	PART-B
	PREAMBLE FOR BOQ CUM RATE SCHEDULE
1	Details of the items in the BOQ Cum Rate Schedule shall be read in conjunction with the tender specifications, drawings and other documents and shall have precedence over any contrary statement mentioned anywhere in this document.
2	The work shall be carried out as per construction drawings, specifications, the description of the items in this schedule and/or Engineer's instructions, Drawings enclosed with these documents are only indicative giving some idea of the type of work involved. The layout, sizes and details of the building, structures and foundations shown in tender drawings may vary at a large extent during actual construction. Final drawings will be issued progressively during the execution of the work.
3	Items of work provided in this schedule but not covered in the specifications shall be executed strictly as per instructions of the Engineer.
4	Unless specifically mentioned otherwise in the contract, the contractor shall quote his rates for the finished items and shall provide for the complete cost towards fuel, tools, tackle, equipment, constructional plant, temporary works, labour materials, levies, taxes, transport, layout, repairs, rectification, maintenance till handing over, supervision, shops, establishments, services, temporary roads, revenue expenses, contingencies, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the works according to the contract.
5	The rate shall also be inclusive of carrying out topography survey of site to establish levels and coordinates at suitable intervals, form existing grid levels and coordinates furnished by the owner, establish bench marks, setting out the location and levels of the proposed structures, constructions and making references, pillars and other identification marks etc. No separate payment will be made towards the same.
6	The quantities of the various items mentioned in the BOQ cum Rate Schedule are approximate and may vary up to any extent or be deleted altogether. The overall variation in contract value on execution shall be dealt as per GCC. Contractor has to obtain prior approval of BHEL/Customer before procurement of bought out items/building materials.
7	BHEL Engineer's decision shall be final and binding on the contractors regarding clarification of items in BOQ cum Rate schedule with respect to the other sections of the contract.
8	In case of any discrepancy between item description, relevant specification, clarification shall be sought at tender stage itself. Otherwise it shall be assumed that the contractor has quoted for the more stringent requirement.

PART												
	Project: 1X800 MW SIPAT-III EPC											
Summary (Un-Priced Rate Schedule)												
Sl. No.	Item Description	Quantity	Units	Quoted Currency in INR / Other Currency	BASIC TOTAL AMOUNT In Figures To be entered by the Bidder Rs. P	TOTAL AMOUNT (For taxes refer Chapter-VIII of TCC) Rs. P	TOTAL AMOUNT In Words					
1	2	3	4	5	6	7	8					
1	TOTAL PRICE FOR ENTIRE SCOPE OF WORK AS PER TENDER NO. BHEL/CPC/KOD/CHM/25/97:- CONSTRUCTION OF ONE (1) NO. 275 M TALL SINGLE FLUE RCC CHIMMEY COMPLETE IN ALL RESPECT INCLUDING CHIMMEY RCC WIND SHIELD, FABRICATION & ERECTION OF STEEL FLUE CANS, SUPPLY & ERECTION OF SHOP FABRICATED STRUCTURAL PLATFORMS, INSTALLATION OF ELECTRICAL ITEMS IN CONFORMITY WITH THE APPROVED LAYOUT ETC, ELEVATORS TO COMPLETE THE CHIMMEY IN ALL RESPECT (BUT EXCLUDING BOROSILICATE WORKS & CHIMNEY RAFT) FOR 1X800MW SIPAT SUPER THERMAL POWER STATION, STAGE-III		Total Price	INR		-						
Total in Fig						-						
Quoted Rat	e in Words											
Instruction	Instructions to the Bidders											
1	Bidders shall quote Total Price for the entire scope of workin Rupees in VOL II PRICE	BID at BHEL E-procu	ırement Portal.	Any other entry elsewhere in the	e offer of the bidder shall be treated as Nu	ll and Void. The total value shall be automatic	ally calculated on E-portal.					
2	Contract Value based on the price quoted by Bidder in Price Bid shall be as per Part-B.											
3	BHEL has fixed the % weightages as in "Part-B" for the amount of individual items of BOQ Cum Rate Schedule w.r.t. the total value quoted in price-bid.											
4	4 Based on the pre-fixed % weightages, amount of individual items shall be derived by BHEL. This amount shall not be rounded off.											
5	5 Based on the quantities of individual item and the amount arrived in Sl. No. 4 above, item rate of individual items shall be derived by BHEL. This item rate shall be rounded off up to two decimal places and shall be used to calculate the total amount of an item.											
6	6 Bidders to note that this is an 'Item rate contract'. Payment shall be made for the actual quantities of work executed at the Unit rate arrived at as per serial no. 5 above.											

Project: 1X800 MW SIPAT-III EPC

BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)

TENDER NO.: BHEL/CPC/PMX/SPT/CHM/25/97

				RATE (INR)= TOTAL VALUE *		
SL No.	Civil Works	Unit	Quantity	WEIGHTAGE /(QUANTITY) (ROUNDED OFF TO TWO PLACES AFTER DECIMAL)	AMOUNT (INR) RATE * QUANTITY	WEIGTHAGES OF BOQ ITEMS
1	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding					
	special type of dewatering viz. well point method), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of					
	surplus excavated materials within a lead upto 1Km, spreading/levelling of disposed materials etc all complete for following depths below ground level,					
	including all labour, equipments etc complete as per specification, drawing and as directed by engineer- in-charge					
a	Depth from ground level but not exceeding 2 m	cum	50	-	-	0.0012451334%
	Earth work in excavation in soft rock including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment					
	with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, sak			-	-	
a	and as directed by engineer- in-charge Depth from ground level but not exceeding 2 m	cum	50	_	-	0.0020315334%
b	Depth exceeding 2 m but not exceeding 4 m	cum	50	-		0.0024378401%
5	Earth work in excavation in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling,					
	dewatering (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statuatory clearances for blasting, supply, storage & handling of					
	blasting materials, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete for			-	-	
	following depths below ground level, including all labour, equipments etc complete as per specification, drawing and as directed by engineer- in-charge					
	Depth exceeding 2 m but not exceeding 4 m	cum	25	-	-	0.0033815201%
С	Depth exceeding 4 m but not exceeding 6 m	cum	25	-	-	0.0040565135%
Ь	Earth work in excavation in hard rock requiring chiselling including setting out, levelling, deawtering (wherever required), dressing the sides & bottom, all					
	lifts, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete for following depths			-	-	
	below ground level, including all labour, equipments etc complete as per specification, drawing and as directed by engineer- in-charge.					
	Depth exceeding 4 m but not exceeding 6 m	cum	25	-	-	0.0051053090%
7	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not					
	exceeding 300mm compacted thickness using/with selected materials from compulsorily excavated earth available within a lead upto 1 Km and compacted					
	as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the			-	-	
	following, including all labour, equipments etc complete as per specification, drawing and as directed by engineer- in-charge.					
a	at least 90% maximum dry density as per IS-2720 (Part-VII)	cum	900	_	-	0.0233560810%
8	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not	oun	000			0.02000001070
	exceeding 300 mm thickness using/with selected earth directly from excavation within a lead upto 1Km and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following, including all labour, equipments etc complete as per specification, drawing and as directed by engineer- in-charge.			-	-	
b	at least 90% maximum dry density as per IS-2720 (Part-VII)	cum	50	-		0.0005898000%
A11	Supplying and filling natural sand / sand manufactured from other than natural sources upto any depth below grade slab, under floors, around foundations, plinths etc. in layers not exceeding 300mm compacted thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any), labour, equipments etc. all complete as per specification, drawing and as directed by engineer- in-charge.	cum	10	-	-	0.0047760695%
12	Providing and Filling in grade slab, area paving, trenches, plinths and other underground structures with graded stone aggregate of size range 63 mm to 45					
	mm in layers not exceeding 200 mm in thickness including breaking of stone boulders to required sizes, filling the interstices with selected natural sand/sand					
	manufactured from other than natural sources/moorum and compacting to 85 % of original volume of stone stack for all lifts etc. all complete as per	cum	100	-		0.0568829357%
	specifications, drawings and instructions of the Engineer. Payment shall be made for the measurement of the volume of the compacted fill.					
13	Providing and laying Nominal Mix plain cement concrete (M7.5) with graded aggregate (with maximum size of coarse aggregate not exceeding 40 mm) at all levels for all kinds of work like mass concrete, lean concrete, mudmat, filling etc. including labour, materials, equipment, handling, transporting, batching, curing, testing etc. all complete as per specifications, drawings and instructions of the Engineer.(Cement supply in contractor's scope as per TCC)	cum	70	-		0.0915081292%
14	Providing and laying design mix cement concrete with graded aggregate (maximum size of coarse aggregate not exceeding 20 mm) for reinforced concrete work at all levels for all kinds of work, including labour, materials, equipment, handling, transporting, batching, mixing, placing, levelling, compacting, curing, testing etc. and rendering or cleaning and finishing the exposed surface with cement mortar (1:3) to give smooth and even surface, all complete as per specifications, drawings and instructions of the Engineer, but excluding all formwork and reinforcing steel: (Cement supply in contractor's scope as per TCC)			-	-	
ii.	For all other works			-	-	
а	Grade M-25 grade level slab, pit, trenches,drain etc.	cum	150	-	-	0.2690667713%
b	(Cement supply in contractor's scope as per TCC) Grade M-30 for chimney shell, corbel, external platforms, roof slab and any other components.					
"	(Cement supply in contractor's scope as per TCC)	cum	50	-	-	0.1086804846%
С	Grade M-35 for chimney shell, corbel, external platforms, roof slab and any other components.	cum	11100	_	_	24.3423839023%
16	(Cement supply in contractor's scope as per TCC)	Galli		-		2.1.0 1.2000002070
16	Providing and placing steel reinforcements of High yield strength deformed TMT steel bars of grade Fe-500/Fe-500/Fe-550/Fe-550/D conforming to					
	IS:1786 and IS 13920 (minimum elongation shall be 14.5%), for reinforced concrete work, at all levels, for all kinds of work, including transportation,					
	cleaning, derusting, straightening, cutting, bending, binding in position with annealed wire and/or welding, providing concrete cover blocks, pins, separators, chairs, supports for reinforcement, etc. with all materials, labour, equipment, handling, testing, transportation to & from stores etc.,			-	-	
	preparation of bar bending schedules, all complete as per specification, drawing and as directed by engineer- in-charge.					
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Project: 1X800 MW SIPAT-III EPC

BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)

TENDER NO.: BHEL/CPC/PMX/SPT/CHM/25/97

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The read out an ear of contractives of which in figure and ways placed from the contractive of the contracti							
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19 Providing and fixing formwork in shell openings and pockets (above 0.1 sea, m surface area) including cutting, formation of shapes and all other generations required for making the required shape and size, removal of formwork, all complete as per specifications, drawings and instructions of the Engineer. 19 Providing and placing in position at all levels. bullumps imprographed fifther boards, 12 mm thick, conforming to 15:1838, as joint filling at joints in concrete, including and instruction of the Engineer. 20 Providing and installing, at all levels, blitumen imprographed fifther boards, 12 mm thick, conforming to 15:1838, as joint filling at joints in concrete, including and installing, at all levels, blitumen sealing compound (hot applied type) conforming to 15:1834, for sealing gaps and joints in concrete, including eleaning, mixing, hearing or injection, septilications and instructions of the Engineer. 21 Providing and filling, at all levels, blitumen sealing compound (hot applied type) conforming to 15:1834, for sealing gaps and joints in concrete, including eleaning, mixing, hearing or injection, septilications and instructions of the Engineer. 22 Exploying, fabrication, executing and installing mixing instructions of the Engineer. 23 Supply, finaticating, executing and installing mixing and explanation of the Engineer. 24 Supplying, fabrication, executing and installing mixing and explanation of the Engineer. 25 Supplying, fabrication, expension and everis including preparation of fabrication drawings, apalvarization as per darwings, apalvarization as p			0	050			0.00500745000/
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goparations required for making the required shape and size, removal of formwork, all complete as per specifications, drawings and instructions of the Engineer. 19 Providing and placing in position at all levels, building paper (traft paper), as per IS1307, between concrete surfaces including the cost of labour, material, complete as per drawings, and institution of the Engineer. 20 Providing and installine, at all levels, building paper (traft paper), as per IS1307, between concrete surfaces including has positionations and installine, and levels, bitterine impropriated fibre boards, 12 mm thick, conforming to IS1538, as joint filter at joints in concrete, including applications and installine, and levels, bitterine shaped as per drawings, specifications and installine, and levels, bitterine shaped proving or improve the Engineer. 21 Providing and filting, at all levels, bitterine shaped proving or imprising application of primer, cost of all labour, material and equipments etc., complete as per drawings, specifications and installing miscollaranous steel parts to be embedded/cast in concrete (like staircase embedments, corbel face plates, etc.) at all positions and levels including preparation of fabrication drawings, againarization as per IS-478 (The minimum weight for galvanizing shall be e10 glyan, and shall comply with relevant IS Codes), including the cost of all labour, materials and equipments for setting materials in concrete, growing, welding, boths a bothing, explanation and/order, drilling, cutting, etc. complete as per drawings and specification. 20 Supply, fabrication (shop fabricated as per specification) and erection of structural steel of grade E250 in rolled built up section (Rolled sections shall be completed by the part of the completed of specification. And the completed parts and part of the parts and part of the parts and parts and parts and parts and part of the parts and pa	10	Desiding and fixing formulating familiar and parings are partings and partings are partings are partings and partings are partings and partings are partings are partings are partings and partings are partin					
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etc. complete as per drawings and instruction of the Engineer. Providing and Installing, at all levels, bitumen insperaged tibre boards, 12 mm thick, conforming to IS:1838, as joint filler at joints in concrete, including halling, coaling of both faces with coal tar pitch/bitumen, including the cost of all labour, material and equipments etc., complete as per drawings, specifications and instructions of the Engineer. Providing and filling, at all levels, bitumen sealing compound (thet applied type) conforming to IS:1834, for sealing gaps and joints in concrete, including changing, mixing, healing, outing or injecting, application of primer, cost of all labour, material and equipments etc., complete as per drawings, specifications and instructions of the Engineer. Sqm 50	40						
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ASTM -A578 level B-S2.) in chimney platform, staircase, columns, beams, struts, monoralis, stays, safety chains, ladders, MS gratings, gantry girders, roof trusses, portals, laced purlins, space frames, hangers, wall beams, sheeting runners, brackets, stiffeners, stub columns, bracings, cleats, base plates, splice plates, gussests, end plates, steel frame gird over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, decking and seal plates, galleries etc including blast cleaning, providing & applying primer, providing and applying intermediate, final and final finish coat of paint (blast cleaning, primer and paint shall be paid separately as per item no C23, D23 & E23), connection design, preparation of fabrication drgs and appointment of a seperate agency for review and approval of fabrication drgs in consultation with BHEL, straightening, cutting, bending, rolling, gridning, melding, electrodes and other consumables, alignment, true to line, level, plumb & dimension, erection bolts & nuts (weight of erection bolts and nuts not payable), assembly,							
trusses, portals, laced purlins, space frames, hangers, wall beams, sheeting runners, brackets, stiffeners, stub columns, bracings, cleats, base plates, splice plates, gussets, end plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, decking and seal pallates, galleries ete including blast cleaning, providing & applying primer providing and applying intermediate, final and final finish coat of paint (blast cleaning, providing and applying intermediate, final and final finish coat of paint (blast cleaning, providing and applying intermediate, final and final finish coat of paint (blast cleaning, providing and applying intermediate). The providing specific provides and provided provided by the providing and applying intermediate, final and final finish coat of paint (blast cleaning, providing and applying intermediate). The providing specific provided by the providing and applying intermediate, final and final finish coat of paint (blast cleaning, providing and applying intermediate). The providing specific provided by the providing and applying intermediate, final and final finish coat of paint (blast cleaning, providers and application							
plates, gussets, end plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, decking and seal plates, galleries etc including blast cleaning, providing & applying primer, providing and applying intermediate, final and final finish coat of paint (blast cleaning, primer and paint shall be paid separately as per item no C23, D23 & E23), connection design, preparation of fabrication drgs in consultation with BHEL, straightening, cutting, bending, rolling, griding, machining, drilling, welding, electrodes and other consumables, alignment, true to line, level, plumb & dimension, erection bolts and nuts not payable), assembly,							
etc including blast cleaning, providing & applying primer, providing and applying intermediate, final and final finish coat of paint (blast cleaning, primer and paint shall be paid separately as per item no C23, D23 & E23), connection design, preparation of fabrication drgs and appointment of a seperate agency for review and approval of fabrication with BHEL, straightening, cutting, bending, rolling, gridning, machining, drilling, electrodes and other consumables, alignment, true to line, level, plumb & dimension, erection bolts & nuts (weight of erection bolts and nuts not payable), assembly,							
paint shall be paid separately as per item no C23, D23 & E23), connection design, preparation of fabrication drgs and appointment of a seperate agency for review and approval of fabrication drgs in consultation with BHEL, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, true to line, level, plumb & dimension, erection botts & nuts (weight) of erection botts and nuts not payable), assembly,							
review and approval of fabrication drgs in consultation with BHEL, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, true to line, level, plumb & dimension, erection bolts & nuts (weight of erection bolts and nuts not payable), assembly,		paint shall be paid separately as per item no C23, D23 & E23), connection design, preparation of fabrication drgs and appointment of a seperate agency for	MT	575			17 3434044202%
			1	5,5	-		11.0.10 10 17720270
edge preparation, preheating / post heating if required, testing of welders, inspection of welds, visual inspection, non destructive and special testing,							
rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per							
Sistantiny of structures, installation to retireplically setting setting document uses, state preparation by inequalities or intercentation by inequalities of intercentation by inequalities of preparation by inequalities or intercentation by the state of preparation by inequalities or inequalities of preparation by inequalities or intercentation by the state of preparation by inequalities or intercentation by the state of preparation by inequalities or intercentation by the state of preparation by inequalities or intercentation by the state of preparation by inequalities or intercentation by the state of preparation by inequalities or intercentation by the state of preparation by inequalities or intercentation by the state of preparation by inequalities or intercentation by the state of preparation by inequalities or intercentation by the state of preparation by inequalities or intercentation by the state of preparation by inequalities or intercentation by the state of preparation by inequalities or intercentation by the state of preparation by inequalities or intercentation by the state of preparation by inequalities or intercentation by the state of preparation by inequalities or intercentation by the state of preparation by inequalities or intercentation by the state of preparation by inequalities or intercentation by the state of preparation by the							
complete as per drawing and specifications.							

Project: 1X800 MW SIPAT-III EPC

BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)

TENDER NO.: BHEL/CPC/PMX/SPT/CHM/25/97

	Extra over ST NO. A23, B23, A24 & 27 for blast cleaning of steel structures to near white metal surface conforming to Sa 2 ½ finish of ISO 8501-1 with surface profile 40-60 Micron and providing and applying two component moisture curing zinc (ethyl) silicate primer coat (having minimum 80% of metallic Zinc content in dry film, solid by volume minimum 80% ±2%) of minimum 70 micron DT including the coal fall abour, material, equipments, protection of surface and cleaning, scoffolding, touch-up painting etc., complete as per drawings, specifications and instructions of the Engineer. Zinc dust composition and properties shall be Type-II as perASTM D520-00. Primer coat shall be applied in Shop immediately after blast cleaning by airless spray technique.	МТ	758	-	-	0.6572382629%
D23	Extra over ST NO. A23, B23, A24 & 27 for providing and applying (by airless spray technique) intermediate coat of two component polyamide cured epoxy with MIO Content (containing lamellar MIO minimum 30% on pigment, solid by volume minimum 80% ±2%) of minimum 100 micron DFT after an interval of minimum 24 hours (from the application of primer coat) and of approved make including the cost of all labour, material, equipments, protection and cleaning, scoffolding, touch-up painting etc. all complete as per drawing and specifications.		758	-	-	0.6293968287%
E23	Extra over ST NO.A23, B23, A24 & 27 for providing and applying Finish coat of two-pack alliphatic Isocyanate cured acrylic finish paint (solid by volume minimum 55% ±2%) with Gloss retention (SSPC Paint Spec No 36, ASTM D 4587, D 2244, D 523) of Level 2 (after minimum 1000 hours exposure, Gloss loss less than 30 and colour change less than 2.0 ΔE) and minimum 70 micron DFT over steel sections deady having intermediate coats, including the cost of all labour, material, equipments, protection and cleaning, scoffolding etc. all complete as per drawing and specifications. This coat shall be application of sealer coat) and within six (6) months (from the completion of Intermediate coat). Colour and shade of the coat shall be as approved by the Employer.	МТ	758	-		0.5190980954%
A24	Supplying, fabrication, erection and alignment of factory made chequered plate conforming to IS 3502 (minimum 6 mm o/p) in platforms, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, grinding, drilling, welding, edge preparation, connection design, preparation of fabrication drgs and appointment of a seperate agency for review and approval of fabrication drgs in consultation with BHEL etc. all complete as per drawing and specification. (Chequered plate supply is in Contractor's Scope)		150	-	-	4.0341012471%
25	Providing and fixing in positing of high strength structural bolts (of property class 8.8 and product grade 'C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class '8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649, up to and inclusive of 39 mm diameter and upto 1200 mm long for structural steet which including the cost of all labour, material and equipment, transporting, lifting to all heights, setting in place, cutting, grinding, drillings, testing, etc. complete as per drawings and specifications.		110	-	-	0.5117109733%
A25	Providing and fixing in positing of high strength structural bolts (of property class 10.9 and product grade 'C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class '8' as per IS:1367) conforming to IS:623 with hardened and tempered washers as per IS:6649, up to and inclusive of 39 mm diameter and upto 1200 mm long for structural steel work including the cost of all labour, material and equipment, transporting, lifting to all heights, setting in place, cutting, grinding, drillings, testing, etc. complete as per drawings and specifications.		25	-	-	0.1279277433%
	Providing and fixing in position (for liner supporting hangers) of precision bolts of property class 8.8 conforming to is:1367 with yield strength not less than 700 mpa. and nuts of property class 8s conforming to is:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 36 mm diameter and upto 300 mm long for structural steel work including the cost of all labour, material and equipment, transporting, lifting to all heights, setting in place, cutting, grinding, drillings, testing, etc. complete as per drawings and specifications. (The material specifications for nuts and bolts shall be 40 cr4mo3 conforming to is:4367. bolts shall be fixed in close tolerance holes with an overall diameter equal to the nominal bolt diameter +0.15mm0.00mm.)	Quintal	15	-	-	0.0697787691%
A26	Providing, fabricating and erecting at all levels, flues complete with all bends, flanges, stiffeners, all other internal and external flue attachments, support system, staying system, coliars, minishell, cap, access manholes and gas sampling ports alongwith gaskets, cover plates, pipes, bends, fittings, condensate collection and withdrawal arrangement in line with gas-flow-model study report and any other appurtenances like seal pot etc. as required including material, equipment, transporting, lifting to all heights, setting in place, cutting, grinding, rolling, edge preparation, drilling, bending, electrodes and other consumables, alignment, erection botts and botting, welding, preheating and post-heating for welding, inspection, required testing, rectification and correction of defective works etc. and other required accessories, connection design & preparation of fabrication drgs and appointment of a seperate agency for review and approval of fabrication drgs in consultation with BHEL, all complete as per specifications and drawings.			-		
i)	Components made of structural steel of grade E250 conforming to IS:2062 [Structural steel of grade E250 conforming to IS:2062 will be provided by BHEL free of cost]	MT	675	-	-	8.1432559953%
vi)	Components made of titanium (Grade 2 as per ASME B265). (All material in Contractor's Scope)	МТ	4	-	-	2.8316243599%
vii)	Components made of C276. (All material in Contractor's Scope)	KG	3500	-	-	3.9716399695%
ix)	Components made of SS of grade A316L. (All material in Contractor's Scope)	KG	50	-	-	0.0064994652%
x)	Components made of acid resistant FRP (All material in Contractor's Scope)	KG	3200	-		0.8691754520%

Project: 1X800 MW SIPAT-III EPC

BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)

TENDER NO.: BHEL/CPC/PMX/SPT/CHM/25/97

	Providing and applying including blast cleaning of outer surface of steel flue including stiffener to near white metal surface conforming to Sa 2 ½ finish of ISO 8501-1 with surface profile 40-60 Micron and providing and applying two component moisture curing zinc (ethyl) silicate primer coat (having minimum 80% of metallic Zinc content in dry film, solid by outume minimum 60% ±2%) of minimum 70 micron DFT including the cost of all labour, material, equipments, protection of surface and cleaning, scoffolding, touch-up painting etc., complete as per drawings, specifications and instructions of the Engineer. Zinc dust composition and properties shall be Type-II as perASTM D520-00. Primer coat shall be applied immediately after blast cleaning by airless spray technique. (Measurement for surface preparation/painting shall be done for outer surface area (based on outer diameter) of Chimney flue can in square meters.)	Sqm	7900		-	0.7723869087%
D26	Providing and applying (by airless spray technique) on outer surface of steel flue including stiffener, an intermediate coat of two component polyamide cured epoxy with MIO Content (containing lamellar MIO minimum 30% on pigment, solid by volume minimum 80% ±2%) of minimum 10 micron DFT after an interval of minimum 24 hours (from the application of primer coat) and of approved make including the cost of all labour, material, equipments, protection and cleaning, scoffolding, touch-up painting etc. all complete as per drawing and specifications. (Measurement for painting shall be done for outer surface area (based on outer diameter) of Chimney flue can in square meters.)	Sqm	7900	-	-	0.5119874454%
E26	Providing and applying on outer surface of steel flue including stiffener, Finish coat of two-pack aliphatic Isocyanate cured acrylic finish paint (solid by volume minimum 55% ±2%) with Gloss retention (SSPC Paint Spec No 36, ASTM D 4587, D 2244, D 523) of Level 2 (after minimum 1000 hours exposure, Gloss Ioss Iess stes han 30 and colour change less than 2.0 AE) and minimum 70 micron DFT over steel sections already having intermediate coats, including the cost of all labour, material, equipments, protection and cleaning, scoffolding etc. all complete as per drawing and specifications. This coat shall be applied after an interval of minimum 24 hours (from the application of sealer coat) and within six (6) months (from the completion of Intermediate coat). Colour and shade of the coat shall be as approved by the Employer. (Measurement for surface preparation/painting shall be done for outer surface area (based on outer diameter) of Chimney flue can in square meters.)	Sqm	7900	-	·	0.5119874454%
27	Supply, fabrication and installation at various locations and elevations of the chimney system the following miscellaneous mild steel items complete with the cost of all labour, material and equipment, transporting, lifting, setting in place, cutting, grinding, drilling, welding, bolts and bolting, anohor fasteners and anchoring, priming, painting, grouting, connection design, preparation of fabrication drgs and appointment of a seperate agency for review and approval of fabrication drgs in consultation with BHEL etc. complete as per drawings and specifications:			-	-	
а	Mild steel ladders with cage, hood access hatch, louvers, bird screens, hood drain basin covers and other miscellaneous mild steel items not specifically mentioned.	MT	3	-	-	0.0840804603%
b	32/40 mm nominal bore medium class tubular hand railing for stair case and internal and external platforms.	MT	30	-	-	0.9475153912%
d	Providing minimum 610 gsm Hot dipped galvanisation on mild steel parts as per specification.	MT	2		-	0.0215478572%
31	Supply, fabrication and installation at all levels, stainless plates (including stainless steel screws and fasteners) of grade AISI 316Land lead sheets beams and over the mild steel in the platform beam bearing, flue supports bearings, flue restraints brackets/ buffers etc. including the cost of all labour material & equipment, transporting, lifting to all heights, setting in place, cutting, grinding, drilling, welding of stainless steel using compatible & approved stainless steel electrodes, testing & machining flat and polishing the contact surfaces of stainless steel, coating the polished surfaces with silicone grease, etc., complete as per drawings and specifications.			-	-	
а	Stainless steel components.	KG	300	-	-	0.0434588250%
b	Lead Sheets.	KG	100	<u> </u>	-	0.0075327948%
34	Providing, laying and packing, at all levels, asbestos ropes at expansion joints including the cost of all labour material, etc. complete as per drawing and specifications.			-	-	
а	25 mm (diameter) at expansion joints between linig segments.	Rm	100		-	0.0137127195%
	12 mm (diameter) at expansion joints between linig segments.	Rm	400	-	-	0.0227914458%
	Providing and installing, at all levels, resin bonded rock wool insulation slabs of density not less than 100 kg/cu.m with an installed thickness of not less than 100 mm, on the outside surface of clad steel/titanium flue liners and wherever as directed by the Engineer, in two layers (each 50 mm thick) including the cost of all labour, material and equipment, transporting, lifting to all heights, etc., inclusive of plated or galvanised accessories such as pins/studs/anchors/wire netting, speed washers, tying wires, etc. welding of pins/studs to steel surfaces or embedding of pins/studs/anchors in concrete surfaces, fixing, cutting, cutting, lapping, binding, testing, etc. complete as per drawings and specifications.	Sqm	10	-	-	0.0030421099%
36	Providing and packing, at all levels, loose rock wool insulation to a density not less than 100 kg/cu.m between the insulated minishells and brick liners at expanjoints between the lining segments and wherever as directed by the Engneer including the cost of all labour, material and equipment, filling, ramming, testing, etc. complete as per drawings and specifications.	Cum	1	-	-	0.0026793724%

Project: 1X800 MW SIPAT-III EPC

BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)

TENDER NO.: BHEL/CPC/PMX/SPT/CHM/25/97

DOILO	SILICATE WORKS & CHIMINET RAFT, FOR IXOUUMW SIFAT SOFER THERMAL FOWER STATION, ST	AOL-III				
40	Providing and painting, with epoxy phenolic coating system in three coats having 220 microns DFT over the external surfaces of chimney shell and wherever as required at all elevation in alternate bands of 'signal red' and 'bright white' colours including surface preparation, primer etc so as to give a good finish all complete as per drawing and specification. The epoxy phenolic coating system shall be as follows: All concrete surfaces shall be provided with two component transparent polyamide cured epoxy sealer coating (having solid by volume minimum 40% ±2%) of minimum 50 micron DFT to be applied over cleaned surface in multiple costs. Surface to be coated shall be absolutely dry, clean and dust free. Sealer cost shall be followed with the application of Intermediate coat of epoxy phenolic coating (solid by volume minimum 63%) of minimum 100 micron DFT. This cost shall be applied after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique. Intermediate coat shall be followed with the application of finish coat of two-pack aliphatic Isocyanate cured acrylic finish paint (solid by volume minimum 55% ±2%) with Gloss retention (SSPC Paint Spec No 36, ASTM D 4587, D 2244, D 523) of Level 2 (after minimum 100 hours exposure, Gloss loss less than 30 and colour change less than 2.0 AE) and minimum 70 micron DFT. This cost shall be applied after an interval of minimum 10 hours and within six (6) months (from the completion of Intermediate coat), Colour and shade of the coat shall be as approved by the Engineer-in charge.	Sqm	17600		-	2.9906625491%
41	Providing and painting, with epoxy phenolic coating system in three coats having 220 microns DFT over the inside surface of chimney shell above roof/ horizontal surface of shell at top/underside of concrete roof slab and wherever as required at all elevation including surface preparation, primer etc so as to give a good finish all complete as per drawing and specification. The epoxy phenolic coating system shall be as follows:-All concrete surfaces shall be provided with two component transparent polyamide cured epoxy sealer coating (having solid by volume minimum 40% ±2%) of minimum 50 micron DFT to be applied over cleaned surface in multiple coats. Surface to be coated shall be absolutely dry, clean and dust free. Sealer coat shall be followed with the application of intermediate coat of epoxy phenolic coating (solid by volume minimum 63%) of minimum 100 micron DFT. This coat shall be applied after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique. Intermediate coat shall be followed with the application of finish coat of two-pack aliphatic Isocyanate cured acrylic finish paint (solid by volume minimum 55% ±2%) with Gloss retention (SSPC Paint Spec No 36, ASTM D 4587, D 2244, D 523) of Level 2 (after minimum 100 hours exposure, Gloss loss less than 30 and colour change less than 2.0 AE) and minimum 70 micron DFT. This coat shall be applied after an interval of minimum 10 hours and within six (6) months (from the completion of intermediate coat), Colour and shade of the coat shall be as approved by the Engineer-in charge.	Sqm	320	-	-	0.0576978559%
43	Proving and laying over the chimney roof, a composite acid and heat protection treatment including providing of slopes for roof drainage including the cost of all labour, material and equipment, etc., complete as required for preparing the roof concrete, laying under bed of plain cement concrete screed to slopes, preparation of screed surface for painting, painting the screed surface with black bituminous paint, applying bitumenmastic in layers, laying addi resisting(A/R) mortar bed and laying 75 mm thick acid resisting(A/R) bricks with A/R mortar, curing, pointing(with phenolic based A/R cement), protection and cleaning, finishing, etc., complete as per drawing and specifications.		170	-	-	0.1510930699%
44	Providing, fitting& fixing, outlet and overflow, cast iron roof drain heads (with gratings) in chimney roof including sockets, adapters, brackets, hangers, supports, etc., casting-in and jointing to 150 mm nominal bore rainwater pipes, grouting, etc. including the cost of all labour material and equipement, transporting, lifting, setting in place, painting, etc. complete as per drawing and specifications.	Each	8	-	-	0.0212844456%
45	Providing, fitting and fixing rainwater pipes at all levels internally from the chimney roof to ground level upto the hood drain basin including shoes, bends, junctions, flanges, hoppers, sockets, adaptors, brackets, hangers, supports, anchor fasteners, spacers, pipe sleeve through shell, silicon or vulcanised butyl sealant, foam backing material, jointing, socketing, grouting, caulking, primer and finish painting etc. complete including the cost of all labour, material and equipment, complete as per drawing and specifications:			-	-	
a	150 mm nominal bore cast iron pipes.	Rm	24			0.0224607174%
b	150 mm nominal bore medium class galvanised mild steel pipes.	Rm	550	-	-	0.2833359344%
46	Providing and laying 50 mm thick cement concrete flooring (comprising of 12 mm thick mettallic concrete hardener topping over 38 mm thick under bed of concrete) over the grade level slab inside the chimney, including the cost of all labour, material and equipment, etc. complete as required for preparation of base, laying underbed and topping, finishing, rounding of edges, corners and junctions, curing, testing, etc. complete as per drawing and specifications. (Cement supply shall be in bidders scope)	Sqm	720	-	-	0.1353001257%
A47	Supplying, fabricating and installing electrically operated steel roll-up door and grilled ventilation at chimney base (total opening size of approx. 75 square m in which rolling shutter size will be approx. 4X5 m and remaining area covered with grill for ventilation), with all hardware and mechanisms, fittings and fixtures, locking arrangements, frames, fasteners, gear handle arrangement for standby manual operation, all electrical accessories such as motors, control systems, cables, etc. including connection design, preparation of fabrication drgs and appointment of a seperate agency for review and approval of fabrication drgs in consultation with BHEL, cost of all labour, material and equipment, fixing in position, grouting primer and finish painting, testing, etc., complete as per drawing and specifications.		75	-	-	0.0928107353%
48	Supplying, fabricating and installing at any level and location, mild steel, double plate, personnel access doors, in shell openings of approx. size 1.2m by 2.1m, complete with all fittings and fixtures, locking arrangements, frames, fasteners including connection design, preparation of fabrication drgs and appointment of a seperate agency for review and approval of fabrication drgs in consultation with BHEL, cost all labour, material and equipment, lifting to all heights, setting in place, grouting primer and finish painting, etc., complete as per drawing and specifications.		1	-	-	0.0072993559%
A49	Supplying, fabricating and installing SS 316L grade access hatch for approx opening size of 750mmx750mm in roof slab of chimney complete with locking arrangements, frames, fittings,fixtures and all mechanisms & accessories required for proper operation including connection design, preparation of fabrication drgs and appointment of a seperate agency for review and approval of fabrication drgs in consultation with BHEL, all labour, painting etc. complete as per drawings and specifications.	Each	1	-	-	0.0659995533%
50	Conducting load testing on girders for 1.25 times the full load, on ground , including provision of test bed and jacks, dial gauges and other supplies complete as per specification and drawings and approval of engineer in-charge.	Pair	1	-	-	0.0834777332%

Project: 1X800 MW SIPAT-III EPC

BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)

TENDER NO.: BHEL/CPC/PMX/SPT/CHM/25/97

51	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with Conbextra GP-1 or equivalent. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	Cum	1	-	-	0.0121106614%
52	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips) using non shrink admixture. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	Cum	1	-	-	0.0061634299%
53	Supplying and erecting after approval by Engineer a rack and pinion type Elevator of min 400 kg load carrying capacity, from ground upto top of chimney with landing at various platform level, including all fixtures and accessories complete as per spec. and drawings.	Lumpsum	1	-	-	1.5166975764%
54	Designing, providing and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof beam for cast-in-situ roof slab as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum to Mamm with minimum tough depth of 44 mm of grade 6250 as per AS1397/grade SS256 as per ASTA A653M grade S250GD as per EN 10326 with zinc coating to class 2275 and shall serve as permanent shuttering to the floor slab 175 mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 100 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including connection design & preparation of fabrication drgs and appointment of a seperate agency for review and approval of fabrication drgs in consultation with BHEL, fixing of plates to beams, side lapping, end lapping including all labour, material (unless otherwise specified in BOC/contract specification), equipment, transportation, handling, scilioni, pash, bnoke, washers, corner pieces etc. at all level as per specification, drawings and as directed by engineer - in - charge all complete. The sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint or super polyster paint of minimum 20 micron (DFT on exposed surface over primer coat of minimum 5 micron (nominal) on other face. SMP and polyster paint system shall be of industrial finish of product type 4 of AS/NZ2728, including fixing of sheet to top flange of beam with drawn are welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant. The sheer anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 16 mm dia & 75 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grad	SQM	165		-	0.0902474644%
55	Providing and fixing shear anchor studs for fixing metal deck sheet to roof structural beams conforming to Type-B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 16mm diameter and 75mm length manufactured from cold drawn round steel bars conforming to the requirement of ASTM A 29, of grade designation 1010 through 1020, of standard quality with either semi-killed or killed, welded by Drawn Arc Stud Welding through metal deck sheet etc all complete including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at all level as per specification, drawings and as directed by engineer - in - charge.	Quintal	1.2	-	-	0.0086265127%
	Electrical Works				_	
E1	415V, 200A, 50 KA for 1 sec, 4 wire AC Distribution Board with 1No. incomer (MCCB on both side transformer), 12 nos. of 100A MCCB(TPN) outgoing alongwith 100KVA non encapsulated lighting transformer (415/433) V in Incomer, Dyn11, Z=4%, ±2x2.5% off ckt. Tap) complete in all respects	no.	1	-	-	0.1346613474%
E2	415V, 200A, 4 wire AC Emergency Lighting distribution board alongwith 50KVA lighting transformer (415/433 V, Dyn11, Z=4%, ±2x2.5% off ckt. Tap) with 2 nos. of MCCB (TPN) incomers with auto changeover facility using contactors and 8 nos. 100A MCCB (TPN) outgoings complete in all respects. In case load requirement of chimney can not be met by 50 kVA non encapsulated lighting transformer after considering loading, 100 kVA lighting transformer shall be provided alongwith suitably rated components without any commercial implications to the purchaser.	no.	1	-	-	0.2284280620%
E3	Normal AC lighting panel outdoor type with degree of protection IP 55 with one no. 100A MCB (TPN) Incomer, 20 outgoing (16A SP MCBs)	no.	4	-		0.1857612453%
E4	Emergency lighting panel outdoor type with degree of protection IP 55 with One no. of 100A MCB(TPN) incomer and 12 outgoings (16A, SPN MCBs)	no.	3	-	-	0.1154731092%
E5	Aviation lighting panel outdoor type with degree of protection IP 55 with one no. 100A MCB (TPN) Incomer , 8 outgoing 32A SP MCB (TPN), photodetector and timer circuit along with 100A contactor to control aviation lighting system.	no.	1	-	-	0.0495815102%
E6	Aviation obstruction lights (mounted on door panel openable from interior) :as per ICAO and NAA/DARA regulations.			-	-	
а	High intensity flashing white light Type-A as per ICAO and NAA/DARA regulations with photo electric controller. having an effective intensity of 4000 to 200,000 cd (minimum) depending upon back ground illuminance. Obstacle lights shall have a day time effective intensity of minimum 200000 cd. The intensity of lights shall be 20000 od ± 25% at twilight and shall reduce automatically to a night time intensity of 4000 cd ± 25% through the use of photocell, shall be provided with all accessories, photocell, thirm etc.	no.	16	-	-	1.2939625784%
b	Temporary obstruction light located at diametrically opposite points at the top of chimney during period of construction with four fixture each .	no.	4	-	-	0.1030603299%
E7	Aviation Distribution Board (ADB) with one 32A MCCB (TPN) incomer and 8 nos. SP 20A MCB. Construction is same as Lighting Panel. Flood light type 120W(approx) LED luminaire with fitting (integrated /retrofitted LED lamp) having an integral driver. The luminaire efficacy shall not be less	no.	8	-	-	0.1944115513% 0.0709566967%
	than 80 Lm/W. Well glass type 30W(approx) LED luminaire with fitting (integrated /retrofitted LED lamp) having an integral driver. The luminaire efficacy shall not be less	no.	-	-	-	
E9	than 80 Lm/W. Well glass type 70W(approx) LED luminaire with fitting (integrated /retrofitted LED lamp) having an integral driver. The luminaire efficacy shall not be less	no.	70	-	-	0.1225620468% 0.3402802748%
E11	than 80 Lm/W. Well glass type 50W(approx) LED luminaire with fitting (integrated /retrofitted LED lamp) having an integral driver. The luminaire efficacy shall not be less	no.	60	-	-	0.1581660750%
E12	than 80 Lm/W. 63Amp welding switch socket with plug & other Mounting accessories	no.	9	-	-	0.0404813258%
E13	3 pin, 1 ph, 240V, 20Amp. Industrial Power sockets complete with plug Switches etc.	no.	9	-	-	0.0134927490%
	Al conductor, HR PVC/XLPE insulated, Armoured, PVC inner sheath, PVC outer sheath, FRLS type 1100V grade conforming to IS-1554 Part I.			-	-	
E14			1500	_	-	0.3689179495%
E14 a	3½ C x95mm² Al for connection between ACDB/ELDB/ welding sockets	Mtrs.				
E14 a b	3½ C x95mm² Al for connection between ACDB/ELDB/ welding sockets 3½ Cx35mm² Al for Lighting panel incoming supply	Mtrs.	1500		-	0.1873676719%
E14 a b	3½ C x95mm² Al for connection between ACDB/ELDB/ welding sockets					

Project: 1X800 MW SIPAT-III EPC

BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)

TENDER NO.: BHEL/CPC/PMX/SPT/CHM/25/97

E15	PVC insulated 1100V grade stranded Cu Conductor lighting wires conforming to relevant IS. (2.5 mm² / 4.0 mm²)			-	-	
а	2.5 mm ²	Mtrs.	10000	-	-	0.2008727818%
b	4.0 mm ²	Mtrs.	15000	-	-	0.5234671820%
E16	GI pipe conduit with minimum 25 mm dia with GI junction boxes, GI pull boxes (Size 200x200x100mm of 16 SWG sheet steel for junction & pull boxes) & accessories etc. complete in all respects.	Mtrs.	5000	-	-	0.3046579261%
E17	PVC coated Flexible steel conduit 25mm dia with accessories	Mtrs.	3000	-	-	0.0523467182%
E18	Lightning protection Air terminal : Lead coated copper material of 20 mm dia & 3 metre long.	no.	6	-	-	0.0260055571%
E19	50x6 Lead Coated GI Strip for coronal band on flue and top platform	Mtrs.	500	-	-	0.0216037196%
E20	Electrical equipment earthing materials including down conductors 50x6 GI Strip	Mtrs.	2000	-	-	0.2991203592%
E21	Electrical equipment earthing materials including down conductors 25x3 GI Strip	Mtrs.	300	-	-	0.0250928455%
E22	8 SWG GI wire for equipment earthing	Mtrs.	4000	-	-	0.0686967613%
E23	Test links for 50x6 down conductors enclosed in 200mm X 200mm X 100mm GI box of 16SWG sheet steel.	no.	6	-	-	0.0201311724%
E24	40mm dia MS rod for earthing of down conductor	Mtrs.	300	-	-	0.0787689729%
E25	Earthpit with earthing electrode including brick chamber with cover, accessories etc. complete in all respect.	no.	6	-	-	0.0124202763%
E26	Telephone socket with junction box etc. complete	no.	10	-	-	0.0156457694%
E27	Telephone handsets complete	no.	10	-	-	0.0037585203%
E28	Telephone cable of minimum 0.6 mm dia annealed high conductivity electro copper conductor, PVC insulated, twisted, PVC tape wrapped, screened, tip corded, PVC sheathed, confirming to relevant ITD (Indian Telephones department) specification			-	÷	
a)	24 pairs	Mtrs.	400	-	-	0.0804314226%
b)	2 pairs	Mtrs.	150	-	-	0.0017865043%
E29	GS cable trays. Cable trays shall be of ladder type constructed of minimum 2 mm thick mild steel hot dip galvanise including cover, cabling material, accessories etc.			-	-	
а	600 mm wide	Mtrs.	300	-	-	0.1276331186%
b	300 mm wide	Mtrs.	150	-	-	0.0353964553%
С	150 mm wide	Mtrs.	150	-	-	0.0297463676%
28	Mandatory Spares			-	-	
a)	Power supply card	NOS.	6	-	-	0.0962293578%
b)	Electronic flasher card	NOS.	3	-	-	0.0420450980%
c)	Photocell control unit	NOS.	3	-	-	0.0222065018%
d)	Spare lamp / tube with holder for Aviation Obstruction Lighting Fixture	NOS.	12	-	-	0.1421464613%
			то	TAL AMOUNT (Excluding GST)=	0.0	100.000000000%