

Name of Work:BOQ of Proposed 100 Bedded Hospital at Mandi Town, Himanchal Pradesh project Under NRHM						
Sl. No.	Description of Item	Unit	Total qty.	Rate in words (in Rupees)	Rate in figures (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
	Internal work- Exposed on wall					
a)	15 mm nominal outer dia pipes (SDR-11)	metre	10.00			
b)	20 mm nominal outer dia pipes (SDR-11)	metre	100.00			
c)	25 mm nominal outer dia pipes (SDR-11)	metre	50.00			
d)	32 mm nominal outer dia pipes (SDR-11)	metre	75.00			
e)	40 mm nominal outer dia pipes (SDR-11)	metre	50.00			
10.03	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.					
	Concealed work including cutting chases and making good the walls etc.					
a)	15 mm nominal outer dia pipes (SDR-11)	metre	100.00			
b)	20 mm nominal outer dia pipes (SDR-11)	metre	100.00			
c)	25 mm nominal outer dia pipes (SDR-11)	metre	25.00			
10.04	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end):					
a)	25 mm nominal bore	each	4.00			
b)	32 mm nominal bore	each	4.00			
10.05	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	285.00			
b)	32 mm dia to 50 mm dia	each	70.00			

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1	2	3	4	5	6	7
10.06	Providing and fixing gun metal ball valve of approved quality					
a)	15 mm nominal bore	each	2.00			
b)	20 mm nominal bore	each	3.00			
	SUBTOTAL(SOLAR WATER HEATING SYSTEM & RECIRCULATING SYSTEM)					

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1	2	3	4	5	6	7
11.00	WATER TREATMENT PLANT (for Domestic use))					
	Suplying, Installing, testing & commissioning of indoor package type water treatment plant of capacity 3.0 cum per hr. with 12 hours operation time, comprising of the following including all necessary piping, control valves, other accessories etc. complete as per drawing and as per drawing and as directed.					
	FILTER					
	Supply, installation & testing and commissioning of MULTI GRADE Filter vertical floor mounted fabricated with Fibre reinforced Plastic (FRP) with frontal piping & valves, back wash system & filter media etc. with single lever operated multiport valve system with standard fittings like manhole cover, pressure gauge at inlet & outlet, sampling cock, rinse drain valve, air vent valve with piping, bolts, nuts & rubber gaskets.					
	Flow rate = 3.0 cub. m/hour					
	Working pressure = 3.5 kg/Sq. cm.					
	UV WATER STERILISERS					
	High performance on line UV water sterilisers of capacity 2000lph designed on at least 50 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 50lpm, minimum lamp rating :150 watts - 1Nos.					

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1	2	3	4	5	6	7
	Supplying, installing, testing and commissioning vertical online/horizontal centrifugal pumping set with mechanical seal, C.I. Housing, 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).					
	Filter feed pump(1 no.)					
	Capacity 50 lpm					
	Head 30M	Set	1.00			
11.01	WATER TREATMENT PLANT (for A/C use)					
	Supplying, installing, testing & commissioning of indoor package type soft water treatment plant of capacity 1 cum per hr. with 10 hours operation time, comprising of the following including all necessary piping, control valves, other accessories etc. complete as per drawing and as per drawing and as directed.					
a)	FILTER					

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1	2	3	4	5	6	7
	Supply, installation & testing and commissioning of MULTI GRADE Filter vertical floor mounted fabricated with Fibre reinforced Plastic (FRP) with frontal piping & valves, back wash system & filter media etc. with single lever operated multiport valve system with standard fittings like manhole cover, pressure gauge at inlet & outlet, sampling cock, rinse drain valve, air vent valve with piping, bolts, nuts & rubber gaskets.					
	Flow rate = 1.0 cub. m/hour					
	Working pressure = 3.5 kg/Sq. cm.					
b)	Softener					
	Supply, installation & testing and commissioning of upflow cation Ion exchange resin water Softener fabricated with Fibre reinforced					
	Flow rate = 2.0 cub. m/hour- 0.3 cub.m/hour					
	Working pressure = 3.5 kg/Sq. cm.					
	Raw Hardness-700-1500 mg/l					
	Soft water quality-Commercial zero hardness(less than 5ppm)					
	Output per Regeneration-5 cum.(min.)	Each	1.00			
	Subtotal (Water treatment Plant,Pump and Equipment)					

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1	2	3	4	5	6	7
12.00	WATER SUPPLY PUMP PANEL					
	Supply, installation, testing and commissioning of following M.V. cubicle type totally enclosed, powder coated, wall mounted/ free standing 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, and having following incoming and outgoing switchgears complete as required.					
	INCOMER :					
	100 Amp 415 volts, 35 KA (Isc), FP MCCB with e/f protectionthermal magnetic release having variable current settings.					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	"ON" and "OFF" LED indicating lamp and 2A control SP MCBs					
	Push button for CLOSE and TRIP					
	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 100 Amps Digital ammeter with selector switch with one set of 100/5A C.T. s					
	BUSBARS :					
	200 Amp TPN busbars of aluminium					
	OUTGOINGS :					
	4 Sets of following					

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1	2	3	4	5	6	7
	1 No. 32 Amp. 415/500 volts,25 KA, three Pole, Moulded Case Circuit Breaker with variable current setting .					
	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 2 HP with thermal overload relay, contactor, 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.					
	3 Sets of following					
	1 No. 16 Amp. 415/500 volts,25 KA, three Pole, Moulded Case Circuit Breaker with variable current setting .					
	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 1 HP with thermal overload relay, contactor, 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.					
	63 Amp 415 volts, 35 KA (Isc), FP MCCB with e/f protection thermal magnetic release having variable current settings.					
	WATER SUPPLY PUMP Panel as mentioned above	Set	1.00			
	Sub Total(Water supply Pump Panel)					

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Sl. No.	Description of Item	Unit	Total qty.	Rate in words (in Rupees)	Rate in figures (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
	Note: Based on the tender drawing the agency has to prepare the internal & external plumbing shop drawing and obtain the approval of the same before start of work					
	End of plumbing BOQ					

ABSTRACT**Name of Work: Estimate of Proposed 100 Bedded Hospital at Mandi Town, Himanchal Pradesh project Under NRHM**

S.No.	DESCRIPTION	Amount in figures(in Rs.)
A	PLUMBING WORK	
1.00	SANITARY FIXTURES	
2.00	SOIL, WASTE AND VENT PIPES	
3.00	WATER SUPPLY	
4.00	SEWERAGE AND DRAINAGE	
5.00	EARTH WORK	
6.00	EXTERNAL WATER SUPPLY	
7.00	RAIN WATER PIPING	
8.00	BOREWELL	
9.00	RAIN WATER HARVESTING	
10.00	SOLAR HOT WATER SYSTEM	
11.00	WATER TREATMENT PLANT,PUMPS & EQUIPMENT	
12.00	WATER SUPPLY PUMP PANEL	
	TOTAL	
GRAND TOTAL (RS)		

BILL OF QUANTITIES

OF

FIRE FIGHTING

PROJECT NAME: Proposed 100 Bedded Hospital at Mandi Town, Himanchal Pradesh project Under NRHM

Name of Works: BOQ of Fire Fighting Works

Item No	Description Of Item	Unit	Total Qty.	Rate in words (in Rupees)	Rate in figures (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
1.00	FIRE FIGHTING SYSTEM					
1.01	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 pipe with 4mm thick 500mm width tar based polymeric corrosion protection tape or equivalent suitable to GI/ MS pipe line including applying uniform coat of cold pipe 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	250.0			
b)	80 mm dia G.I. Pipe with flange joints	Metre	10.0			
1.02	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	10.0			

Item No	Description Of Item	Unit	Total Qty.	Rate in words (in Rupees)	Rate in figures (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
b)	150 mm dia (with Flanged joints)	Metre	30.0			
c)	100 mm dia (with Flanged joints)	Metre	10.0			
d)	80 mm dia	Metre	20.0			
1.03	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	11.0			
1.04	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	10.0			
1.05	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	12.0			
1.06	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	11.0			
1.07	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			

Item No	Description Of Item	Unit	Total Qty.	Rate in words (in Rupees)	Rate in figures (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
1.08	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			
1.09	Providing & Fixing 150 mm dia, 4 way suction coupling for firebrigade withdrawal of water from the fire tank	Each	1.0			
1.10	Providing and fixing anodised glazed door shutter and frame of approved sections for Fire hose cabinet with dash fasteners (frame fabricated from 40 x 40 mm and shutter) 2100 mm high x 1200 mm wide x 600mm deep with locking arrangement, 4mm thick glass with beading including all accessories, complete as per drawing and as directed. The letters " HOSE CABINET" to be painted in red colour on the box complete in all respects.	Each	5.0			
1.11	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	6.0			

Item No	Description Of Item	Unit	Total Qty.	Rate in words (in Rupees)	Rate in figures (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
1.12	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	7.0			
b)	80 mm dia	Each	1.0			
c)	200 mm dia	Each	1.0			
1.13	Supplying, testing, installation & commissioning of pressure switches for pumps including necessary wiring upto the control panel.	Each	5.0			

Item No	Description Of Item	Unit	Total Qty.	Rate in words (in Rupees)	Rate in figures (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
1.14	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	2.0			
1.15	Supplying and Fixing First Aid Hose Reel , wall mounting swinging type complete with drum & bracket of MS construction, spray painted in Post office Red, conforming 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	5.0			
1.16	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)	150 mm dia	Each	2.0			

Item No	Description Of Item	Unit	Total Qty.	Rate in words (in Rupees)	Rate in figures (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
1.17	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 calibration of 0 - 16 Kg / cm ² .	Each	8.0			
1.18	Supplying and Fixing of Fire Man's axe with heavy insulated rubber as per standard conforming to IS 926	Each	5.0			
1.19	Supplying and Fixing vane type waterflow switch with contacts suitable for installation on 50 mm to 150 mm dia pipeline for a service pressure upto 20 Kg/sq.cm.	Each	7.0			
1.20	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					
a)	1.2 Metre high and 250 mm dia	Each	2.0			
1.21	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	6.0			

Item No	Description Of Item	Unit	Total Qty.	Rate in words (in Rupees)	Rate in figures (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
1.22	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			
1.23	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	6.0			
1.24	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:3224/15683 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	4.0			
1.25	Providing and fixing 9 liters capacity fire extinguisher water type gas pressure conforming to IS marking, fixed to wall.IS:15683	Each	4.0			
1.26	Providing and fixing ABC type fire extinguishers complete in all respects. IS:15683 ISI marked					
a)	Capacity 6.0 Kg.	Each	4.0			
1.27	Providing and fixing ABC type automatic modular ceiling mounted type extinguisher with body powder coated 10 lts. Capacity min. 300 mm dia 68 degree centigrade bul temperature complete in all respect of approved make and model	Each	1.0			

Item No	Description Of Item	Unit	Total Qty.	Rate in words (in Rupees)	Rate in figures (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
1.28	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					
a)	2 Metre high and 450 mm dia suitable to operate Jockey Pump, Main Fire Pump & Diesel Engine Driven Fire Pump	Each	1.0			
1.29	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			
1.30	Providing & fixing puddle flanged including 40 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			
1.31	Supplying, installing, testing and commissioning of electric motor driven type automatic pressurisation, pump set suitable for automatic operation of terrace down comer and consisting of the following (as per CPWD specifications Part V-1985) for fire fighting and its amendmends).					

Item No	Description Of Item	Unit	Total Qty.	Rate in words (in Rupees)	Rate in figures (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
a	Fire pump with stainless steel impeller CI casing, SS shaft shall be horizontal end suction centrifugally type having a capacity of 900 LPM against a total head of 25m so as to ensure a minimum pressure of 3.0 kg/sqm at the highest and farthest out at the specified flow complete with necessary strainer with foot valve in suction side and pressure gauge on the delivery side including bypass arrangement for periodic testing of the working of the pumping set as required. The pump shall be provided with mechanical seals.(Including taking necessary approval of complete fire fighting scheme from local fire authority before and after start of work) {Agency also has to submit characteristic curve of the pumps, model & other technical data for approval before placing the order}					
b	Squirrel cage AC induction motor suitable for operation of 415 V ,+/-10%, 3 phase 50 HZ, AC 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 base plate fabricated from mild steel channel of cast iron type					
d	1 No. 3 Phase, fully automatic DOL starter, type - II of 10 HP with thermal overload relay, contactor, Timer, Push Buttons and Auto-manual selector switch etc complete as required.					
e	Suitable cement concrete pump foundation with vibration damping arrangement with cushy foot mounting as required and having provision of suitable weather protection cover.	set	2.0			
Sub Total						

Item No	Description Of Item	Unit	Total Qty.	Rate in words (in Rupees)	Rate in figures (in Rs.)	Amount in figures (in Rs.)
1	2	3	4	5	6	7
	Note: Based on the tender drawing the agency has to prepare the internal & external plumbing shop drawing and obtain the approval of the same before					
	End of Fire fighting BOQ					

PROJECT NAME: Proposed 100 Bedded Hospital at Mandi Town, Himanchal Pradesh project Under NRHM

ABSTRACT OF COST

S.No	DESCRIPTION OF WORK	Amount in figures(in Rs.)
1	FIRE FIGHTING	
	Sub Total(Fire Fighting work)	
	Total	

BILL OF QUANTITIES

OF

ELECTRICAL WORKS

BILL OF QUANTITIES OF ELECTRICAL WORKS FOR CONSTRUCTION OF 100 BEDDED HOSPITAL AT MANDI UNDER NRHM , HIMACHAL PRADESH

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	SUBHEAD 1: H.T. SUB STATION.					
1.01	HT Panel					
	Supply, erection, testing and commissioning of 1 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. including door interlocking and expendable as required.					
A.	INCOMER :					
i	1 No. VCB having following					
	1 No. 630A, 11kV, 3 Phase, 50Hz., metal clad, dead front, 350 MVA rupturing capacity, Fully Draw out type, Vacuum Circuit Breaker (VCB)					
	1 set of 11kV/110V -110 V Potential Transformers with HRC fuses for metering & protection.					
	1 Set of Phase indicating lamps with HRC fuses					
	1 No. Digital voltmeter .					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP, SPRING CHARGED, TRIP CIRCUIT HEALTHY					
	Push button for ON, OFF & TRIP circuit healthy					
	1 set of 50/5-5A Current Transformer for metering and protection.					
	1 No.digital Ammeter with selector switch to select R, Y or B phase current .					
	1 Set of Microcontroller based numerical relay having 4 element relay (3O/C+1E/F). Relay should have display of phase current and trip history.					
	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 (WTI & Door open trip)					
	1 No. Master Trip relay					
	1 No. Digital Power factor meter					
	8 window annunciator					
	1 no. Phase reversal Relay					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	HT Panel as mentioned above	Set	1			
1.02	TRANSFORMER :					
	Supply, installation, testing and commissioning of 630 KVA, 11/0.433 kV, 3 Phase, 4 wire, 50 Hz., ON-AN Transformer DYN-11 Vector group copper bound Class F insulation with outdoor duty type On load tap changer on HV Side range -15% ,0, +5% in the steps of 1.25% per step, type transformer with RTCC+AVR inclusive of all control cable . Cable box connection including cable adapter box at primary and secondary end (LT side) shall be connected through Busduct/Cable, complete with all accessories including first filling of oil, double float buchholz relay protection, high winding temperature, oil temperature sensors and gauges etc. confirming to IS 2026 (Part -1 & Part -2) including interconnection of control cables,as per detailed technical specifications and as required.	Each	1			
1.03	BATTERY CHARGER PANEL					
	Supply, erection, testing and commissioning of battery charger panel with 24 V DC continuous out put for control supply of HT panel complete with battery, control cabling etc. as required. Capacity of battery charger panel should be suitable for above mentioned H.T. Panels.					
	2 numbers battery of minimum 180 AH ampere hour capacity.					
	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	Each	1			
1.04	H.T. CABLE					
	Supply of following sizes of 11 kV grade multicore aluminum conductor XLPE armoured power cable as per IS : 7098.					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	i 3 Core, 185 sq mm	Mtrs.	100			
1.05	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.					
	i upto 400 Sq mm	Meter	60			
1.06	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.					
	i upto 400 Sq mm	Metre	30			
1.07	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size in the existing masonry open duct /cable tray as required.					
	i upto 400 Sq mm	Metre	10			
1.08	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 185 sqmm 3 core (Heat Shrunken Type) Indoor Type	Each	2			
	ii 185 sqmm 3 core (Heat Shrunken Type) Outdoor Type	Each	2			
1.09	Providing, laying and fixing following dia RCC pipe NP2 class (light duty) in ground complete with RCC collars, jointing with cement mortar 1:2 (1 cement : 2 fine sand) including trenching (75 cm deep) and refilling etc as required.					
	i 300 mm dia	Metre	100			
1.10	Cable Route Marker					
	Supplying and fixing cable route marker with 10 cm X 10 cm X 5 mm thick G.I. plate with inscription there on, bolted /welded to 35 mm X 35 mm X 6 mm angle iron, 60 cm long and fixing the same in ground as required.	each	10			
1.11	Providing & Fixing of Safety Equipmet					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
i	Providing and fixing H.T. (11kV) danger notice plate of 250mmX150mm made of mild steel, atleast 2mm thick and vitreous enameled white on both sides and with inscription in signal red colour on front side as required.	Each	1			
ii	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.	Each	12			
iii	Supply & erection of the following Safety and testing Equipment including miscellaneous items like Clamps, nuts & Bolts, rawl plugs etc at sub;e laces in the Substation building as required.					
a	G.I buckets of 4 nos of 5 Litres Capacity duly painted white inside and red oxide paint out side and written 'FIRE' with white paint & Filled with Dry sand and mounted on M.S angle iron bracket of Size 50x50x6mm thick and 1200mm long including grouting in wall /floor etc as required .	Each	2			
b	Supplying, storing, handling and fixing in position First Aid Medical Box complete as per technical specifications as required.	Each	1			
c	Shock Treatment Chart duly glazed mounted on Aluminum Frame with Sheet Glass as required.	Each	1			
d	Supplying and laying of 12kV grade 1 metre wide anti skid chequered type rubber mat.	Metre	10			
e	Supplying and laying of 1.1kV grade 1 metre wide anti skid chequered type rubber mat.	Metre	40			
f	Supply rubber hand gloves 11kV grade as per I.S. Code.	set	1			
g	Supplying of digital Earth Tester complete with probes etc as required	Set	1			
h	Supplying of Telescopic folding Aluminium ladder folding double with sitting stand 6 M etc as required	Each	1			
1.12	Providing and fixing of M.S Slotted angle iron with fixing materials and painting for cable racks in trenches /on wall etc. as required	KG	200			
1.13	Providing and fixing of M.S Slotted angle 'C' channel /Ladder type rack /tray including fixing material grouted in wall or hanging with M.S rod hanger from ceiling including 2 coat synthetic enamel painting over 1 coat of res oxide primer etc. as required	KG	200			
1.14	Fabrication and Installing following size of preforted M.S Cable tray including Horizontal and vertical bends, reducers,tee, crossmember and other accessories as required and duly Suspended from the ceiling with M.S 12mm rod suspenders and including painting etc. as required.					
i	150mmwidth x 50mm depth x1.6mm thickness	Metre	300			
ii	300mmwidth x 50mm depth x1.6 mm thickness	Metre	200			
iii	450mmwidth x 62.5mm depth x2.0mm thickness	Metre	200			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
iv	600mmwidth x 62.5mm depth x2.0mm thickness	Metre	100			
v	750 mmwidth x 75mm depth x2.0mm thickness	Metre	100			
1.15	Fabrication and Installing following size of Ladder type M.S Cable tray including Horizontal and vertical bends, reducers,tee, crossmember and other accessories as required and duly Suspended from the ceiling with M.S 12mm rod suspenders and including painting etc. as required.					
i	450mmwidth x 62.5mm depth x2.0mm thickness	Metre	200			
ii	600mmwidth x 62.5mm depth x2.0mm thickness	Metre	100			
iii	750 mmwidth x 75mm depth x2.0mm thickness	Metre	100			
	TOTAL SUBHEAD 1: H.T. SUB STATION AS MENTIONED ABOVE					
2.00	SUBHEAD 2: MAIN LT PANEL.					
	MAIN L.T. PANEL					
	Supply, installation, testing and commissioning of LT Panel, cubicle type, totally enclosed, free standing type, dust ,damp and vermin proof panel , powder coated, made up of CRCA sheet, complete with aluminum busbars, danger notice plate, interconnections with suitable capacity aluminum leads/solid aluminum strips/rods, necessary interlocking, and having incoming and outgoing switchgears as mentioned below, all the outgoing feeder of 1600 amp and above will be connected to load thought busduct. Complete as per technical specifications and as required.					
	Note :					
1	All ACBs shall have spare contacts					
2	All relays to operate at 240Volts, Single phase, 50Hz., AC supply through UPS. UPS of suitable Rating is also in the scope of Supply					
3	Intelligent Panel Meter: Flush mounting, 96X96 mm size class 1 accuracy and LCD display. Panel meter should be suitable for true RMS reading. Meter should measure line and phase voltage, current of all 3 phases and neutral, HZ, PF, KW, KWH, KVAR, KVARH, KVA, KVAH, Voltage and current including one set of CT. Meter should be EMI/ EMC complaint. Meter should be with RS 485 port for communication on Modbus protocol.					
4	All ACBs shall have Ics=Icu=Icw=50 KA for 1 second.					
5	All MCCBs shall have Ics=Icu.					
2.01	MAIN LT PANEL (NORMAL)					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
A	INCOMER:					
i	1 No. ACB Panels each having following:					
	1000 A, 415/V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth Fault trip including under voltage release and lockable trip push button. ACB should have Icw=Ics =Icu=50KA for 1 sec.					
	Indicating lamps with 6A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	Push button to Close the ACB					
	R, Y & B Phase indicating lamps (LED type) with 6A control SP MCBs					
	Intelligent Panel Meter As Mention Above					
	One set of dual core dual ratio CT of 1000/500/5/5A for capacitor panel.					
B.	BUSBARS :					
	1250 Amps TPN busbars of aluminum with temperture rise of 50 degree celsius					
C	OUTGOING.					
i	3 Nos. MCCB FEEDER as per following details/ specifications:					
	630 Amp 415 volts, 50 KA (Ics) TP+NL MCCB with variable current settings 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 (LED Type) with 6A protection MCBs to indicate ON, OFF, TRIP .					
	Intelligent Panel Meter as mention above					
ii	2 Nos. MCCB FEEDER as per following details/ specifications:					
	500Amp 415 volts, 50 KA (Ics) TP+NL MCCB with variable current settings 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 (LED Type) with 6A protection MCBs to indicate ON, OFF, TRIP .					
	Intelligent Panel Meter as mention above					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	iv 4 Nos. MCCB as per following details/ specifications:					
	200 Amp 415 volts, 50 KA (Ics) TP+NL MCCB with variable current settings 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 (LED Type) with 6A protection MCBs to indicate ON, OFF, TRIP .					
	Intelligent Panel Meter as mention above					
	v 3 Nos. MCCB as per following details/ specifications:					
	160 Amp 415 volts, 50 KA (Isc), TP+NL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps (LED Type) with 6A protection MCBs to indicate ON, OFF, TRIP .					
	Intelligent Panel Meter as mention above					
	vi 2 Nos. MCCB as per following details/ specifications:					
	100 Amp 415 volts, 50 KA (Isc), TP+NL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps (LED Type) with 6A protection MCBs to indicate ON, OFF, TRIP .					
	Intelligent Panel Meter as mention above					
	vii 3 Nos. MCCB as per following details/ specifications:					
	63 Amp 415 volt,50 KA (Isc), TP+NL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps (LED Type) with 6A protection MCBs to indicate ON, OFF, TRIP .					
	Intelligent Panel Meter as mention above					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	LT PANEL (NORMAL) AS MENTIONED ABOVE	Set	1			
2.02	LT PANEL (EMERGENCY)					
	A INCOMER:					
	i 2 No. ACB Panels each having following:					
	630 A, 415V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth Fault trip including under voltage release and lockable trip push button. ACB should have Icw=Ics =Icu=50KA for 1 sec.					
	Indicating lamps with 6A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	Push button to Close the ACB					
	R, Y & B Phase indicating lamps (LED type) with 6A control SP MCBs					
	Intelligent Panel Meter As Mention Above					
	B. BUSBARS :					
	800 Amps TPN busbars of aluminum					
	C. BUS COUPLER :					
	i 1 No. ACB Panels each having following:					
	1 No. 630 A, 415 V, 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=Icu=65KA 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 1 Nos. MCCB FEEDER as per following details/ specifications:					
	500Amp 415 volts, 50 KA (Ics) TP+NL MCCB with variable current settings 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.					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	Indicating lamps (LED Type) with 6A protection MCBs to indicate ON, OFF, TRIP .					
	Intelligent Panel Meter as mention above					
	Intelligent Panel Meter as mention above					
	ii 1 Nos. MCCB FEEDER as per following details/ specifications:					
	400Amp 415 volts, 50 KA (1cs) TP+NL MCCB with variable current settings 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 (LED Type) with 6A protection MCBs to indicate ON, OFF, TRIP .					
	Intelligent Panel Meter as mention above					
	iii 2 Nos. MCCB FEEDER as per following details/ specifications:					
	200 Amp 415 volts, 50 KA (1cs) TP+NL MCCB with variable current settings 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 (LED Type) with 6A protection MCBs to indicate ON, OFF, TRIP .					
	Intelligent Panel Meter as mention above					
	iv 3 Nos. MCCB as per following details/ specifications:					
	160 Amp 415 volts,50KA (1cs) TP+NL MCCB with variable current settings 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 (LED Type) with 6A protection MCBs to indicate ON, OFF, TRIP .					
	Intelligent Panel Meter as mention above					
	v 1 Nos. MCCB as per following details/ specifications:					
	125 Amp 415 volts, 50KA (1sc), TP+NL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	Indicating lamps (LED Type) with 6A protection MCBs to indicate ON, OFF, TRIP .					
	Intelligent Panel Meter as mention above					
	vi 1 Nos. MCCB as per following details/ specifications:					
	100 Amp 415 volts, 50 KA (Isc), TP+NL MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps (LED Type) with 6A protection MCBs to indicate ON, OFF, TRIP .					
	Intelligent Panel Meter as mention above					
	LT PANEL (EMERGENCY) AS MENTIONED ABOVE	Set	1			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
2.03	CAPACITOR PANEL					
	Supply, installation, testing and commissioning of M.V. cubicle type totally enclosed free standing type, powder coated, dust, damp and vermin proof Capacitor Panel complete with busbars, M.V. danger notice plate, ammeter, ammeter selector switch, indicating lamps, CT's, Ultra heavy duty, APP type Capacitors suitable for non linear loads upto 20% with 14% D-tuned reactors, operating losses of capacitor shall not more than 0.45 W / KVAR, Power contactors suitable for capacitor switching or Capacitor duty with 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, and having following incoming and outgoing switchgears complete as per technical Specification as required.					
	(250 KVAR Capacitor Panel)					
	i 1 Nos. 500Amp MCCB as per following specifications:					
	500 Amp 415 volts, 50 KA (1cs) FP MCCB with variable current settings 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.					
	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
	Day & Night mode selector switch					
	14 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 :					
	630 Amp FP busbars of aluminum with short circuit withstand capacity of 50 KA for 1 second.					
	D. OUTGOINGS :					
	i 2 Nos . MCCB as per following details/ specification:					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	100 Amps, 415 volts, 25 KA, 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					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	50 kVAR Ultra heavy duty APP type Capacitors suitable for non linear loads upto 20%, operating losses not more than 0.45 W per KVAR .					
ii	4 Nos . MCCB as per following details/ specification:					
	63 Amps, 415 volts, 25 KA, 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					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	25 kVAR Ultra heavy duty APP type Capacitors suitable for non linear loads upto 20%, operating losses not more than 0.45 W per KVAR .					
iii	5 Nos . MCCB as per following details/ specification:					
	32 Amps, 415 volts, 25 KA, 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					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	10 kVAR Ultra heavy duty APP type Capacitors suitable for non linear loads upto 20%, operating losses not more than 0.45 W per KVAR .					
	CAPACITOR PANEL AS MENTIONED ABOVE	Set	1			
	TOTAL SUBHEAD 2: LT PANEL AS MENTIONED ABOVE.					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
3.00	SUBHEAD 3 : DG SET & ACCESSORIES					
3.01	SOUND PROOF DG SETS OF 250 KVA.					
	DG SET OF 250 KVA (IPD & OPD)					
	Supply, installation, testing and commissioning of sound proof (silent type) Diesel Generating set having 250 KVA Prime Power Ratings , 415 volt at 1500 RPM, 0.8 power factor 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 and control cable between DG set and panel etc. is also in the scope of supply, including its connections etc. complete as per technical specification. DG set should be PLC/PC compatible. This includes the following:					
	- Supplying and fixing of suitable sizes Heavy class MS pipe for DG exhaust complete with bends, elbow, flanges etc including silencer and catalytic convertor exhaust pipe chimney as per CPCB norms for exhaust of DG sets.					
	- Supply and fixing of 50mm thick compressed mineral wool insulation (Rock wool) for D.G. exhaust pipe with 24 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 etc					
	- Any other item required for completion of system above (D.G. set).					
A.	DG AMF PANEL					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	Supply, installation, testing and commissioning of AMF Panel for above 250 KVA DG Set cubicle type, totally enclosed, free standing type, dust, damp and vermin proof Panel made up of 14/ 16SWG CRCA sheet, (load bearing members 14 SWG and doors 16 SWG) ,complete with aluminum busbars, M.V. danger notice plate, interconnections with suitable capacity aluminum leads/solid aluminum strips/rods, powder coated and having capacity to change over Main power and DG supply .					
	DG should start automatically and will have automatic change over at LT panel through auto change over arrangement of suitable capacity in the panel.					
	Indicating lamps with 6A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	Push button to CLOSE the ACB.					
	1 set of suitable set of CT for measurement and protection.					
	R, Y & B Phase indicating lamps (LED type) with 6A control SP MCBs					
	1 set of Digital multi function meter with LCD display and measurement of parameters like voltages, currents, p.f, frequency, active and reactive power and energies etc					
C.	AMF panel should have following protection and AMF components for above mentioned DG set.					
	- Auto/manual/test/off selector switch					
	- 2 Nos over voltage relay, 2 nos. reverse power relay and 2 nos. under voltage relay.					
	- 3 sets of current transformers 15 P 10 accuracy for protection and 15 VA class -1 for metering					
	- Energy analyzer unit to indicate current voltage frequency power factor and KWH					
	- Indicating lamps for load on mains and load on set.					
	- Fuse for instruments.					
	- Battery charger, complete with transformer/rectifier, DC voltmeter and ammeter, selector switch for trickle, off and boost the current adjustment.					
	- Main supply failure monitor.					
	- Restoration timer.					
	- Control unit with three impulse automatic engine start / stop and failure to start lockout.					
	- Impulse counter with locking and reset facility.					
	- On/Off/ Control circuit switch with indicator.					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
-	Audio/ Video annunciation for :					
a	High winding temperature.					
b	Low lubricating oil pressure					
c	Engine over speed					
d	Engine fails to start					
e	Full load/ maximum load warning.					
C.	ENCLOSURE :					
	Fabrication, PVC Sleeving, Control/Power Wiring and necessary electrical/ mechanical interlocking etc any other item required for proper functioning of the system complete as required.					
	DG SET WITH AMF PANEL AS MENTIONED ABOVE	Set	2			
	TOTAL SUBHEAD 3: DG SETS AS MENTIONED ABOVE					
4.00	SUB HEAD 4 :MV PANELS					
	Supply, installation, testing and commissioning of following M.V. cubicle type totally enclosed, wall mounted/Free standing type, powder coated, 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, and having following incoming and outgoing switchgears complete as per technical specification and as required.					
	NOTE					
	All MCCBs shall have Ics=Icu.					
4.01	MV PANEL STILT FLOOR PLAN -1 STILT FLOOR PLAN -2					
a	INCOMER:					
	63 Amp 415 volts, 35 KA (Ics= Icu), FP MCCB with thermal magnetic release having variable current settings.					
	R,Y&B phase indicating lamp (LED type) with 6A control SP MCB to indicate ON, OFF, TRIP .					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	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.					
	Digital ammeter with selector switch with one set Suitable C.Ts.					
b	BUSBARS:					
	300 Amp TPN Aluminium busbars					
c	OUTGOING:					
i	4 no. 40 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	MV PANEL STILT FLOOR PLAN -1 STILT FLOOR PLAN -2 AS MENTIONED ABOVE	Set	2			
4.02	MV PANEL GROUND FLOOR IPD					
a	INCOMER:					
	500 Amp 415 volts, 35 KA (Ics=Icu) FP MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release.					
	R,Y&B phase indicating lamp (LED type) with 6A control SP MCB to indicate ON, OFF, TRIP .					
	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.					
	Digital ammeter with selector switch with one set Suitable C.Ts.					
b	BUSBARS:					
	630 Amp TPN Aluminium busbars					
c	OUTGOING:					
i	3 Nos. MCCB as per following details/ specifications:					
	250 Amp 415 volts, 35 KA (Ics=Icu) FP MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release.					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	R,Y&B phase indicating lamp (LED type) with 6A control SP MCB to indicate ON, OFF, TRIP .					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
ii	1 Nos. MCCB as per following details/ specifications:					
	100 Amp 415 volts, 35 KA (Ics= Icu), TP+NL MCCB with thermal magnetic release having variable current settings.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	R,Y&B phase indicating lamp (LED type) with 6A control SP MCB to indicate ON, OFF, TRIP .					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
iii	7 no. 40 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
iv	9 no. 63 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	MV PANEL GROUND FLOOR IPD AS MENTIONED ABOVE	Set	1			
4.03	MV PANEL GROUND FLOOR OPD					
a	INCOMER:					
	400 Amp 415 volts, 35 KA (Ics=Icu) FP MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release.					
	R,Y&B phase indicating lamp (LED type) with 6A control SP MCB to indicate ON, OFF, TRIP .					
	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.					
	Digital ammeter with selector switch with one set Suitable C.Ts.					
b	BUSBARS:					
	630 Amp TPN Aluminium busbars					
c	OUTGOING:					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
i	3 Nos. MCCB as per following details/ specifications:					
	160 Amp 415 volts, 35 KA (Ics= Icu), TP+NL MCCB with thermal magnetic release having variable current settings.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	R,Y&B phase indicating lamp (LED type) with 6A control SP MCB to indicate ON, OFF, TRIP .					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
ii	2 Nos. MCCB as per following details/ specifications:					
	100 Amp 415 volts, 35 KA (Ics= Icu), TP+NL MCCB with thermal magnetic release having variable current settings.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	R,Y&B phase indicating lamp (LED type) with 6A control SP MCB to indicate ON, OFF, TRIP .					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
iii	4 Nos. MCCB as per following details/ specifications:					
	63 Amp 415 volts, 35 KA (Ics= Icu), TP+NL MCCB with thermal magnetic release having variable current settings.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	R,Y&B phase indicating lamp (LED type) with 6A control SP MCB to indicate ON, OFF, TRIP .					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
iv	4 no. 63 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	MV PANEL GROUND FLOOR OPD AS MENTIONED ABOVE	Set	1			
4.04	MV PANEL FIRST FLOOR OPD FOURTH FLOOR OPD					
a	INCOMER:					
	160 Amp 415 volts, 35 KA (Ics= Icu), FP MCCB with thermal magnetic release having variable current settings.					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	R,Y&B phase indicating lamp (LED type) with 6A control SP MCB to indicate ON, OFF, TRIP .					
	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.					
	Digital ammeter with selector switch with one set Suitable C.Ts.					
	b BUSBARS:					
	300 Amp TPN Aluminium busbars					
	c OUTGOING:					
	i 3 no. 40 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	ii 5 no. 63 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	MV PANEL FIRST FLOOR OPD FOURTH FLOOR OPD AS MENTIONED ABOVE	Set	2			
4.05	MV PANEL SECOND FLOOR OPD THIRD FLOOR OPD					
	a INCOMER:					
	250 Amp 415 volts, 35 KA (Ics=Icu) FP MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release.					
	R,Y&B phase indicating lamp (LED type) with 6A control SP MCB to indicate ON, OFF, TRIP .					
	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.					
	Digital ammeter with selector switch with one set Suitable C.Ts.					
	b BUSBARS:					
	400 Amp TPN Aluminium busbars					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	c) OUTGOING:					
	i 6 no. 40 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	ii 10 no. 63 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	MV PANEL SECOND FLOOR OPD THIRD FLOOR OPD AS MENTIONED ABOVE	Set	2			
4.06	MV PANEL GROUND FLOOR COMPUTER PANEL					
	a INCOMER:					
	100 Amp 415 volts, 35 KA (Ics= Icu), FP MCCB with thermal magnetic release having variable current settings.					
	R,Y&B phase indicating lamp (LED type) with 6A control SP MCB to indicate ON, OFF, TRIP .					
	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.					
	Digital ammeter with selector switch with one set Suitable C.Ts.					
	b BUSBARS:					
	300 Amp TPN Aluminium busbars					
	c OUTGOING:					
	i 6 no. 40 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	ii 4 no. 25 Amps , 415 volts, 9 KA ,Double Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	MV PANEL GROUND FLOOR COMPUTER PANEL AS MENTIONED ABOVE	Set	1			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
4.07	MV PANEL FIRST FLOOR COMPUTER PANEL SECOND FLOOR COMPUTER PANEL THIRD FLOOR COMPUTER PANEL FOURTH FLOOR COMPUTER PANEL					
	a INCOMER:					
	40 Amp 415 volts, 35 KA (Ics= Icu), FP MCCB with thermal magnetic release having variable current settings.					
	R, Y&B phase indicating lamp (LED type) with 6A control SP MCB to indicate ON, OFF, TRIP .					
	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.					
	Digital ammeter with selector switch with one set Suitable C.Ts.					
	b BUSBARS:					
	300 Amp TPN Aluminium busbars					
	c OUTGOING:					
	i 4 no. 25 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	MV PANEL FIRST FLOOR COMPUTER PANEL SECOND FLOOR COMPUTER PANEL THIRD FLOOR COMPUTER PANEL FOURTH FLOOR COMPUTER PANEL AS MENTIONED ABOVE	Set	4			
	TOTAL SUB HEAD 4 : MV PANEL AS MENTIONED ABOVE					
	SUB HEAD 5- : MCB DISTRIBUTION BOARDS.					
5.00	MCB DISTRIBUTION BOARD					
5.01	Supplying & fixing following way, three pole and neutral 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 coated including earthing connection bolt etc. as per technical specifications and as required.(but without MCB & RCCB).					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	i 4 way (8+12), Double door	Each	8			
	ii 6 way (8+18) Double door	Each	33			
	iii 8 way (8+24), Double door	Each	6			
5.02	Supplying & fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 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 6 way Double door	Each	10			
5.03	VERTICAL D.B (VERTICAL TYPE)					
	Supplying and fixing following ways surface/ recess mounting, vertical type, (Modular I/C) 415 volts, TPN MCB distribution board of CRCA sheet steel, dust protected, duly powder painted, inclusive of 200 amps tinned copper bus bar, common neutral link, Door earthing, Glazed door, removable Gland plates & front plates insulated neutral bar earth bar, din bar for mounting MCB's, with provision of 100/160/200 amps TP 16 KA MCCB as incomer, interconnection between incomer MCCB and bus bars (but without MCB's/ MCCB) as required. (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.)					
	Note: Before procurement Contractor has take approval for make of Vertical type D.Bs)					
	i) 6 Way TP	Each	2			
5.04	Supplying & fixing 6 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	Each	1794			
	ii Triple pole & neutral	Each	10			
5.05	Supplying & fixing following rating, four pole, 415 volts, Miniature Circuit Breaker (MCB), in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications and as required.					
	i 25 Amps	Each	4			
	ii 40 Amps	Each	18			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	iii 63 Amps	Each	25			
5.06	Supplying & fixing following rating, four pole, 415 volts, Residual Current Circuit Breaker (RCCB) having a sensitivity current upto 300 mA in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications and as required.					
	i 25 Amps	Each	8			
	ii 40 Amps	Each	18			
	iii 63 Amps	Each	25			
5.07	Supplying and fixing following rating, double pole, 240 volts, MCB (B/C/D/ Curve) in the existing MCB DB complete with connections, testing and commissioning etc. as required.					
	i 32 amps	Each	2			
	ii 40 amp	Each	8			
5.08	Supplying & fixing following rating, Double pole, 240 volts, Residual Current Circuit Breaker (RCCB) having a sensitivity current upto 300 mA in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications and as required.					
	i 32 amps	Each	2			
	ii 40 amp	Each	2			
5.09	Supplying and fixing Single pole Blanking plate in the existing MCB DB complete as required.	Each	20			
	TOTAL SUB HEAD-5: MCB DISTRIBUTION BOARDS AS MENTIONED ABOVE					
	SUBHEAD 6 : UPS SYSTEM					
6.00	UPS SYSTEM					
	Supply, Installation, Testing and Commissioning of micro processor based 15 KVA at 0.8 power factor at out put. with over all efficiency of minimum 92% at full load, True Online Double Conversion UPS using PWM IGBT technology. 3 Phase input 415 V +10% -15% and input frequency 50 Hertz plus minus 5%, 3 phase input and single phase output fixed setting at 220,230 and 240V. UPS comprising of the following:					
	(a) 125% rated Rectifier cum charger unit + 100% rated inverter, integrated in UPS module					
	(b) IGBT Rectifier input for achieving THDi<5% and Input power factor of greater than 0.99					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	(c) 100% rated external isolation transformer of H-class Delta/Star at the UPS output, after static bypass including cabling between UPS and transformer					
	(d) 100% rated Inbuilt static switch					
	(f) 100% rated Inbuilt Maintenance Bypass					
	(g) 100% rated moulded case circuit breaker having I thermal, magnetic and automatic U/V trip mechanics					
	(i) RS 485 port for BMS connectivity					
	(j) Supplying and installing Built-in suitable air-circulating fan .					
	Input phase reversal protection to be provided as standard, UPS should shift on battery and provide alarm.					
	(k) Supply, Installation, Testing and Commissioning of 12 V sealed maintenance free, Valve Regulated Lead Acid (VRLA) batteries for providing 30 minutes back up on each UPS at full load at 0.8 power factor.					
	(l) Supply, Fixing of battery rack for each UPS system along with interconnecting links, BCB etc as required					
	(m) UPS Should be provided with of Static Bypass Module having High Switching Frequency Microprocessor Based with builtin Technical Protections like Short Circuit, Overload, High/ Low Voltage cutoff protection of load from source inclusive of Bypass facility, SBM is activated during malfunctioning conditions of Load like:- -Short Circuit -Overload -over temprature -Bypassing of particular load if reqd.					
	UPS 15 KVA SYSTEM AS MENTIONED ABOVE.	Nos	1			
	TOTAL SUBHEAD 6 : UPS SYSTEMS					
	SUB HEAD 7: WIRING					
7.00	WIRING					
7.01	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 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.					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	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					
	Point wiring as mentioned above Group C	Point	1300			
7.02	i Wiring for twin control light points with 1.5 sq.mm. PVC insulated, FRLS copper conductor cable in MS conduit (including supplying and recess laying of MS conduit) including the following and complete as required.					
	ii Supplying and Fixing Modular type two numbers 2 Way switches in suitable size modular metal boxes, base plate & modular cover plates etc.					
	Note :					
	i) Unless otherwise specified all the conduiting work to be done in recess					
	Wiring for twin control light points as mentioned above	Point	60			
7.03	Wiring for Submain/ circuit wiring with following size of PVC insulated FRLS copper conductor single core/multi strand cable in recessed steel conduit (including supply & laying of recessed conduit) as required.					
	i 2X1.5 Sqmm with 1 No. 1.5 sqmm PVC FRLS insulated, copper conductor for earthing.	Metre	1220			
	ii 2X2.5 Sqmm with 1 No. 2.5 sqmm PVC FRLS insulated, copper conductor for earthing.	Metre	1900			
	iii 2X4 Sqmm with 1 No. 4 sqmm PVC insulated FRLS copper conductor for earthing	Metre	4350			
	iv 2X6 Sqmm with 1 No. 6 sqmm PVC insulated FRLS copper conductor for earthing	Metre	750			
	v 2X10 Sqmm with 1 No. 10 sqmm PVC insulated FRLS copper conductor for earthing	Metre	150			
	vi 4X4 Sqmm with 2 No. 4 sqmm PVC insulated FRLS copper conductor for earthing	Metre	160			
	vii 4X6 Sqmm with 2 No. 6 sqmm PVC insulated FRLS copper conductor for earthing	Metre	200			
	viii 4X10 Sqmm with 2 No. 10 sqmm PVC insulated FRLS copper conductor for earthing	Metre	825			
	ix 4X16 Sqmm with 2 nos 16 sq mm PVC insulated FRLS copper conductor for earthing.	Metre	60			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
7.04	Supplying and fixing suitable Module GI 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 with indicator type, base plate, modular cover plate, connections etc. and all civil works 'complete as required.	Each	110			
7.05	Supplying and fixing suitable modular GI 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 with indicator, base plate, modular cover plate, connections, etc. and all civil works complete as required.	Each	130			
7.06	Supplying and fixing suitable Modular metal box on surface or in recess including providing and fixing three nos 3 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)	Each	40			
7.07	Supplying and fixing suitable Module metal box on surface or in recess including providing and fixing two nos 3 pin 5/6 amps. & one 6 pin 15/16 amp modular socket outlet with shutters and one no. 20 amps. modular Indicating type switch, base plate, modular cover plate, connections etc. and all civil works 'complete as required. (For Combo1)	Each	160			
7.08	Supplying and fixing suitable Modular metal box surface or in recess including providing and fixing two nos 3 pin 5/6 amps. modular socket outlet with shutters and one no. 5 amps. modular type switch, base plate, modular cover plate, connections etc. and all civil works 'complete as required. (For Combo2)	Each	12			
7.09	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.	Each	10			
7.10	Supply and fixing following 32 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.	Each	40			
7.11	Supplying, providing & fixing cordless musical bell with batteries etc of approved make complete as required.	Each	5			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
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	Each	2			
ii	100 Amp	Each	2			
	TOTAL SUBHEAD: 8 WIRING AS MENTIONED ABOVE					
	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, tubes/lamps, capacitor, reflector, diffuser, MS body/housing holder etc. complete with all fixing accessories as required.					
i	1X36 watt surface mounted type fluorescent light fixture with opal acrylic diffuser (Philips TCS019 1XTL D36W EBT or approved equivalent) (136AC1)	Each	20			
ii	2X36 watt surface mounted type fluorescent light fixture with opal acrylic diffuser (Philips TCS019 2XTL D36W EBT or approved equivalent) (236AC1)	Each	10			
iii	1X 36 watt Surface flourscent light fixture (Philips GGX310 1X28W TL5 EBP O-SAT or approved equivalent). (136 SMO1)	Each	230			
iv	1XTL-5 28 watt box type fluorescent light fixture with reflector(Philips TMS 122M 1XTL5 28 W EBT or approved equivalent) (136b/136w)	Each	10			
v	1XTL-5 28 watt box type fluorescent light fixture without reflector(Philips TMS 122M 1XTL5 28 W EBT or approved equivalent) (136b/136w)	Each	260			
vi	2XTL-5 28 Surface mounted fluorescent light fixture (Philips TPS 814 2XTL5 28 W EBP D8 or approved equivalent) (236SMO2)	Each	30			
vii	4XTL-5 14 Surface mounted fluorescent light fixture (Philips TPS 814 4XTL5 14 W EBP D8 or approved equivalent)	Each	10			
viii	2XTL-5 28 watt box type fluorescent light fixture with reflector(Philips TMS 122M 2XTL5 28 W EBT or approved equivalent) (236b)	Each	240			
ix	2X TL-5 28 watt Surface Mounted flourscent light fixture (Philips TCS 150 2XTL-5-28 W MI EBT or approved equivalent). (236SMO1)	Each	60			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
x	1X 36 watt Surface / Recess Mounted flourscent light fixture (Philips TCS 306 1XTL-36W EBE or approved equivalent). (136 RMO2)	Each	10			
xi	LED recessed flush mounted down light fixture (Philips RC380B LED-30-6500 PSE OD WH or approved equivalent)	Each	8			
xii	2X 36 watt Recess mounted clean room flourscent light fixture with bottom opening and Clear acrylic version (Philips FCS650 2XPL-36W EBP FOP GT or approved equivalent).(236 CRF)	Each	15			
xiii	4X 14 watt recess mounted clean room flourscent light fixture with bottom opening and and Clear acrylic version (Philips TBS651 4 XTL5 -14 W EB CR FOP GT or approved equivalent).	Each	15			
8.02	Supply of following compact fluorescent light fixture with electronic ballast, starter, capacitor, yellow light lamps, reflector, diffuser, MS body/housing holder etc. complete with all fixing accessories as required.					
i	1x9 watt Bulk Head light fixture (Philips FXC 101 1XPL-S/2P11 W AC GR or approved equivalent) BH	Each	10			
ii	2X18 watt Mirror top with frosted glass (Decon 05CA or approved equivalent) (w toilet)	Each	35			
iii	Surface mounted Batten holder (Plastic) with 13 watt CFL	Each	10			
iv	2 X 18 watt surface mounted down light frosted glass (DECON:PL-2X18 W 03NBS 01 or approved equivalent) (DL03NB)	Each	60			
v	2 X 18 watt surface mounted down light frosted glass (DECON:PL-2X18 W 03NBS 01 or approved equivalent) (DL1)	Each	50			
vi	LED recessed flush mounted down light fixture (Philips DN194B LED 15S -4000PSU WH or approved equivalent)	Each	5			
vii	1 X 11 watt Bed side light Fixture (DECON:PL-05GF01 or approved equivalent)	Each	100			
viii	1x13 W recessed flush mounted light fixture (Anchor 92472 or approved equivalent) (NLCM)	Each	15			
ix	2x9 W recessed flush mounted light fixture (Anchor 92586 or approved equivalent) (NLWM)	Each	5			
x	1x11 W bedside fixture with 11 W CFL (Decon 05 GF or approved equivalent)	Each	100			
8.03	Supply of following ceiling fans (Crompton Greaves High Speed Plus (BEE -5Star Rated) Air delivery equal or higher then 210 Cmm or approved equivalent) complete with double ball bearing, motor, blades, downrod, canopies, capacitor, modular type electronic fan regulator, suitable for operation on 230 volts, 50 Hz., 1 phase, AC supply complete as required.					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	i 1200 mm sweep	Each	180			
	ii 900mm Sweep	Each	5			
8.04	Supply of 900 RPM, 300 mm (Crompton Greaves Trans Air or approved equivalent) exhaust fan suitable for single phase 230 volts, 50 Hz., AC supply complete with motor, louvers/shutters etc. complete as required.	Each	40			
8.05	Supply of 400 mm sweep, Crompton greaves model high flow 16" 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.	Each	2			
8.06	Installation, testing and commissioning of prewired, fluorescent fittings of all types, complete with all accessories and tube etc. directly on ceiling/wall, including connections with 1.5 sq.mm. PVC insulated, FRLS copper conductor, single core/ multi strand cable etc. as required.	Each	918			
8.09	Installation, testing and commissioning of prewired, compact fluorescent lamp fixture (CFL fixtures) of all types, complete with all accessories and lamp etc. directly on ceiling/wall, including connections with 1.5 sq.mm. PVC insulated, FRLS copper conductor, single core/ multi strand cable etc. as required.	Each	390			
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 FR PVC insulated, copper conductor single core/multi strand cable including providing & fixing phenolic laminated sheet cover on the fan box, etc. as required.	Each	185			
8.11	Installation, testing and commissioning of exhaust fan up to 400 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.	Each	40			
8.12	Installation, testing and commissioning of wall mounted fan up to 400 mm sweep including supply and fixing wall bracket arrangement complete as required.	Each	2			
8.13	Supply , installation, testing and Commissioning of LED Type Aviation light Philips XGP400 1xLED-K2/RD240V or approved equivalent including its wiring.	Each	1			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
8.14	Supplying, installation, testing and commissioning of Passive Infrared (PIR) technology based occupancy sensor having high performance, non regulating programmable type, suitable for connected load upto 10Amp, for mounting height up to 2.8 mtr and for 5 m diameter coverage area along with necessary fixing arrangements i/c programming at site etc. complete as required.	Each	15			
	TOTAL SUBHEAD 8 : LIGHT FIXTURE & FANS AS MENTIONED ABOVE					
	SUB HEAD 9: TELEPHONE SYSTEM					
9.00	TELEPHONE SYSTEM					
9.01	Supplying drawing, connecting and testing of 0.5mm dia annealed copper conductor PVC insulated PVC sheathed telephone Wire/cables in Existing M.S/ PVC conduit or a racks as required.					
	i 2 pair Telephone cable. (0.5 mm)	Meter	1250			
9.02	Supplying and fixing of following sizes of steel conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.					
	i 20 mm	Metre	750			
	ii 25 mm	Metre	250			
9.03	Supply, fixing, connecting and testing of telephone modular sockets modular plate anodised MS box and blanking plate in surface / recessed including connection etc as required.					
	i Telephone socket outlet (RJ-11 telephone Jack Single with Shutter)	Each	40			
	ii Telephone socket outlet (RJ- 11 telephone Jack double with Shutter)	Each	10			
9.04	Supplying, Installation, testing and commissioning of following sizes of telephone distribution board in M.S. hinged type lockable box duly painted complete with Krone type tag block etc. including terminations of cable as required.					
	i 100 Pair	Each	1			
	ii 20 Pair	Each	2			
	iii 10 Pair	Each	10			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
9.05	Supplying and drawing of following pairs 0.5mm dia annealed bare copper conductor Polythene insulated, core twisted into pairs armoured telephone cable on surface/tray with saddels including termination of cables at both sides in Krone Tag Block etc. complete as required.					
	ii 20 Pair	Metre	50			
	iii 10 Pair	Metre	150			
9.06	Supplying and drawing of following pairs 0.5 mm dia annealed bare copper conductor Polythene insulated, core twisted into pairs armoured jelly filled telephone cable in the existing trench/ hume pipe/ GI pipe etc with saddels etc. including termination of cables in both sides at krone tag block complete as required.					
	i 100 pair	Metre	200			
	EPABX SYSTEM					
9.07	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 type including software & FCBC of suitable capacity for eight 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	Set	1			
9.08	Supply, installation, testing and commissioning of Main Distribution Frame (MDF) crone type for above EPABX with box as per technical specifications and as required.	Set	1			
9.09	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	Set	45			
9.10	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	Set	2			
	TOTAL SUBHEAD 9: TELEPHONE SYSTEM AS MENTIONED ABOVE					
	SUBHEAD 10: CONDUITING FOR COMPUTER SYSTEM .					
10.00	CONDUITING FOR COMPUTER SYSTEM .					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
10.01	Supply and fixing of following sizes of 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	Metre	800			
	ii 25 mm dia	Metre	200			
10.02	Supplying and fixing two module modular plate in recess flush mounted with clear acrylic cover (suitable for RJ-45 computer socket) with GI box complete as required.	Each	40			
	TOTAL SUBHEAD: 10 CONDUITING FOR COMPUTER SYSTEM AS MENTIONED ABOVE					
	SUB HEAD 11: CONDUITING FOR TV OUTLETS					
11.00	CONDUITING FOR TV OUTLETS					
11.01	Supply and fixing of following sizes of 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	Metre	360			
	ii 25 mm dia	Metre	60			
11.02	Supplying and fixing 2 module modular metal box in recess flush mounted with clear acrylic cover with modular cover plate including fixing 1 no. coaxial TV outlet connection and all accessories complete as required	Each	12			
11.03	Supply and drawing Coaxial TV Cable RG - 6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed steel/ PVC conduit as required.	Metre	480			
	TOTAL SUB HEAD 11: CONDUITING FOR TV OUTLETS AS MENTIONED ABOVE					
	SUBHEAD 12: ADDRESSABLE FIRE AND P.A SYSTEM					
12.00	ADDRESSABLE FIRE AND P.A SYSTEM					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
12.01	Supply, installation, testing and commissioning of Networkable Microprocessor based multiloop capacity, Networkable analogue addressable type fire alarm control panel with minimum 640 character LCD display / Touch Screen Display. The panel should be equipped with sufficient numbers of loop with 15% Spare capacity in each loop. The panel shall be capable of taking atleast 200 analog addressable devices in one loop in any combination quantities of the Detectors and Devices. Four access levels, flash EPROM sufficient numbers of programmable relay controls for controlling AHUs, pressurization fans, ventilation fans at fire pump room, monitoring of fire sprinkler and fire hydrant pump, 240 volts AC power supply, automatic battery charger, 24 volts sealed lead acid batteries sufficient for 24 hours normal working and then be capable of operating the system for 2 hours during an emergency conditions as required. The Panel shall be compatible for backnet card for BMS interfacing. (UL / EN Approved)					
	i 2 Loop Capacity	Nos.	1			
12.02	Supply, installation, testing and commissioning of Automatic Analog addressable Photo - Thermal multicriteria detector with mounting Base, alarm LED . The Detector shall have automatic Electronic / dip switch addressing feature & each of these shall be equipped with fault Isolator/ External Fault Isolator complete with the GI Mounting Box and the hardware etc. as required. (UL / EN Approved)	Nos.	10			
12.03	Supply, installation, testing and commissioning of Automatic Analog addressable Photoelectric smoke detector with mounting Base, alarm LED . The Detector shall have automatic Electronic / dip switch addressing feature & each of these shall be equipped with fault Isolator/ External Fault Isolator complete with the GI Mounting Box and the hardware etc. as required. (UL / EN Approved).	Nos.	170			
12.04	Supply, installation, testing and commissioning of Automatic Analog addressable Fixed Temperature cumulative rate of Rise type Heat detector with mounting Base, alarm LED . The Detector shall have automatic Electronic / dip switch addressing feature & each of these shall be equipped with fault Isolator/ External Fault Isolator complete with the GI Mounting Box and the hardware etc. as required. (UL / EN Approved).	Nos.	5			
12.05	Supply, installation, testing and commissioning of Automatic Analog addressable Duct Detector with Duct Housing and Duct probe tubes complete with Photoelectric Smoke Detector with mounting Base, alarm LED .The Detector shall have automatic Electronic/ dip switch addressing feature & each of these shall be equipped with fault Isolator/ External Fault Isolator complete with the GI Mounting Box and the hardware etc. as required. (UL / EN Approved).	Nos.	2			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
12.06	Supply, installation, testing and commissioning of Automatic Addressable control module for Hooters and Strobes . The Module shall have automatic Electronic /dip switch addressing feature & each of these shall be equipped with fault Isolator/ external fault Isolator complete with the GI Mounting Box and the hardware etc. as required. (UL / EN Approved).	Nos.	12			
12.07	Supply, installation, testing and commissioning of Automatic Addressable control module for AHU & Stair Pressurization fan, The Module shall have automatic Electronic addressing feature & each of these shall be equipped with fault Isolator complete with the GI Mounting Box and the hardware etc. as required. (UL / EN Approved).	Nos.	2			
12.08	Supply, installation, testing and commissioning of Automatic Addressable Monitor module for Flow Switch Monitoring etc. The Module shall have automatic Electronic/ dip switch addressing feature & each of these shall be equipped with fault Isolator/ external fault complete with the GI Mounting Box and the hardware etc. as required. (UL / EN Approved)	Nos.	1			
12.09	Supply, installation, testing and commissioning of Dual LED Response indicator for indicating the activation of the Remotely located Detector.	Nos.	60			
12.10	Supply, installation, testing and commissioning of Addressable Manual call Station. The Call Point shall have automatic Electronic / dip Swich addressing feature & each of these shall be equipped with fault Isolator / external fault isolator complete with the Mounting Box and the hardware etc. as required. (UL / EN Approved).	Nos.	12			
12.11	Supply, installation, testing and commissioning of Addressable electronic Sounder. The Sounder shall have automatic Electronic / dip switch addressing feature & each of these shall be equipped with fault Isolator / external fault isolator complete with the Mounting Box and the hardware etc. as required. The Sounders shall be Loop powered i.e. should not require additional cable to feed the Power & shall be programmable from the Fire Panel for Multiple type of tones selection. (UL / EN Approved).	Nos.	12			
12.12	Supply, installation, testing and commissioning of Addressable electronic Sounder with Optical Beacon. The unit shall have automatic Electronic addressing /dip switch feature & each of these shall be equipped with fault Isolator / external fault isolator complete with the Mounting Box and the hardware etc. as required. The unit shall be Loop powered i.e. should not require additional cable to feed the Power & shall be programmable from the Fire Panel for Multiple type of tones selection. (UL / EN Approved).	Nos.	1			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
12.13	i Supply, installation, testing and commissioning of 8 channel Voice Evacuation System & full duplex Fire Fighter's talk Back system with required suitable Nos. of Amplifiers sufficient for the speaker Qty's mentioned in the BOQ. The system shall be able to make Zone wise announcement through the integral fire Fighter's Microphone and operator command centre sufficient for 6 zones through integral zone switch selection.. The System shall be able to generate pre recorded voice messages. The voice evacuation System shall be complete with all the with zone wise switching and routing of the manual & automatic audio message to the respective areas as required for the operation of the System. The full duplex emergency communication system shall be able to display customized address of the location from which the Call is being made to the Fire Fighter's command Centre. (UL / EN Approved).	Nos.	1			
12.14	Supply, Installation, Testing and Commissioning of Ceiling Speaker 6 watt dual cone spring loaded mounting clamps, SPL 90 dB, Freq response 80-15000 Hz, rated input voltage 100 Volts.	Nos.	30			
12.15	Supply, Installation, Testing and Commissioning of Wall mountable type column type Speaker 6 watt , SPL 90 dB, Freq response 200-15000 Hz, rated input voltage 100 Volts, & rated impedance 1667 Ohms,	Nos.	10			
12.16	Supply, installation, testing and commissioning of Networked PC BASED GRAPHICAL FACILITIES MONITORING SYSTEM with Dual Core 2.0 GHz Pentium® IV processor with 512 MBytes of RAM with 22" flat-screen LCD monitor, sound card. It shall and speakers, and 500 Giga Byte hard disk. It shall operate under Microsoft® Windows® XP Professional / Windows Software, complete with ethernet port, DVD Drive, 4 GB RAM, multimedia Speakers, Multimedia Keyboard, Optical wireless Mouse, 650 VA UPS etc. complete as required. (At Control Room)	Nos.	1			
12.17	Supply and laying of following size of M.S. Conduit pipe in recess including all accessories MS pull/junction boxes, GI fish wire of 6 SWG, fixing hardware etc., including cutting, chasing the walls/floor and plastering the chased portion and making good the damages etc., complete as required.					
	i 25 mm dia	Meter	1500			
12.18	Supply and drawing of 2 C x 1.5 Sq.mm. Sheathed anneled flexible copper Conductor FRLS cable in existing M. S. Conduit. Complete with termination and testing as per requirement.	Meter	2000			
12.19	Supply and drawing of two pair, 0.71 sq. mm ATC Copper conductor cable in existing M. S. Conduit. Complete with termination and testing as per requirement.	Meter	600			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
12.20	i Supply, installation, testing and commissioning of 12 U, 19" Equipment Rack with powder coated finish with front lockable Door with M. S. Framed translucent Acrylic material, 2 Nos of fans for heat exhaust, Top & Bottom entry knock outs, back side lockable Door , inbuilt MCB, Power Points, raceways and partitions, one no. sliding Tray etc. complete as required to house the PC and other Equipment.	Nos.	1			
	TOTAL SUB HEAD 12 :ADDRESSABLE FIRE ,AND P.A SYSTEM					
	SUB HEAD 13 : CCTV SURVEILLANCE SYSTEM					
13.01	Supply, Installatin, Testing and Commissioning of 1/3" Super HAD - II CCD, PAL, Colour varifocal Dome Camera with High Resolution of 650 TVL, True Day Night operation, SNR More than 50 dB, Inbuilt surge protection, 360 degree flexible adjustment, haviving sensitivity of 0.1 Lux, Day Night operation feature,BMB, Digital wide Dynamic range, Auto white balance, BLC, Automatic Gain Control, 8 Zone privacy masking, motion Detection, Auto iris type varifocal Lens with focal length of 2.8 to 10 mm, OSd Support for remote camera finetunings, DC12V operating voltage compatibility etc. HDC-8655PVI complete as required.	Nos	10			
13.02	Supply, Installation, testing and commissioning of 1/3" super HAD CCD high resolution IR fixed camera suitable for outdoor conditions with 700 TVL, 0 Lux sensitivity, (F1.2), internal sync, AWB / BLC / AGC with On-Off control, IR visible range of 40 to 50 mtrs., 5 to 50 mm VArifocal Lens, Equipped with latest Intelligent IR compensation technology, DC12V Operation, IP-66 rated outdoor Housing with mounting Bracket.HCC-8755PVI complete as required	Nos	6			
13.03	Supply, Installation, Testing and Commissioning of 16 channel inputs, live viewing and recording capability with full D1 resolution on all the Channels , IE browser supported, SATA HDD interface, Powerful DVCS to monitor, multi-units of DVR, fitted with 2 TB HDD expandable to 16 TB with out any external storage arrangement, The hard dusc s shall be hot swappable, High profile H.264 video compression,Multilevel image quality adjustments, 16 line in video corresponding to each channel, . Full Pentaplex (multi-operational, - Display, Recording, Playback,, Networking, ,Backup), 396 zones motion Detection feature, User-friendly operations via front, panel, IR remote, controller or, remote software, Live or recorded video access, via Ethernet or modem, Support USB upgrade, PTZ dome control, Remote access through,TCP/IP, UDP, DHCP, DNS, IP Filter, PPPoE, DDNS, FTP, VGA and HDMI interface supports to interface with the CCTV Monitor.The DVR must support comprehensive Video Management Software. The Unit shall be equipped with 2 nos. of RJ-45 inputs and 2 Nos. of USB ports.	Nos	1			
13.04	Supply, Installation and commissioning of Remote compact keyboard, variable speed, Joystick Control, for DVR.	Nos.	1			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
13.05	22" high resolution LED Monitor.	Nos	1			
13.06	Supply, laying , Fixing and Testing of RG 6 grade flexible Coaxial Cable of approved make in concealed or surface mounted existing M. S. conduit.	Mtr	1000			
13.07	Supply, laying , Fixing and Testing of 2x1.5 sq mm PVC sheathed copper conductor 1100 volts grade flexible FRLS wcable of approved make in existing M. S. Conduit..	Mtr	2000			
13.08	Supplying and fixing of following sizes of steel conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.					
	i) 25 mm	Mtr	1500			
13.09	Supply, Installation, Testing and Commissioning of 12 V DC, Digital technology based Power Supply Units highly regulated and spikes free terminal voltage and heavy sourcing current for regulated terminal voltage.	Set	16			
13.10	Supply, Installation, Testing and Commissioning of the CCTV System of Connectors, interfaces, Mounting hardware, Cords, Jacks, Plugs,tags, identifiers, fixtures, clamps, screws, nut - bolts etc as required for the installation and commissioning for Cameras.	Lot	1			
	TOTAL SUBHEAD 13 : CCTV SYSTEM AS MENTIONED ABOVE					
	SUB HEAD 14 : NURSE CALL SYSTEM					
14.00	NURSE CALL SYSTEM					
14.01	Supply,Installation Testing and Commissioning of Microprocessor controller Nurses station with terminal monitor with in built power supply , with charger enclosed in a powder coated cabinet . Having with Reset, alarm/ buzzer, Call acknowledge with battery back up, battery charger complete system as per technical specifications and as required of following suitable configuration.					
	i 32 way	Nos	4			
	ii 16 way	Nos	1			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
14.02	Supply Installation Testing & Commissioning of Bed Call Push Button with LED indication and Flexible Cord with button , Call Reset , Call Indication, station for each Bed complete as required.	Nos	127			
14.03	Supply Installation Testing & Commissioning of Toilet Call Push Button with LED indication and flexible cord with button , Call Reset , Call Indication, station for each Bed complete as required.	Nos	16			
14.04	Supply Installation Testing & Commissioning of LED Indicators Module at Outside of each ward complete as required.	Nos	12			
14.05	Supply ,aying and testing of 6CX0.5 Sqmm diameter multistand copper conductor PVC cable in existing MS/PVC Conduit on recessed/surface with all accessories complete as required	Meter	2000			
14.06	Supply, laying and testing of 2CX0.5 Sqmm diameter multistand copper conductor PVC cable in existing MS/PVC Conduit on recessed/surface with all accessories complete as required	Meter	300			
14.07	Supply and fixing of following sizes of 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	Metre	1500			
	ii 25 mm dia	Metre	200			
	TOTAL SUBHEAD 14: NURSE CALL SYSTEM AS MENTIONED ABOVE					
	SUB HEAD 15 : LIFTS					
15.00	LIFTS					
15.01	Design, manufacture, supply, installation, testing and commissioning of following 20 passenger cum Hospital Lift (1360 kg), serving different floors in the lift shaft including machine room at top. The lift should be as per detailed specification/ drawing enclosed as required and as under: Lift Panel Should be with Backnet / IP output for its intergation with BMS					
	- Travel: As per architectural drawing.					
	- Controller: A.C. variable voltage & variable frequency					
	- Automatic rescue device complete with dry maintenance free batteries as required.					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
-	Operation: Microprocessor based single automatic push button/ simplex selective collective/duplex collective selective with / without attendant.					
	All push buttons will have Brail also.					
-	415 V, 3 phase, 50 Hz, 4 wire system					
-	Type of doors: a) Car : Power operated, telescopic opening, horizontal sliding stainless steel scratch proof. - Moon rock finish (b) Landing doors: Stainless steel scratch proof. Moon rock finish Lift landing doors shall have a fire resistance of one hour.					
-	Car Enclosure : Scratch proof stainless steel- Moon rock finish					
-	A hand rail guide not less than 600 mm long at 900 mm above floor level .					
-	Mirror of suitable size to be fixed inside the lift car.					
-	Voice announcement system in the car to announce the position of the elevator in the hoistway as the car passes or stops at a floor served by the elevator.					
-	Telephone with minimum two connections one at operator's room and other at guard/ security room and the emergency signal with re-chargeable batteries as source of supply be made in the lift car.					
-	Toe guard, IR curtain on full height, two phase fireman's drive control/ switch and potential free contacts etc to be provided.					
i	Floors : B1+B2+G+4 (7 stops & 7 openings) Speed - 0.75 MPS	Each	1			
	TOTAL SUB HEAD 15: LIFTS AS MENTIONED ABOVE					
	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 XLPE cable as per IS 7098.					
i	3.5 Core 25 Sqmm.	Metre	500			
ii	3.5 Core 35 Sqmm.	Metre	100			
iii	3.5 Core 50 Sqmm.	Metre	100			
iv	3.5 Core 70 Sqmm.	Metre	50			
v	3.5 Core 95 Sqmm.	Meter	50			
vi	3.5 Core 120 Sqmm.	Mter	150			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
vii	3.5 Core 150 Sqmm.	Meter	400			
viii	3.5 Core 185Sqmm.	Metre	700			
ix	3.5 Core 240 Sqmm.	Metre	700			
x	3.5 Core 300 Sqmm.	Metre	500			
xi	3.5 Core 400 Sqmm	Metre	100			
xii	4 Core 10Sq mm	Metre	300			
xiii	4 Core 6 Sq mm	Metre	300			
xiv	3 Core 6 Sqmm.	Metre	300			
xv	3 Core 4 Sqmm.	Metre	300			
xvi	2 Core 10 Sq mm	Metre	500			
xvii	2 Core 16 Sq mm	Metre	500			
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	Up to 35 sq.mm	Metre	1890			
ii	Above 35 Sq mm and upto 95 Sq mm	Metre	175			
iii	Above 95 Sq mm and up to 185 Sq mm	Metre	875			
iv	Above 185 Sq mm and up to 400 Sq mm	Metre	1400			
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	Up to 35 sq.mm	Metre	405			
ii	Above 35 Sq mm and upto 95 Sq mm	Metre	38			
iii	Above 95 Sq mm and up to 185 Sq mm	Metre	188			
iv	Above 185 Sq mm and up to 400 Sq mm	Metre	301			
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.					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	i Up to 35 sq.mm	Metre	406			
	ii Above 35 Sq mm and upto 95 Sq mm	Metre	38			
	iii Above 95 Sq mm and up to 185 Sq mm	Metre	188			
	iv Above 185 Sq mm and up to 400 Sq mm	Metre	301			
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.	Each	30			
	ii 3.5 Core 35 Sqmm.	Each	20			
	iii 3.5 Core 50 Sqmm.	Each	20			
	iv 3.5 Core 70 Sqmm.	Each	10			
	v 3.5 Core 95 Sqmm.	Each	10			
	vi 3.5 Core 120 Sqmm.	Each	6			
	vii 3.5 Core 150 Sqmm.	Each	10			
	viii 3.5 Core 185Sqmm.	Each	30			
	ix 3.5 Core 240 Sqmm.	Each	30			
	x 3.5 Core 300 Sqmm.	Each	20			
	xi 3.5 Core 400 Sqmm	Each	4			
	xii 4 Core 10Sq mm	Each	20			
	xiii 4 Core 6 Sq mm	Each	20			
	xiv 3 Core 6 Sqmm.	Each	30			
	xv 3 Core 4 Sqmm.	Each	30			
	xvi 2 Core 10 Sq mm	Each	30			
	TOTAL SUBHEAD 16: LT CABLES AS MENTIONED ABOVE					
	SUBHEAD 17: EARTHING					
17.00	EARTHING					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
17.01	Earthing with copper plate 600mmX600mmX3mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc., including charcoal or coke and salt complete as required.	Set	12			
17.02	Earthing with GI plate 600mmX600mmX6mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc., including charcoal or coke and salt complete as required.	Set	30			
17.03	Supplying and laying 25mmX5mm GI strip at 0.5m below ground level as strip earth electrode, including soldering etc. as required.	Metre	200			
17.04	Providing and fixing 25mmX5mm GI strip on surface/on existing cable trench/RCC pipe/GI pipe or in recess for earth electrode as required.	Metre	500			
17.05	Supplying and laying 50mmX6mm GI strip at 0.5m below ground level as strip earth electrode, including soldering etc. as required.	Metre	30			
17.06	Providing and fixing 50mmX6mm GI strip on surface/on existing cable trench/RCC pipe/GI pipe or in recess for earth electrode as required.	Metre	120			
17.07	Providing and fixing 25mmX5mm Copper strip on surface/on existing cable trench/RCC pipe/GI pipe or in recess for earth electrode as required.	Metre	30			
17.08	Supplying and laying 25mmX5mm Copper strip at 0.5m below ground level as strip earth electrode, including soldering etc. as required.	Metre	70			
17.09	Supplying and laying 50mmX6mm Copper strip at 0.5m below ground level as strip earth electrode, including soldering etc. as required.	Metre	20			
17.10	Providing and fixing 50mmX6mm Copper strip on surface/on existing cable trench/RCC pipe/GI pipe or in recess for earth electrode as required.	Metre	100			
17.11	Providing and fixing 25 mm X 5 mm copper strip in 40 mm dia G.I.pipe from earth electrode including connection with brass nut, bolt, spring, washer excavation and re-filling etc. as required	Metre	30			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
17.12	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	Metre	50			
17.13	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.	Metre	200			
17.14	Providing, laying and fixing following dia RCC pipe NP2 class (light duty) in ground complete with RCC collars, jointing with cement mortar 1:2 (1 cement : 2 fine sand) including trenching (75 cm deep) and refilling etc as required.					
	i) 300 mm dia	Metre	200			
	TOTAL SUBHEAD 17: EARTHING AS MENTIONED ABOVE					
18.00	SUBHEAD 19: LIGHTNING PROTECTION					
	LIGHTNING PROTECTION					
18.01	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. with charcoal or coke and salt complete as required.	Set	6			
18.02	Providing and fixing of lightening conductor finial, made of 25mm. dia. 300mm., long GI tube, having single prong at top, with 85 mm. dia. 6 mm. thick GI base plate including holes etc. complete as required.	Each	4			
18.03	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).	Metre	300			
18.04	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).	Metre	110			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
18.05	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.	Each	6			
18.06	Providing and laying GI tape, 32 mm X 6 mm thick, from test joint upto earth electrode directly in ground as required.	Metre	120			
	TOTAL SUBHEAD 18: LIGHTNING PROTECTION AS MENTIONED ABOVE					
	SUB HEAD 19: SOLAR PHOTVOLTAIC POWER GENERATION					
19.00	SOLAR PHOTVOLTAIC POWER GENERATION					
19.01	Supply, installation, testing and commissioning of grid interactive roof top solar photovoltaic power generation system of following grid interactive solar inverters, Data logger with temperature and irradiance sensor, AC Distribution Board,Cables, interconnections, chemical earthing, GI Strip(25mmx5mm) etc. complete as required.					
	i 20KWp	Set	1			
	ii Extra for providing space frame for above 20KWp solar system.	Set	1			
	TOTAL SUB HEAD 19: SOLAR PHOTVOLTAIC POWER GENERATION AS MENTIONED ABOVE					
	SUB HEAD 20: BOOM BARRIER SYSTEM					
20.00	BOOM BARRIER SYSTEM					
	i Supply, Installation , Testing and Commissioning of High Speed Microprocessor based with activation system comprising Hydraulic pump unit , Plunger pistons, balancing by compression spring , internal stops adjustable for open or close beam positions . the barrier for continuous use for vehicular span of up to 7 mtrs, includes Boom with controller & accessories , 100% duty cycle. with complete as required	Nos	4			
	ii Supply, Installation , Testing and Commissioning of Twin Channel Exit Push putton for open close with green and red Buttons.	Nos	4			
	iii Supply, Installation , Testing and Commissioning of Photocell based safety device to avoid closing of the barrier when a Vehicle is crossing the barrier.	sets	4			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
iv	Supply, Installation , Testing and Commissioning of 3 x 1.5 sq. mm dia meter ,copper conductor PVC cable in existing Conduit complete as required..	Meter	200			
v	Supplying and fixing of following sizes of steel conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.					
a	25 mm	Metre	150			
vi	Supply of Connectors, interfaces, Mounting hardware, Cords, Jacks, Plugs,tags, identifiers, fixtures, clamps, screws, nut - bolts etc as required for the installation and commissioning.	set	2			
vii	Supply , installation, testing and commissioning of Ticket dispenser including loop detector ,proximity reader etc complete as per technical specifications and as required.	Each	2			
	TOTAL SUBHEAD 20:BOOM BARRIER SYSTEM					
	SUBHEAD 21: OUT DOOR LIGHTING					
21.00	OUT DOOR LIGHTING					
21.01	Supply, erection, testing and commissioning of external swaged steel tubular pole with following specifications & items :					
i	9.0 Mtrs. high swaged steel tubular pole with arm length around 1.5 Metre, the construction of the pole shall be as per IS:2713 - 1980 410 SP-30 with base plate 450mmX450mmX6mm complete as per requirement with two coats of spray paints of approved shade.					
ii	1X150 watts street light fixture with 150watts high pressure sodium vapour (HPSV) lamp complete with control gear, acrylic cover cover etc. similar to Philips SRP 051/ 150 W or approved equivalent including 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.					
iii	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					
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 foundation including excavation, shuttering, alignment of poles, casting etc. including lean concrete at the bottom as per CPWD/ BIS specifications.					
vi	The above installations shall be completed as CPWD specifications and as required					
a.	Steet Tubular Poles(9M) Single Arm as mention above	Set	6			

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	b. Steet Tubular Poles (9M) same as above but for Double Arm as mention above	Set	2			
21.02	Supply, installation, testing and commissioning of external post top lantern with following accessories and complete as required :					
	i 4m high (3.3m above ground) 80mm 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 1 x 70 W Post top lantern with 70W HPSV lamp (Philips SPC 101 x SON 70 W 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 .					
	iii Suitable size 20A DP MS Control box with 2 no. incoming and outgoings 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	Set	5			
21.03	Supply, installation, testing and commissioning of Post top lantern with 70W SON lamp (Philips SPC 101 x SON 70 W 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	set	4			
21.04	Supply, installation, testing and commissioning of bollard lamps 1X18 watts CFL (Philips HCS360 1XPL-C/2P 18W GR Sonara bollard in gree color or equivalent) control box - 1 set.	Each	5			
21.05	Supply, erection, testing and commissioning of external swaged steel tubular pole with following specifications & items :					
	i 9.0 Mtrs. high swaged steel tubular pole with arm length around 1.5 Metre, the construction of the pole shall be as per IS:2713 - 1980 410 SP-30 with base plate 450mmX450mmX6mm complete as per requirement with two coats of spray paints of approved shade.					
	ii 90 watts LED street light fixture in die cast aluminum body with 90 watts LED lamp complete with control gear, cover etc. similar to Compton Greeves LSTO45-90/CDL or approved equivalent including its wiring with 2X2.5 sq.mm. PVC insulated, FRLS copper conductor and 1.5 sqmm PVC insulated, FRLS copper earth wire from control box complete as required.					
	iii 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					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	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 foundation including excavation, shuttering, alignment of poles, casting etc. including lean concrete at the bottom as per CPWD/ BIS specifications.					
	vi The above installations shall be completed as CPWD specifications and as required					
	a. Steet Tubular Poles(9M) Single Arm as mention above	Set	6			
	b. Steet Tubular Poles (9M) same as above but for Double Arm as mention above	Set	2			
21.06	Supply, installation, testing and commissioning of external post top lantern with following accessories and complete as required :					
	i 4m high (3.3m above ground) 80mm 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 1 x 40 LED Post top lantern with 40W LED lamp (Crompton Greeves LPTO-40-CDL 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 .					
	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	Set	5			
21.07	Supply, installation, testing and commissioning of Post top lantern 1 x 40 LED Post top lantern with 40W LED lamp (Crompton Greeves LPTO-40-CDL 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 .	set	4			
21.08	Supply, installation, testing and commissioning of bollard lamps 1X10watts LED Light Fixture (Crompton Greeves LBL51-10-CDI (LIARA) or equivalent) control box - 1 set.	Each	5			
21.09	Road Lighting Panel					

S.No.	Description.	Unit.	Qty	Rate in Figures (in Rs.)	Amount in words (Rs.)	Amount (in Rs.)
	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.					
1	INCOMER:					
	100 Amps,415 volts, TP+NL, 35 KA Moulded Case Circuit Breaker with thermal magnetic release having variable current settings .					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB ,ON, OFF , TRIP for MCCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 Set of timer switch & 100A TP contactor with neutral link (for street lights control) .					
	BUSBARS:					
	300 Amp TPN Aluminium busbars					
	OUTGOING:					
i	30 Nos. 16 Amp 415 volts, DP MCB					
	Feeder Pillar as mention above	Set	1			
21.10	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.	Set	22			
	TOTAL SUBHEAD 21: OUTDOOR LIGHTING AS MENTIONED ABOVE					
	GRAND TOTAL FOR ALL ELECTRICAL WORKS					

**SUMMARY OF COST ESTIMATE OF ELECTRICAL WORKS FOR NRHM 100 BEDDED HOSPITAL
AT MANDI UNDER , HIMACHAL PRADESH**

S.No.	DESCRIPTION	Amount In Figure (In Rs.)
1	SUBHEAD 1: H.T. SUB STATION.	
2	SUBHEAD 2: MAIN LT PANEL.	
3	SUBHEAD 3 : DG SET & ACCESSORIES	
4	SUB HEAD 4 :MV PANELS	
5	SUB HEAD 5- : MCB DISTRIBUTION BOARDS.	
6	SUBHEAD 6 : UPS SYSTEM	
7	SUB HEAD 7: WIRING	
8	SUB HEAD 8: LIGHT FIXTURE AND FANS	
9	SUB HEAD 9: TELEPHONE SYSTEM	
10	SUBHEAD 10:CONDUITING FOR COMPUTER SYSTEM .	
11	SUB HEAD 11: CONDUITING FOR TV OUTLETS	
12	SUBHEAD 12: ADDRESSABLE FIRE AND P.A SYSTEM	
13	SUB HEAD 13 : CCTV SURVEILLANCE SYSTEM	
14	SUB HEAD 14 : NURSE CALL SYSTEM	
15	SUB HEAD 15 : LIFTS	
16	SUB HEAD 16: LT CABLES	
17	SUBHEAD 17: EARTHING	
18	SUBHEAD 19: LIGHTNING PROTECTION	
19	SUB HEAD 19: SOLAR PHOTVOLTAIC POWER GENERATION	
20	SUB HEAD 20: BOOM BARRIER SYSTEM	
21	SUBHEAD 21: OUT DOOR LIGHTING	
	TOTAL FOR ALL ELECTRICAL WORKS	

BILL OF QUANTITIES

OF

HVAC WORKS

BILLOF QUANTITIES (B.O.Q.) FOR HVAC WORKS FOR "100 BED HOSPITAL, MANDI-H.P."

ITEM NO 1	DESCRIPTION OF ITEM 2	QTY. 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 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						
1.0	Supplying, installation, testing and commissioning of 15.0 TR, programmable microprocessor based, Air-cooled Package Type DX units complete with condensing unit, scroll compressor, air-cooled condenser with fan and evaporator,interconnecting refrigerant piping with indoor and outdoor units,pre charge refrigerant necessary insulation. Microprocessor Based Control Panel should be capable for Heating, Cooling & Humidification controls and interlocking with control wiring etc. complete with following and as per specifications and requirement.					
	Indoor Unit-for Minor OT at Second Floor					
	a) Fan Section and canvass connection (Double Skin Type) with mixing box and thermal break profile.					
	b) Backward curved Centrifugal Blower with Capacity of 3500 CFM and 125mm Static Pressure.					
	c) Cooling Coil Section/ s with 7.5 TR cooling coil/ s as per specifications.					
	d) Pre Filter with filter section as required.					

ITEM NO 1	DESCRIPTION OF ITEM 2	QTY. 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
	e) Drain Pan and Drain Connection.					
	f) Drive motor, Drive arrangement guard etc.					
	g) Necessary vibration isolator and supporting arrangements.					
	h) Fresh air intake arrangement, necessary water drain and air purge valve wherever required etc.					
	i) Canvass connection ,necessary foundations, 2 nos pressure gauge, 2nos thermometer etc					
	j) double skin section for housing fine(microvee) and Hepa filters as required complete as per specifications					
	Outdoor Unit for above					
	Suitable Air Cooled Type Condenser with Aluminium Fins & Copper Tube Coils for above indoor unit.					
	b) Scroll Type Hermetically sealed Compressors.					
	c) Suitable condenser fans for the condensing unit.					
	d) necessary hard drawn copper refrigerant piping per circuit with kinnifoam insulation along with clamps,supports,fittings such as valves,y-strainer, bends,tees,reducers ,expansion valves etc complete as per specifications and requirement	1	Nos.			
2.0	Supplying, installation, testing and commissioning of Pan Type Humidifier made from minimum 2mm thick stainless steel sheet top closed and insulated with 50mm thick expended polysterene (T.F. Quality) complete with incommining MCB, humidstate and control wiring for OTs.					
2.1	Capacity : 6 kW	1	Nos.			
3.0	WINTER/MONSOON HEATING ARRANGEMENT FOR OT AHU					

ITEM NO 1	DESCRIPTION OF ITEM 2	QTY. 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
	Supply, installation, testing & commissioning of winter/ monsoon heating/ reheating arrangements fixed in ducts/ plenums complete with strip heaters, fixing frame work, insulators, fire protection insulation in duct, controls such as heating thermostats, humidistats etc. The heaters banks shall be controlled by independent thermostats/ humidistats through electro magnetic type contactors and safety thermostats/ geysers as specified complete with wiring for interconnections with 1.5 sq.mm copper conductor multi core armoured cable. The heater capacity shall be as per schedule of equipment and specifications, drawing etc.					
3.1	6 KW	1	Nos.			
4.0	SPLIT AIR CONDITIONERS					
	Supply , installation , testing and commisioning of HI wall split air conditioner 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.					
	c) Safety and operational controls					
	e) Hiwall splits shall be suitable for single phase power supply and complete with suitable rating voltage stablizer.					
	f) Mounting arrangement and structural supports for outdoor unit are included.					
	g) The units should have 3 star rating from BEE.					

ITEM NO 1	DESCRIPTION OF ITEM 2	QTY. 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
4.1	Capacity : 1.5 TR	13	Nos.			
4.2	Capacity : 2.0 TR	14	Nos.			
4.3	Extra for Supply & installation of Copper piping with fittings complete with nitrile Rubber Insulation for connecting Indoor & Outdoor Units.	108	Rmt.			
4.4	Extra for Supply & Installation of drain water PVC Pipe from Indoor Unit to Outside Drain Point.	108	Rmt.			
5.0	Window Air Conditioner					
	Supply , installation , testing and commisioning of Window Acs complete with electrical cabling as required along with mounting arrangement and Voltage stablizer. Complete in all respect as per specifications. The units should have 3 star rating from BEE.					
	Capacity					
5.1	1.5 TR	6	Nos.			
5.2	2.0 TR	1	Nos.			
6.0	Inline Fans/ Axial Fans					

ITEM NO 1	DESCRIPTION OF ITEM 2	QTY. 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
6.1	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					
6.1.1	Duty: Toilet Exhaust					
	Air Quantity :400 CFM	1	Nos.			
	Static Pressure :15 mm wg					
6.1.2	Duty: Toilet Exhaust					
	Air Quantity :550 CFM	1	Nos.			
	Static Pressure :15 mm wg					
6.1.3	Duty: Toilet Exhaust					
	Air Quantity :700 CFM	6	Nos.			
	Static Pressure :15 mm wg					
6.2	Axial Flow fans					
	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					

ITEM NO 1	DESCRIPTION OF ITEM 2	QTY. 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
6.2.1	Duty : Liftwell Pressurisation					
	Air Quantity : 7500 CFM	1	Nos.			
	Static Pressure : 25 mm					
7.0	DUCTING					
7.1	GSS DUCTING					
	Supply, installation, testing and balancing of G.S.S ducting of following thickness including necessary supports, hangers, nut bolts, gaskets, splitter dampers, vanes canvass connections etc. complete as per specifications & drawings:					
7.1.1	24 gauge	110	Sqm.			
7.1.2	22 gauge	15	Sqm.			
7.2	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.					
7.2.1	22 gauge	70	Sqm.			
7.2.2	20 gauge	60	Sqm.			
7.2.3	18 gauge	10	Sqm			

ITEM NO 1	DESCRIPTION OF ITEM 2	QTY. 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
8.0	FIRE DAMPERS					
8.1	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.	1	Sqm			
8.2	Actuator & Control panels	2	Nos.			
9.0	CEILING DIFFUSERS					
9.1	Supply, Installation, testing and balancing of square/ circular supply air diffusers of powder coated extruded aluminium construction with attached volume control dampers as per specs. and drawings.	3	Sqm			
9.2	Supply, installation, testing and balancing of square/ circular return air diffusers of powder coated extruded aluminium construction without volume control dampers.	3	Sqm			
10.0	VOLUME CONTROL DAMPERS					
	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.	2	Sqm			
11.0	GRILLES					

ITEM NO 1	DESCRIPTION OF ITEM 2	QTY. 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
	Supply, installation, testing and balancing of supply/ return air grilles with/ without volume control dampers of powder coated extruded aluminium construction suitable for installation in walls, false ceiling boxing etc as per specifications and drawings.					
11.1	Supply air grilles in single louvers with volume control dampers.	1.5	Sqm			
11.2	Return air grilles in single louvers without volume control dampers.	3.0	Sqm			
12.0	LAMINAR FLOW DIFFUSERS					
12.1	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: 1200 x 600	12	Nos.			
12.2	Providing & fixing of aluminium powder coated grilles with 60% face area. The grill shall be complete with damper & complete 25 mm thick aluminium filters	1	Sqm			
13.0	DUCTING INSULATION					

ITEM NO 1	DESCRIPTION OF ITEM 2	QTY. 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
13.1	Supply and fixing of 15 mm thick foil faced FR Closed Cell Chemically Crossed Linked Poly Ethylene Foam insulation (fire retardant type) density not less than 33 Kg/ CuM, 'K' value not more than 0.028 Kcal/ degC with adhesive tape etc. on ducts complete for supply air ducting as per the specifications and approved shop drawings.	150	Sqm			
14.0	DUCT ACOUSTIC LINING					
	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.	20	Sqm			
15.0	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.	1	Sqm			
16.0	AHU PANEL					
	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					

ITEM NO 1	DESCRIPTION OF ITEM 2	QTY. 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
16.1	AHU STARTER PANEL					
	INCOMER :					
	1 No. 100 Amps 25 KA FP MCCB, 1 no of 0-125 amp ammeter with selector switch & CT's , 1 no. 0-500 volt voltmeter with selector switch & fuses , 1set of indicating lights (RYB).					
	Bus Bar					
	100 A TPN Aluminium bus bar 415V , 50 Hz.					
	OUTGOINGS :					
	1 set - 63 A, 415 V 15 KA FP MCCB, single phase preventor, suitable starter for 7.5/ 10 HP motor with thermal overload protection and spare NO-NC contacts for interlocking, ON-OFF indication lamps with push button for AHU motor as required.					
	1 set - 63 A, 415 V 15 KA FP MCCB, contactors of suitable rating for each bank , ON-OFF indication lamps for winter humidifier .					
	1 set - 63 A, 415 V 15 KA FP MCCB, contactors of suitable rating for each bank , ON-OFF indication lamps for winter heating.					
	1 set - 32 A, 415 V 15 KA FP MCCB , as spares.					
	1 set - 16 A, 415 V 10 KA FP MCCB .					
	Complete panel as above	1	Panel			
17.0	CABLING					

ITEM NO 1	DESCRIPTION OF ITEM 2	QTY. 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
	Supplying, laying, effecting proper connections, testing & commissioning of following size of 1.1 kv PVC insulated aluminium conducting armoured cables along with necessary cable tray as per IS 1554 Part- 1 laid on surface of wall/ ceiling etc. & termination with brass compression glands as required.					
17.1	3 C X4 sq. mm. Cable	50	Rmt			
17.2	4 C X10 sq. mm. Cable	50	Rmt			
17.3	4 C X16 sq. mm. Cable	30	Rmt			
17.4	3.5 X35 sq.mm Cable	60	Rmt			

ITEM NO 1	DESCRIPTION OF ITEM 2	QTY. 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
18.0	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					
18.1	150 mm widthx50 mm deep x1.6 mmthickness	20	Rmt			
18.2	100 mm widthx50 mm deep x1.6 mmthickness	25	Rmt			
19.0	EARTHING					
19.1	Earth pits with GI earth plate of size 600mmx600mmx6mm thick including all accessories , down watering GI pipes 40mm dia and providing masonry enclosure with cover plate having interlocking arrangement and watering pipe etc. with charcoal of or coke and salt) complete as required	1	Set			
19.2	Providing and fixing GI earth strip on walls/ trenches complete as per specifications and as required.					
19.2.1	25mm x 3mm	50	Rmt			
20.0	Providing and fixing earth wire of complete as per specifications as required.					
20.1	8 SWG wire	100	Rmt			
	TOTAL					

<u>100 BED HOSPITAL AT MANDI, H.P.</u>		
<u>SUMMARY SHEET FOR HVAC WORKS</u>		
SECTION	DESCRIPTION OF WORKS	AMOUNT (Rs.)
A	HVAC WORKS FOR "100 BED HOSPITAL AT MANDI,H.P."	
	GRAND TOTAL	

BILL OF QUANTITIES

OF

SPECIALIZED SERVICES

BOQ (BILL OF QUANTITY)

Package - Supply, installation Testing and commissioning of Medical Gas Manifold System with Defect liability period

Part-I

SL. NO.	ITEM DESCRIPTION	UNIT	Q'NTY	RATE (Rs.) (In Figure)	Rate (Rs.) (In Words)	AMOUNT (Rs.)
1.0	Oxygen System :					
1.1	10+10 Bulk Cylinder Manifold for Oxygen complete with Middle Frame, NRV and Tail Pipes as required as per specifications	Set	1			
1.2	Automatic Oxygen Control Panel with automatic switchover from one bank to other bank of cylinders complete as required with accessories as per specification Imported	Nos	1			
1.3	Six-cylinder Emergency system for Oxygen complete as required with accessories as per specification	Set	1			
2.0	Nitrous Oxide System :					
2.1	2+2 Bulk Cylinder Manifold for Nitrous Oxide complete with Middle Frame, NRV and Tail Pipes complete as required with accessories as per specification	Set	1			
2.2	Automatic Nitrous Oxide Control Panel with automatic switchover from one bank to other bank of cylinders complete as required with accessories as per specification Imported	Nos	1			
2.3	Single-cylinder Emergency system for Nitrous Oxide complete as required with accessories as per specification	Set	1			

3	Compressed Air System :				
3.1	Compressed Air System Consisting of 2 nos Air Compressors, each having 15 HP Motor with 57 cfm capacity at 8.5Kg/cm2 pressure, Tank Mounted, each Receiver Capacity 1500 ltrs, Air drier, Pressure Reducing Unit etc. complete as required with accessories as per specification Make- Ingersolrand/Anest Iwata/Equivalent	Set	1		
3.2	Auto Drain System for Air receivers complete as required with accessories as per specification	No.	2		
3.3	3-Stage Breathing Air Filter for 50 CFM as per ISO 8573-1 complete as required with accessories as per specification	Set	2		
4.0	Vacuum System :				
4.1	2 nos. of vacuum pumps each having with 7.5 HP Motor with common 2000 litres Receiver, Filters, Electricals, etc. complete as required with accessories as per specification Make-Ingersol-Rand/Anesta Iwata make	Set	1		
4.2	Bacterial Filter suitable for Vacuum Pump system complete as required with accessories as per specification	Set	1		
5.0	Gas Outlet complete as required with accessories as per specification				
5.1	Oxygen	Nos	124		
5.2	Nitrous Oxide	Nos	1		
5.3	Medical Air 4 Bar	Nos	12		
5.4	Surgical Air 7 Bar	Nos	1		
5.5	Vacuum	Nos	124		
5.6	AGSS Outlets	Nos	1		

6	Distribution Copper Piping having copper pipes as per BS EN 1057 standard with 3rd party inspection from Lloyds' complete as required with accessories as per specification				
	Cu Pipe 76.1 mm Od x 2 mm thick	Mtr.	46		
	Cu Pipe 54 mm Od x 1.2 mm thick	Mtr.	78		
	Cu Pipe 42 mm Od x 1.2 mm thick	Mtr.	83		
	Cu Pipe 28 mm Od x 0.9 mm thick	Mtr.	261		
	Cu Pipe 22 mm Od x 0.9 mm thick	Mtr.	736		
	Cu Pipe 15 mm Od x 0.9 mm thick	Mtr.	522		
	Cu Pipe 12 mm Od x 0.7 mm thick	Mtr.	456		
7	Isolation Ball Valve (Factory-Degreased) with Brass Adaptor complete as required with accessories as per specification				
7.1	22 MM	Nos	12		
7.2	15 MM	Nos	14		
8	Valve Box complete as required with accessories as per specification				
	2 services	Nos	4		
	3 services	Nos	2		
	5 services	Nos	2		
9	Alarm complete as required with accessories as per specification				
9.1	Master Alarm	Nos	1		
9.2	Area Pressure Alarm (Digital)	Nos			
	2 services	Nos	4		
	3 services	Nos	2		
	5services	Nos	2		

11.0	AGSS UNIT (Imported)				
	Simplex AGSS UNIT having dry Rotary Vane Vacuum System with 1.2 HP motor and receiver with control panel complete as required with accessories as per specification	No.	1		
12.0	HP A/S Tubing:				
	High Pressure Tubing for AIR	Mtr.	546		
	High Pressure Tubing for vaccum	Mtr.	432		
	LP Tubing	Mtr.	500		
13.0	Horizontal Bed Headed Panel(All Beds)	Nos	120		
	High Strength Anodised Aluminium Extrusions with inbuilt single railing, Medical Gas Outlets etc complete as required with accessories as per specification				
14.0	ACCESSORIES				
14.1	BPC Flowmeter with humidifier bottle & adapter complete as required with accessories as per specification	Nos	126		
14.2	Ward Vacuum Unit with 600ml poly carbonate collection jar complete as required with accessories as per specification	Nos	122		
14.3	Theater Suction Unit with regulator, trolley & 2x2000ml poly carbonate collection jars	Nos	4		
15	Turnkey work complete as required with accessories as per specification	lot	1		
					SUB TOTAL Rs.
	In words : Rupees				

BOQ

Package- Supply, Installation, testing and Commissioning of MODULAR OPERATION THEATRE ON TURNKEY BASIS with Defect liability Period. (Modular OT-1 Ground floor)						
Item No.	Description	Unit	Qty	RATE IN FIG. (Rs.)	RATE IN WORDS	AMOUNT (Rs.)
1.0	WALL & CEILING CONSTRUCTION WITH ANTIBACTERIAL PAINTING AND ANTIBACTERIAL PAINTING Complete with all accessories as required as per technical specification	SQM	111			
2.0	CEILING FILTRATION SYSTEM / LAMINAR AIR FLOW SYSTEM (AIR MANAGEMENT SYSTEM) Complete with all accessories as required as per technical specification	Nos	1			
3.0	FLOORING (ANTISTATIC CONDUCTIVE TILES) WITH SELF LEVELLING COMPOUND Complete with all accessories as required as per technical specification	SQM	38			
4.0	DOORS AND FRAMES (AUTOMATICALLY HERMETICALLY SEALED SLIDING DOOR) Complete with all accessories as required as per technical specification	Nos	1			
5.0	PRESSURE RELIEF DAMPERS Complete with all accessories as required as per technical specification	Nos	1			
6.0	INTERNAL DUCTING Complete with all accessories as required as per technical specification	lot	1			
7.0	EXHAUST AIR CABINETS TComplete with all accessories as required as per technical specification	Nos	1			
8.0	PERIPHERAL LIGHT CUM CLEAN ROOM LUMINARIES Complete with all accessories as required as per technical specification	Nos	8			
9.0	OPERATION THEATRE CONTROL PANEL Complete with all accessories as required as per technical specification	Nos	1			
10.0	ANAESTHETIC PENDANT DUAL ARM Complete with all accessories as required as per technical specification	Nos	1			
11.0	SURGEON PENDANT DUAL ARM Complete with all accessories as required as per technical specification	Nos	1			
12.0	X-RAY FILM VIEWER TComplete with all accessories as required as per technical specification	Nos	1			

13.0	HATCH/PASS BOX Complete with all accessories as required as per technical specification	Nos	1			
14.0	WRITING BOARD (LIST BOARD) Complete with all accessories as required as per technical specification	Nos	1			
15.0	STORAGE UNIT Complete with all accessories as required as per technical specification	Nos.	2			
16.0	DISTRIBUTION BOARD ELECTRICAL WIRING, CONDUITING WITH FIXTURES INSIDE THE OPERATION THEATRE TComplete with all accessories as required as per technical specification	Lot	1			
17.0	MEDICAL GAS LINE INSTALLATION Complete with all accessories as required as per technical specification	Lot	1			
18.0	VIEW WINDOW WITH ROLLER BLINDS Complete with all accessories as required as per technical specification	Nos	1			
19.0	SCRUB STATION Complete with all accessories as required as per technical specification	Nos	1			
20.0	OT LIGHT DUAL DOME LED LIGHT (IMPORTED) Complete with all accessories as required as per technical specification. IMPORTED	Nos.	1			
21.0	TURNKEY WORKS	Lot	1			
	TOTAL Rs.					

BOQ						
Package-Supply, installation & commissioning of MINOR OT with Defect Liability Period (Minor OT-Ground floor)						
Item No. 1	Description 2	Unit 3	Qty 4	Unit Rate (In Rs. Figure) 5	Rate in Words 6	Amount 7 Rs
1.0	CEILING SYSTEM Complete with all accessories as per technical specification	SQM	35			
2.0	CORNER COVING Complete with all accessories as per technical specification	M	26			
3.0	WALL PAINTING Anti fungal/PU painting Complete with all accessories as per technical specification	SQM	71			
4.0	SWING DOOR Complete with all accessories as per technical specification	Nos	1			
5.0	PERIPHERAL LIGHT CUM CLEAN ROOM LUMINARIES Complete with all accessories as per technical specification	lot	8			
6.0	DISTRIBUTION BOARD ELECTRICAL WIRING, CONDUITING WITH FIXTURES INSIDE THE OPERATION THEATRE Complete with all accessories as per technical specification	Lot	1			
7.0	OPERATION THEATRE FLOORING (ANTISTATIC CONDUCTIVE TILES) Complete with all accessories as per technical specification	SQM	35			
8.0	OT LIGHT Halogen Complete with all accessories as per technical specification	Nos.	1			
9.0	TURNKEY		1			
	TOTAL Rs.					

<u>Specilazied Services - BOQ Summary</u>			
Summary of cost for NRHM Mandi, HP			
	Sl. No.	Description of Items	Quoted Amount (in Rs.)
	1	Medical Gas M anifold System	
	2	Mid-End Modular OT	
	3	Minor OT	
	TOTAL		

SUMMARY SHEET - Bill of Quantities (B.O.Q.)**"Construction of 100 Bedded Mother & Child Hospital at Zonal Hospital, Mandi district, Mandi, H.P."**

Name of The Firm/Contractor					
S.No	Name of Head	Total Quoted Amount (In Indian Rupees)	Discount, if any(%)	Amount of Discount (In Rs.)	Net Amount after discount (In Rs.)
1	Civil Works				
2	Public Health Engineering works				
3	Fire Fighting works				
4	Electrical works				
5	HVAC Works				
6	Specialized Services				
	Total				

END OF VOLUME - V