all complete with buffing and polishing as per design and diagram(Wt. of S.S. shall be measured for payment)	4200.00	Kg			
Total						

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)						
Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
7.00	Flooring					
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.	352.00	sqm			
7.02	Chequerred precast cement concrete tiles 22 mm thick in footpath & courtyard jointed with neat cement slurry mixed with pigment to match the shade of tiles including rubbing and cleaning etc. complete on 20 mm thick bed of cement mortar 1:4 (1 cement : 4 coarse sand).					
a)	Medium shade using 50% white cement 50% Grey cement.	478.00	sqm			
7.03	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)	Raj Nagar White	570.00	sqm			
b)	Udaipur green marble	1533.00	sqm			
c)	Jaisalmer Stone	284.00	sqm			
7.04	Marble stone tile work in skirting, risers of steps and dado (up to 2 m height) over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointed with grey cement slurry @ 3.3 kg/sqm including pointing in white cement mixed with pigment to matching shade complete.					
a)	Marble Tile (polished) white/green					
i)	8mm thick	7479.00	sqm			

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)						
Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
7.05	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.	4294.00	sqm			
7.06	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.	457.00	sqm			
7.07	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.	1303.00	sqm			
7.08	Providing and laying rectified Glazed Ceramic floor tiles 300x300 mm or more (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in all colours, shades, except White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick Cement Mortar 1:4 (1 Cement : 4 Coarse sand) including pointing the joints with white cement and matching pigments etc., complete.	295.00	sqm			

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)						
Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
7.09	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	1239.00	sqm			
7.10	Providing and fixing 1st quality Vitrified tiles (thickness to be specified by the manufacture) in skirting 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.	124.00	sqm			
7.11	Providing and fixing 2 mm thick homogeneous PVC flooring of approved quality with total weight 2.800 g/m2 polyurethane reinforced (PUR) ,Abrasion group P:≤0.15mm,residual identification approx..03 mm,caster wheel test qualified,,dimensional stability ≤0.40%,static electrical charge < 2kv,impact sound reduction approx +4db,good resistance of chemical and firedoesn't favour in growth of fungi & bacteria ,classAclean room certified.	295.00	sqm			

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)						
Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
7.12	Providing and fixing 18mm thick gang saw cut mirror polished pre moulded and pre polished) machine cut for kitchen platforms, vanity counters, window sills. facias and similar locations of required size of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edge to give high gloss finish etc. complete at all levels					
a)	Granite of any colour and shade					
i	Area of slab upto 0.50 sqm	15.00	sqm			
ii	Area of slab over 0.50 sqm.	170.00	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.	111.00	metre			
7.14	Providing and laying 3mm thick epoxy resin based jointless anti static floor coating in three coats (primer coat, base, top coat (2mm thick)) preparation of cement concrete flooring including cutting of grooves, providing copper wiring, connections etc. for elimination of static charge between the equipment base and floor surface to ensure leakage resistance of 10^4 to 10^8 ohms in static decay test of 0.02sec., all complete as specified and as per the direction of Engineer-in-Charge.The work shall be carried out through specialised agency.					
		174.00	Sqm			

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)						
Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
7.15	Extra for fixing marble /granite stone over and above corresponding basic item, in facia and drops of width up to 150 mm with epoxy resin based adhesive including cleaning etc. complete	111.00	Metre			
7.16	Extra for providing opening of required size & shape for wash basins kitchen sink in kitchen platform, vanity counters and similar location in marble/Granite/stone work including necessary holes for pillar taps etc. including rubbing and polishing of cut edges etc. complete.	51.00	Each			
	Total					

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)						
Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
8.00	CEILING & ROOFING					
8.01	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.					
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.)	536.00	sqm			
8.02	Providing and laying in position cement concrete 1:5:10 (1 Cement : 5 fine sand : 10 broken brick bats 40 mm nominal size) including consolidation etc all complete.	134.00	Cum			

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

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

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)						
Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
a)	With average thickness of 120mm and minimum thickness at khurra as 65 mm.	3555.00	sqm			
8.04	Providing and fixing at all height false ceiling including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating of grade 350 as per IS : 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener 12.5mm diax40mm long with 6mm dia bolts to the angle hangers of 25x25x0.55mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick button wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm diax230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm high having flanges of 20mm and					

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)						
Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
	30mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450mm centre to centre with 25mm long drive-all screws @ 230mm interval including jointing and fixing to a flush finish of tapered and square edges of the board with recommended filler, jointing tapes, finisher and two coats of primer suitable for board as per manufactures specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting with :					
a)	12.5 mm thick tapered edge gypsum board conforming to IS: 2095- Part I.	1604.00	sqm			
8.05	Providing and laying integral cement based treatment for water proofing on horizontal surface at all depth below ground level for under ground structures as directed by Engineer-in-Charge and consisting of : i) 1st layer of 22mm to 25mm thick approved and specified rough stone slab over a 25mm thick base of cement mortar 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound conforming to IS:2645 in the recommended proportion over the leveling course (leveling course to be paid separately). Joints sealed and grouted with cement slurry mixed with water proofing compound. ii) 2nd layer of 25mm thick cement mortar 1:3 (1 cement: 3 coarse sand) mixed with water proofing compound in recommended proportions. iii) Finishing top with stone aggregate of 10mm to 12mm nominal size spreading @ 8 cudm/sqm thoroughly embedded in the 2nd layer.					
a)	Using rough kota stone.	2168.00	SQM			

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)						
Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
8.06	Providing and laying integral cement based treatment for water proofing on the vertical surface by fixing specified stone slab 22 mm to 25mm thick with cement slurry mixed with water proofing compound conforming to IS:2645 in recommended proportions with a gap of 20mm (minimum) between stone slabs and the receiving surfaces and filling the gaps with neat cement slurry mixed with water proofing compound and finishing the exterior of stone slab with cement mortar 1:3 (1 cement : 3 coarse sand) 20mm thick with neat cement punning mixed with water proofing compound in recommended proportion complete at all levels and as directed by Engineer-in-charge :					
a)	Using rough Kota stone	1220.00	Sqm			
8.07	Providing and fixing thermal insulation of ceiling (under deck insulation) with Resin Bonded Fibre glass wool conforming to IS : 8193 density 24kg/m ³ , 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.	840.00	Sqm			
Total						

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)						
Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
9.00	Finishing					
9.01	12 mm cement plaster of mix:					
a)	1:6 (1 cement: 6 fine sand)	8494.00	sqm			
9.02	15 mm cement plaster on the rough side of single or half brick wall of mix:					
a)	1:4 (1 cement 4 fine sand)	10284.00	sqm			
9.03	20 mm cement plaster of mix:					
a)	1:4 (1 cement: 4 fine sand)	6677.00	sqm			
9.04	6 mm cement plaster of mix:					
a)	1:3 (1 cement: 3 fine sand)	9003.00	sqm			
9.05	Extra for plastering exterior walls of height. more than 10 m from .ground level for every additional height of. 3 m or part thereof.	1255.00	sqm			
9.06	Neat cement punning	105.00	sqm			
9.07	Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete	10732.00	Sqm			
9.08	White washing with lime to give an even shade:					
a)	New work (three or more coats)	105.00	sqm			
9.09	Distempering 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.	10732.00	sqm			
9.10	Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade					

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)						
Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
a)	New work (Two or more coats applied @ 1.43 ltr/ 10 sqm. over and including base coat of water proofing cement paint applied @ 2.20 kg/ 10 sqm).	6677.00	Sqm			
9.11	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 over an under coat of suitable shade with ordinary paint of approved brand and manufacture.	1549.00	sqm			
9.12	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade:					
a)	Two or more coats on new work	10732.00	sqm			
9.13	Applying one coat of cement primer of approved brand and manufacture on wall surface:					
a)	Cement primer.	10732.00	sqm			
9.14	Painting with epoxy paint 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.	6475.00	sqm			
9.15	Extra for providing Coving in epoxy flooring all complete and as directed	210.00	Metre			
9.16	Extra for providing Coving in PVC flooring all complete and as directed	210.00	Metre			
	Total					

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)						
Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
10.00	MISCELLANEOUS					
10.01	Making plinth protection with 50mm thick of cement concrete 1:3:6 (1 cement :3 coarse sand: 6graded stone aggregate 20mm nominal size) over 75mm bed by dry brick ballast 40mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth	262.00	sqm			
10.02	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.	78.00	Each			
10.03	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.	839.00	sqm			
	Total					

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)						
Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
11.00	ROAD WORK					
11.01	Preparation of sub grade by 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 disposal of surplus earth lead upto 50 Metres.	3150.00	SQM			
11.02	Supplying & stacking of graded stone aggregate at site of size range.					
a)	90 mm to 45 mm	473.00	CuM			
b)	63 mm to 45 mm	419.00	CuM			
11.03	Laying spreading and compacting stone aggregate of specified sizes to WBM specifications including spreading in uniform thickness, hand picking, rolling with 3 wheeled road! vibratory roller 8-10 tonne in stages to proper grade and camber, applying and brooming requisite type of screening! binding material to fill up interstices of coarse aggregate watering and compacting to the required density.	630.00	Cum			
11.04	Providing and laying C.C. pavement of mix M25 with ready mixed concrete from batching plant. The ready mixed concrete shall be laid and finished with screed board vibrator, vacuum dewatering process and finally finished by floating, brooming with wire brush etc. complete as per specifications and directions of Engineer-in-charge. (The panel shuttering work shall be paid for separately).	473.00	Cum			
11.05	Extra for providing and mixing hard crete of approved quality as per manufacturer's specification in cement concrete.	1418.00	Litre			

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)						
Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
11.06	Providing and laying in position bitumen hot sealing compound for expansion joints etc	530.00	Per cm depth per cm width per m length			
a)	Using grade 'A' sealing compound.					
11.07	Providing and laying 60mm thick factory made cement concrete interlocking paver block of M -30 grade made by block making machine with strong vibratory compaction 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.	525.00	SqM			
11.08	Providing and laying at/ near ground level factory made kerb stone of M-25 grade cement in position to the required line, level and curvature jointed with cement mortar 1:3 (1 cement: 3 coarse sand) including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm) including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge).	32.00	Cum			
Sub Total						

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)						
Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
12.00	LAND DEVELOPMENT & HORTICULTURE					
12.01	Supplying and stacking of good earth at site including royalty. (Earth measured in stacks will be reduced by 20% for payment)	315.00	Cum			
12.02	Supplying & stacking sludge or manure at site including royalty & carriage upto 1 km (sludge measured in stacks will be reduced by 8% for payment)	63.00	Cum			
12.03	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).	378.00	Cum			
12.04	Trenching in all kind of 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, river sand & manure which shall be paid separately but including all leads & lifts for unserviceable materials).	63.00	Cum			
12.05	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)	1050.00	Sqm			

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)						
Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
12.06	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.	1050.00	Sqm.			
Sub Total						

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

Bill of Quantities (Civil Works)

Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

ABSTRACT OF COST (CIVIL WORKS)

S.No	DESCRIPTION OF WORK	Quantity	Unit	Amount(Rs)
1	EARTHWORK	Rs		
2	CONCRTE WORK	Rs		
3	RCC WORK	Rs		
4	BRICK WORK	Rs		
5	DOORS & WINDOWS	Rs		
6	STEEL WORK	Rs		
7	FLOORING	Rs		
8	CEILING & ROOFING	Rs		
9	FINISHING	Rs		
10	MISCELLANEOUS	Rs		
11	ROAD WORK	Rs		
12	LANDSCAPING & HORTICULTURE WORKS	Rs		
	TOTAL	Rs		

PROJECT NAME: CONSTRUCTION OF CANCER HOSPITAL BHATINDA,PUNJAB

ABSTRACT OF COST (CIVIL WORKS)

S.No	DESCRIPTION OF WORK		Amount(Rs)
1	EARTHWORK	Rs	
2	CONCRTE WORK	Rs	
3	RCC WORK	Rs	
4	BRICK WORK	Rs	
5	DOORS & WINDOWS	Rs	
6	STEEL WORK	Rs	
7	FLOORING	Rs	
8	CEILING & ROOFING	Rs	
9	FINISHING	Rs	
10	MISCELLANEOUS	Rs	
11	ROAD WORK	Rs	
12	LANDSCAPING & HORTICULTURE WORKS	Rs	
	TOTAL	Rs	

Design & Engineering Department						
Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	Note: Based on tender drawings the agency hAs to prepare the internal & external plumbing shop drawing and obtain the approval of the same before execution.					
1.00	SANITARY FIXTURES					
1.01	Providing&fixing water closet squatting pan(Indian W.C.Pan)with 100 mm sand cast iron P or S strap,10 Litre low level white P.V.C flushing cistern with manually controled device(handle lever) conforming to IS:7231 with all fittings&fixture complete including cutting and making good the walls & floors wherever required.					
	White vitreous china orissa pattern W.C. pan of size 580 x 440 mm with integral type foot rests	Each	16			
1.02	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)	W.C. pan with ISI black solid plastic seat & lid.	Each	50			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
1.03	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)	One urinal basin with 5 litre white PVC automatic flushing cistern	Each	3			
b)	Range of two urinal basin with 5 litre white PVC automatic flushing cistern.	Each	6			
c)	Range of three urinal basin with 10 litre white PVC automatic flushing cistern.	Each	10			
1.04	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)	White vitreous china wash basin size 550x 400 mm with a pair of 15mm C.P. brass pillar tap.	Each	70			
b)	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			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
1.05	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)	610x510 mm bowl depth 200 mm.(Without Drain Board)	Each	6			
1.06	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)	Size 600x450x200 mm	Each	12			
1.07	Extra for using coloured W.C. pan instead of white W.C pan					
a)	Orissa pattern W.C. pan 580x440 mm	Each	16			
1.08	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	50			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
1.09	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)	Rectangular shape 453x357 mm	Each	90			
1.10	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			
1.11	Providing and fixing toilet paper holder .					
a)	Vitreous china	Each	50			
1.12	Providing and fixing PTMT liquid soap container 109 mm wide, 125 mm high and 112 mm distance from wall of standard shape with bracket of the same materials with snap fittings of approved quality and colour weighing not less than 105 gms.	Each	70			
1.13	Providing and fixing water Jet Nozzle with hose pipe and half turn CP brass angle valve to be fitted with seat cover of european water closet complete in all respect of approved quality	Each	50			
1.14	Providing and fixing soap tray with CP brass lid and brackets fixed to wooden cleats with CP brass screws.	Each	20			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
1.15	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	70			
1.16	Providing and fixing brass coat hook of approved quality and make complete with material of fixing	Each	70			
1.17	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	50			
1.18	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:					
a)		Each	10			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
1.19	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					
	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	3			
	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			
1.20	Providing and fixing stainless steel grab bar 20mm dia of required length with PVC cleats, C.P. brass screws etc. complete.	Each	70			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
1.21	Providing and fixing Hospital white vitreous china bed pan sink with P trap, size 600 x 450 mm with 10 litres C.I. High level flushing cistern flush pipe, C.I./M.S. bracket painting with 3 coats of white paint complete with accessories, C.P. brass fittings with vertical jet horizontal spray complete with control cocks.	Each	3			
SUB TOTAL(SANITARY FIXTURES)						

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
2.00	SOIL, WASTE AND VENT PIPES					
2.01	Providing and fixing soil, waste and vent pipes.					
a)	100 mm dia.					
a i)	Centrifugally cast (spun) iron socketed pipe as per IS:3989	Metre	750			
b)	75 mm dia					
bi)	Centrifugally cast (spun) iron socketed pipe as per IS:3989	Metre	100			
2.02	Providing and fixing M.S holder-bat clamps of approved design to Sand Cast iron/ cast iron (spun) pipe embedded in and including cement concrete blocks 10x10x10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including cost of cutting holes and making good the walls etc.					
a)	for 100 mm dia. pipe	Each	140			
b)	for 75 mm dia. pipe	Each	10			
2.03	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.					
a)	100 mm					
a ii)	Sand cast iron S&S as per IS-3989	Each	70			
	75 mm					
b)	Sand cast iron S&S as per IS-3989	Each	10			
2.04	Providing and fixing plain bend of required degree.					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
a)	100 mm					
a ii)	Sand cast iron S&S as per IS:3989	Each	150			
b)	75 mm					
b i)	Sand cast iron S&S as per IS:3989	Each	10			
2.05	Providing and fixing heel rest sanitary bend.					
a)	100 mm dia					
a.ii)	sand cast iron S&S as per IS-3989	Each	25			
b)	75 mm					
	sand cast iron S&S as per IS-3989	Each	4			
2.06	Providing and fixing single equal plain junction of required degree with access door, insertion rubber washer 3mm thick, bolts and nuts complete.					
a)	100x100x100mm					
a.ii)	sand cast iron S&S as per IS-3989	Each	80			
b)	75x75x75mm Centrifugally cast (spun) iron S&S					
b.ii)	sand cast iron S&S as per IS-3989	Each	10			
2.07	Providing and fixing single equal plain junction of required degree					
a)	100x100x100mm					
a.ii)	sand cast iron S&S as per IS-3989	Each	100			
b)	75x75x75mm Centrifugally cast (spun) iron S&S					
b.ii)	sand cast iron S&S as per IS-3989	Each	10			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
2.08	Providing and fixing single unequal junction of required degree with access door, insertion rubber washer 3mm thick, bolts and nuts complete.					
a)	100x100x75mm	Each	5			
2.09	Providing and fixing single unequal plain junction of required degree					
a)	100x100x75 mm					
a.ii)	sand cast iron S&S as per IS-3989	Each	2			
2.10	Providing and fixing door piece, insertion rubber washer 3mm thick, bolts and nuts complete					
a)	100 mm					
a.ii)	sand cast iron S&S as per IS-3989	Each	15			
2.11	Providing and fixing terminal guard.					
a)	100 mm	Each	25			
a.ii)	sand cast iron S&S as per IS-3989					
b)	75 mm					
b.ii)	sand cast iron S&S as per IS-3989	Each	4			
2.12	Providing and fixing collar					
a)	100 mm					
a.ii)	Sand cast iron S&S as per IS-3989	Each	120			
b)	75 mm					
b.ii)	Sand cast iron S&S as per IS-3989	Each	5			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
2.13	Providing lead caulked joints to sand cast iron /centrifugally cast (spun) iron pipes and fittings of diameter:					
a)	100 mm	Each	1400			
b)	75 mm	Each	50			
2.13(i)	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	450			
b)	75 mm	Each	20			
2.14	Providing and fixing M.S. stays and clamps for sand cast iron / centrifugally cast (spun) iron pipes of diameter :					
a)	100 mm	Each	25			
b)	75 mm	Each	4			
2.15	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)	100 mm inlet and 100 mm outlet					
a i)	Sand cast iron S&S as per IS-3989	Each	80			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
2.15(i)	Providing, fixing, testing & commissioning of Floor Drain (Make-Viega model no.-4951.1) Article Code-557 195 With sealing flange,with removable trap,with rotatable and height-adjustable top 150 x 150 mm,with protection plug,with plastic frame and stainless steel 1.4301 grate,loading capacity class K=300 kg,with vertical drain socket,Outlet 70mm, with drain capacity - 1,6 l/s quality controlled in accordance with DIN EN 1253,(Body made of environmentally friendly PP (poly propylene) .With connector of HDPE to connect Floor Drain with the HDPE pipe.	Each	20			
2.16	Cutting chases in brick masonry walls for following diameter sand cast iron/centrifugally cast (spun) iron pipes and making good the same with cement concrete 1:3:6 (1 cement:3 coarse sand:6 graded stone aggregate 12.5 mm nominal size) including necessary plaster and pointing in cement mortar 1:4 (1 cement: 4 coarse sand):					
a)	100 mm diameter pipe	Metre	10			
b)	75 mm diameter pipe	Metre	5			
2.17	Painting sand cast iron / centrifugally cast (spun) iron soil, waste vent pipes and fittings with paint of any colour such as chocolate, grey, or buff etc. over a coat of primer (of approved quality) for new work:					
a)	100 mm diameter pipe	Metre	475			
b)	75 mm diameter pipe	Metre	60			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
2.18	Providing and fixing floor drain points formed out of 65x50 mm dia PVC/ GI elbow, including with 75mm dia Stainless Steel grating with frame, embedded in floor, all complete as directed.	Each	50			
2.19	Providing and fixing C.P. brass bottle trap for wash basin including CP waste fittings complete 32 mm dia complete in all respect of approved quality.	Each	70			
2.20	Providing and fixing C.P. brass bottle trap for sinks & urinal basin including CP waste fittings complete 40 mm dia complete in all respect of approved quality.	Each	45			
2.21	Providing and laying cement concrete 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size) 80 mm thick all-round the SCL/centrifugally S&S pipe diameter.					
	100 mm dia	Metre	275			
	75 mm dia	Metre	40			
2.22	Providing and fixing dash fastner made of rust proof plated steel for holding the soil/waste supply pipes complete in all respect					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	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	40			
2.23	Providing and fixing floor clean out plug consist of CI bend & GI socket heavy class with brass cap & key for opening male threaded cap etc. including lead caulked to CI pipescomplete in all respects as per drawing/ sample approved by Engineer -in -ChargeFCO (floor clean out plug shall be flushed with floor finish 150/100/75 mm dia	Each	20			
	Providing and fixing cleaning eye on horizontal CI soil & waste pipes of 300 mm long G 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 150 mm dia	Each	10			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
2.24	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	70			
2. 25	Providing and fixing G.I./CPVC pipes complete with G.I. /CPVCfittings including painting,jointing,testing the cost of cutting the chases and making good the same for waste water disposal complete as per direction of engineer incharge.					
	32 mm dia nominal bore (Wash basin to floor trap/floor drain)	Metre	70			
	40 mm dia nominal bore (Sink,Urinal to floor trap)	Metre	40			
	50 mm dia nominal bore (Floor Drain to Floor Trap)	Metre	50			
SUB TOTAL(SOIL, WASTE AND VENT PIPES)						

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
3.00	WATER SUPPLY					
3.01	Providing and fixing Chlorinated Polyvenyl 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 1.0 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 ciomplete as per direction of Engineer in charge					
	Internal work – Exposed on wall					
a)	15 mm nominal outer dia pipes (SDR-11)	Metre	50			
b)	20 mm nominal outer dia pipes (SDR-11)	Metre	200			
c)	25 mm nominal outer dia pipes (SDR-11)	Metre	150			
d)	32 mm nominal outer dia pipes (SDR-11)	Metre	100			
e)	40 mm nominal outer dia pipes (SDR-11)	Metre	70			
f)	50 mm nominal outer dia pipes (SDR-11)	Metre	25			
g)	62.5 mm nominal outer dia pipes (SDR-11)	Metre	15			
3.02	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge.					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	Concealed work including cutting chases and making good the walls etc.					
a)	15 mm nominal outer dia pipes (SDR-11)	Metre	250			
b)	20 mm nominal outer dia pipes (SDR-11)	Metre	125			
c)	25 mm nominal outer dia pipes (SDR-11)	Metre	50			
d)	32 mm nominal outer dia pipes (SDR-11)	Metre	30			
3.03	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings 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)	50 mm nominal outer dia pipes (SDR-11)	Metre	10			
b)	62.5 mm nominal outer dia pipes (SDR-11)	Metre	10			
3.04	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, including cutting and making good the walls etc.					
a)	80 mm dia nominal bore	Metre	150			
b)	100 mm dia nominal bore	Metre	10			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
3.05	Making connection of G.I. distribution branch with G.I. main of following sizes by providing and fixing tee, including, cutting and threading the pipe etc. complete including obtaining approval for connection from DJB/Municipal corporation :					
a)	50 to 80 mm nominal bore (SDR-11)	Each	1			
3.06	providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end)					
a)	25 mm nominal bore	Each	10			
b)	32 mm nominal bore	Each	12			
c)	40 mm nominal bore	Each	4			
d)	50 mm nominal bore	Each	2			
e)	65 mm nominal bore	Each	4			
g)	80 mm nominal bore	Each	4			
3.07	Providing and fixing ball valve (brass) of approved quality, High or low pressure with plastic floats complete					
a)	20mm	Each	2			
3.08	Providing and fixing brass ferrule with C.I. mouth cover including boring and tapping the main					
a)	25 mm nominal bore	Each	1			
3.09	Providing and fixing unplasticised PVC connection pipe with brass unions:					
a)	45 cm length					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
a i)	15 mm nominal bore	Each	170			
3.10	Providing and fixing C.P. brass shower rose with 15 or 20 mm inlet					
a)	150 mm diameter	Each	8			
3.11	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)	With F.P.s bricks	Each	2			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
3.12	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)	With F.P.s bricks	each	2			
3.13	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					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
a)	With F.P.s bricks	each	2			
3.14	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)	15 mm nominal outer dia pipes	Metre	50			
b)	20 mm nominal outer dia pipes	Metre	200			
c)	25 mm nominal outer dia pipes	Metre	150			
d)	32 mm nominal outer dia pipes	Metre	100			
e)	40 mm nominal outer dia pipes	Metre	70			
f)	50 mm nominal outer dia pipes	Metre	25			
g)	65 mm nominal outer dia pipes	Metre	15			
h)	80 mm nominal outer dia pipes	Metre	150			
3.15	Painting G.I. /CPVC pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality.					
a)	50 mm diameter pipe	Metre	10			
b)	65 mm diameter pipe	Metre	10			
3.16	Providing and filling sand of grading zone V or coarser grade all-round the G.I./CPVC pipes in external work					
a)	50 mm diameter pipe	Metre	10			
b)	65 mm diameter pipe	Metre	10			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
3.17	Providing and placing on terrace (at all floor levels) polyethylene water storage tank ISI:12701 marked with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank Treated water Tank and Untreated water tank	per litre	30000			
3.18	Providing and fixing C.P brass bib cock of approved quality.					
a)	15 mm nominal bore	Each	66			
3.19	Providing and fixing C.P. brass long nose bib cock of approved quality conforming to IS standards and weighing not less than 810 gms. (Marck, Jaquar, Jainco, Rybo)					
a)	15 mm nominal bore	Each	20			
3.20	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931.					
a)	15 mm nominal bore	Each	170			
3.21	Providing and fixing C.P. brass stop cock (concealed) of standard design and of approved make conforming to IS:8931.					
	15mm nominal bore.	Each	16.0			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
3.22	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)	80mm dia nominal bore	Each	1			
3.23	Providing and fixing PTMT ball cock of approved quality, colour and make complete with Epoxy coated aluminium rod with L.P./H.P.H.D. plastic ball.					
a)	40 mm nominal bore, 206 mm long weighin not less than 690 gms	Each	2			
b)	50 mm nominal bore, 242 mm long weighin not less than 1240 gms	Each	2			
3.24	Cutting holes upto 30x30 cm in walls including making good the same					
	with F.P.S bricks	Each	20			
3.25	Cutting holes up to 15x15 cm in R.C.C. floors and roofs for passing drain pipe etc. and repairing the hole after insertion of drain pipe etc. with cement concrete 1:2:4 (1 cement:2 coarse sand: 4 graded stone aggregate 20 mm nominal size) including finishing complete so as to make it leak proof	Each	20			
3.26	Extra for providing wash basin mixer pillar tap in place of normal pillar tap	Each	50			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
3.27	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.					
	15 mm diameter	Each	5			
	20 mm diameter	Each	10			
3.28	Providing and fixing mosquito proof coupling of approved Municipal design for scour and vent pipes for RCC overhead tanks complete in all respects					
	15 mm diameter	Each	2			
	20 mm diameter	Each	4			
	40 mm diameter	Each	2			
	50 mm diameter	Each	2			
3.29	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	100			
b)	32 mm to 50 mm diameter	Each	70			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
3.30	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 : 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	20			
3.31	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	20			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
3.32	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 (EURO brass, Jaquar, Marc)	Each	10			
3.33	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	15			
3.34	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	2			
b)	25 Litre Capacity	Each	15			
3.35	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	6			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
3.36	Providing and fixing approved make & suitable model of R.O. plant 40ltrs. Per hour flow rate having capacity to treat the raw water having TDS 1200 ppm and not less than 40%. The treated water should have TDS less than 100 ppm and hardness less than 50 ppm. The operating voltage to 230 volt AC +/- 10% alongwith required capacity pump and solenoid valves, dry run protection of pump, automatic tank level control, inbuilt auto flush timer for periodic flushing of membranes, hydro pneumatic tank, over voltage and over current protection with switch mode power supply system complete in all respects including installation and fittings with the following provisions: (IONIEXCHANGE/ KENT/AQUAPROCESS,Pantair/Fontus)					
a)	(online instrumentation & display for TDS ,online antiscaling dosing provision)					
b)	10 micron polypropylene sediment pre filter					
c)	10 micron bacteriostatic activated carbon block on line micron filter with 5 micron rating					
d)	3 Nos. of reverse osmosis memberane with 0.0001 micron pore size energy saving poly amide type					
e)	UV lamp of minimum capacity 40 LPM and minimum lamp wattage 9W	Each	6			
SUB TOTAL(Water Supply)						

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
4.00	SEWARAGE & DRAINAGE					
4.01	Providing laying and jointing glazed stoneware pipes grade 'A' with stiff mixture of cement mortar in the pro-portion of 1:1 (1 cement : 1 fine sand) including testing of joints etc. complete.					
a)	100 mm diameter	Metre	30			
4.02	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) all-round S.W. pipes including bed concrete as per standard design:					
a)	100 mm diameter S.W. pipe/RCC NP2	Metre	30			
b)	150 mm diameter S.W. pipe/RCC NP2	Metre	150			
4.03	Providing and laying cement concrete 1:5:10 (1 cement:5 coarse sand:10 graded stone aggregate 40 mm nominal size) up to haunches of S.W. pipes including bed concrete as per standard design:					
a)	150 mm diameter S.W. pipe	Metre	100			
b)	250 mm diameter s.W. pipe	Metre	50			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
4.04	Providing and fixing square-mouth S.W. gully trap grade 'A' complete with C.I. grating, brick masonry chamber with water tight C.I. cover with frame of 300x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design:.					
a)	150x100mm size P type					
a.i)	F.P.S. Bricks class designation 75	Each	15			
4.05	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement:2 fine sand) including testing of joints etc. complete					
a)	150 mm dia R.C.c. pipe	Metre	250			
b)	250 mm dia R.C.C. pipe	Metre	50			
4.06	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand), R.C.C. top slab with 1:2:4 mix (1cement : 2 coarse sand : 4graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 (1cement : 4 coarse sand : 8graded stone aggregate 40 mm nominal size), inside plastering 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, and making 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.					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
a)	Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg):					
a i)	With F.P.S. bricks with class designation 75	Each	10			
4.07	Extra depth for manholes					
a)	Size 90 x 80 cm					
a i)	With F.P.S. bricks class designation 75	Metre	2			
4.08	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:					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
a)	0.91 m deep with S.F.R.C. cover and frame (heavy duty, HD-20 grade designation) 560mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182kg., fixed in cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size) including centering shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately) :					
a i)	With F.P.S. bricks class designation 75	Each	6			
4.09	Extra depth for circular type manhole 0.91m dia (at bottom) with beyond 0.91m to 1.67 m					
a)	With F.P.S. bricks class designation 75	Metre	2			
4.10	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.					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
a)	1.68 m deep with SFRC cover and frame(heavy duty HD-20 grade designation) 560 mm internal diameter conforming to IS: 12592, total weight of cover and frame to be not less than 182 kg. fixed in cement concrete 1:2:4 (1 cement :2 coarse sand : 4 graded stone aggregate 20mm 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)	With F.P.S. bricks with class designation 75	Each	2			
4.11	Extra depth for circular type manhole 1.22 m internal dia (at bottom) with beyond 1.68 m to 2.29 m					
a)	With F.P.S. bricks with class designation 75	Metre	1			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
4.12	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	70			
4.13	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)	For pipes 100 to 230 mm dia	Each	1			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
4.14	Providing sand cast iron drop connection externally for 60 cm drop from branch sewer line to main sewer manhole including inspection and cleaning eye with chain and lid sand cast iron drop pipe and bend encased all-round with cement concrete 1 :5:1 0 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) with all centering and shuttering required, cutting holes in walls and making good with brick work in cement mortar 1:4 (1 cement: 4 coarse sand) plastered with cement mortar 1:3 (1 cement: 3 coarse sand) on, inside of the manhole wall lead caulked joints between sand cast iron pipes and fittings, stiff cement mortar 1:1 (1 cement: 1 fine sand) joints between sand cast iron tee and S.W. pipe, making required channels complete as per standard design and specifications:					
a)	150 mm dia. sand cast iron drop connection	Each	1			
	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: With F.P.S. bricks	Each	20			
4.16	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					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
a)	150 mm dia	Each	1			
4.17	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. 25cm drain 30cm average depth With F.P.S bricks	Metre	200			
4.19	Constructing grease trap 1.5x1.0x1.2m (inside) with one brick thick brick masonry wall with inlet and outlet drain with bricks of class designation 75 in cement mortar 1:4 (1 cement:4 fine sand) plastered 12mm thick with 1:4 (1 cement : 4 coarse sand) finished with a floating coat of neat cement on inside and exposed surfaces having baffled walls with 40mm flooring in cement concrete 1:2:4 (1 cement:2 coarse sand 4: graded stone aggregate 12.5 mm nominal size) with a floating coat of neat cement including all earth excavation, refilling and disposal of surplus earth complete as per standard design. With F.P.S bricks	Each	1			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
SUB TOTAL(SEWERAGE AND DRAINAGE)						

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
5.00	EARTH WORK					
5. 01	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)	All kinds of soil	cum	110			
5. 02	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m:					
a)	All kinds of soil					
a.ii)	Pipes, cables etc, not exceeding 80 mm dia but not exceeding 300 mm dia	metre	330			
5. 03	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m					
		cum	35			
SUB TOTAL(EARTH WORK)						

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
6.00	EXTERNAL WATER SUPPLY					
6. 01	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m.					
a)	All kinds of soil					
a.ii)	Pipes, cables etc, not exceeding 80 mm dia but not exceeding 300 mm dia	metre	350			
6.02	Providing and fixing G.I.pipes complete with G.I. fittings including trenching and refilling wrapping pipekot 4mm thick 500mm width tar based plymaric corrosion protection tape or equivalent suitable to GI/ MS pipe line including applying uniform coat of cold pipekot primer complete 1 m below the ground level, refilling in layers not exceeding 20 cm in depth consolidated each deposited layer by ramming & watering complete in all respect as pe IS : 1022 (Under ground) etc. (External work)					
a)	20 mm dia nominal bore	metre	50			
d)	100 mm dia nominal bore	metre	100			
6.03	Providing and fixing gun metal non-return valve of approved quality (screwed end)					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
a)	100 mm nominal bore					
a.i)	Horizontal	each	2			
b)	80 mm nominal bore					
b.i)	Horizontal	each	2			
6.04	Providing and fixing C.I. sluice valves (with cap) complete with bolts, nuts, rubber insertions etc. (the tail pieces if required will be paid separately):					
a)	100 mm diameter					
a.i)	Class I	each	4			
6.05	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)	With F.P.S. bricks	each	4			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
6.06	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)	With F.P.S.bricks	each	2			
6.07	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)	With F.P.S.bricks	each	2			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
6.08	Painting G.I./CPVC pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality					
a)	20 mm diameter pipe	metre	50			
d)	100 mm diameter pipe	metre	100			
6.09	Providing and filling sand of grading zone V or coarser grade all-round the G.I./CPVC pipes in external work					
a)	20 mm diameter pipe	metre	50			
b)	100 mm diameter pipe	metre	100			
6.10	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)	20 mm nominal bore	each	4			
b)	100 mm diameter pipe	metre	2			
6.11	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)	50 mm dia	each	1			
b)	80 mm dia	each	1			
6.12	Providing and laying D.I. specials of class k-12 suitable for push-on jointing as per IS:9523					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
a)	Upto 600 mm dia	quintal	10			
6.13	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					
b)	100 mm dia pipes	joint	150			
6.14	Providing and laying S&S Centrifugally Cast (Spun)/Ductile Iron pipes confirming to is:8329:					
a)	100 mm dia Ductile Iron Class k-7 pipes	metre	350			
6.15	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)	100 mm diameter C.I./D.I. pipe	100 metre	3.5			
6.16	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					
	80 mm diameter	metre	10			
	100 mm diameter	metre	25			
	150 mm diameter	metre	10			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
6.17	Providing and fixing puddle flanged including 60 cm long GI pipe piece welded/threaded with MS plates 450x450x6 mm thick with both end screwed/flanged.					
	For 80 mm dia pipe	Each	4			
	For 100 mm dia pipe	Each	6			
	For 150 mm dia pipe	Each	1			
6.18	Providing and fixing suitable G.I. vent pipe upto 1m high Class-B (medium quality) with fittings complete as per drawing and as directed.					
	100mm Dia	Each	4			
6.19	Providing and fixing double seal type D.I. Manhole cover of 560 mm clear internal diameter of over all heavy duty hinged type complete in all respects.	Each	8			
6.24	Providing and fixing garden hydrant of approved quality and make complete in all respect	each	10			
SUBTOTAL (EXTERNAL WATER SUPPLY)						

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
7	RAIN WATER PIPING					
7.03	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	70			
7.04	Providing and fixing rain water ,soil, waste and vent pipes.					
a)	100 mm dia.					
a i)	Centrifugally cast (spun) iron socketed pipe as per IS:3989	Metre	500			
c)	150 mm dia pipe as per IS:3989	Metre	400			
7.05	Providing and fixing M.S holder-bat clamps of approved design to Sand Cast iron/ cast iron (spun) pipe embedded in and including cement concrete blocks 10x10x10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including cost of cutting holes and making good the walls etc.					
a)	for 100 mm dia. pipe	Each	240			
c)	for 150 mm dia pipe	Each	180			
7.06	Providing and fixing plain bend of required degree.					
a)	100 mm					
a ii)	Sand cast iron S&S as per IS:3989	Each	40			
c)	150 mm	Each	30			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
7.07	Providing and fixing heel rest sanitary bend.					
a)	100 mm dia					
a.ii)	sand cast iron S&S as per IS-3989	Each	40			
c)	150 mm dia	Each	30			
7.08	Providing and fixing collar					
a)	100 mm					
a.ii)	Sand cast iron S&S as per IS-3989	Each	40			
c)	150 mm	Each	30			
7.09	Providing lead caulked joints to sand cast iron /centrifugally cast (spun) iron pipes and fittings of diameter:					
a)	100 mm	Each	200			
c)	150 mm	Each	150			
7.10	Painting sand cast iron / centrifugally cast (spun) iron soil, waste vent pipes and fittings with paint of any colour such as chocolate, grey, or buff etc. over a coat of primer (of approved quality) for new work:					
a)	100 mm diameter pipe	Metre	500			
c)	150 mm diameter pipe	Metre	400			
SUB TOTAL(Rain Water pipe & fitting)						

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
8.00	BOREWELL(2 No)					
8.01	Drilling by suitable rig as per IS : 2800-1979 (percussion or combination rig) or Reverse Rotary to suit sit condition from ground level in all kind of soils and weathered rock including boulders (excluding rock) diameter of bore 250mm including carry out hydrological survey report before boring & getting the approval based on Hydrogeological survey before start of the work.Also getting approval from local authority if any required.					
	0-30m	metre	30			
	30-60m	metre	30			
	60-90m	metre	30			
	90-120 m	metre	30			
8.04	Providing and lowering uPVC casing/housing pipe 200mm dia. with wall thickness 10 mm conforming to IS :12818 including sockets of standard design.	metre	70			
8.05	Providing & fixing uPVC screen/slotted pipe with 1.5 mm to 3mm (slots as per strata condition) including sockets of standard design as per IS: 12818/1992.					
	200 mm dia uPVC socketed pipe with wall thickness 10.0 mm	metre	40			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
8.06	Providing and fixing in position threaded iron cap with locking arrangement of approved design to prevent foreign matters getting into the bore-hole as required.	Each	1			
8.07	Providing and laying rounded pea gravel washed & served 3 to 6 mm nominal boreas per relevant ISI code.	Cum	15			
8.08	Providing and laying cement concrete 1:2:4 mix for sanitary sealing of well at top.	Cum	1			
8.09	Supplying, lowering and fixing in position reducer ,PVC bail plug with "U" hooks as per IS:2800-1964.	Each	1			
8.10	Development of Tubewell including testing of yield depression & quality of water (for all parameters of potable water), contractor to obtain certificate for quality for water from Competent Authority approved by client or Engineer- In Charge.					
	Development of Tube well by high capacity air compressor till the clear water discharge but not more than 100 hours.	per hour	80			
	Additional development of Tube well by high an over pumping unit till complete development of tube well does not clear by maximum 100 hours air compressor	per hour	50			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
8.11	Tranportation, mobilisation and demobilisation or drilling equipment and ancillary equipment to site including clearing and cleaning the site after completion of work.	set	1			
8.12	Providing and fixing brass full way valve with C.I. wheel of approved make, tested to a pressure of 21 kg/sqcm. 100 mm dia	Each	1			
8.13	Providing and fixing gunmetal non return valve of approved make tested to a pressure of 21kg/sqcm. 100 mm dia	Each	1			
8.14	Providing & fixing G.I. pipes (heavy class)confirming to IS with special fittings in external works including earthwork ,excavationin all kinds of soil including ordinary rock,refilling, painting pipes & fitting complete in all respects. 100 mm dia	Metre	100			
8.15	Providing & filling sand of grading zone V or coarser grade all around GI pipe in external work 100 mm dia	Metre	100			
8.16	Submersible pumps					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	Providing and installing submersible pump and electrical panel suitable for 8" dia casing of bore with SS impeller, high tensile SS shaft, copper wound squirrel cage wet type induction motor 2880 rpm, 415 V, 50 Hz, 3 phase A.C. supply, conforming to ISS: 8034-1976, capacity 500 litre per minute approximate or as per hydrogeological survey report at 70-120 m head along with a directly coupled submersible type squirrel cage electric induction 12.5 H.P or as per design requirement. motor suitable for operation on 400 V, 3 phase, 50 c.p.s. A.C. supply, water lubricated bearings and provided with pivoted segment type thrust bearings to withstand non-vertical lead with minimum wear and tear and duly fitted with device to take up the expansion of water with heating of motor, including supply, testing and commissioning of electrical panel from the same manufacturer, complete with all accessories in all respects. The contractor to obtain approval for model and make of equipment & suitable Electrical panel after having yield report					
	Insulated Cable end termination along with its accessories complete as required.					
	Supply and making straight through joint heat shrinkable type of size 4x4 sq.mm copper	set	1			
8.17	Carrying out Electrical logging of Borewell before lowering of pipe for analysiing of water quality including Electrical logging report, calculation etc.	Job	1			
SUBTOTAL (BOREWELL)						

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
9.00	RAIN WATER HARVESTING(4 NOS.)					
9.01	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 75 class brick in cement mortar 1:4, 200 mm foundation concrete in 1:4:8 mix below brick work only, 150 mm thick precast removable RCC top slab with required steel reinforcement in cement concrete 1:2:4 mix, filled with coarse aggregate, SFRC covers, river pebbles of requisite size stone as shown in the drawing including centering and shuttering, as shown complete as per detailed drawings complete.	Each	2			
9.02	Drilling as per IS : 2800-1964 (with percussion or combination rig) from ground level in all kind of soils including boulders (excluding rock) diameter of bore 450mm.					
	0-50m	Metre	40			
9.03	Extra for drilling in Ordinary Rock	Metre	10			
9.04	Extra for drilling in Hard Rock	Metre	10			
9.05	Providing and lowering of 200 mm dia uPVC blank/ slotted pipe with ribs, special fittings, jointing conforming to IS 12818 - 1992.	Metre	60			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
9.06	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	2			
SUBTOTAL (RAIN WATER HARVESTING)						

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
10	SOLAR WATER HEATING SYSTEM & RECIRCULATION OF HOT WATER SYSTEM (1 Nos)					
10.01	Supply, installation, testing and commissioning of solar water heating system, Thermosyphon type, all complete based on Flat plat collector system (Cu-Cu Type only) comprising of but not limited to the following:					
a)	Requisite number of Flat plate collectors of 2 sq. mtr. collector area. Collector absorber plate to be made of copper tubes & copper fins only					
b)	Hot water storage tank made of stainless steel 304- food grade quality with 100 mm Glass wool insulation and cladding with 24 SWG Aluminum sheet. One temperature measuring device and suitable inlet, outlet and drain connections on the storage tank to be provided. 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					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
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.					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
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 makeThe shop drawing of the systems shall be provided by the agency as per site condition obtain the proper efficiency The system shall be procured after obtaining the approval of shop drawings from HSCC / Engineer-in-charge.					
i)	Solar System of Capacity 1500 Litre/day (With minimum 12 nos of Collect) of 2.0 Sqm area	each	2			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
10.02	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 to1.5 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 standand etc. (but does not include the return piping & fitting)	each	1			
10.03	Providing and fixing Chlorinated Polyvenyl 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 1.0 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 ciomplete as per direction of Engineer in charge					
	Internal work – Exposed on wall					
a)	15 mm nominal outer dia pipes (SDR-11)	metre	20			
b)	20 mm nominal outer dia pipes (SDR-11)	metre	40			
c)	25 mm nominal outer dia pipes (SDR-11)	metre	50			
d)	32 mm nominal outer dia pipes (SDR-11)	metre	20			
e)	40 mm nominal outer dia pipes (SDR-11)	metre	20			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
10.04	Providing and fixing Chlorinated Polyvenyl 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 1.0 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.					
a)	15 mm nominal outer dia pipes (SDR-11)	metre	180			
b)	20 mm nominal outer dia pipes (SDR-11)	metre	50			
c)	25 mm nominal outer dia pipes (SDR-11)	metre	20			
10.05	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end):					
a)	25 mm nominal bore	each	6			
b)	32 mm nominal bore	each	4			
10.06	Providing & fixing 9 mm thick thermal insulation tubing of elastomeric flexible material having hermetic blistered closed cell structure of expanded synthetic rubber over pipes/ fitting as per manufacturer's specifications etc.complete.					
a)	15 mm dia to 25 mm dia	each	350			
b)	32 mm dia to 50 mm dia	each	60			
10.07	Providing and fixing gun metal ball valve of approved quality					
a)	15 mm nominal bore	each	6			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
b)	20 mm nominal bore	each	4			
SUBTOTAL(SOLAR WATER HEATING SYSTEM & RECIRCULATING SYSTEM)						

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
11.00	WATER TREATMENT PLANT					
11.01	WATER TREATMENT PLANT (/Domestic use)					
	Planning, Designing, Detailing, Manufacturing, Supplying, Erection, Testing and Commissioning of Water treatment plant for supply of treated water for use of domestic purpose comprising of filter and pumps. The plant is to be installed in pump room and Raw water supply is available in UGT including design and execution of all Civil, Structural, Electrical, Mechanical, Plumbing and processing, ancillary equipments & works etc required to complete the package, getting approval from HSCC/client etc.					
	The shop drawings & design of WTP shall also be prepared in such a way that it comprise of the following units of required size as per detail design requirements. The work has to be carried through authorised vendor, dealer/representative of approved make (Ion exchange, Pollucon technologies, AKAR Impex, Thermax, Aquaprocess, Fontus).					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
i)	Providing and fixing horizontal monobloc single/ multi-stage/online vertical raw water filter feed pumps with CI volute and SS impellar and with stainless steel shaft, mechanical seal and chrome steel shaft sleeve, connected to a TEFC induction motor suitable for 400/440 volts,1500 RPM, 3 phase 50 cycles A.C. supply having IP 55 protection enclosure. complete with base frame, vibration eliminating pads, nuts and bolts etc. (Necessary RCC foundations as per requirement and as per instructions shall be provided by the agency.) Raw water (filter) feed pumps. Capacity : 100 lpm (Each) Head 35 m Power : 2 HP or as required (1 working + 1 stand by) -1 set					
ii)	Providing and fixing C.I. "Y" Type suction strainer with stainless steel perforated sheet screen,flangfd ends iner installed outside water tanks. (Make: Leader / Zoloto / Kartar or equivalent) 100/80 mm dia (4 nos.) (min.) or required size and required number					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
iii)	Providing and fixing gun metal or bronze ball valves/butterfly valve/NRV/Rotameter, tested to 15.00 Kg / cm ² , screwed end connections complete . (Make: Leader/ Zoloto or equivalent) 80/65 mm NB (min.) or required size and number					
iv)	Filtration Plant : Vertical Downflow Multigrade Pressure Sand Filter in MS Welded construction fabricated in accordance with IS 2825 from minimum 6 mm thick M.S. plate on shell and minimum 8 mm thick M.S. plate on dished ends as per applicable IS standards. The filter shall have :					
	a) One no pressure tight manhole and at least one no. pressure tight side hole for maintenance purposes.					
	b) Initial charge of Filter Media.					
	c) Complete underdrain system and raw water distributor as per manufacturer's design.					
	d) M.S. heavy class fabricated - epoxy coated / post galvanised face piping comprising of connections with CI Butterfly Valves of required size for inlet, outlet, backwash inlet, backwash drain and rinse drain. Air release line with GM Ball Valve of required size.					
	e) Pressure gauges (100 mm dia bourdon type pressure gauge) / Sampling points with SS isolation cocks at inlet and outlet.					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	f) All internal parts of the filtration plant shall be coated with two coats of food grade epoxy paint after thorough sand blasting. All external surfaces of the plant including piping shall be coated with two coats of red iron oxide / zinc chromate primer followed by two coats of high gloss enamel paint.					
	g) The filter shall be complete with all gaskets / fasteners of standard quality as required.					
	h) The filter shall be designed to give rated output at given raw water quality and flow rate without any operational problem and should not get any loss of performance as long as the operating pressure remains within the given range. Any additional provision is required to make the item complete, the same should be included herein. The work has to be carried through authorised vendor, dealer/representative of approved make (Ion exchange, Pollucon technologies, AKAR Impex, Thermax, Aquaprocess, Fontus). The filter water will be supplied to treated water tank through U.V. water steriliser Capacity - 300lpm					
	Filtration rate - 20,000 lph/sqm (min.)					
	Filter dia approx. 1200 mm (min.)					
	Filter HOS Min. : 1200 mm (min.)					
	Working pressure : 3.0 Kg/sq cm.					
	Test pressure : 4.5 Kg/sq cm					
	No. of Filters : One Set					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
v)	UV WATER STERILISERS					
	High performance on line UV water sterilisers of capacity 18000 lph designed on at least 250 J/Sq. M. UV dosage, comprising of glass UV chamber in SS 316 housing, UV lamp and electrical circuit, wall mounted model / line mounted model, capacity 250lpm, minimum lamp rating :120 watts - 2 Nos.					
vi)	Providing and fixing G.I.pipes/CPVC pipes to I.S. 3589/1239 (Heavy class) with G.I./CPVC Fittings e.g., Tee, elbow reducers, unions, end cap etc., flanges & clamps, including supporting the pipes with G.I. supports, cutting and making good the walls etc. complete. For Suction & Delivery headers.					
	65 mm dia (min.) (Interconnection between units)/ Drain lines etc. as per plant room requirement. (All piping and fitting of required size inside the plant room included in the item)					
vii)	Painting G.I./CPVC pipes with two or more coats of synthetic enamel paint of approved quality and shade over a coat of approved priming coat as directed by the Project-in-charge (shade as per pipe colour code).					
	50 mm dia (min.) (as per required length)					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	Complete W.T.P as mentioned above including testing, training and trial run till comissioning of W.T.P.	Job	1			
11.02	STRUCTURAL STEEL WORK					
i)	Supply, fabrication, erection, painting of pipe supports of structural steel, for piping work in the production areas and anchoring them. 2 coats of zinc chromate primer and one coat of finishing paint	Kgs.	100			
11.03	Supplying, assembly, erection, testing and commissioning of level controllers based on level switches and necessary auxillary circuits included in the electric panel ,,including all accessories required for the performance of the system to the satisfaction of the engineer in charge complete including providing and fixing wiring from control panel to the level switches of required size,all interconnections as required . Note : The required transformers / associated equipment shall be designed keeping in view the acrual distance of various tanks from the control panel, particularly the distance of OH soft water tank from panel. The most suitable route of sensor cable travel between the panel and the tank shall have to be worked out by the contractor according to site conditions and in consultation with engineer in charge. All cabling / switch installation should be done in an easy to maintain manner.					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
i)	One way one tank level controller as under. To switch on the tube well pump when the level of water in the UG raw water tank is low and to cut off the pump when the level in the underground raw water tank is high. (Approx. control cable requirement - 200 meters.)	Set	1			
iii)	Two way - Two tank level controller as under. For Filter Feed Pumps for domestic water.(Operating between the Under ground Raw water tank and the under ground treated water tank near the plant room. (Approx. control cable requirement - 50 meters.)	Set	1			
iii)	For Filter Feed Pumps for Soft water.(Operating between the Under Ground Raw water tank and the under ground soft water tank near the plant room. (Approx. control cable requirement - 50 meters.)	Set	1			
iv)	For Treated water supply Pumps(Operating between the under ground treated water tank near the plant room and the Terrace treated water tank . (Approx. control cable requirement - 125 meters.)	Set	1			
v)	For Raw water supply Pumps(Operating between the under ground Raw water tank near the plant room and the Terrace Raw water tank . (Approx. control cable requirement - 125 meters.)	Set	1			
vi)	For soft water supply Pumps(Operating between the under ground soft water tank near the plant room and the Terrace soft water tank .(Approx. control cable requirement - 125 meters.)	Set	1			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
11.04	Providing and fixing gun metal foot valve with stainer of approved quality/model complete in all respect					
	80 mm dia	each	2			
	100 mm dia	each	2			
	150 mm dia	each	2			
11.05	Supplying, installing, testing and commissioning horizontal monobloc /online vertical centrifugal pumping set with mechanical seal, C.I. volute and SS impeller & SS shaft connected to a TEFC induction motor of suitable HP for 415 volts, 3 phase, 50 cycles A.C. supply with 150 mm dia pressure gauge with gunmetal isolation cock, vibration eliminating pads, base plate wiring upto panel and equipment for water level controller to start and stop the pump automatically at predecided levels of the water in the tank with provision of protection for dry run etc. complete in all respect (The shop drawing or the pumps along with its characteristics curves, model and technical data etc. are to be submitted for approval before purchase of pump).					
	Domestic water pumps (Treated water transfer&Raw water Transfer pump to terrace tank)					
	Capacity 100 lpm					
	Head 35 M	Each	4			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
11.06	Supply, installing, testing and commissioning vertical fully floodable type submersible drainage pump in close coupled design single stage, suitable for handling minimum 12 mm dia solids for trans ferring waste water from sump to outside the building with float switch for automatic start and stop arrangement with panel and wiring, chain and pulley, mechanical seal complete in all respect as per instruction of the Engineer in charge (One additional stand by pump to be kept in the store). (The shop drawing or the pumps along with its characteristics curves, model and technical data etc. are to be submitted for approval before purchase of pump).					
	Material of Construction (M.O.C): Corrosion Resistant in general					
	: Casing — Cast Iron					
	: Impeller — Stainless Steel					
	: Shaft — Stainless Steel					
	: Bearings — Anti friction, prelubricated ball bearings, packed with grease for life.					
	Motor: — Dry Motor with built in over load protection					
	Protection - IP68.					
	Insulation Class - F					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	Duty of each pump 150 LPM against 08 M head (for Pump Room & Basement)	each	6			
11.07	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(up to 5 lac ltr tank)	set	1			
11.08	SOFT WATER TREATMENT PLANT (1 Nos) WATER TREATMENT PLANT (Soft water) Planning, Designing, Detailing, Manufacturing, Supplying, Erection, Testing and Commissioning of Water treatment plant for supply of treated water for use in Air conditioning and filter water for domestic purpose comprising of filter and pumps. The plant is to be installed in pump room at basement level and Raw water supply is available in UGT including design and execution of all Civil, Structural, Electrical, Mechanical, Plumbing and processing, ancillary equipments & works etc required to complete the package, getting approval from HSCC/client etc.					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	The shop drawings & design of WTP shall also be prepared in such a way that it comprise of the following units of required size as per detail design requirements. The work has to be carried through authorised vendor, dealer/representative of approved make (Ion exchange, Pollucon technologies, AKAR Impex,Thermax, Aquaprocess, Fontus).					
	Providing and fixing horizontal monobloc single/ multi-stage/online vertical raw water filter feed pumps with CI volute and SS impellar and with stainless steel shaft, mechanical seal and chrome steel shaft sleeve, connected to a TEFC induction motor suitable for 400/440 volts, 1500 RPM,3 phase 50 cycles A.C. supply having IP 55 protection enclosure. complete with base frame, vibration eliminating pads, nuts and bolts etc. (Necessary RCC foundations as per requirement and as per instructions shall be provided by the agency.)					
	Raw water (filter) feed pumps.(Filter before softner)					
	Capacity : 250LPM					
	Head 35 m					
	Power : 4 HP or as required					
	(1 working + 1 stand by) -1 sets					
	Soft water Supply Pumps					
	Capacity :250 LPM					
	Head 35 m					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	Power : 4 HP or as required (1 working + 1 stand by) -1 sets					
	Providing and fixing GI/CPVC epoxy coated pipe & fittings and specials for suction and discharge side of pumps as required to connect Suction strainers and isolation butterfly valves on suction side and isolation valves and NRVs on discharge size , and to make a common discharge header from 2 pumps. Individual pump suction and discharge size minimum : 50 mm x 40 mm. The pumps shall have 80 mm NB butterfly valves and 80 mm NB flanged Y type strainers on suction side and common discharge header size : 50 mm NB including required numbers of matching flange, bolts, nuts, rubber gaskets, all complete as required / as per drawings or specifications. (complete lot)					
	Providing and fixing C.I. "Y" Type suction strainer with stainless steel perforated sheet screen, flanged ends iner installed outside water tanks. (Make: Leader / Zoloto / Kartar or equivalent) 80 mm dia (4 nos.) (min.) or required size and required number					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	Providing and fixing G / M or bronze ball valves/butterfly valve/NRV/Rotameter, tested to 15.00 Kg / cm ² , screwed end connections complete . (Make: Leader/ Zoloto or equivalent)					
	50/40 mm NB (min.) or required size and number					
	Filtration Plant : Vertical Downflow Multigrade Pressure Sand Filter in MS Welded construction fabricated in accordance with IS 2825 from minimum 6 mm thick M.S. plate on shell and minimum 8 mm thick M.S. plate on dished ends as per applicable IS standards. The filter shall have :					
	a) One no pressure tight manhole and at least one no. pressure tight side hole for maintenance purposes.					
	b) Initial charge of Filter Media.					
	c) Complete underdrain system and raw water distributor as per manufacturer's design.					
	d) M.S. heavy class fabricated - epoxy coated / post galvanised face piping comprising of connections with CI Butterfly Valves of required size for inlet, outlet, backwash inlet, backwash drain and rinse drain. Air release line with GM Ball Valve of required size.					
	e) Pressure gauges (100 mm dia bourdon type pressure gauge) / Sampling points with SS isolation cocks at inlet and outlet.					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	f) All internal parts of the filtration plant shall be coated with 6 mm thick natural rubber lining after thorough sand blasting. All external surfaces of the plant including piping shall be coated with two coats of epoxy paint and primer .					
	g) The filter shall be complete with all gaskets / fasteners of standard quality as required.					
	h) The filter shall be designed to give rated output at given raw water quality and flow rate without any operational problem and should not get any loss of performance as long as the operating pressure remains within the given range. Any additional provision is required to make the item complete, the same should be included herein. The work has to be carried through authorised vendor, dealer/representative of approved make (Ion exchange, Pollucon technologies, AKAR Impex, Thermax, Aquaprocess, Fontus). The filter water will be supplied to soft water tank through Softner.					
	Capacity - 250 LPM					
	Filtration rate - 20,000 lph/sqm (min.)					
	Filter dia approx. 1000 mm (min.)					
	Filter HOS Min. : 1500 mm (min.)					
	Working pressure : 3.0 Kg/sq cm.					
	Test pressure : 4.5 Kg/sq cm					
	No. of Filters :One Set working					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	Providing and fixing, testing and commissioning M.S. Vertical Upflow "Cation" Ion Exchange water Softener fabricated in accordance with IS 2825 from minimum 6 mm thick M.S. plate on shell and minimum 8mm thick M.S. plate on dished ends as per applicable IS standards. The vessel shall be internally lined with 3.00 mm thick rubber, tested to 60 - 80 shore hardness, 15000 RMS volts spark test for continuity. The softener shall have :					
	a) Strainer plates at top and bottom with P.P. strainers with removable nuts and check nuts fixed on the plates.					
	b) GI/CPVC heavy class fabricated internally rubber lined face piping comprising of connections with CI Diaphragm Valves of required size for inlet, outlet, and rinse drain etc.					
	c) Regeneration assembly comprising of power valve, ejector, brine suction valve, and all necessary piping incorporated into the main pipework.					
	d) Pressure gauges (100 mm dia bourdon type pressure gauge) / Sampling points with SS isolation cocks at inlet and outlet.					
	f) All internal parts of the softener plant shall be coated 6 mm thick natural rubber lining after thorough sand blasting. All external surfaces of the plant including piping shall be coated with epoxy primer followed by two coats of high gloss epoxy paint .					
	f) The softener shall be complete with all gaskets / fasteners of standard quality as required.					
	g) Initial charge of Ion Exchange resin.					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	h) The softener shall be designed to give rated output at given raw water quality and flow rate without any operational problem and should not get any loss of performance as long as the operating pressure remains within the given range. Any additional provision is required to make the item complete, the same should be included herein.					
	i) M.S. rubber lined vertical, cylindrical self supporting open tank for salt mixing and brine saturation with air agitation arrangement comprising of G. I. heavy class air distributor laid at the bottom of tank, roots type air blower complete in all respects of suitable capacity to agitate the required quantity of brine, piping interconnection between air blower and air distributor. The brine tank to have nozzles for outlet, overflow and drain. Outside finished with high gloss enamel paint over two coats of zinc chromate primer complete including testing and commissioning. Net usable capacity of the tank excluding free board etc., should be at least 10 % more than actual capacity required.					
	Capacity of softening plant : 250 LPM					
	Raw Hardness : 700-1400 mg/l.					
	Regeneration period 8 hrs.					
	Quantity of soft water between two regenerations = 180000 lit					
	Approximate Dia = 1000 mm, HOS 2600 mm (min.) or as required					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	Type of Resin : Strongly acidic cation resin					
	Make of Resin : Ion Exchange / Rohm & Haas					
	Min. qty. of resin : 1000 Ltrs.					
	Operating pressure : 3.0 kg/sqcm					
	Test pressure : 5.50 kg/sqcm (Set-1)					
	No. of Softner- 1 no.					
	Providing and fixing G.I.pipes/CPVC pipes to I.S. 3589/1239 (Heavy class) with G.I./CPVC Fittings e.g., Tee, elbow reducers, unions, end cap etc., flanges & clamps, including supporting the pipes with G.I. supports, cutting and making good the walls etc. complete. For Suction & Delivery headers.					
	50 mm dia (min.) (Interconnection between units)/ Drain lines etc. as per plant room requirement. (All piping and fitting of required size inside the plant room included in the item)					
	Painting G.I./CPVC pipes with two or more coats of synthetic enamel paint of approved quality and shade over a coat of approved priming coat as directed by the Project-in-charge (shade as per pipe colour code).					
	50 mm dia (min.) (as per required length)					
	Complete W.T.P/softner as mentioned above including testing, training and trial run till comissioning of W.T.P. (Soft water/domestic use)	set	1			

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	Subtotal (Water treatment Plant)					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
12.00	WATER SUPPLY PUMP PANEL (SSB KMC)					
	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 including RS 485 modbus communication Port for BMS as per technical specification ,as required.					
	INCOMER :					
	200 Amp 415 volts, 35 KA (Isc), 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 have spreader links & phase barriers.					
	1 Set of phase indicating lamp with 2A SP control MCBs					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	1 No 0-200 A ampere meter with ASS & CT					
	1 No. 0-500 V volt meter with VSS & HRC fuse.					
	1 set of 200/5A CTs					
	BUSBARS :					
	300 Amp TPN busbars of aluminium					
	OUTGOINGS :					
	2 Sets of following (For Submersible Pump)					
	1 No. 63 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 15 HP with thermal overload relay, Timer, Push Buttons and Auto-manual selector switch etc complete as required.					
	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" and "TRIP" indication with 2A SP control MCBs.					
	2 Set of following (For Treated Water Transfer Pump)					
	1 No. 63 Amp. 415/500 volts, three Pole, MCCB					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	1 No. 3 Phase, fully automatic star-delta starter of 10 HP with thermal overload relay, Timer, Push Buttons and Auto-manual selector switch etc complete as required. 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" and "TRIP" indication with 2A SP control MCBs.					
	2 Set of following (For Raw Water Transfer Pump)					
	1 No. 63 Amp. 415/500 volts, three Pole, MCCB 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 10 HP with thermal overload relay, Timer, Push Buttons and Auto-manual selector switch etc complete as required. 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" and "TRIP" indication with 2A SP control MCBs.					
	2 Set of following (For Soft Water Transfer Pump)					
	1 No. 63 Amp. 415/500 volts, three Pole, MCCB Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	1 No. 3 Phase, fully automatic star-delta starter of 10 HP with thermal overload relay, Timer, Push Buttons and Auto-manual selector switch etc complete as required.					
	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" and "TRIP" indication with 2A SP control MCBs.					
	4 Set of following (For Filter Feed Pump)					
	1 No. 40 Amp. 415/500 volts, three Pole, MCCB					
	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 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" and "TRIP" indication with 2A SP control MCBs.					
	6 Set of following (For Drainage Pump)					
	1 No. 16 Amp. 415/500 volts, three Pole, MCCB					

Name of Work: Construction of Cancer Center, Bhatinda Punjab (PHE Works)						
Bill of Quantities						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in Figures (Rs)	Rate in Words(Rs)	Amount(Rs)
	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. 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" and "TRIP" indication with 2A SP control MCBs.					
	ESDB-WATER SUPPLY PUMP Panel as mentioned above	Set	1			
	Sub Total Water Supply Electrical Panel					

Name of Work:Construction of Cancer Center, Bhatinda Punjab (PHE Works)

S.No.		Amount (Rs)
A	INTERNAL PLUMBING ,	
1. 00	SANITARY FIXTURES	
2. 00	SOIL, WASTE AND VENT PIPES	
3. 00	WATER SUPPLY	
4. 00	SEWERAGE AND DRAINAGE	
5. 00	EARTH WORK	
B	EXTERNAL PLUMBING ,	
6.00	EXTERNAL WATER SUPPLY	
7.00	RAIN WATER PIPING	
8.00	BOREWELL	
9.00	RAIN WATER HARVESTING	
10.00	SOLAR WATER HEATING SYSTEM & RECIRCULATING SYSTEM	
11.00	WATER TREATMENT PLANT	
12.00	WATER SUPPLY ELECTRICAL PANEL	
	TOTAL	

PROJECT NAME: Cancer Center Bhatinda Punjab
Name of Works: Bill of Quantities of Fire Fighting Works

Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (Rs)
1.00	FIRE FIGHTING SYSTEM					
1.01	Providing and laying Double flanged (Screwed/Welded) centrifugally (spun) Ductile iron pipes of class K-9 conforming to IS: 8329					
1.01.1	150 mm dia Ductile Iron Double Flanged	Metre	400.0			
1.02	Providing & Laying D.I. Specials of class K-12 suitable for double flanged jointing/ mechanical jointing as per IS:9523					
1.02.1	Upto 600 mm dia	quintal	17.0			
1.03	Providing flangrd joints to double flanged C.I./D.I. pipes and specials including testing of joints .					
1.03.1	150 mm dia pipes	joints	130.0			
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 including 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	400.0			

PROJECT NAME: Cancer Center Bhatinda Punjab

Name of Works: Bill of Quantities of Fire Fighting Works

Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (Rs)
1.05	Providing, fixing jointing and testing of Heavy (class - C) G.I. pipes as per relevant IS :1239/4736 with special accessories like tees, elbow, gasket, flanges, flanged joints, rubber insertion nuts and bolts including earth work excavating and trenching, wrapping pipekot 4mm thick 500mm width tar based polymeric corrosion protection tape or equivalent suitable to GI/ MS pipe line including applying uniform coat of cold pipekot primer complete 1 m below the ground level, refilling in layers not exceeding 20 cm in depth consolidated each deposited layer by ramming & watering complete in all respect as per IS : 1022 (Under ground)					
a)	150 mm dia G.I. Pipe with flange joints (5.4 mm wall thickness)	Metre	10.0			
b)	80 mm dia G.I. Pipe with flange joints	Metre	10.0			

PROJECT NAME: Cancer Center Bhatinda Punjab
Name of Works: Bill of Quantities of Fire Fighting Works

Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (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. (All the fitting i.e. tee /elbow, Valve shall be joint the pumps will flanged joints)					
a)	200 mm dia (with Flanged joints)	Metre	20.0			
b)	150 mm dia (with Flanged joints)	Metre	450.0			
c)	100 mm dia (with Flanged joints)	Metre	150.0			
d)	80 mm dia	Metre	100.0			
e)	65 mm dia	Metre	60.0			
f)	50 mm dia	Metre	50.0			
g)	40 mm dia	Metre	80.0			
h)	32 mm dia	Metre	150.0			
i)	25 mm dia	Metre	3600.0			
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	18.0			

PROJECT NAME: Cancer Center Bhatinda Punjab						
Name of Works: Bill of Quantities of Fire Fighting Works						
Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (Rs)
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	20.0			
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	16.0			
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	18.0			
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	1.0			

PROJECT NAME: Cancer Center Bhatinda Punjab						
Name of Works: Bill of Quantities of Fire Fighting Works						
Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (Rs)
1.12	Providing and fixing Set of "Siamese" quadruplet instantaneous fire brigade connections comprising of two gunmetal instantaneous male inlet coupling 63mm dia with plug and cap, chain bends, tees etc for inlet to the static tank.	Each	1.0			
1.13	Providing & Fixing 150 mm dia, 4 way suction coupling for firebrigade withdrawal of water from the fire tank	Each	1.0			
1.14	Providing and fixing glazed door shutter and frame for Fire hose cabinet with hold fasts (frame fabricated from 40 x 40 x 5mm and shutter from angle) 2100 mm high x 1200 mm wide 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	10.0			

PROJECT NAME: Cancer Center Bhatinda Punjab						
Name of Works: Bill of Quantities of Fire Fighting Works						
Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (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	8.0			
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	20.0			
b)	80 mm dia	Each	2.0			
1.17	Supplying, testing, installation & commissioning of pressure switches for pumps including necessary wiring upto the control panel.	Each	10.0			

PROJECT NAME: Cancer Center Bhatinda Punjab

Name of Works: Bill of Quantities of Fire Fighting Works

Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (Rs)
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	3.0			
1.19	Supplying and Fixing First Aid Hose Reel , 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	10.0			

PROJECT NAME: Cancer Center Bhatinda Punjab
Name of Works: Bill of Quantities of Fire Fighting Works

Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (Rs)
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	2.0			
b)	150 mm dia	Each	3.0			
1.1	Supply, Installation, Testing and Commissioning of 100 mm dia Bourden type, Stainless Steel dial type Pressure Gauge including brass isolation valve and siphon pipe having caliberation of 0 - 16 Kg / cm ² .	Each	15.0			
1.22	Supplying and Fixing of Fire Man's axe with heavy insulated rubber as per standard conforming to IS 926	Each	10.0			
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	10.0			

PROJECT NAME: Cancer Center Bhatinda Punjab						
Name of Works: Bill of Quantities of Fire Fighting Works						
Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (Rs)
1.24	Providing, Fixing, Testing and Commissioning of Sprinkler Installation Control Valve of Cast iron body and brass / bronze working parts comprising of water motor, alarm, bronze seat clapper and clapper arm, hydraulically driven mechanical gong bell to sound continuous alarm when the Sprinkler system activates, pressure gauges, emergency releases, strainer, pressure switch, cock valve complete with drain valve and bypass, test control box, ball valves, MS pipe of required size, flanges, orifice plate, gasket etc. of size 200/150 mm dia, as required.	Each	1.0			
1.25	Providing and Fixing 15 mm dia gunmetal / brass quartzoid type Sprinkler Head with quartz bulb and set to operate at specified temperature.					
a)	Pendent / Upright type, 68 C, Chrome plated	Each	1150.0			
b)	Side wall extended throw 20 mm dia 68 C, Chrome plated	Each	200.0			
1.26	Fabricating, Supplying, Installation, Testing and Commissioning Air Vessel of continuous welded construction with flanged discharge header on the top of each riser fabricated out of 10 mm thick dished ends and 8 mm thick MS sheet, Air Release Valve complete with suitable drain arrangement with 25 mm dia gun metal wheel valve complete with all accessories etc. as required of the following sizes					

PROJECT NAME: Cancer Center Bhatinda Punjab

Name of Works: Bill of Quantities of Fire Fighting Works

Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (Rs)
a)	1.2 Metre high and 250 mm dia	Each	2.0			
1.27	Supply, Installation, Testing and Commissioning External Yard Hydrant Stand Post comprising of GI pipe 80 mm dia (heavy duty C class) from existing ringmain to about 1 meter above ground level and Single Headed Yard Hydrant Valve with 80 mm dia flanged inlet, instantaneous gunmetal coupling of 63 mm dia with cast iron wheel ISI marked, conforming to IS : 5290 (Type A), with ABS cap and chain etc.complete with all accessories as required.	Each	10.0			
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	10000.0			
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	15.0			

PROJECT NAME: Cancer Center Bhatinda Punjab						
Name of Works: Bill of Quantities of Fire Fighting Works						
Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (Rs)
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.					
a)	4.5kg capacity cylinder	Each	10.0			
1.31	Providing and fixing 9 liters capacity fire extinguisher water type gas pressure conforming to IS marking, fixed to wall.	Each	10.0			
1.32	Providing and fixing ABC type fire extinguishers complete in all respects.					
a)	Capacity 5.0 Kg.	Each	10.0			
1.33	Fabricating, Supplying, Installation, Testing and Commissioning Air Vessel 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					

PROJECT NAME: Cancer Center Bhatinda Punjab						
Name of Works: Bill of Quantities of Fire Fighting Works						
Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (Rs)
a)	2 Metre high and 450 mm dia suitable to operate Jockey Pump, Main Fire Pump & Diesel Engine Driven Fire Pump	Each	1.0			
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	4.0			
b)	80 mm dia	Each	1.0			
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) (For Hydrant system & Sprinkler system).					
a)	Fire pump with stainless steel impeller, CI casing, SS shaft & mechanical seal 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 out let 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.					

PROJECT NAME: Cancer Center Bhatinda Punjab

Name of Works: Bill of Quantities of Fire Fighting Works

Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (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 1620 LPM and Head 50 Metres	Set	1.0			
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.) (For Hydrant system & Sprinkler system).					

PROJECT NAME: Cancer Center Bhatinda Punjab						
Name of Works: Bill of Quantities of Fire Fighting Works						
Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (Rs)
a)	Horizontal centrifugal type multi-stage, fire pump with stainless steel impeller CI casing, SS shaft & mechanical seal 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.					
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.					

PROJECT NAME: Cancer Center Bhatinda Punjab

Name of Works: Bill of Quantities of Fire Fighting Works

Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (Rs)
e)	Isolation Valve					
f)	Suitable cement concrete pump foundation & vibration damping arrangement with cushy foot mounting as required.					
l)	Capacity 1620 LPM and Head 50 Metres	Set	1.0			
1.37	Supplying, installation, testing and periodic commissioning of electric motor driven automatic pressurization pump set consisting of the following (as per specification) (For Hydrant system & Sprinkler system).					
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 stainless steel 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 .					

PROJECT NAME: Cancer Center Bhatinda Punjab						
Name of Works: Bill of Quantities of Fire Fighting Works						
Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (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 7.5 HP,1500 RPM, for the above pump with flexible coupling as per specification and conforming to IS: 325/ 1978 and shall be TEFC type only.					
c)	Common 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 - 50 Metres	set	1.0			
1.37	Supplying, installation, testing and periodic commissioning of electric motor driven automatic pressurization pump set consisting of the following (as per specification) (For Terrace fire Pump)					
a)	Centrifugal pump of 450 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 stainless steel 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 .					

PROJECT NAME: Cancer Center Bhatinda Punjab

Name of Works: Bill of Quantities of Fire Fighting Works

Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (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 7.5 HP,1500 RPM, for the above pump with flexible coupling as per specification and conforming to IS: 325/ 1978 and shall be TEFC type only.					
c)	Common 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 - 30 Metres	set	1.0			
1. 38	Providing & fixing puddle flanged including 60 cm long GI pipe piece welded / threaded with MS plates 450x450x6mm thick with both end screwed / flanged					
a)	For 80 mm dia pipe	Each	2.0			
b)	for 150 mm dia pipe	Each	2.0			
c)	for 200 mm dia pipe	Each	2.0			

PROJECT NAME: Cancer Center Bhatinda Punjab						
Name of Works: Bill of Quantities of Fire Fighting Works						
Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (Rs)
B	Fire Fighting works(Electical)					
1.39	FIRE PANEL Emergency					
	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.					
	INCOMER :					
	320 Amp 415 volts, 35 KA (Isc), FP MCCB with thermal magnetic release having variable current settings of 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 interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 no. 0 to 500 V Digital voltmeter with selectot switch					
	1 to 0 to 320 Amps Digital ammeter with selector switch with one set of 320/5A C.T. s					
	BUSBARS :					

PROJECT NAME: Cancer Center Bhatinda Punjab						
Name of Works: Bill of Quantities of Fire Fighting Works						
Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (Rs)
	400 Amp TPN busbars of aluminium					
	OUTGOINGS :					
	1 Sets of following					
	1 No. 200 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 60 HP with thermal overload relay, Timer, Push Buttons and Auto-manual selector switch etc complete as required.					
	Single Phase preventer					
	1 to 0 to 200 Amps Digital ammeter with selector switch with one set of 200/5A CT,s.					
	1 Set of phase indicating lamp with 2A SP control MCBs					
	Neon indicating Lamps for "ON" , "OFF" & "TRIP" indication with 2A SP control MCBs.					
	1 Sets of following					
	1 No. 32 Amp. 415/500 volts,25 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.					

PROJECT NAME: Cancer Center Bhatinda Punjab						
Name of Works: Bill of Quantities of Fire Fighting Works						
Item No	Description Of Item	Unit	Qty.	Rate in Figures (Rs)	Rate in words (Rs)	Amount (Rs)
	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 Set of phase indicating lamp with 2A SP control MCBs					
	Neon indicating Lamps for "ON" , "OFF" & "TRIP" indication with 2A SP control MCBs.					
	1 Set of following (in a separate cubicle)					
	One no. Diesel engine auto starting kit with all necessary relay, controls, wiring etc to start 60 HP diesel engine when electrical driven fire pump fail to start.					
	One no rectifier circuit, battery charger, batteries, DC Voltmeter, DC Ammeter etc.					
	FIRE PUMP Panel as mentioned above	Set	1.00			
	Total of Fire Fighting works(Electical)					
	Sub Total					

	PROJECT NAME: Cancer Center Bhatinda Punjab		
ABSTRACT OF COST			
S.No	DESCRIPTION OF WORK		AMOUNT(Rs)
1	FIRE FIGHTING		0.00
	Sub Total(Fire Fighting work)		0.00

BILL OF QUANTITIES FOR THE ELECTRICAL WORKS OF CANCER INSTITUTE, BHATINDA.

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	SUBHEAD 1: H.T. SUB STATION					
1.00	SUBSTATION EQUIPMENTS					
1.01	HT Panel, (Main)					
	Supply, erection, testing and commissioning of 5 panel, 630A ,11 kV, 3 Phase, 50 Hz., metal clad, dead front, 350 MVA rupturing capacity Vacuum Circuit Breaker Incoming & Outgoings as per the detailed specifications and drawings including connections etc. complete with following in-comers and out-goings including door interlocking panel should be expendable type complete as per technical specifications and as required.					
A.	INCOMER :					
i)	2 No. VCB having following					
	1 No. 630A, 11kV, 3 Phase, 50Hz., metal clad, dead front, 350 MVA rupturing capacity, Fully Drawout type, Vacuum Circuit Breaker (VCB)					
	1 set of 11kV/110V Potential Transformers with HRC fuses					
	1 Set of Phase indicating lamps with HRC fuses					
	1 No. 0-15 kV Digital voltmeter with selector switch					
	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 200/5-5A Current Transformer for metering and protection					
	1 No. 0-200 digital Amps ammeter with selector switch					
	1 Set of CDG 61 (2 No. O/C, 1 No. E/F) relay					
	Digital frequency meter,Digital Tri vector meter.					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	1 Set of undervoltage relay and Overvoltage relay					
	Trip circuit supervision relay,Auxiliary relays with shunt trip coil					
	1 No. Master Trip relay					
	1 No. Digital Power factor meter					
	BUSBARS :					
	11kV, 350 MVA, 630 Amps Three Phase busbars of copper					
B.	OUTGOINGS :					
	2 No. VCB each having following					
	1 No. 630A, 11kV, 3 Phase, 50Hz., metal clad, dead front, 350 MVA rupturing capacity, Fully Drawout type, Vacuum Circuit Breaker (VCB)					
	1 set of 11kV/110V Potential Transformers with HRC fuses					
	1 Set of Phase indicating lamps with HRC fuses					
	1 No. 0-15 kV Digital voltmeter with selector switch					
	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 No.Digital ammeter with selector switch and one set of C.T. (Rating as per SLD)					
	1 Set of CDG 61 (2 No. O/C, 1 No. E/F) relay					
	Digital frequency meter,Digital Tri vector meter.					
	1 Set of undervoltage relay and Overvoltage relay					
	Trip circuit supervision relay,Auxiliary relays with shunt trip coil					
	1 No. Master Trip relay					
	1 No. Digital Power factor meter					
	Bus Coupler					
	1 No. VCB having following:					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	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 11kV/110V Potential Transformers with HRC fuses					
	1 Set of Phase indicating lamps with HRC fuses					
	1 No. 0-15 kV Digital voltmeter with selector switch					
	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 630/5-5A Current Transformer for metering and protection					
	1 No. 0-630 digital Amps ammeter with selector switch					
	HT Panel as mentioned above	1	Set			
1.02	TRANSFORMER					
	Supply, erection, testing and commissioning of Cast Rasin Dry Type 2000 KVA , 11/0.433 kV, 3 Phase, 4 wire, 50 Hz.,Dyn11 vector group, copper wound, class F insulation associated with winding temperature indicator/ controller actuated by means of resistance temperature detector embeded in LV windings, indoor type transformer , tappings for off load operation on HV side from -7.5% to +5% in steps of 2.5%, cable box at primary (HT side) and secondary end (LT side) shall be connected through busduct, complete with all fittings and accessories and confirming to IS 11171 ammended upto date, interconnection of control cables and accessories etc complete. The transformer will be as per detailed CPWD technical specifications and as required.	2	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
1.03		BATTERY CHARGER PANEL					
		Supply, erection, testing and commissioning of the 110 V DC 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 the Battery Charger Panel.					
		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	1	Each			
1.04		BUS DUCTS					
	i)	Supply, Installation, testing and commissioning of 3200 A phase and neutral TPN, 415 V, 3 Phase, 4 Wire, sandwich construction Aluminium Bus Duct including bends, flexible joints, earth bus (2 runs of aluminium strips), supports for installation, supporting arrangements, etc. complete as per technical specifications and as required.	30	Mtrs			
1.05		H.T. CABLE					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		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	200	Mtrs			
1.06		Laying of one number 3 core XLPE power cable of grade exceeding 1.1 KV but not exceeding 11KV of size exceeding 120 sqmm but not exceeding 400 Sqmm direct into ground including excavation, sand cushioning, protective covering and refilling the trench complete as required.	200	Mtrs			
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			
		TOTAL FOR SUB HEAD 1: H.T. SUB STATION					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	SUB HEAD 2: MAIN LT PANEL.					
2.01	MAIN L.T. PANEL					
	Supply, installation, testing and commissioning of LT Panel, cubicle type, totally enclosed, free standing type, dust, damp and vermin proof, totally type tested assemblies (TTA) 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 coated and having incoming and outgoing switchgears with cable alley in front as mentioned below and complete as per technical specifications and as required. The size of cable alley shall be sufficient enough to accomodate the cable sizes as mentioned in the SLD/ specifications/ drawings etc.					
	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. UPS is also in the scope of supply.					
A.	INCOMER:					
	i) 2 No. ACB Panels each having following:					
	1 No. 3200A, 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 I _{cw} =I _{cs} = 50 KA for 1 sec.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	Push button to CLOSE the ACB.					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		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					
		3000/5A CTs with CT shorting links for power factor improvement panel suitable for giving signal to APFCR at less than 10% of secondary ratio current					
	iii)	1 No. ACB Panels each having following:					
		1 No. 2500A, 415/500V, Fully Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit, instantanious & earth Fault trip including under voltage release and loackable 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					
		Digital multi function meter with one set of suitable CTs, CT shorting links, R/Y/B LED indicating lamps and 2A cobntrol SP MCBs					
B.		BUSBARS :					
		4000 Amps Phase TPN busbars of aluminium.					
C.		BUS COUPLER :					
	i)	1 No. ACB Panels each having following:					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		1 No. 3200 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 A meter with ASS and CTs.					
D.		OUTGOING.					
	i)	5 No. ACB Panels each having following:					
		1 No. 1000A, 415/500V, Fully Motorised, Fully Drawout type (EDO), TPN, Air Circuit Breaker with microprocessor based overload, short circuit, instantaneous & earth Fault trip including under voltage release and lockable trip push button. ACB should have Icw=Ics= 50 KA for 1 sec.					
		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					
		Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
		Digital energy metre with CT					
	i)	1 Nos. MCCB as per following details / specifications:					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	630 Amp 415 volts, 50 KA (Ics) TPN MCCB with variable current settings of 0.4 to 1.0 In and having microprocessor based O/L, S/C & E/F protection release.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
ii)	4 Nos.MCCB as per following details/ specifications:					
	400 Amp 415 volts, 50 KA (Ics), TPN microprocessor based MCCB with variable current settings of 0.4 to 1.0 In and having microprocessor based O/L, S/C & E/F protection release.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
iii)	2 Nos. MCCB as per following details/ specifications:					
	320 Amp 415 volts, 50 KA (Ics), TPN microprocessor based MCCB with variable settings of 0.4 to 1.0 In and having microprocessor based O/L, S/C & E/F protection release.					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	iv) 6 Nos. MCCB as per following details/ specifications:					
	250 Amp 415 volts, 50 KA (Ics), TPN microprocessor based MCCB with variable settings of 0.4 to 1.0 In and having microprocessor based O/L, S/C & E/F protection release.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	v) 3 Nos. MCCB as per following details/ specifications:					
	200 Amp 415 volts, 50 KA (Isc), TPN 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 for MCCB					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
vi)	4 Nos. MCCB as per following details/ specifications:					
	160 Amp 415 volts, 50 KA (Isc), TPN MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 ln.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
viii)	7 Nos. 100 Amp MCCB as per following specifications:					
	100 Amp 415 volts, 50 KA (Isc), TPN MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 ln.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
ix)	2 Nos. 63 Amp MCCB as per following specifications:					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		63 Amp 415 volts, 50 KA (Isc), TPN MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 ln.					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
		Digital energy metre with CT					
		Main LT Panel as mentioned above.	1	Set			
2.01		CAPACITOR PANEL					
		Supply, installation, testing and commissioning of M.V. cubicle type totally enclosed free standing type, dust, damp and vermin proof Capacitor Panel complete with busbars, M.V. danger notice plate, ammeter, ammeter selector switch, indicating lamps, CT's, Extra heavy duty Capacitors suitable for non linear loads upto 20% (L&T model MD-XL or equivalent), contactors suitable for capacitor switching (current limiting contactor circuit to suppress switching inrush current) interconnections with suitable capacity aluminium leads/solid aluminium strips, rods, connection of incoming and outgoing cables with thimbles, stove enamelled painted and having following incoming and outgoing switchgears complete as required					
	A.	INCOMER :					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	1 No. 1000A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth Fault trip including under voltage release and lockable trip push button. ACB should have I _{cw} =I _{cs} = 50 KA for 1 sec.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP.					
	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.	METERING :					
	1 set of digital Amp. Meter, digital Power factor meter and Digital voltmeter					
C.	BUSBARS :					
	1250 Amp FP busbars of aluminum					
D.	OUTGOINGS :					
i)	3 Nos . MCCB as per following details/ specification:					
	200 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					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	100 kVAR super heavy duty mix dielectric low loss Capacitors suitable for non linear loads upto 20% (L&T model MD-XL ultra or equivalent)					
	ii) 5 Nos . MCCB as per following details/ specification:					
	100 Amps, 415 volts, TP, Power Contactor suitable for capacitive switching including current limiting contactor circuit to supress 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					
	50 kVAR super heavy duty mix dielectric low loss Capacitors suitable for non linear loads upto 20% (L&T model MD-XL ultra or equivalent)					
	iii) 1 Nos . MCCB as per following details/ specification:					
	63 Amps, 415 volts, TP, Power Contactor suitable for capacitive switching including current limiting contactor circuit to supress 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					
	25 kVAR super heavy duty mix dielectric low loss Capacitors suitable for non linear loads upto 20% (L&T model MD-XL ultra or equivalent)					
	iv) 1 Nos . MCCB as per following details/ specification:					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	25 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					
	10 kVAR super heavy duty mix dielectric low loss Capacitors suitable for non linear loads upto 20% (L&T model MD-XL ultra or equivalent)					
	Capacitor panel as mentioned above.	2	Set			
	SUB HEAD 2: MAIN LT PANEL. As mentioned above					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		SUB HEAD 3 : DG SETS					
3.00		DG Set and Accessories					
		DG SET OF 750 KVA.					
3.01		Supply, installation, testing and commissioning of sound proof (silent type) Diesel Generating set having 750 KVA Prime Power Ratings , 415 volt at 1500 RPM, 0.8 power factor suitable for 50 Hz, 3 phase system , suitable bhp, water cooled heat exchanger 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 4 meter 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.					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	-	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.					
	-	Black mild steel pipe with all necessary fittings bends, tees, reducers, flanges, supports, hanger, isolators etc.					
	-	Butterfly valves, Non-Return Valve, Pressure Gauge, Y strainer, or any other valve, etc as required.					
	-	Heat Exchanger and its interconnection to cooling tower with suitable size pipes					
	-	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)					
		DG Set (750 KVA) as mentioned above.	2	Set			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)	
1.00		2	3	4	5	6	7
3.02	SYNCHRONISING-CUM-AMF PANEL (for 2 nos. DG Sets mentioned above)						
	Supply, installation, testing and commissioning of Synchronising Panel, M.V. cubicle type, totally enclosed, free standing type, dust, damp and vermin proof 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.						
	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. UPS is also in the scope of supply.						
	3. Panel shall be suitable for manual synchronising & auto synchronising and automatic operation (AMF) for 2 nos. DG Set and shall be complete with 1 no. operator control & software with PC						
A.	INCOMER :						
i)	2 Nos .ACB as per following details/ specification:						
-	1250A, 415/500V, Fully Drawout type (EDO) (Breaking Capacity=50kA), Triple Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth fault release with neutral contractor.						
-	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB						
-	Push button for CLOSE and TRIP with lock & key arrangement						

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	-	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 control SP MCBs					
	ii)	BUSBARS :					
	-	2500 Amp FP busbars of aluminum					
	iii)	BUS COUPLER :					
		<i>1 No. ACB Panels each having following:</i>					
		1 No. 1250 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 $I_{cw} = I_{cs} = 50KA$ for 1 sec.					
		1 set of indicating lamps to indicate OPEN, CLOSE, TRIP.					
		Push button to CLOSE the ACB.					
		1 Set of A meter with ASS and CTs.					
	B.	OUTGOING :					
	i)	1 Nos .ACB Panel consisting of the following					
	-	2500A, 415/500V, Fully Drawout type (EDO) (Breaking Capacity=50kA), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth fault release					
	-	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	-	Push button for CLOSE and TRIP with lock & key arrangement					
	-	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	-	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.	SYNCHRONISING COMPONENTS :					
		Metering & Indication :					
	-	Power and Energy Monitor					
	-	Set running indicating lights : 230 volts AC-22mm dia					
	-	Emergency stop push button 230 volts AC-22 mm dia					
	-	Governor/AVR raise/lower joy stick					
	-	12 window annunciation with hooter, test accept & reset push button					
	-	Motorised potential AVR					
	-	Time Totalizer					
	D.	Manual Synchronising :					
	-	144 mm sq. Double voltmeter(AC/DC)					
	-	144 mm sq. Double frequency meter					
	-	144 mm.sq. synchroscope					
	-	Check Synchronizing relay					
	-	Synchronizing switch					
	-	Selector swtich					
	-	Dark and Bright lamps					
	-	Breaker Control Switch					
	-	Mode selector switch (Manual/Auto/stand alone)					
	-	Engine Cranking Relay.					
	-	Main supply voltage monitor, alternator voltmeter monitor and Engine Starting Relays					
	-	Auxillary relays, timer, push button and control fuses.					
	-	Timer for AMF Circuit (2 sets)					
	-	DG Start/stop push button					
	-	Auxilliary relays for overspeed, low lub oil pressure (LLOP) & high water temperature					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	-	8 channel temperature controller for winding/bearing protection					
	-	Pulsating cable required to connect field RTD's/PTC's to temperature scanners.					
	E.	Auto Synchronizing with PLC control					
	-	Voltage monitors for DG supply					
	-	Voltage monitors for main supply					
	-	Line synchronising module					
	-	Windows based operator interface graphics software					
	-	CPU (Allen Bradley/Siemens/ABB/Schnieder) with desk.					
	-	EPROM (EP)					
	-	On line synchronizing and Load sharing modules					
	-	PLC Rack etc. & any other item required for proper functioning of the system.					
	-	Digital I / O modules as required with sufficient spare for future provision					
	-	Analog I / O modules as required with sufficient spare for future provision					
	-	PL to PLC communication card					
	-	PL to PLC communication cable					
	-	Power supply module					
	-	Auto load sharing and management relay					
	-	1kVA, Single phase input and single phase output, 240volts, 50 Hz., AC, Online UPS with inbuilt 30 minutes battery backup in form of sealed maintenance free batteries with power wiring to the control bus for power supply to relays. (To be installed inside the panel)					
	-	PC with P-IV intel processor, 80GB hard disk, 1GB RAM, 15" TFT colour monitor, PCI-VGA card 2MB, DVD drive (reader & writer)					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
-	Auxilliary relays for output command					
-	Set of Software for PLC in CD					
-	1 Set mimic (SEM)					
-	Set of control MCBs					
F.	DG PROTECTION AND AMF COMPONENTS:					
-	Reverse power and Reactive power relay					
-	Over Voltage relay					
-	Under Voltage relay					
-	Over frequency relay					
-	Trip circuit supervision relay					
-	Master lockout relay					
-	Master trip/supervisory relay					
-	Battery charger (with trickle and boost charging).					
-	DC voltmeter and ammeter.					
-	DC ammeter.					
-	8 window Alarm annunciator with separate hooter, accept, reset and rest push button.					
-	Hooter.					
-	Engine Cranking Relay.					
-	Main supply voltage monitor, alternator voltmeter monitor and Engine Starting Relays.					
-	Auxillary relays, timer, push button and control fuses.					
-	Phase sequence relay					
G.	ENCLOSURE :					
-	Fabrication, PVC Sleeving, Control/Power Wiring and necessary hardware for complete synchronisation and load sharing					
	SYNCHRONISING-CUM-AMF PANEL (for 2 nos. DG Sets mentioned above)	1	Set			
3.03	BUS DUCTS					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	i)	Supply, Installation, testing and commissioning of 2500 A phase and neutral TPN, 415 V, 3 Phase, 4 Wire, sandwich construction Aluminium Bus Duct including bends, flexible joints, earth bus (2 runs of aluminium strips), supports for installation, supporting arrangements, etc. complete as per technical specifications and as required.	20	Mtrs			
	ii)	Supply, Installation, testing and commissioning of 1250 A phase and neutral TPN, 415 V, 3 Phase, 4 Wire, sandwich construction Aluminium Bus Duct including bends, flexible joints, earth bus (2 runs of aluminium strips), supports for installation, supporting arrangements, etc. complete as per technical specifications and as required.	40	Mtrs			
3.04		Under Ground Diesel Tank					
		Supply, Installation, testing, commissioning of 20 KL under ground diesel tank including all related civil works, fencing (Flame proof P.B./ starter) etc including flame proof pump for pumping diesel to the DG overhead day tank/ DG set complete with cabling, earthing, piping, float switch etc and approval from Chief Controller of Explosives, Nagpur.	1	Set			
		TOTAL SUBHEAD 3: DG SETS					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
4.00	SUB HEAD 4 : MV PANELS					
4.01	MV PANELS					
	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 coated and having following incoming and outgoing switchgears complete as required.					
	i MV panel - Basement Floor :					
	a) INCOMER:					
	1 no. 100 Amps , 415 volts, 35KA (lsc),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 Digital voltmeter with selector switch.					
	1 No. 0 to 100 Amp Digital ammeter with selector switch with 100/5A C.T.'s.					
	b) BUSBARS:					
	125 Amp TPN Aluminium busbars					
	c) OUTGOING:					
	i 6 No. 40 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		MV panel - Basement Floor as mentioned above :	1	Set			
	ii	MV - Panel Ground Floor ,First Floor ,Second Floor					
	a)	INCOMER:					
		1 no. 200 Amps , 415 volts, 35KA (lsc),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 Digital voltmeter with selector switch.					
		1 No. 0 to 200 Amp Digital ammeter with selector switch with 200/5A C.T.'s.					
	b)	BUSBARS:					
		250 Amp TPN Aluminium busbars					
	c)	OUTGOING:					
	i	7 No. 63 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
	ii	6 No. 32 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
		MV - Panel Ground Floor ,First Floor ,Second Floor as mentioned above	3	Set			
		TOTAL SUB HEAD 4 : MV PANELS					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		SUB HEAD 5 : UPS SYSTEM					
5.01		UPS OF 10 KVA.					
	i)	Supply of 10 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 with accessories and suitable Power Management software in UPS including IGBT/PWM technology based inverter, automatic bi - directional static switch, manual bypass switch, isolation transformer, in 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 1 hour backup.					
	iii)	Installation & commissioning of 10 KVA UPS with battery and accessories.					
		Supply, installation , testing and commissioning of 10 KVA UPS as mentioned above.	1	Set			
5.02		UPS OF 15 KVA.					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	i)	Supply of 15 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 with accessories and suitable Power Management software in UPS including IGBT/PWM technology based inverter, automatic bi - directional static switch, manual bypass switch, isolation transformer, in 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 1 hour backup.					
	iii)	Installation & commissioning of 15 KVA UPS with battery and accessories.					
		Supply, installation , testing and commissioning of 15 KVA UPS as mentioned above.	2	Set			
		TOTAL SUBHEAD 5 : UPS SYSTEM					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		SUB HEAD-6: MCB DISTRIBUTION BOARDS.					
6.00		MCB DISTRIBUTION BOARD					
6.01		Supplying & fixing following way, three pole and neutral,prewired,sheet steel, MCB distribution board, 415 volts,on recess/surface complete with loose wire box, terminal blocks, tinned copper busbar, neutral link, earth bar,din bar, detachable gland plate, interconnections, phosphatized and powder painted including earthing etc.Before procurement of DB the contractor has to take approval of DB schedule/drawing of each DB from the Electrical Engineer, HSCC, as per technical specifications and as required.(but without MCB & RCCB),					
	i	4 way (8+12), Double door	10	Each			
	ii	6 way (8+18), Double door	21	Each			
	iii	8 way (8+24), Double door	7	Each			
6.02		Supplying & fixing 5 Amps to 32 Amps rating, 240 volts,'b' series, miniature circuit breaker suitable for lighting & other loads of following poles in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications & as required.					
	i	Single pole	449	Each			
6.03		Supplying & fixing following rating, four pole, 415volts, Miniature Circuit Breaker (MCB) in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications and as required.					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	i	25 Amps	7	Each			
	ii	32 Amps	11	Each			
	iii	40 Amps	4	Each			
	iv	63 Amps	15	Each			
6.04		Supplying & fixing following rating, four pole, 415volts, Miniature Circuit Breaker and Residual current circuit breaker (RCCB), RCCB having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications and as required.					
	i	32 Amps	11	Each			
	ii	40 Amps	4	Each			
	iii	63 Amps	15	Each			
		TOTAL SUBHEAD: 6- MCB DISTRIBUTION BOARD.					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
7.00		SUB HEAD: 7 - WIRING					
7.01		WIRING					
	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.					
		Note :					
		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.					
		Point wiring as mentioned above	1300	Point			
7.02	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.					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	ii	Supplying and Fixing Modular type two numbers 2 Way switches in suitable size modular metal boxes, base plate & modular cover plates etc.					
		Note :					
		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.					
		Wiring for twin control light points as mentioned above	20	Point			
7.03		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.	110	Point			
7.04		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	100	Point			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
7.05		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.	30	Point			
7.06		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			
7.07		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.	2475	Metre			
	ii	2X6 Sqmm with 1 No. 6 sqmm PVC insulated, FRLS copper conductor for earthing	924	Metre			
	iii	4X6 Sqmm with 2 No. 6 sqmm PVC insulated, FRLS copper conductor for earthing	924	Metre			
	iv	4X10 Sqmm with 2 nos 10 sq mm PVC insulated, FRLS copper conductor for earthing	336	Metre			
	v	4X16 Sqmm with 2 nos 16 sq mm PVC insulated, FRLS copper conductor for earthing.	1260	Metre			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
7.08		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.	110	Each			
7.09		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.	100	Each			
7.10		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.	30	Each			
7.11		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. (For computer Points)	50	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
7.12		Supply and fixing following FP MCCB, 415 volts, 35 KA (Isc), Four Pole with thermal magnetic release having variable current setting (0.8 to 1.0 In) with Extended rotary operating mechanism including door interlocking with defeat feature and padlock facility in a sheet steel enclosure on surface complete with all accessories including , connections, testing and commissioning etc. as required.					
	i	63 Amp	2	Each			
	ii	160 Amp	3	Each			
	iii	250 Amp	2	Each			
	iv	320 Amp	1	Each			
	v	400 Amp	2	Each			
	vi	630 Amp	1	Each			
7.13		Supplying, providing & fixing cordless musical bell, batteries etc of approved make complete as required.	10	Each			
		TOTAL SUBHEAD: 7- WIRING					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		SUB HEAD: 8 - LIGHT FIXTURE AND FANS					
8.00		LIGHT FIXTURES AND FANS					
8.01		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	2XTL5 28 watt surface mounted industrial fluorescent light fixture with GMS reflector(GMS 122M 2 28 /54 R) (Philips TMS 122M 2XTL5 28W EBT or approved equivalent)	220	Each			
	ii	1XTL5 28 watt box type fluorescent industrial light fixture (Philips TMS 122 M1XTL5 28W EBT or approved equivalent)	50	Each			
	iii	1X36watt surface mounted fluorescent light fixture with opal acrylic cover (Philips TCS 19/136 HPF or approved equivalent)	30	Each			
	iv	1X36watt recess mounted fluorescent light fixture (Philips TBS 50/136 HPF or approved equivalent) 136RMO1	110	Each			
	v	1X 36 watt surface mounted mirror optics type 1 (Philips TCS 605 1XTLD 36 W EBE M1 or approved equivalent) 136SMO1	60	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	vi	2X36 watt recess mounted mirror optics (philips TBS 090 2XTLD36W EBE MI) or approved equivalent) 236rmo1	120	Each			
	vii	2X36 watt recess mounted mirror optics (philips TBS 669/228 D6 HF 2X28W or approved equivalent)236rmo2	75	Each			
	viii	2X 36 watt surface mounted mirror optics (Philips TCS 605 2XTLD 36W EBE MI or approved equivalent).236smo1	100	Each			
	ix	2X 36 watt surface mounted mirror optics (Philips TCS 306 2XTL5 28W EBP or approved equivalent).236smo2	50	Each			
8.02		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	15	Each			
	ii	1x9 watt Bulk Head light fixture (Philips FXC 101 HPF or approved equivalent)	15	Each			
	iii	2 x 18 watt CFL recessed light fixture Down Light fixture Type-1 (GE CFLC 2X13 DN PA R (H) OVOLO or approved equivalent) DL1	10	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	iv	2 x 18 watt CFL surface mounted fixture Down light fixture type 2 (GE: GE CFL C 2X18 DN FG S(Lento) or approved equivalent) DL2	40	Each			
	v	2X10 watt Mirror top (Decon 05UB or approved equivalent) Wtoilet	50	Each			
	vi	2X11 watt surface mounted mirror optics (Philips FCS 31/211 or equivalent)211CFLRECT	25	Each			
	vii	1x11 watt CFL Bedside light fixture (Decon 05 GF or approved equivalent) TL	5	Each			
8.03		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.(Crompton Greaves, Model- High Breeze or approved equivalent) suitable for operation on 230 volts, 50 Hz., 1 phase, AC supply complete as required					
	i	1200 mm sweep	400	Each			
	ii	900 mm sweep	50	Each			
8.04		Installation, testing and commissioning of prewired, flourescent 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.	815	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
8.05		Supply of 900 RPM, 230 mm(Crompton Greaves- model, Transair or approved equivalent) heavy duty exhaust fan suitable for single phase 230 volts, 50 Hz., AC supply complete with motor, louvers/shutters etc. complete as required.	25	Each			
8.06		Supply of 900 RPM, 300 mm heavy duty exhaust fan suitable for single phase 230 volts, 50 Hz., AC supply complete with motor, louvers/shutters etc. complete as required.	20	Each			
8.07		Supply of 900 RPM, 380 mm heavy duty exhaust fan suitable for single phase 230 volts, 50 Hz., AC supply complete with motor, louvers/shutters etc. complete as required.	25	Each			
8.08		Supply of 450 mm sweep, (crompton greaves model high flow or approved equivalent)18" wall mounted fan complete with double ball bearing, motor, blades, capacitor etc suitable for single phase 230 volts, 50 Hz., AC supply, complete as required.	10	Each			
8.09		Installation, testing and commissioning of prewired, compact flourescent lamp fixture (CFL fxtures)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.	160	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
8.10		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.	450	Each			
8.11		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.	10	Each			
8.12		Installation, testing and commissioning of exhaust fan up to 450 mm sweep in the opening, including making the hole to suit the size of the above fan including , fixing of louvers/ shutters with frame making good the damages etc. as required.	25	Each			
8.13		Installation, testing and commissioning of wall mounted fan up to 450 mm sweep including supply and fixing wall bracket arrangement complete as required.	20	Each			
		TOTAL SUBHEAD 8: LIGHT FIXTURE & FANS					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		SUB HEAD 9: TELEPHONE SYSTEM					
9.00		TELEPHONE SYSTEM					
9.01		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 polyster 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)	50	Each			
	ii	2 pair cord outlet (Jack Type)	20	Each			
9.02		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	50 Pair	1	Each			
	ii	20 Pair	2	Each			
	iii	10 Pair	2	Each			
9.03		Supplying and drawing of following pairs .5 mm dia annealed bare copper conductor Polythene insulated, core twisted into pairs armoured telephone cable on surface/tray with saddels etc. complete as required.					
	i	10 Pair	200	Metre			
	ii	20 Pair	100	Metre			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		EPABX					
	i)	Supply, installation testing and commissioning of a digital EPABX system having 8 trunk lines (P&T Lines), 8 digital extensions and 64 analog extensions expandable upto 196 ports including software & UPS of suitable capacity for four hour back-up with SMF batteries as approved by engineer incharge complete as per technical specifications & as required. Model as approved by Engineer incharge out of approved makes	1	Set			
	ii)	Supply, installation, testing and commissioning of Main Distribution Frame (MDF) crone type for 64 pair (port) with box as per technical specifications and as required.	1	Set			
	iii)	Supply, installation, testing and commissioning of analog push button type telephone instrument having hold-on and tone/pulse switch facility suitable for the connection with the above EPABX system complete as per technical specification and as required : Model as approved by Engineer incharge out of approved makes	64	Set			
	v)	Supply, installation, testing and commissioning of digital phone sets (KTS) with display, 12 storage keys and speaker suitable for the connection with the above EPABX system complete as per technical specification and as required : Model as approved by Engineer incharge out of approved makes	4	Set			
		TOTAL SUBHEAD 9: TELEPHONE SYSTEM					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		SUB HEAD 10: LIGHTENING PROTECTION					
10.00		LIGHTENING PROTECTION					
10.01		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.	6	Set			
10.02		Extra for using charcoal and salt for GI or copper plate earth electrode as required.	6	Set			
10.03		Providing and fixing of lightning 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			
10.04		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).	300	Metre			
10.05		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).	400	Metre			
10.06		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.	6	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
10.07		Providing and laying GI tape, 32 mm X 6 mm thick, from test joint upto earth electrode directly in ground as required.	50	Metre			
		TOTAL SUB HEAD 10: LIGHTENING PROTECTION					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		SUB HEAD 11 : FIRE DETECTION AND ALARM					
11.00		FIRE DETECTION AND ALARM SYSTEM					
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	2484	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	120	Each			
	ii	Heat Detector	6	Each			
	iii	Manual Call Point in MS enclosure	8	Each			
	iv	Fire Alarm Hooter cum Speaker of suitable range to cover the complete floor, in MS enclosure.	8	Each			
	v	Response indicator	65	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
11.03		Supply, Installation, testing and commissioning of 4 loop microprocessor based addressable type networkable Fire Detection & Alarm control Panel complete with inbuilt power supply, battery charger with SMF batteries for minnum 24Hrs backup. The panel shall have communication module. 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.	1	Set			
11.04		Supply testing and commissioning of isolator module as per specifications.	14	Set			
11.05		Supply, Installation, testing and commissioning of intelligent , addressable control modules.	45	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			
11.08		Supply, installation, testing and commissioning of 4 zone microprocessor based talkback master control panel with LCD display , inbuilt battery charger and battery space .The panel should have LCD and LED display for zone wise calling , & fabricated with 16 SWG sheet metal housing with red paint .	Each	1			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
11.09		Supply, installation, testing and commissioning talkback unit with telephone handset in 16 SWG red body housing with locking protection.	Each	4			
		TOTAL SUB HEAD 11 : FIRE DETECTION AND ALARM					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
12.00		SUBHEAD 12 :CONDUITING FOR TV OUTLETS					
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 potected with PVC sheath in the existing surface/ recessed steel/ PVC coduit as required.	250	Metre			
		TOTAL SUB HEAD 12: CONDUITING FOR TV OUTLETS					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		SUB HEAD 13: NURSE CALL BELL SYSTEM.					
13.00		NURSES CALL BELL SYSTEM					
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	1	Each			
	ii)	10 Way	2	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.	50	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	750	Metre			
13.04		Supply & laying of CAT 5 cable copper conductor in the existing MS conduite.	1253	Metre			
13.05		Supplying, fixing testing and commissioning of LED's Indicators outside each ward	10	Each			
		TOTAL SUB HEAD 13: NURSE CALL BELL SYSTEM.					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		SUB HEAD 14: PUBLIC ADDRESS SYSTEM.					
14.00		PUBLIC ADDRESS SYSTEM					
	A.	PUBLIC ADDRESS SYSTEM FOR HOSPITAL.					
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 (Basement+Ground + two floors) at two different loactions on each floor.					
	iii)	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.					
		Public Address System for Hospital as mentioned above	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			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
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	750	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).	1000	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 .	90	Each			
		TOTAL SUB HEAD - 14.00 PUBLIC ADDRESS SYSTEM					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	SUB HEAD 15 : LIFTS					
15.00	LIFT					
15.01	Design, manufacture, supply, installation, testing and commissioning of 26 passenger (1768 kg) lift 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 B+G+2 (Total four floors)					
	Travel: As per architectural drawing.					
	Stops & opening: 4 stops & 4 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.					
	Mirror of suitable size to be fixed inside the lift car.					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		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.					
		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.					
		Bed cum Passenger Lift as mentioned above.	2	Each			
		TOTAL SUB HEAD 15: LIFTS					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	SUB HEAD 16: LT CABLES					
16.00	LT CABLES					
16.01	Supply of following sizes of 1.1 kV grade multicore aluminium conductor PVC sheathed armoured AYFY cable as per IS 1554.					
	i 3.5 Core 25 Sqmm.	360	Metre			
	ii 3.5 Core 35 Sqmm.	200	Metre			
	iii 3.5 Core 50 Sqmm.	100	Metre			
	iv 3.5 Core 70 Sqmm.	240	Metre			
	v 3.5 Core 95 Sqmm.	100	Metre			
	vi 3.5 Core 120 Sqmm.	100	Metre			
	vii 3.5 Core 150 Sqmm.	150	Metre			
	viii 3.5 Core 185 Sqmm.	200	Metre			
	ix 3.5 Core 240 Sqmm.	200	Metre			
	x 3.5 Core 300 Sqmm.	500	Metre			
	xii 3.5 Core 400 Sqmm.	200	Metre			
	xii 2 Core 4 Sqmm.	100	Metre			
	xiii 2 Core 6 Sqmm.	100	Metre			
	xiv 4 Core 10 Sqmm.	100	Metre			
16.02	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	340	Metre			
	iii Size exceeding 120 sq.mm but not exceeding 300 sq.mm	650	Metre			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
16.03		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			
16.04		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			
16.05		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.	10	Each			
	ii	3.5 Core 35 Sqmm.	12	Each			
	iii	3.5 Core 50 Sqmm.	10	Each			
	iv	3.5 Core 70 Sqmm.	10	Each			
	v	3.5 Core 95 Sqmm.	6	Each			
	vi	3.5 Core 120 Sqmm.	6	Each			
	vii	3.5 Core 150 Sqmm.	12	Each			
	viii	3.5 Core 185 Sqmm.	10	Each			
	ix	3.5 Core 240 Sqmm.	4	Each			
	x	3.5 Core 300 Sqmm.	10	Each			
	xii	3.5 Core 400 Sqmm.	10	Each			
	xii	2 Core 4 Sqmm.	8	Each			
	xiii	2 Core 6 Sqmm.	8	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	xiv	4 Core 10 Sqmm.	10	Each			
16.06		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	100	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	75	Metre			
		TOTAL SUB HEAD 16: LT CABLES					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		SUB HEAD 17: EARTHING SAFETY EQUIPMENT AND MISC. ITEMS					
17.00		EARTHING, SAFETY EQUIPMENTS AND MISC. ITEMS					
17.01		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	14	Set			
17.02		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	16	Set			
17.03		Extra for using charcoal and salt for GI or copper plate earth electrode as required.	30	Set			
17.04		Supplying and laying 25mmX5mm Copper strip at 0.5 m below ground level as strip earth electrode, including soldering etc. as required.	100	Metre			
17.05		Supplying and laying 25mmX5mm GI strip at 0.5 m below ground level as strip earth electrode, including soldering etc. as required.	400	Metre			
17.06		Providing and fixing 40mmX6mm GI strip on surface/on existing cable trench/RCC pipe or in recess for earth electrode as required.	50	Metre			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
17.06		Providing and fixing 25mmX5mm GI strip on surface/on existing cable trench/RCC pipe or in recess for earth electrode as required.	100	Metre			
17.08		Supplying and laying 50mmX6mm copper strip at 0.5 m below ground level as strip earth electrode as required as required.	50	Metre			
17.09		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			
17.10		Providing and laying of following sizes non pressure NP2 class (light duty) RCC pipe with collar joint with stiff mixture of cement (1 cement : 2 fine sand) including testing the joints etc. as required.					
	i	100 mm dia	20	Metre			
	ii	150mm dia	20	Metre			
	iii	200mm dia	20	Metre			
17.11		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			
17.12		Supplying and laying of 1.1kV grade 1 metre wide anti skid chequered type rubber mat.	25	Metre			
17.13		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			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
17.14		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			
17.15		Supplying and fixing Foam type 9 ltrs capacity fire extinguishers as approved by ISI complete as required.	2	Set			
17.16		Supplying and fixing CO2 type 9 ltrs capacity fire extinguishers as approved by ISI complete as required.	4	Set			
17.17		Supplying and fixing CO2 type 4.5 ltrs capacity fire extinguishers as approved by ISI complete as required.	4	Set			
17.18		Supplying and fixing DCP type 5 KG capacity fire extinguishers as approved by ISI complete as required.	4	Set			
17.19		Supplying and fixing DCP type 10 KG capacity fire extinguishers as approved by ISI complete as required.	4	Set			
17.20		Supplying, storing, handling and fixing in position First Aid Medical Box and an 'Artificial Respirator' complete as per tech. specifications as required.	2	Each			
17.21		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			
		TOTAL SUB HEAD 17: EARTHING, SAFETY EQUIPMENT AND MISC. ITEMS					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
18.00		SUB HEAD 18:CONDUITING FOR COMPUTER NETWORKING					
18.01		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			
18.02		Supplying and fixing 2 module modular metal box in recess with modular cover plate, blanking plates and all accessories complete as required	35	Each			
		TOTAL FOR SUBHEAD 18.00 CONDUITING FOR COMPUTER NETWORKING.					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
19.00		SUB HEAD 19: OUTDOOR LIGHTING					
19.01	i	Supply, erection, testing and commissioning of external swaged steel tubular pole with following specifications & items :					
	ii	9.0 Mtrs. high swaged steel tubular pole (Single arm of suitable length each around 1.5 Metre), the construction of the pole shall be as per IS 410 SP-33 with base plate 450mmX450mmX6mm complete as per requirement with two coats of spray paints (shade as approved)					
	iii	1X150 watts street light fixture with 150watts high pressure sodium vapour (HPSV) lamp complete with control gear, acrylic cover cover etc. and its wiring with 2X4 sq.mm. PVC insulated, FRLS copper conductor and 1,5 sqmm PVC insulated, FRLS copper earth wire from control box complete as required - 1 No. (Philips SRP 051 1xSON150W Acrylic cover or approved equivalent)					
	iv	Suitable size 32 A DP MS Control box with 2 no. incoming and outgoing terminals and 2 nos. tap-out terminal with 6A DP MCB complete as required - 1 Set					
	v	Suitable number(s) 40mm dia Class-B GI Pipe(s) from above control box to upto 0.5 metre below ground level for power cable entry					
	vi	Providing foundation including excavation, shuttering, alingment of poles, casting etc. including lean concrete at the bottom as per CPWD/ BIS specifications.					
	vii	The above installations shall be completed including earthing as per CPWD specifications and as required	20	Set			
19.02		Supply, installation, testing and commissioning of external post top lantern with following accessories and complete as required :					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	i)	4m high (3.3m above ground) 50mm dia GI pole as approved, adopting socket at top for fixture mentioned below, base plate 300 x 300 x 6mm and provision for mounting junction box etc. - 1 set.					
	ii)	Supply, installation, testing and commissioning of Post top lantern with 70W HPSV lamp (Philips HPS 360 1XSON 70W GR or equivalent) and its wiring with 2 x 2.5 sq.mm PVC insulated copper wire and 1.5 sqmm PVC insulated copper earth wire from control box - 1 set.					
	iii)	Suitable size 20A DP MS Control box with 2 no. incoming and outgoing terminals and 2 nos. tap-out terminal with 1 nos. 5A HRC fuses complete 1 set.					
	iv)	Suitable number(s) 40mm dia Class-B GI Pipe(s) from above control box to upto 0.5 metre below ground level for power cable entry					
	v)	Providing 400x400x1000mm deep 1:3:6 ratio cement concrete including excavation shuttering alignment of poles casting etc. including 100mm thick lean concrete shall be provided at the bottom					
		Supply, installation, testing and commissioning of external post top lantern as mentioned above	10	Set			
19.03		Supply, installation, testing and commissioning of Post top lantern with 70W SON lamp (Philips HPS370 1XSON 70(E) or equivalent) and its wiring with 2 x 2.5 sq.mm PVC insulated copper wire and 1.5 sqmm PVC insulated copper earth wire from control box - 1 set	2	Each			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
19.04	Supply, installation, testing and commissioning of bollard lamps 1X18 watts CFL (Philips HCS360 1XPL-C 18W Sonara bollard in gree color or equivalent) control box - 1 set.	15	Each			
19.05	Road Lighting Panel					
	Supply, installation, testing and commissioning of following outdoor type with canopy, IP-54 protected M.V. cubicle type totally enclosed, free standing type, dust, damp and vermin proof, MV Panel, busbars, M.V. danger notice plate, interconnections with suitable capacity aluminium leads/solid aluminium strips/rods, connection of incoming and outgoing cables with thimbles, stove enamelled painted and having following incoming and outgoing switchgears complete as required.					
	INCOMER:					
	1 No. 100 Amp 415 volts, FP MCCB 35 KA					
	1 Set of phase indicating lamp with HRC fuses					
	1Set of timer and 100A TP contactor with nuetral link (for street lights control)					
	BUSBARS:					
	100 Amp TPN Aluminium busbars					
	OUTGOING:					
	18 Nos. 16 Amp 415 volts, DP MCB					
	Road Lighting panel as mentioned above	1	Set			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
19.06		Spiral earthing made out of 6 SWG GI wire , 50mm Dia, 115 turns closely wound ,1.5 mtr below ground, earth pit of 350 Dia., 1.5 mtr depth including providing charcoal and salt for earthing at alternate layers of 300 mm depth (total 3 layers),connections etc. complete as required.	15	Set			
		TOTAL SUB HEAD -19.00 OUTDOOR LIGHTING					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
		SUB HEAD 20: CCTV					
20.00		CLOSED CIRCUIT TELEVISION SYSTEM (CCTV)					
20.01		Supply and fixing of following size of ISI marked MS conduit along with the accessories in surface/ recess including painting in case of surface conduit or cutting the wall and making good the same in case of recessed conduit as required.					
	i)	20 mm dia	1200	Metre			
	ii)	25 mm dia	800	Metre			
20.02		Wiring with 2x2.5 mm + 1x 2.5 mm (for earthing) PVC insulated FRLS copper conductor in the existing MS conduit for power supply to the camera.	2650	Metre			
20.03		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 conduit as required.	2650	Metre			
20.04	A	CAMERAS :					
	i)	Supply, installation, testing and commissioning of indoor 520 TVL high resolution, vandal proof box type, 1/3-inch Sony CCD imager colour day/ night camera with varifocal lens, 3.6-8mm or 6 to 15 mm including Connectors, Lens, camera Mounts. Power Supply and all ancillary equipment required for the proper functioning of the camera. The black ivory enclosure, mounting will be ceiling/ wall at the main entrance.	4	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	ii)	Supply, installation, testing and commissioning of indoor minimum 480 TVL, vandal proof fixed dome, 1/3-inch Sony CCD imager colour camera with very focal lens 3.6-8 mm with advanced DSP and backlight compensation, including Connectors, camera Mounts. Power Supply and all ancillary equipment required for the proper functioning of the camera.	40	Each			
	B.	DVR					
	i)	Supply, installation, testing and commissioning of 16 channel real time, 400 fps, embedded Digital Video Recorder (DVR) with 2 video outputs and facility to record multiple camera signals while simultaneously providing live multi-screen viewing, recording, play back, remote viewing and archiving of recorded data. DVR having capacity of storage capacity suitable for recording 30 Days Backup . DVR will do real time recording at CIF resolution & MPEG4 compression. DVR will be embedded IP based web enabled DVRs. DVR racks and any other item required in the commissioning is in the scope of supply.	3	Each			
	C.	Monitor					
		Supply, installation, testing and commissioning of 32" CCTV colour LED flat screen high definition resolution 1280 x 1024 minimum monitor including all accessories	3	Each			
		TOTAL SUBHEAD 11 : CCTV					
		GRAND TOTAL FOR ALL ELECTRICAL WORKS					

COST ESTIMATE FOR THE ELECTRICAL WORKS OF CANCER INSTITUTE, BHATINDA.

S.No.	Description	Amount In Figure (In Rs.)	Amount in Words (Rs.)
1	SUBHEAD 1: H.T. SUB STATION		
2	SUB HEAD 2: MAIN LT PANEL.		
3	SUB HEAD 3 : DG SETS		
4	SUB HEAD 4 : MV PANELS		
5	SUB HEAD 5 : UPS SYSTEM		
6	SUB HEAD-6: MCB DISTRIBUTION BOARDS.		
7	SUB HEAD: 7 - WIRING		
8	SUB HEAD: 8 - LIGHT FIXTURE AND FANS		
9	SUB HEAD 9: TELEPHONE SYSTEM		
10	SUB HEAD 10: LIGHTENING PROTECTION		
11	SUB HEAD 11 : FIRE DETECTION AND ALARM		
12	SUBHEAD 12 :CONDUITING FOR TV OUTLETS		
13	SUB HEAD 13: NURSE CALL BELL SYSTEM.		
14	SUB HEAD 14: PUBLIC ADDRESS SYSTEM.		
15	SUB HEAD 15 : LIFTS		
16	SUB HEAD 16: LT CABLES		
17	SUB HEAD 17: EARTHING SAFETY EQUIPMENT AND MISC. ITEMS		
18	SUB HEAD 18:CONDUITING FOR COMPUTER NETWORKING		
19	SUB HEAD 19: OUTDOOR LIGHTING		
20	SUB HEAD 20: CCTV		
	GRAND TOTAL FOR ALL ELECTRICAL WORKS		

BOQ - ADVANCED DIAGNOSTIC CANCER TREATMENT AND RESEARCH CENTER, BHATINDA FOR HVAC WORKS						
Item No.	Description	Qty	Unit	Rate In Rs (in Figure)	Rate in Rs (in Words)	Amount (Rs.)
1	2	3	4	5	6	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						
A)	EQUIPMENT:					
1.0	WATER CHILLING UNITS.					
1.1	Supply, installation, testing & commissioning of 160 TR (actual) capacity water cooled water chilling units (ARI Certified) 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 , soft 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.					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	o. Microprocessor based control panel complete with accessories as per specifications. (2Working +1Stand by)					
	Chilled Water Leaving temp. 44 deg. F					
	Chilled Water Entering temp. 54 deg. F					
	Chiller fouling factor = 0.0005 (FPS units)					
	Condenser Water Leaving Temp. 97.5 deg F					
	Condenser Water Entering Temp. 90 deg F					
	Condenser fouling factor = 0.001 (FPS units)					
	Chiller should be ECBC compliant as per efficiency.					
	Complete water chilling as above(2W+1S)	3	Nos			
2.0	WATER CIRCULATION PUMPS					
2.1	Primary Chilled Water Pumps					
	Supply, installation, testing and commissioning of vertical split casing end suction type centrifugal chilled water pump sets factory assembled and tested for rated efficiency mounted on a common base frame etc each capable of delivering specified flow rate complete with following as per specifications & schedule of equipments.					
	a. Pump with IP 55 TEFC induction motor with class F insulation					
	b. Channel base with vibration isolators, coupling, coupling guard etc.					
	c. Cladded insulation and anti corrosive coating/cathodic electro deposit (CED) type coating inside and outside casing etc. of chilled water pump, etc.					
	d. 2 Nos.- 150 mm dia dial type pressure gauge					
	e. Pumps shall be suitable for operation on 415+/- 10% Volts/ 3ph / 50 Hz/AC power supply.					
	The pump characteristic shall be as follows:					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	Water flow rate=384 USGPM Head = 16 Metre WC					
	Primary chilled water pumps as described above. (2W+1S)	3	Nos			
2.2	Secondary Pumps & Variable Speed Pumping System					
	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 IP 55 TEFC induction motor with class F insulation					
	b. Channel base with vibration isolators, coupling, coupling guard etc.					
	c. Cladded insulation and anti corrosive coating/cathodic electro deposit (CED) type coating inside and outside casing etc. of chilled water pump, etc.					
	d. 2 Nos.- 150 mm dia dial type pressure gauge					
	e. Pumps shall be suitable for operation on 415+/- 10% Volts/ 3ph / 50 Hz/AC power supply.					
	f. The price will include control software and networking hardware and software for integration and compatibility with BMS (BACNET Protocol).					
	g. All pumps to be provided with separate VFD's (variable frequency drives). Control panel should also consist of cooling fan.					
	h. Electronic Differential Pressure Transmitters and PLC as required.					
	i. The cost will include making necessary flanged suction and delivery headers in C-Class MS					
	j. Complete set system to be mounted on a common MS base frame and shall follow following duty.					
	The pump characteristic shall be as follows:					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	Water flow rate=420 USGPM Head = 20 Metre WC					
	Secondary chilled water pumps as described above. (2W+1S)	3	Nos			
2.3	Condenser water Pumps					
	Supply, installation, testing and commissioning of vertical split casing end suction type centrifugal pump sets factory assembled and tested for rated efficiency mounted on a common base frame etc each capable of delivering specified flow rate complete with following as per specifications & schedule of equipments.					
	a. Pump with IP 55 TEFC induction motor with class F insulation					
	b. Channel base with vibration isolators, coupling, coupling guard etc.					
	c. Cladded insulation and anti corrosive coating/cathodic electro deposit (CED) type coating inside and outside casing etc. of chilled water pump, etc.					
	d. 2 Nos.- 150 mm dia dial type pressure gauge					
	e. Pumps shall be suitable for operation on 415+/- 10% Volts/ 3ph / 50 Hz/AC power supply.					
	The pump characteristic shall be as follows:					
	Water flow rate=640 USGPM Head = 20 Metre WC					
	Condenser water pumps as described above. (2W+1S)	3	Nos.			
2.4	Hot water Pumps					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	Supply, installation, testing and commissioning of vertical split casing type centrifugal hot water recirculation pump sets factory assembled and tested for rated efficiency 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 IP 55 TEFC induction motor with class F insulation					
	b. Channel base with vibration isolators, coupling, coupling guard etc.					
	c. Cladded insulation and anti corrosive coating/cathodic electro deposit (CED) type coating inside and outside casing etc. of chilled water pump, etc.					
	d. 2 Nos.- 150 mm dia dial type pressure gauge					
	e. Pumps shall be suitable for operation on 415+/- 10% Volts/ 3ph / 50 Hz/AC power supply.					
	The pump characteristic shall be as follows:					
2.4.1	Water flow rate=340USGPM Head = 12 Metre WC					
	Hot water pumps as described above. (1W+1S)	2	Nos			
2.4.1	Water flow rate=102USGPM Head = 20 Metre WC					
	Hot water pumps as described above. (1W+1S)	2	Nos			
5.0	COOLING TOWER					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	Supply, installation, testing and commissioning of induced draft FRP type cooling towers for air conditioning system. Each tower shall be complete with distribution system, filling, louvers, steel ladder, fan and motor. Motor shall be IP 55 suitable for outdoor installation, 415±10% volts, 50 Hz, 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 water flow rate 640 US gpm. The capacity shall be as follows:- 200 TR capacity					
	Cooling Tower as described above. (2W+1S)	3	Nos.			
6.0	Hot Water Generator Supply, installation, testing & commissioning of Electric Hot Water Generator for winter heating/monsoon reheating system. Hot water shall be with IP 55 protection and compatible with controls, sensors, control cabling, piping and fittings, thermal insulation, BMS control, base frame etc. as per specifications.					
6.1	Capacity : 200 KW Status : 1(W) USGPM: 340 Temp IN/OUT : 46.6/ 48.8 Deg C	1	Nos.			
6.2	Capacity : 60 KW Status : 1(W) USGPM: 102 Temp IN/OUT : 46.6/ 48.8 Deg C	1	Nos.			
7.0	AIR HANDLING UNITS					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
7.1	Supply, installation, testing and commissioning of draw through type Air Handling Units (double skin type) of horizontal /vertical type as specified & shown in schedule of equipment complete with the following :-					
	a. Fan Section and canvas connection,Mixing Box, Thermal break profile. (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 and hepa filters with filter section wherever specifically specified as per AHU schedule .Wherever fine/hepa filters are specified, item shall include factory fabricated double skin plenum of same specifications as AHU panels and complete with filter frameworks.Fine/hepa filter section along with discharge plenum shall be part of AHU in upper tier.					
	f. Drain pan, drain connection.					
	g. Squirrel cage induction IP 55 TEFC drive motor, drive arrangement, guard etc.All AHU motors shall be compatible for working with VFD.					
	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.					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
7.1.1	AH-GF-01 - 4050cfm/ 4RD Cooling Coil/80 mm static (with fine filters)	1	Nos.			
7.1.2	AH-GF-02 - 4050cfm/ 4RD Cooling Coil/80 mm static (with fine filters)	1	Nos.			
7.1.3	AH-GF-03 - 8000cfm/ 4RD Cooling Coil/50 mm static	1	Nos.			
7.1.4	AH-GF-04 - 2900cfm/ 8RD Cooling Coil/ 2RD heating coil/ 135 mm static (with fine & hepa filters)	1	Nos.			
7.1.5	AH-GF-05 - 6750cfm/ 4RD Cooling Coil/50 mm static	1	Nos.			
7.1.6	AH-GF-06 - 3000cfm/ 8RD Cooling Coil/ 2RD heating coil/ 80 mm static (with fine filters)	1	Nos.			
7.1.7	AH-GF-07 - 6550cfm/ 4RD Cooling Coil/50 mm static	1	Nos.			
7.1.8	AH-GF-08 - 12000cfm/ 4RD Cooling Coil/50 mm static	1	Nos.			
7.1.9	AH-GF-04 - 2300cfm/ 6RD Cooling Coil/ 2RD heating coil/ 135 mm static (with fine & hepa filters)	1	Nos.			
7.1.10	AH-FF-01 - 4500cfm/ 4RD Cooling Coil/ 40 mm static	1	Nos.			
7.1.11	AH-FF-02- 9000cfm/ 4RD Cooling Coil/ 50 mm static	1	Nos.			
7.1.12	AH-FF-03 - 8250cfm/ 4RD Cooling Coil/ 50 mm static	1	Nos.			
7.1.13	AH-SF-01 - 3400cfm/ 6RD Cooling Coil/ 2RD heating coil/ 135 mm static (with fine & hepa filters)	1	Nos.			
7.1.14	AH-SF-02 - 3000cfm/ 6RD Cooling Coil/ 2RD heating coil/ 135 mm static (with fine & hepa filters)	1	Nos.			
7.1.15	AH-SF-03 - 5500cfm/ 6RD Cooling Coil/ 2RD heating coil/ 80 mm static (with fine filters)	1	Nos.			
7.1.16	AH-SF-04 - 7500cfm/ 4RD Cooling Coil/ 50 mm static	1	Nos.			
7.2	CEILING SUSPENDED UNITS					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	Supply, installation, testing and commissioning of draw through type Air Handling Units (double skin type) of ceiling suspended type as specified & shown in schedule of equipment complete with the following :-					
	a. Fan Section and canvas connection,Mixing Box, Thermal break profile. (double skin type)					
	b. Centrifugal blower					
	c. Coil as per specifications.					
	d. Pre filters as required					
	e. Drain pan, drain connection.					
	f. Squirrel cage induction IP 55 TEFC drive motor, drive arrangement, guard etc.All AHU motors shall be compatible for working with VFD.					
	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.					
7.2.1	CSU -GF- 01 -1250cfm/4 RD Cooling Coil/40 mm static	1	Nos.			
7.2.2	CSU -GF- 02 -1250cfm/4 RD Cooling Coil/40 mm static	1	Nos.			
7.2.3	CSU -GF- 03 -1250cfm/4 RD Cooling Coil/40 mm static	1	Nos.			
7.2.4	CSU -GF- 04 -3200cfm/4 RD Cooling Coil/40 mm static	1	Nos.			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
7.2.5	CSU -GF- 05 -2300cfm/4 RD Cooling Coil/40 mm static	1	Nos.			
7.2.6	CSU -GF- 06 -2200cfm/4 RD Cooling Coil/40 mm static	1	Nos.			
7.2.7	CSU -FF- 01 -1900cfm/4 RD Cooling Coil40 mm static	1	Nos.			
7.2.8	CSU -FF- 02 -1900cfm/4 RD Cooling Coil40 mm static	1	Nos.			
7.2.9	CSU -FF- 03 -1900cfm/4 RD Cooling Coil/40 mm static	1	Nos.			
7.2.10	CSU -FF- 04 -3000cfm/4 RD Cooling Coil/40 mm static	1	Nos.			
7.2.11	CSU -SF- 01 -1800cfm/4 RD Cooling Coil/40 mm static	1	Nos.			
7.2.12	CSU -SF- 02 -3200cfm/4 RD Cooling Coil/40 mm static	1	Nos.			
7.2.13	CSU -SF- 03 -1200cfm/8 RD Cooling Coil/2RD heating coil/50 mm static (TFA)	1	Nos.			
8.0	FAN COIL UNITS					
	Supply, installation, testing and commissioning of horizontal type sheet metal ceiling suspended FCU's each complete with 3 row deep chilled water cooling coil of copper tubes aluminium fins construction, centrifugal fan, 3 speed, IP 55,class F insulation motor,aluminium cleanable filters insulated condensate drain pan, coil piping connections, condensate drain connection, 2 way modulaing motorised valves with proportional thermostate, vibration isolator,wiring complete as required complete with ball valve, ball valve with strainer as required as per specification & drawings with the following capacities:-					
8.1	1.5 TR	12	Nos.			
8.2	2.5 TR	6	Nos.			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
9.0	Supply , installation , testing and commisioning of air cooled Precision cooling 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. The equipment shall be equiped with humidity control.					
9.1	Capacity :8.5 TR	1	Nos.			
9.2	Capacity :5.5 TR	1	Nos.			
9.3	Capacity :3 TR	2	Nos.			
10.0	Package Type Air Washer					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	Providing and fixing of package type air washer complete with G.I blower section, DIDW blower, with motors, base, drive arrangement, etc. cooling pad section, stainless steel tank, G.I. housing, filter plenum motor drive, G.I. piping, with valves and fittings etc. as per specifications and drawings including all necessary civil works PVC eliminators as per specifications and drawings.					
10.1	25000 CFM / 40 mm wg, for Waiting	1	No.			
11.0	Inline Fans					
11.1	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.					
	Inline Fans					
11.1.1	Air Quantity :300 CFM Static Pressure :20 mm wg	1	Nos.			
11.1.2	Air Quantity :400 CFM Static Pressure :20 mm wg	2	Nos.			
12.0	Propeller Fans/ centrifugal fans					
12.1	Propeller fans					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	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:					
12.1.1	300 mm dia 900 RPM fan suitable for 220 +/- 10% volts, 50 Cycles, 1 Phase AC Supply	10	Nos			
12.1.2	225 mm dia 900 RPM fan suitable for 220 +/- 10% volts, 50 Cycles, 1 Phase AC Supply	15	Nos			
13.0	Tube Axial Flow fans					
13.1	Supply, installation, testing and commissioning 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 . Fan shall be complete with gravity louvers. Fan shall be 250 deg C, 2hrs fire rated.					
	For Basement ventilation					
13.1.1	Air Quantity : 3500 CFM Static Pressure : 25 mm wg	2	Nos.			
13.1.2	Air Quantity : 7000 CFM Static Pressure : 25 mm wg	2	Nos.			
13.1.3	Air Quantity : 10500 CFM Static Pressure : 25 mm wg	2	Nos.			
13.1.4	Air Quantity : 1500 CFM					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	Static Pressure : 25 mm wg	6	Nos.			
13.2	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 . Fan shall be complete with gravity louvers.					
13.2.1	For Liftwell Pressurisation Air Quantity : 2250 CFM Static Pressure : 30 mm wg	2	Nos.			
14.0	EXPANSION TANK					
	Supply, installation, testing and commissioning of pressurised PVC., expansion tank of following capacities made of PVC 2 layer sheet complete with 50 mm thick fire retardant type 32 kg/mt cu density TF quality 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).					
14.1	1000 ltrs. (for chilled water circuit)	1	No.			
14.2	500 ltrs. (for hot water circuit)	1	No.			
B)	PIPING					
15.0	CONDENSER WATER PIPING & VALVES					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	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 painted as per specifications :					
15.1	250 mm dia	90	RM			
15.2	200 mm dia	70	RM			
15.3	100 mm dia	60	RM			
15.4	50 mm dia	40	RM			
15.5	40 mm dia	40	RM			
16.0	Valves					
16.1	Butterfly valves :					
	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:					
16.1.1	250 mm dia.	3	Nos			
16.1.2	200 mm dia.	12	Nos			
16.1.3	100 mm dia.	3	Nos			
16.1.4	50 mm dia.	6	Nos			
16.2	Balancing valves :					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
16.2.1	200 mm dia.	6	Nos			
16.3	Non return/Check valves :					
16.3.1	200 mm dia.	3	Nos			
16.4	Pot strainer with drain valve					
16.4.1	250 mm dia.	1	Nos			
16.5	Y- strainer with drain valve					
16.5.1	200 mm dia.	3	Nos			
17.0	CHILLED WATER PIPING					
	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 :					
17.1	200 mm dia	80	RM			
17.2	150 mm dia	150	RM			
17.3	125 mm dia	20	RM			
17.4	100 mm dia	40	RM			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
17.5	80 mm dia	80	RM			
17.6	65 mm dia	50	RM			
17.7	50 mm dia	110	RM			
17.8	40 mm dia	120	RM			
17.9	32 mm dia	50	RM			
17.10	25 mm dia	150	RM			
17.11	20 mm dia	120	RM			
18.0	VALVES & STRAINERS					
	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:					
18.1	Butterfly valves :					
18.1.1	200 mm dia.	2	Nos			
18.1.2	150 mm dia.	24	Nos			
18.1.3	125 mm dia.	2	Nos			
18.1.4	100 mm dia.	2	Nos			
18.1.5	80 mm dia.	12	Nos			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
18.1.6	65 mm dia	16	Nos			
18.1.7	50 mm dia.	14	Nos			
18.1.8	40 mm dia.	28	Nos			
18.1.9	32 mm dia	12	Nos			
18.2	Balancing valves :					
18.2.1	200 mm dia.	2	Nos			
18.2.2	150 mm dia.	8	Nos			
18.2.3	125 mm dia.	2	Nos			
18.2.4	100 mm dia.	2	Nos			
18.2.5	80 mm dia.	6	Nos			
18.2.6	65 mm dia	8	Nos			
18.2.7	50 mm dia.	7	Nos			
18.2.8	40 mm dia.	14	Nos			
18.2.9	32 mm dia	6	Nos			
18.3	Non return/Check valves :					
18.3.1	150 mm dia.	8	Nos			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
18.3.2	80 mm dia.	2	Nos			
18.4	Y- strainers with drain valve					
18.4.1	150 mm dia.	8	Nos			
18.4.2	80 mm dia.	8	Nos			
18.4.3	65 mm dia	8	Nos			
18.4.4	50 mm dia.	7	Nos			
18.4.5	40 mm dia.	14	Nos			
18.4.6	32 mm dia	6	Nos			
18.5	Providing and fixing in position the following Gate Valves duly insulated as per specifications:					
18.5.1	50 mm dia Valves	4	Nos.			
18.5.2	40 mm dia Valves	4	Nos.			
18.5.3	32 mm dia Valves	4	Nos.			
18.6	Motorized Butterfly Valves					
	Providing and fixing the following motorized butterfly valves for chillers, chilled water pumps and boiler at inlet and outlet. All valves shall be BMS compatible and complete with electric wiring, earthing and control wiring etc.					
18.6.1	150 mm dia	6	Nos.			
18.6.2	100 mm dia	2	Nos.			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
18.6.3	80 mm dia	2	Nos.			
18.7	Supply, installation, testing and commissioning cooling thermostats :-					
18.7.1	For AHUs	29	Nos.			
18.7.2	For FCUs	18	Nos.			
19.0	DRAIN PIPING					
	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.					
19.1.1	50 mm dia	80	RM			
19.1.2	40 mm dia	150	RM			
19.1.3	32 mm dia	175	RM			
19.1.4	25 mm dia	150	RM			
C	AIR DISTRIBUTION					
20.0	DUCTING					
20.1	GSS DUCTING					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	Supply, installation, testing, commissioning 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:					
20.1.1	1.25 mm(18 G) GSS	250	Sqm.			
20.1.2	1.0 mm (20 G) GSS	500	Sqm.			
20.1.3	0.80 mm (22 G) GSS	1500	Sqm.			
20.1.4	0.63 mm (24 G) GSS	3000	Sqm.			
20.2	ALUMINIUM DUCTING					
	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.					
20.2.1	22 gauge	400	Sqm.			
20.2.2	20 gauge	150	Sqm.			
20.2.3	18 gauge	100	Sqm			
21.0	FIRE DAMPERS					
21.1	Supply, installation, testing and commissioning of motorized combined smoke & fire dampers made out of GI sheet of at least 120 minutes fire rating complete with GI damper of required size, smoke sensor, etc as per specifications and shop drawings.					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
21.1	Fire/smoke Damper	20	Sqm			
21.1	Actuator & control panel	60	sets			
22.0	VOLUME CONTROL DAMPERS					
22.1	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.	24	Sqm.			
23.0	CEILING DIFFUSERS					
23.1	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.	30	Sqm.			
23.2	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	30	Sqm.			
24.0	GRILLES					
24.1	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.					
24.1.1	Supply air grilles in single louvers with volume control dampers.	10	Sqm.			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
24.1.2	Return air grilles in single louvers without volume control dampers.	15	Sqm.			
24.2	LINEAR GRILLES					
	Supply, installation,testing and balancing of air linear grilles of powder coated aluminium construction suitable for installation in walls/false ceiling, boxing etc as per specifications and drawings.	10	Sqm.			
25.0	GRILLE DAMPERS					
	Supply, installation and balancing of aluminium construction volume control dampers for linear grilles.	10	Sqm.			
26.0	SLOT DIFFUSER					
	Supply, installation,testing and balancing of slot diffusers of powder coated extruded aluminium construction suitable for installation in walls/false ceiling, boxing etc as per specifications and drawings.the diffusers shall be with hit and miss damper at the supply air portion as per specification and approved shop drawings.	5	Sqm.			
27.0	FRESH AIR GRILLES with bird screen					
27.1	Supply, installation,testing and balancing of extruded aluminium fresh air grilles with louvers and bird screen as per specification and drawings.(for fresh air supply during fire)	10	Sqm.			
27.2	Supply, installation,testing and balancing of extruded aluminium exhaust air grilles with louvers and bird screen as per specification and drawings.	5	Sqm.			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
28.0	Fresh Air Louvers with bird screen					
	Supply, installation, testing, commissioning and balancing of fresh air opening comprising of powder coated extruded aluminium louvers with bird screen, projection with frame and volume control damper with lever mounting arrangement etc. as per specifications and drawings.	5	Sqm.			
29.0	LAMINAR FLOW DIFFUSERS					
29.1	Providing & fixing of stainless steel plenum duly reinforced and made 100% air tight complete with 55% free perforated grilles(18 Gauge SS) at bottom for laminar flow in OTs. The plenum shall be insulated with 15 mm closed cell polyethylene insulation & shall be manufactured & installed by specialised agency as per designed to be approved by customer/Consultant					
	Size: 900 x 600	32	nos.			
29.2	Providing & fixing of aluminium powder coated grilles with 60% face area. The grill shall be complete with damper & complete 25 mm thick aluminium filters	5	sqm			
30.0	Pan type Humidifier					
30.1	Supply, installation, testing and commissioning of electric pan type humidifiers in each Air Handling Rooms to provide humidification during winter months heating operation. The humidifier shall evaporate 12 liters water per hour and complete with all required water valves incoming MCB, humidistat and ,electrical & control wiring and earthing as required.	4	Sets			
	6 KW					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
D	<u>INSULATION</u>					
31.0	DUCT INSULATION					
31.1	Supply and fixing resin bonded fibre glass insulation on supply/return air ducts covered with polythene and finished as specified.					
31.1.1	50 mm thick insulation (For duct in Non AC area)	600	Sqm.			
31.1.2	25 mm thick insulation (For duct in AC area)	2500	Sqm.			
31.2	Supply and fixing of 15 mm thick foil faced FR Closed Cell Chemically Crossed Linked PolyEthylene Foam insulation for supply air ducting as per the specifications and approved shop drawings.	750	Sqm.			
32.0	DUCT ACOUSTIC LINING					
32.1	Supply,application and fixing of resin bonded fibre glass hard board acoustic insulation in supply air ducting/plenum covered with tissue paper and perforated aluminium sheet as specified.	500	Sqm.			
33.0	PLANT ROOMS ACOUSTIC INSULATION					
33.1	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.	1500	Sqm.			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
E	<u>ELECTRICAL</u>					
34.0	AIR- CONDITIONING PANELS					
	All bill of items are to be read in conjunction with specifications and drawings.					
	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 accommodated in a modular multitier arrangement. The painting shall be done as per relevant IS codes as specified in the specifications. Adequate size cable alley shall be provided all round the panel and in the back for each cable bending and termination. The 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.					
34.1	Main/ Emergency Air-conditioning MCC in plant room in basement INCOMER					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	2No. 800A, 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.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 control SP MCBs.					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP.					
	Push button to CLOSE the ACB.					
	1 Set of A meter with ASS and CTs.					
	BUSBARS :1200 A TPN					
	Bus Coupler					
	1 No. 800A, 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= 35KA for 1 sec.					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP.					
	Push button to CLOSE the ACB.					
	1 Set of A meter with ASS and CTs.					
	OUTGOING					
i)	3 nos 400 Amp 415 volts, 35 KA (Isc), 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 for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS.For Chillers.(3W)					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
ii)	2 nos 400 Amp 415 volts, 35 KA (Isc), 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 for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS.For hot water genetators.(2W)					
iii)	1 nos 200 Amp 415 volts, 35 KA (Isc), 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 for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS.For hot water genetators.(1W)					
iv)	3 Nos. 125 Amp 415 volts, 35 KA (Isc), 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 for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS with fully automatic star delta starter suitable for 25/30 hp Condenser water pumps.(2W+1S)					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
v)	7 Nos. 125 Amp 415 volts, 35 KA (Isc), 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 for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS with fully automatic star delta starter suitable for 12.5/15 hp Primary/Secondary chilled water pumps.(6W+1S)					
vi)	3 Nos. 63 Amp 415 volts, 35 KA (Isc), 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 for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS with fully automatic star delta starter suitable for 20 hp Hot water pumps.(2W+1S)					
vii)	2 Nos. 63 Amp 415 volts, 35 KA (Isc), 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 for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS with fully automatic star delta starter suitable for 7.5 hp Hot water pumps.(1W+1S)					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
viii)	2 Nos. 32 Amp 415 volts, 10 KA (Isc), 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 for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS with fully automatic star delta starter suitable for 5 hp Hot water pumps.(1W+1S)					
xi)	7 Nos. 63 Amp 415 volts, 35 KA (Isc), 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 for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS with fully automatic star delta starter suitable for 7.5/10 hp cooling towers.(6W+1S)					
x)	1 nos 250 Amp 415 volts, 35 KA (Isc), 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 for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS.For Disribution Panel at GF.(1W)					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
xi)	3 nos 125 Amp 415 volts, 35 KA (Isc), 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 for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS.For Distribution Panel at FF, SF and Basement.(3W+1S)					
	Complete panel as above	1	Panel			
35	AHU MAIN DISTRIBUTION PANEL (in plant room)					
	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 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.					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
35.1	AHU PANEL AHP GF (For AHUs on GF)					
	INCOMER					
	01 nos. 250 Amp 415 volts, 35 KA (Isc), 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 for MCCB.					
	1 set phase indication lamps with control fuses.					
	1 no. voltmeter with VSS.					
	1 no. ammeter with ASS and CTs.					
	400 A TPN Aluminium conductor bus bar dully sleeved.					
	OUTGOING					
	2 sets-63 A FP MCCB 25 KA outgoing with ON/OFF indiacting lamps and push buttons complete					
	9 sets-32 A FP MCCB 25 KA outgoing with ON/OFF indiacting lamps and push buttons complete					
	8 sets-32 A FP MCCB 25 KA outgoing with ON/OFF indiacting lamps and push buttons complete					
	Complete panel as above	1	panel			
35.2	AHU PANEL AHP FF (For AHUs on FF)					
	INCOMER					
	1 no. 125A, FP MCCB 25 KA with					
	1 set phase indication lamps with control fuses.					
	1 no. voltmeter with VSS.					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	1 no. ammeter with ASS and CTs.					
	200 A TPN Aluminium conductor bus bar dully sleeved.					
	OUTGOING					
	3 sets-63 A FP MCCB 25 KA outgoing with ON/OFF indiacting lamps and push buttons complete					
	1 sets-32 A FP MCCB 25 KA outgoing for with ON/OFF indiacting lamps and push buttons complete					
	5 sets-16A FP MCCB 25 KA outgoing with ON/OFF indiacting lamps and push buttons complete					
	Complete panel as above	1	panel			
35.3	AHU PANEL AHP SF (For AHUs on SF)					
	INCOMER					
	1 no. 100A, FP MCCB 25 KA with					
	1 set phase indication lamps with control fuses.					
	1 no. voltmeter with VSS.					
	1 no. ammeter with ASS and CTs.					
	150 A TPN Aluminium conductor bus bar dully sleeved.					
	OUTGOING					
	3 sets-63 A FP MCCB 25 KA outgoing with ON/OFF indiacting lamps and push buttons complete					
	1 sets-32 A FP MCCB 25 KA outgoing for with ON/OFF indiacting lamps and push buttons complete					
	3 sets-16A FP MCCB 25 KA outgoing with ON/OFF indiacting lamps and push buttons complete					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	Complete panel as above	1	panel			
35.4	AHU PANEL AHP B1 (For ventilation equipments in Basement)					
	INCOMER					
	1 no. 125A, FP MCCB 35 KA with					
	1 set phase indication lamps with control fuses.					
	1 no. voltmeter with VSS.					
	1 no. ammeter with ASS and CTs.					
	150 A TPN Aluminium conductor bus bar dully sleeved.					
	OUTGOING					
	1 sets-63 A FP MCCB 25 KA outgoing with ON/OFF indiacting lamps and push buttons complete					
	1 sets-32 A FP MCCB 25 KA outgoing for with ON/OFF indiacting lamps and push buttons complete					
	2 sets-16A FP MCCB 25 KA outgoing with ON/OFF indiacting lamps and push buttons complete					
	Complete panel as above	1	panel			
36.0	AHU STARTER PANELS (AHSP)					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	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					
36.1	STARTER PANEL					
	OUTGOING :					
	1 No. 32 Amps MCCB 10 KA for 10 HP Motor with suitable Starters for motor with thermal overload protection, single phase preventor, spare NO_NC contacts for interlocking, ON-OFF indication lamps with push button, ammeter with ASS and CTs for AHU motor as required.	1	Nos.			
36.2	AHU STARTER PANEL (AHSP -					
	OUTGOING :					
	1 No. 32 Amps MCCB 10 KA for 7.5 HP Motor with suitable Starters for motor with thermal overload protection, single phase preventor, spare NO_NC contacts for interlocking, ON-OFF indication lamps with push button, ammeter with ASS and CTs for AHU motor as required.	5	Nos.			
36.3	AHU STARTER PANEL (AHSP -					
	OUTGOING :					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	1 No. 16 Amps MCCB 10 KA for 5 HP Motor with suitable Starters for motor with thermal overload protection, single phase preventor, spare NO_NC contacts for interlocking, ON-OFF indication lamps with push button, ammeter with ASS and CTs for AHU motor as required.	8	Nos.			
36.4	AHU STARTER PANEL (AHSP -					
	OUTGOING :					
	1 No. 16 Amps MCCB 10 KA for 3 HP Motor with suitable Starters for motor with thermal overload protection, single phase preventor, spare NO_NC contacts for interlocking, ON-OFF indication lamps with push button, ammeter with ASS and CTs for AHU motor as required.	2	Nos.			
36.5	AHU STARTER PANEL (AHSP -					
	OUTGOING :					
	1 No. 16 Amps MCCB 10 KA for 1.5/2 HP Motor with suitable Starters for motor with thermal overload protection, single phase preventor, spare NO_NC contacts for interlocking, ON-OFF indication lamps with push button, ammeter with ASS and CTs for AHU motor as required.	6	Nos.			
36.6	AHU STARTER PANEL					
	OUTGOING :					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	1 No. 16 Amps MCCB 10 KA for 1 HP Motor with suitable Starters for motor with thermal overload protection, single phase preventor, spare NO_NC contacts for interlocking, ON-OFF indication lamps with push button, ammeter with ASS and CTs for AHU motor as required.	8	Nos.			
37.0	CABLING					
	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-1 laid underground/cable tray/on surface of wall/hume pipe etc. & termination with brass compression glands as required.					
37.1	3.5C x 185 sq.mm cable	150	Mtr			
37.2	3.5C x 150 sq.mm cable	50	Mtr			
37.3	3.5C x 95 sq.mm cable	150	Mtr			
37.4	3.5C x 70 sq.mm cable	50	Mtr			
37.5	4Cx 25 sq.mm Cable	100	Mtr			
37.6	4 C X 16 sq. mm. Cable	300	Mtr			
37.7	3.5 C X10 sq. mm. Cable	150	Mtr			
37.8	4 C X 6 sq. mm. Cable	200	Mtr			
37.9	3 C X 4 sq. mm. Cable	550	Mtr			
37.10	4C X6 sq. mm. Cable	400	Mtr			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
38.0	CABLE TRAYS					
	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					
38.1	200 mm widthx50 mm deep x1.6 mmthickness	300	Mtr			
38.2	150 mm widthx50 mm deep x1.6 mmthickness	250	Mtr			
38.3	100 mm widthx50 mm deep x1.6 mmthickness	500	Mtr			
39.0	EARTHING					
	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	2	Set			
39.1	Providing & fixing GI earth strip 40mm x 6mm on surface or in recess for earth connections etc. as required	70	Mtr			
39.2	Providing and fixing GI earth strip on walls/ trenches complete as per specifications and as required.					
39.2.1	38mmx 6mm	100	Mtr			
39.2.2	25mm x 3mm	180	Mtr			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
39.3	Providing and fixing earth wire of complete as per specifications as required.					
39.3.1	4 SWG wire	100	Mtr			
39.3.2	6 SWG wire	250	Mtr			
39.3.3	8 SWG wire	400	Mtr			
40.0	CONTROL CABLING					
	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					
40.1	44 core cable	50				
40.2	37 core cable	40				
40.3	27 core cable	50				
40.4	19 core cable	25				
40.5	14 core cable	80				
40.6	10 core cable	350				
40.7	8 core cable	250				
40.8	6 core cable	150				

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
40.9	5 core cable	350				
40.10	3 core cable	100				
40.11	2 core cable	150				
41.0	CONTROL CONSOLE /DESK					
	Supplying, installation, testing & commissioning of floor mounted desk type control console cum indicating panel in the A.C. plant room containing various indications and controls for the complete air-conditioning system comprising chilling units, chilled/ Hot/ condenser water pumps, cooling towers and AHUs/ Ex. blower/ Fans etc , Hot water boiler with test push button facility. The panel shall be fabricated from minimum 1.6mm thick M.S. powder coated sheet of approved design. The air-conditioning module of the central control cum indicating panel shall contain the following accessories.					
	Status indication (ON, OFF & fault) of each compressor for each chilling machine, hot water boiler etc.					
	Push buttons and indicating lamps for remote start & stop and status indication for every nos of the water circulating pumps, Air Handling Units, Ex blower, Fans etc.					
	Push buttons and indication lamps for remote start & stop and status indication (On, Off & Fault) for every nos. cooling tower motors and low water level indication for every Nos. cooling towers.					
	Hooter and flashing lamp to indicate operation of any safety/ shut down with necessary contactors, accept, reset and test push buttons.					
	Complete wiring with copper conductor PVC insulated multicore 2.5 sq.mm stranded cable (including supply of cable,					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs (in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	tray, clamps etc) from various equipments in the A.C. plant room, AHU's Terrace plant room and cooling towers etc to the control console panel as required.					
	COMPLETE PANEL AS ABOVE	1	Panel			
	Total For HVAC Works					

SUMMARY SHEET FOR HVAC WORKS FOR PROPOSED CANCER CENTER, BHATINDA					
SUB HEAD	DESCRIPTION OF WORK				AMOUNR(Rs.)
A	EQUIPMENT				
B	PIPING				
C	AIR DISTRIBUTION				
D	INSULATION				
E	ELECTRICAL				
	GRAND TOTAL				