

**DR. RML HOSPITAL UNDER
MINISTRY OF HEALTH & FAMILY WELFARE,
GOVT. OF INDIA, NEW DELHI**

PACKAGE-I

Tender

For

**Modifications and alterations of sixth floor for Setting up of Microbiology
Laboratory at PGIMER at Dr. RML Hospital, New Delhi**

Volume-IV

Bill of Quantities

JULY 2011



**HSCC (INDIA) LTD.
(CONSULTANTS & ENGINEERS FOR MEGA HOSPITALS & LABORATORIES)
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PQ No. HSCC/335 /Fur/BU-HP-II/2011

**Name of Work: Modifications and alteration at Sixth floor for setting up
of Microbiology Lab at Dr RML Hospital, New Delhi**

SUMMARY OF ALL QUOTED PRICE

S. No.	Description	Amount (In Rs.)
1	Civil	
2	Plumbing	
3	Electrical Works	
	TOTAL	

PROJECT NAME: Addition/Alteration at sixth floor for Microbiology Lab -PGI Block, RML Hospital, New Delhi

ABSTRACT OF COST (CIVIL WORK)

S.No	DESCRIPTION OF WORK		Amount(Rs)
1	RCC WORK	Rs	
2	BRICK WORK	Rs	
3	DOORS & WINDOWS	Rs	
4	FLOORING	Rs	
5	FINISHING	Rs	
6	MISCELLANEOUS	Rs	
	TOTAL	Rs	

PROJECT NAME: Addition/Alteration at sixth floor for Microbiology Lab -PGI Block, RML Hospital, New Delhi

Bill of Quantity

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	CONCRETE WORK					
1.01	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:					
a)	1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size)	27.00	cum			
1.02	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases up to floor five level excluding the cost of centering, shuttering, finishing and reinforcement with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size).	5.00	cum			
1.03	Extra for R.C.C. / B.M.C / RM.C. work above floor V level for each four floors or part thereof.	5.00	cum			
1.04	Centering and shuttering including strutting, propping etc. and removal of form for:					
a)	Shelves (Cast in situ)	56.00	sqm			

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1	2	3	4	5	6	7
b)	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.	8.00	sqm			
1.05	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete.					
a)	Thermo-Mechanically Treated bars Fe500	0.40	tonne			
	Total					

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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
2.00	BRICK WORK					
2.01	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)	1.00	cum			
2.02	Extra for brick work in superstructure above floor V level for each four floors or part thereof by mechanical means by lifting material using mobile crane.	10.00	cum			
2.03	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)	430.00	sqm			
2.04	Extra for half brick masonry in superstructure, above floor V level for every four floors or part thereof by mechanical means by lifting material using mobile crane.	430.00	sqm			
2.05	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).	430.00	sqm			
	Total					

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1	2	3	4	5	6	7
3.00	DOORS & GLAZING					
3.01	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) :					
3.01.1	For fixed portion					
a)	Powder coated aluminium (minimum thickness of powder coating 50 micron)	579.00	kg			

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1	2	3	4	5	6	7
3.02	Providing and fixing double glazed hermetically sealed glazing in aluminium windows, ventilators and partition etc. with 6 mm thick clear float glass both side having 12 mm air gap including providing EPDM gasket, perforated aluminium spacers, desiccants, sealant (Both primary and secondary sealant) etc. as per specifications, drawings and direction of Engineer-in-charge complete.	58.00	Sqm			
3.03	Providing and fixing ISI marked flush door shutters conforming to IS 2202 (Part I) non-decorative type, core of block board construction with frame of 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.	49.00	sqm			
3.04	Providing & Fixing decorative high pressure laminated sheet of plain / wood grain in gloss / matt / suede finish with high density protective surface layer and reverse side of adhesive bonding quality conforming to IS : 2046 Type S including cost of adhesive of approved quality					
a)	1.0 mm thick.	98.00	sqm			

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1	2	3	4	5	6	7
3.05	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)	49.00	sqm			
3.06	Providing and fixing IS : 3564 marked Aluminium die cast body tubular type universal hydraulic door closer with necessary accessories and screws etc. complete.	20.00	each			
3.07	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	20.00	each			
3.08	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	39.00	each			
3.09	Providing and fixing aluminium handles ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade with necessary screws etc. c.omplete :					
a)	125 mm	70.00	each			

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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
3.10	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	40.00	each			
3.11	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).	20.00	each			
3.12	Extra of providing vision panel not exceeding 0.1sqm in all type of flush doors. (Cost of glass excluded) over all area of doors shutters to be measured.					
a)	Rectalgar of square	49.00	sqm			
	Total					

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1	2	3	4	5	6	7
4.00	FLOORING					
4.01	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.	32.00	sqm			
4.02	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.	4.00	sqm			
4.03	Stone tile (polished) work for wall lining over 12mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and cement slurry @ 3.3 kg/sqm including pointing in white cement complete.					
a)	8mm thick.					
i	Granite of any colour and shade.	383.00	sqm			

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1	2	3	4	5	6	7
4.04	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	118.00	sqm			
4.05	Providing and fixing 2 mm thick homogeneous flooring with total weight 3.600 g/m ² polyurethane reinforced(PUR) ,Abrasion group μ:≤0.30mm,residual identification approx..06 mm,caster wheel test qualified,,dimensional stablity ≤0.40%,static electrical charge < 2kv,impact sound reduction approx +4db,good resistance of chemical and fire,doesn't favour in growth of fungi & bacteria. slip resistant (R9 ≥0.300	192.00	sqm			

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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
4.06	Providing and fixing 18mm thick gang saw cut mirror polished premoulded and prepolished) machine cut for kitchen platforms, vanity counters, window sills. facias and similar locations of required size of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edge to give high gloss finish etc. complete at all levels					
a)	Granite of any colour and shade					
i	Area of slab upto 0.50 sqm	14.00	sqm			
ii	Area of slab over 0.50 sqm.	42.00	sqm			
4.07	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.	74.00	metre			

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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
4.08	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.	49.00	Sqm			
4.09	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	74.00	Metre			
4.10	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.	16.00	Each			
Total						

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1	2	3	4	5	6	7
5.00	FINISHING					
5.01	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					

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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.	213.00	sqm			

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1	2	3	4	5	6	7
5.02	<p>Providing and fixing 15mm thick Mineral Fibre False Ceiling Tiles or equivalent of size 600x600 mm in true horizontal levelsuspended on inter locking metalgrid of hot dipped galvanied steel sectios (Galvanized @ 170 gsm/sqm) consisting of main "T" runner suitably spaced at joints to get required length and of size 24x38mm made from 0.30 mm thick (minimum)sheet spaced at 1200 mm center to center and cross "T" of size 24x25mm made of 0.30 mm thick (minimum) sheet to be interlocked at middle of the 1200x600mm panel to form grids of 600x 600mm and laying 15 mm thick mineral fibre false ceiling tiles of approved texture in the grid including, whereever, requied, cutting/making, opening for services like diffusers, grills, light fittings, fixtures, smoke deterctors etc. Main "T" runners to besuspended from ceiling using GI slotted cleats fixed to ceiling with 6 mm dia and 50 mm long dah fasteners, 4 mm GI adjustable rods with galvanised level clips spaced at 1200 m center to center along main T, bottom exposed width of 24 mm of all T-Secitons shall be pre-painted with</p>					
	<p>polyester paint, all complete at all heights as per specifcaitons drawings and as directed by Engineer-in-Charge.Only Mineral Fibre false ceiling area will be measured for the purpose of payment.</p>					

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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 Mineral Fibre Ceiling tiles having NRC value of 0.5 (minimum) CAC 35-39, light reflection 84% (minium), fire rating class A as per ASTM E-84, suitable for 95% relative humidity and also having Thermal Resistance "(R)" =0.33 sqm deg. C/W	142.00	sqm			
5.03	12 mm cement plaster of mix:					
a)	1:6 (1 cement: 6 fine sand)	328.00	sqm			
5.04	15 mm cement plaster on the rough side of single or half brick wall of mix:					
a)	1:4 (1 cement 4 fine sand)	328.00	sqm			
5.05	6 mm cement plaster of mix:					
a)	1:3 (1 cement: 3 fine sand)	354.00	sqm			
5.06	Neat cement punning	50.00	sqm			
5.07	Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete	1008.00	Sqm			
5.08	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade:					
a)	Two or more coats on new work	426.00	sqm			

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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
5.09	Applying one coat of cement primer of approved brand and manufacture on wall surface:					
a)	Cement primer.	426.00	sqm			
5.10	Applying two component based chemical resistant epoxy resin wall coating over plastered surface including preparing of the surface, applying suitable primer and painting of approved brand and manufacture					
a)	New work (two or more coats) over and including priming coat with suitable primer.	284.00	sqm			
5.11	Extra for providing Coving in epoxy flooring all complete and as directed	35.00	Metre			
5.12	Extra for providing Coving in PVC flooring all complete and as directed	158.00	Metre			
	Total					

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1	2	3	4	5	6	7
6.00	MISCELLANEOUS					
6.01	Supply of high back executive chair with following complete in all respect as per technical specifications as per sketch and shall have the following and complete in all respect •Half leather upholstery. •Molded / curved back for lumbar support •Revolving and Tilting mechanism. •Locking mechanism. •Pneumatic height adjustment •Tilt-tension adjustment •Wooden arm rest. •Nylone base with castors. Sample to be shown for approval from client before manufacturing.	11.00	Nos			

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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
6.02	<p>Supply of medium back executive chair with following complete in all respect as per technical specifications and sketch :</p> <ul style="list-style-type: none"> •Half leather upholstery. •Molded / curved back for lumbar support •Revolving and Tilting mechanism. •Locking mechanism. •Pneumatic height adjustment •Tilt-tension adjustment •Wooden arm rest. •Nylone base with castors. <p>Sample to be shown for approval from client before manufacturing.</p>	21.00	Nos			
6.03	<p>Supply of low back visitors chair with following complete in all respect as per technical specifications and sketch :</p> <ul style="list-style-type: none"> •Polyurethane upholstery. •Molded / curved back for lumbar support. •Polypropylene scratch resistant arm rest. •Epoxy black cantilever understructure. <p>Sample to be shown for approval from client before manufacturing.</p>	11.00	Nos			

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1	2	3	4	5	6	7
6.04	<p>Supply of Executive Table with following complete in all respect as per technical specifications and sketch :</p> <ul style="list-style-type: none"> · Independent Side return that is adjustable on either side · Provision in the side return of one sliding keyboard, one drawer storage and printer & CPU holder · Provision of two independent hanging pedestals, one with centralized locking and one with two shelves. · Attached leather on table top for grip and comfort · Provision of wire management. · Ample legroom for visitors. <p>Sample to be shown for approval from client before manufacturing.</p>	11.00	Nos.			
6.05	<p>Supply of 3 Seater Sofa for Officer's Room complete in all respect as per technical specifications . Sample to be shown for approval from client before manufacturing.</p>	2.00	Nos			
6.06	<p>Supply of 1 Seater Sofa for Officer's Room complete in all respect as per technical specifications . Sample to be shown for approval from client before manufacturing. Sample to be shown for approval from client before manufacturing.</p>	5.00	Nos			

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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
6.07	Supply of MS powder coated File Cabinet with multiple drawers in height complete in all respect as per technical specifications.	11.00	Nos.			
6.08	Providing and fixing wooden work stations for offices made of pre-laminated board top, sides and drawers incl locking arrangement, space for computer key board etc all complete as per drawing.(Rate to be quoted for surface area of work station top)	100.00	Sft			
6.09	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge.					
a)	In cement mortar	6.00	cum			
6.10	Dismantling tile work in floors and roofs laid in cement mortar including stacking material within 50 metres lead.					
a)	For thickness of tiles 10 mm to 25 mm	368.00	sqm			
6.11	Dismantling old plaster or skirting raking out joints and cleaning the surface for plaster including disposal of rubbish to the dumping ground within 50 metres lead.	53.00	sqm			

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1	2	3	4	5	6	7
6.12	Demolishing C.C. /R.C.C. work by mechanical means and stockpiling at designated locations and disposal of dismantled materials upto a lead of 1000m, stacking serviceable and unserviceable material separately including cutting reinforcement bars.	6.00	cum			
6.13	Providing the following brand new vehicle at any time for exclusive use of engineer during currency of contract.. The number of vehicles and period shall be informed by the engineer as per requirement.The rate are inclusive of services of drivers, fuel, oil, lubrication, comnsumable stores and maintenance etc complete					
a)	Indica or equivalent as required	5000.00	KM			
Total						

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S.No.	Description	Amount
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	
	TOTAL	

Bill of Materials

Name Of Project : Modifications and Alterations of Sixth floor for Microbiology Lab at PGIMER at Dr RML Hospital, New Delhi

BOQ (Plumbing Work)

Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
	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 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.	2	Each			
1.02	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.	2	Each			

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BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
1.03	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	13	Each			
1.04	Providing and fixing liquid soap dispenser 1000ml capacity SS body and push button complete.	2	Each			
1.05	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	6	Each			
1.06	Providing and fixing brass coat hook of approved quality and make complete with material of fixing	6	Each			
SUB TOTAL(SANITARY FIXTURES)						

Name Of Project : Modifications and Alterations of Sixth floor for Microbiology Lab at PGIMER at Dr RML Hospital, New Delhi

BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
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	160	Metre			
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	80	Each			
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	5	Each			
2.04	Providing and fixing plain bend of required degree.					
a)	100 mm					

Name Of Project : Modifications and Alterations of Sixth floor for Microbiology Lab at PGIMER at Dr RML Hospital, New Delhi

BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
a ii)	Sand cast iron S&S as per IS:3989	5	Each			
2.05	Providing and fixing heel rest sanitary bend.					
a)	100 mm dia					
a.ii)	sand cast iron S&S as per IS-3989	5	Each			
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	5	Each			
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	5	Each			
2.08	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	5	Each			

Name Of Project : Modifications and Alterations of Sixth floor for Microbiology Lab at PGIMER at Dr RML Hospital, New Delhi

BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
2.09	Providing and fixing terminal guard.					
a)	100 mm	5	Each			
a.ii)	sand cast iron S&S as per IS-3989					
2.10	Providing and fixing collar					
a)	100 mm					
a.ii)	Sand cast iron S&S as per IS-3989	5	Each			
2.11	Providing lead caulked joints to sand cast iron /centrifugally cast (spun) iron pipes and fittings of diameter:					
a)	100 mm	100	Each			
2.12	Providing and fixing M.S. stays and clamps for sand cast iron / centrifugally cast (spun) iron pipes of diameter :					
a)	100 mm	5	Each			
2.13	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	5	Each			

Name Of Project : Modifications and Alterations of Sixth floor for Microbiology Lab at PGIMER at Dr RML Hospital, New Delhi

BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
2.14	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	20	Metre			
2.15	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	130	Metre			
2.16	Providing and fixing floor drain points formed out of 65 mm dia GI elbow, including with 75mm dia Stainless Steel grating with frame, embedded in floor, all complete as directed.	10	Each			
2.17	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.	2	Each			
2.18	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.	2	Each			

Name Of Project : Modifications and Alterations of Sixth floor for Microbiology Lab at PGIMER at Dr RML Hospital, New Delhi

BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
2.19	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	30	Metre			
2.20	Providing and fixing dash fastner made of rust proof plated steel for holding the soil/waste supply pipes complete in all respect					
	Dash fastner for pipe more than 25 mm dia to 150 mm dia pipe of size 25 mm dia and 75 mm long minimum & shall be capable of taking 6 tonnes load and also include the supporting angles 35x35 mm/steel structures as per drawing.	50	Each			
2.21	Providing and fixing clean out/floor clean out plug consist of CI bend & GI socket heavy class with cap & key for opening male threaded cap etc. including lead caulked to CI 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	5	Each			

Name Of Project : Modifications and Alterations of Sixth floor for Microbiology Lab at PGIMER at Dr RML Hospital, New Delhi

BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
2.22	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.	5	Each			
2.23	Providing and fixing G.I. pipes complete with G.I. fittings including painting, jointing, testing the cost of cutting the chases and making good the same for waste water disposal complete as per direction of engineer incharge.					
	40 mm dia nominal bore (Sink, Urinal to floor trap)	10	Metre			
	50 mm dia nominal bore (Floor Drain to Floor Trap)	10	Metre			
	SUB TOTAL(SOIL, WASTE AND VENT PIPES)					

Name Of Project : Modifications and Alterations of Sixth floor for Microbiology Lab at PGIMER at Dr RML Hospital, New Delhi

BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
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 complete as per direction of Engineer in charge.					
	Internal work – Exposed on wall					
a)	15 mm nominal outer dia pipes (SDR-11)	20	Metre			
b)	20 mm nominal outer dia pipes (SDR-11)	10	Metre			
c)	25 mm nominal outer dia pipes (SDR-11)	10	Metre			
d)	40 mm nominal outer dia pipes (SDR-11)	20	Metre			
3.02	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge.					
	Concealed work including cutting chases and making good the walls etc.					

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BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
a)	15 mm nominal outer dia pipes (SDR-11)	50	Metre			
b)	20 mm nominal outer dia pipes (SDR-11)	25	Metre			
c)	25 mm nominal outer dia pipes (SDR-11)	10	Metre			
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)	10	Metre			
3.04	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)	1	Each			
3.05	providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end)					
a)	25 mm nominal bore	5	Each			
b)	32 mm nominal bore	2	Each			

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BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
c)	40 mm nominal bore	2	Each			
3.06	Providing and fixing ball valve (brass) of approved quality, High or low pressure with plastic floats complete					
a)	20mm	1	Each			
3.07	Providing and fixing unplasticised PVC connection pipe with brass unions:					
a)	45 cm length					
a i)	15 mm nominal bore	2	Each			
3.08	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	1	Each			

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BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
3.09	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	20	Metre			
b)	20 mm nominal outer dia pipes	10	Metre			
c)	25 mm nominal outer dia pipes	10	Metre			
d)	40 mm nominal outer dia pipes	20	Metre			
3.10	Painting G.I. /CPVC pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality.					
a)	50 mm diameter pipe	10	Metre			
3.11	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	10	Metre			
3.12	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	2000	per litre			
3.13	Providing and fixing C.P brass bib cock of approved quality.					

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BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
a)	15 mm nominal bore	2	Each			
3.14	Providing and fixing C.P. brass long nose bib cock of approved quality conforming to IS standards and weighing not less than 810 gms. (Jaquar 5043 ,model of equivalent make of Marck & Aquaplus)					
a)	15 mm nominal bore	13	Each			
3.15	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931.(Jaquar15053 ,model of equivalent make of Marck & Aquaplus)					
a)	15 mm nominal bore	2	Each			
3.16	Cutting holes upto 30x30 cm in walls including making good the same with F.P.S bricks	1	Each			
3.17	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	1	Each			

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BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
3.18	Extra for providing CP Sensor faucet for wash basin with popup waste system jaquar 51011, equivalent model of Marck & jaquar in place of normal pillar tap	2	Each			
3.19	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	4	Each			
	20 mm diameter	2	Each			
3.20	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	1	Each			
	20 mm diameter	1	Each			
3.21	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	10	Each			

Name Of Project : Modifications and Alterations of Sixth floor for Microbiology Lab at PGIMER at Dr RML Hospital, New Delhi

BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
3.22	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.	1	Each			
3.23	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	4	Each			
3.24	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 150 ltrs. Complete in respects.(VOLTAS/ BLUE-STAR/ USHA SHRIRAM)	1	Each			

Name Of Project : Modifications and Alterations of Sixth floor for Microbiology Lab at PGIMER at Dr RML Hospital, New Delhi

BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
3.25	Providing and fixing approved make & suitable model of R.O. plant 25 ltrs. Per hour flow rate having capacity to treat the raw water having TDS 1200 ppm and not less than 40%. The treated water should have TDS less than 100 ppm and hardness less than 50 ppm. The operating voltage to 230 volt AC +/- 10% alongwith required capacity pump and solenoid valves, dry run protection of pump, automatic tank level control, inbuilt auto flush timer for periodic flushing of membranes, hydro pneumatic tank, over voltage and over current protection with switch mode power supply system complete in all respects including installation and fittings with the following provisions: (IONIEXCHANGE/ KENT/AQUAPROCESS,Pantair)					
a)	10 micron polypropylene sediment pre filter					
b)	10 micron bacteriostatic activated carbon block on line micron filter with 5 micron rating					
c)	3 Nos. of reverse osmosis memberane with 0.0001 micron pore size energy saving poly amide type					
d)	UV lamp of minimum capacity 25 LPM and minimum lamp wattage 9W	1	Each			
SUB TOTAL(Water Supply)						

Name Of Project : Modifications and Alterations of Sixth floor for Microbiology Lab at PGIMER at Dr RML Hospital, New Delhi

BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
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	10	Metre			
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	10	Metre			
b)	150 mm diameter S.W. pipe/RCC NP2	30	Metre			
4.03	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	5	Each			

Name Of Project : Modifications and Alterations of Sixth floor for Microbiology Lab at PGIMER at Dr RML Hospital, New Delhi

BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
4.04	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	30	Metre			
4.05	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand), R.C.C. top slab with 1:2:4 mix (1cement : 2 coarse sand : 4graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 (1cement : 4 coarse sand : 8graded stone aggregate 40 mm nominal size), inside plastering 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, and making necessary channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement all complete as per standard design.					
a)	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	2	Each			
4.06	Extra depth for manholes					
a)	Size 90 x 80 cm					
a i)	With F.P.S. bricks class designation 75	0.5	Metre			

Name Of Project : Modifications and Alterations of Sixth floor for Microbiology Lab at PGIMER at Dr RML Hospital, New Delhi

BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
4.07	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.	2	Each			
4.08	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	1	Each			

Name Of Project : Modifications and Alterations of Sixth floor for Microbiology Lab at PGIMER at Dr RML Hospital, New Delhi

BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
4.09	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	2	Each			
4.10	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	10	Metre			
SUB TOTAL(SEWERAGE AND DRAINAGE)						

Name Of Project : Modifications and Alterations of Sixth floor for Microbiology Lab at PGIMER at Dr RML Hospital, New Delhi

BOQ (Plumbing Work)						
Sl. No.	Description of Item	Total Qty.	Unit	Rate in Figures(Rs)	Rate in Words(Rs)	Amount in Figures(Rs)
1	2	3	4	5	6	7
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	10	cum			
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	50	metre			
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					
		2	cum			
SUB TOTAL(EARTH WORK)						

SUMMARY OF BOQ FOR RENOVATION OF THE ELECTRICAL WORKS OF MICROBIOLOGICAL LAB -RML DELHI

S.No.	Description	Amount Rs.	In Figure (In Rs.)	Amount in Words (Rs.)
1	SUB HEAD 1 : DG SETS			
2	SUB HEAD 2 : Main cum emergency Panel			
3	SUB HEAD-3: MCB DISTRIBUTION BOARDS.			
4	WIRING			
5	LIGHT FIXTURES AND FANS			
6	TELEPHONE SYSTEM			
7	SUB HEAD 7: CONDUITING FOR COMPUTER NETWORKING			
8	SUB HEAD 8 : FIRE DETECTION AND ALARM SYSTEM			
9	SUB HEAD 9.00-LT CABLES			
10	SUB HEAD 10: EARTHING SAFETY EQUIPMENT AND MISC. ITEMS			
	GRAND TOTAL FOR ALL ELECTRICAL WORKS			

BOQ FOR ELECTRICAL WORKS OF MICROBIOLOGY LAB AT RML DELHI .

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount Rs.)	(in
1	2	3	4	5	6	7	
	SUB HEAD 1 : DG SETS						
1.00	DG Set and Accessories						
1.01	SOUND PROOF DG SETS OF 160 KVA						
	Supply, installation, testing and commissioning of sound proof (silent type) Diesel Generating set having 160KVA Prime Power Ratings , 415 volt at 1500 RPM, 0.8 power factor at 415 V suitable for 50 Hz, 3 phase system & suitable bhp, water cooled radiator type diesel engine-alternator set mounted on common base frame, return fuel cooler, battery & battery charger, Anti Vibration mounting pads, Engine alternator safeties, electronic governor including all accessories & their wiring as per technical specification. This includes the following:						
-	Supplying and fixing of suitable sizes High class MS pipe for DG exhaust complete with bends, elbow, flanges etc including silencer and catalytic convertor exhaust pipe length above the building top as per pollution control board norms and as required.						
-	Supply and fixing of 50mm thick compressed mineral wool insulation (Rock wool) for D.G. exhaust pipe with 22 gauge aluminium sheet cladding etc. as required for the under mentioned dia pipe.						
-	Supply, installation, testing and commissioning of suitable size fuel pipe for connecting diesel engine to individual day service tank including supply and fixing of required valves & filters etc. as required.						
-	Fabrication of supports for exhaust pipe, fuel pipe or for any other purpose out of suitable M.S. structural steel including supplying and applying of enamel paint of approved shade after one coat of steel primer of reputed company.						

	- Supplying and fixing of suitable capacity cable adapter box for alternator.				
	- Providing and fixing oil tank of 990 litres capacity complete with suitable M.S. fabricated MS stand oil level indicator gauge tank and stand duly painted, complete with float switches etc. as required.				
	- 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 (160 KVA) as mentioned above.	1	Each		
1.02	AMF PANEL (for 1 nos. DG Sets mentioned above)				
	- Supply, installation, testing and commissioning of automatic main failure control including auto bypass panel, suitable for 160 KVA silent type D.G set complete with relays, timer, set of CTS for metering and protection and energy analyser to indicate.				
	- 1 no. 320AMP, 35 KA 4pole Motorised MCCB.				
	- 1 no. 320 AMP, 35 KA 4pole Motorised MCCB (for D.G).				
	- Auto/manual/test /off selector switch				
	- 2 nos over voltage relay, 2nos reverse poer relay and 2 nos under voltage ralay				
	-				
	3 sets of current transformers 15p 10 accuracy for protection and 15 VA class -1 for metering				
	-				
	Energy analyser unit to indicate current voltage frequency power factor meter and KWH.				
	- fuse/MCB for instruments				
	-				

	Battery charger complete with transformer, DC voltmeter and ammeter, selector switch for tricle, off and boost and current transformer				
-					
-	Main supply failure Moniture				
	Supply failure timer				
-					
-	restoration timer				
-					
-	Control unit with three inpulse automatic engine start/sto and failure to start lockout.				
-					
-	Impulse counter with locking and reset facility				
	on.off control ckt switch with indicator				
	Audio/video annunication for				
	high start temperaature				
	low lubricating oil pressure				
	engine over speed				
	engine fails to start				
	Full load/maximum load warning				
	TOTAL FOR AMF PANEL FOR DG SETS	1.00	SET		
	TOTAL FOR SUB-HEAD -1				

	SUB HEAD 2 : Main cum emergency Panel					
2.00	Microbiology Main cum Emergency Panel					
	a) INCOMER:					
	1 no. 320 Amps , 415 volts, 35KA (lsc),four pole, Moulded Case Circuit Breaker with THERMAL MAGNETIC having variable current settings. R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. Digital ammeter with selector switch with 320/5A C.T.'s.					
	BUSBARS:					
	b) 400 Amp TPN Aluminium busbars					
	c) OUTGOING:					
	2No.63 Amp 415 volts, 10 KA ,Four Pole, Miniature					
	i) Circuit Breaker.					
	ii) 2No.63 Amp 415 volts, 10 KA ,TPN, MCCB.					
	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. Digital ammeter with selector switch with 63/5A C.T.'s.					
	2No.32 Amp 415 volts, 10 KA ,Four Pole, Miniature					
	iii) Circuit Breaker.					
	iv) 1 no. 250 AMP 35 KA TPN MCCB					
	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. Digital ammeter with selector switch with 250/5A C.T.'s.					
	Microbiology Main cum Emergency Panel(as mentioned above)	1	Set			
	TOTAL FOR SUB-HEAD -2					

	SUB HEAD-3: MCB DISTRIBUTION BOARDS.				
3.00	MCB DISTRIBUTION BOARD				
3.01	Supplying & fixing following way, Double door DB ,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 complete with Incomer (MCB + RCCB-100mA) & outgoing (SP MCB).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 single line diagram and as required,				
	i 6 Way (8+18) Double door(32A Incomer)	1	Each		
	ii 8 Way (8+24)Double door(63 Amp Incomer)	1	Each		
	TOTAL SUBHEAD: 3- MCB DISTRIBUTION BOARD.(as mentioned above)				
	SUB HEAD: 4 - WIRING				
4.00	WIRING				
4.01	Wiring for light point/ fanpoint/ exhaust fan point/ call bell point with 1.5 sq.mm. FRLS PVC insulated copper conductor cable, single core/ multi strand, in surface ISI marked MS conduit (including Supply & laying the MS conduit with all accessories including cutting the wall and making good the same in case of recessed conduit as required) with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq. mm FRLS PVC insulated copper conductor single core/ multi strand cable etc as required				
	Space for fixing electronic fan regulator in case of fan point wiring .				
	Supplying and fixing Hexagonal fan Boxes with 3 mm thick hylem sheet covers in case of Fan Points				
	Supplying & Fixing Ceiling Rose in case of Exhaust Fan Points etc.				
	Point wiring as mentioned above	50	Point		

4.02	Wiring for 5 A light plug point with 1.5 sq.mm. FRLS PVC insulated copper conductor cable, single core/ multi strand, insurface/ recessed ISI marked MS conduit (including Supply & laying the MS conduit with all accessories including cutting the wall and making good the same in case of recessed conduit as required) earthing the point with 1.5 sq. mm FRLS PVC insulated copper conductor single core/ multi strand cable etc as required(without modular metal box and switch & sockets) ((including supply and recess laying of ISI marked MS conduit)	15	Point			
4.03	Wiring for 16 Amp power plug, with 2x4 sqmm FRLS PVC insulated copper conductor single core cable in surface/recessed ISI marked MS conduit (includingSupply & laying the MS conduit with all accessories including cutting the wall and making good the same in case of recessed conduit as required)along with 1 no 4 Sq mm FRLS PVC insulated copper conductor single core cable for loop earthing as required(without modular metal box and switch & sockets) (including supply and recess laying of ISI marked MS conduit)	20	Point			
4.04	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.	15	Point			

4.05	Wiring for circuit/ submain wiring along with earth wire with the following sizes of FRLS PVC insulated copper conductor single core/ multi strand cable in surface/recessed ISI marked MS conduit as required.(including Supply & laying the MS conduit with all accessories including cutting the wall and making good the same in case of recessed conduit as required)				
	i) 2X1.5 Sqmm + 1X 1.5 sqmm earth wire	6000	Metre		
	ii) 2X2.5 Sqmm + 1X 2.5 sqmm earth wire	200	Metre		
4.06	Wiring for submain with the following sizes of 1.1 KV grade multicore XLPE Aluminium conductor PVC sheathed armoured AYFY cable as per IS 1554 on surface with MS clamps/ recess in existing conduit				
	iv) 4X6 Sqmm	50	Metre		
	v) 4X10 Sqmm	30	Metre		
	vi) 4X16 Sqmm	30	Metre		
4.07	Supplying and fixing 3 pin 5/6 amp modular socket outlet with shutters in suitable Module modular metal box on surface or in recess including modular cover plate, base plate, connections etc. complete as required including civil works..	15	Each		

4.08	Supplying and fixing 6 pin 15/ 16 A modular socket outlet with shutters in suitable modular metal box on surface or in recess including , modular cover plate, base plate, connections, etc. complete as required including civil works..	20	Each			
4.09	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)	15	Each			
4.10	Supplying, providing & fixing cordless musical bell, battries etc of approved make complete as required.	2	Each			
4.11	Supply and fixing following FP MCCB, 415 volts, 35 KA (Isc), Four Pole with thermal magnetic release having variable current setting 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 32 Amp	1	Each			
	ii 63 Amp	2	Each			
4.12	Supply and fixing of following sizes of ISI marked Heavy duty UPVC conduit alongwith the accessories in surface/recess or cutting the wall and making good the same in case of recessed conduit as required					
	i 25 mm dia	400	Mtr			
	ii 40 mm dia	50	Mtr			
	TOTAL SUBHEAD: 4- WIRING					

	SUB HEAD:5 - LIGHT FIXTURE AND FANS				
5.00	LIGHT FIXTURES AND FANS				
5.01	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 of approved makes(Approval of Quantity and make is taken from engineer incharge before procurement all these items)				
	2X PLL18 watt recess mounted Fixture light fixture similar to (Philips FBS300 M2xpPLL18W HFP5 or approved equivalent).	25	Each		
i	2X PLL36 watt recess mounted Fixture light fixture similar to (Philips FBS300 M2xpPLL36W EBTP5 or approved equivalent).	8	Each		
ii	2X PLL36 watt recess mounted Fixture light fixture similar to (Philips FCS650x2PLL36W EB FOP GT or approved equivalent).	14	Each		
iii	2X36watt recess mounted flourescent light fixture (Philips TBS 670 2XTLD36W EBP FOP GT or approved equivalent)	8	Each		
iv	2X TLD 36 watt recess mounted mirror optics flourescent light fixture (Philips TBS 520 2XTLD36W EBE MI or approved equivalent).236RM3	6	Each		
5.02	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 of approved makes(Approval of Quantity and make is taken from engineer incharge before procurement all these items)				
i	2X10 watt Mirror top (Decon 05UB or approved equivalent) (w toilet)	4	Each		

5.03	Supply of following ceiling fans (Crompton Greaves-High Breeze or approved equivalent) complete with double ball bearing, motor, blades, downrod, canopies, capacitor, modular type electronic fan regulator(Five Step), etc. suitable for operation on 230 volts, 50 Hz., 1 phase, AC supply complete as required(Approval of Quantity and make is taken from engineer incharge before procurement this item)				
	i 1200 mm sweep	4	Each		
5.04	Supply of 1400 RPM,300 mm Crompton Greaves transair or approved equivalent exhaust fan suitable for single phase 230 volts, 50 Hz., AC supply complete with motor, louvers/shutters etc. complete as required.(Approval of Quantity and make is taken from engineer incharge before procurement this item)	3	Each		
5.05	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.	47	Each		
5.06	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.	4	Each		
5.07	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.	4	Each		

5.08	Installation, testing and commissioning of exhaust fan up to 380 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.	3	Each			
5.09	Installation, testing and commissioning of wall mounted fan up to 450 mm sweep including supply and fixing wall bracket arrangement complete as required.	3	Each			
5.10	Supply and fixing of following sizes of steel conduit alongwith the accessories in surface/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	200	Mtr			
	ii 25 mm dia	100	Mtr			
	iii 40 mm dia	30	Mtr			
TOTAL SUBHEAD 5: LIGHT FIXTURE & FANS						

SUB HEAD 6: TELEPHONE SYSTEM				
6.00	TELEPHONE SYSTEM			
6.01	Supply & laying 0.5 Sq. mm FR MS insulated copper conductor 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)	11	Each
	ii	2 pair cord outlet (Jack Type)	2	Each
6.02	Supplying, Installation, testing and commissioning of following sizes of telephone distribution board in M.S. hinged type locable box duly painted complete with Krone type tag block etc. including terminations of cable as required.			
	i	20 Pair	1	Each
6.03	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	20 Pair Telephone Cable	40	Metre
	Total for sub head-6			
SUB HEAD 7: CONDUITING FOR COMPUTER NETWORKING				
7.01	Supply and fixing of following sizes of steel conduit alongwith the accessories in surface/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	Mtr
	ii	25 mm dia	75	Mtr

7.02	Supply and drawing of Cat 6 wire in existing conduit for computer network upto existing switching box and connection to the computer jack.	300	Mtr			
7.03	Supplying and fixing 2 module modular metal box in recess with modular cover plate, computer Jack and all accessories complete as required	15	Each			
	TOTAL FOR SUB HEAD 12: CONDUITING FOR COMPUTER NETWORKING					
	SUB HEAD 8 : FIRE DETECTION AND ALARM SYSTEM					
8.00	FIRE DETECTION AND ALARM SYSTEM					
8.01	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	400	Metre			
8.02	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	20	Each			
	ii) Heat Detector	2	Each			
	iii) Manual Break Glass Unit in MS enclosure	2	Each			
	iv) Fire Alarm Bell / Hooter of suitable range to cover the complete floor, in MS enclosure.	2	Each			
	v) Response indicator	15	Each			
8.03	Termination/connection of all the alarm accessories to the main Fire alarm system & run the system.	1	job			
	TOTAL FOR SUB HEAD-8					

SUB HEAD 9.00-LT CABLES				
9.01		Supply of following sizes of 1.1 kV grade multicore XLPE aluminium conductor PVC sheathed armoured AYFY cable as per IS 1554.(Actual quantity may be approved from site incharge before procurement)		
	i	3.5 Core 240 Sqmm.	200	Metre
	i	3.5 Core 25 Sqmm.	100	Metre
	ii	2 Core 16 Sqmm.	50	Metre
	iii	2 Core 10 Sqmm.	30	Metre
9.02		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	10	Metre
	ii	Size exceeding 300 sq.mm but not exceeding 400 sq.mm	20	Metre
9.03		Laying of one number PVC insulated and PVC sheathed power cable 1.1kV grade direct in the existing RCC/Hume/Stoneware/Metal pipe/on wall as required		
	i	Size not exceeding 25 sq.mm	70	Metre
	ii	Size exceeding 300 sq.mm but not exceeding 400 sq.mm	180	Metre
9.04		Supplying and making end termination with brass double compression glands of following sizes of 1.1. kv grade multicore aluminium conductor PVC insulated and PVC sheathed		
	i	3.5 Core 300 Sqmm.	4	Each
	ii	2 Core 16 Sqmm.	2	Each
	iii	2 Core 10 Sqmm.	2	Each

9.05	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	20	Metre			
	ii 300 mm. width x 62.5 mm. depth x 2.0 mm. thickness	50	Metre			
	Total for sub head 9.00					
	SUB HEAD 10: EARTHING SAFETY EQUIPMENT AND MISC. ITEMS					
10.01	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 per CPWD general specifications for electrical works Part-1, Internal - 2005 and IS:3043-1987.	2	Set			
10.02	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 per CPWD general specifications for electrical works Part-1, Internal - 2005 and IS:3043-1987	2	Set			
10.03	Extra for using charcoal and salt for GI or copper plate earth electrode as required.	4	Set			
10.04	Supplying and laying 25mmX5mm copper strip at 0.5mm below ground level as strip earth electrode, including soldering etc. as required.	20	Metre			
10.05	Supplying and laying 50mmX6mm copper strip at 0.5mm below ground level as strip earth electrode, including soldering etc. as required.	30	Metre			

10.06	Providing and fixing 50mmX6mm Copper strip on surface/on existing cable trench/RCC pipe or in recess for earth electrode as required.	50	Metre			
10.07	Supplying and laying 25mmX5mm GI strip at 0.5mm below ground level as strip earth electrode, including soldering etc. as required.	40	Metre			
10.08	Providing and fixing 40mmX6mm GI strip on surface/on existing cable trench/RCC pipe or in recess for earth electrode as required.	50	Metre			
10.09	Providing and fixing 25mmX5mm GI strip on surface/on existing cable trench/RCC pipe or in recess for earth electrode as required.	50	Metre			
	TOTAL SUB HEAD 10: Earthing(as mentioned above)					
	GRAND TOTAL FOR ALL ELECTRICAL WORKS					