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TENDER SPECIFICATION

TENDER NO. BHEL/ NR/SCT/LALITPUR/C&I/PACKAGE-A&B/954

FOR

“Erection, testing, commissioning, PG test assistance trial operation and handing over of Control & instrumentation and station C&I of unit 1, 2 &3 of 3x660 MW OF LPGCL, Lalitpur STPP, Distt: Lalitpur (U.P.)”

PART II – PRICE BID- Package-A



Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
Power Sector – Northern Region,
Plot No. 25 , Sector - 16A ,
Distt. Gautam Budh Nagar, NOIDA – 201 301.INDIA

TENDER NO. BHEL/ NR/SCT/LALITPUR/C&I/PACKAGE-A/954



ISO 9001, ISO 14001,
OHSAS 18001 & SA 8000
certified company
SubContract and Purchase Deptt.

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
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THIS TENDER SPECIFICATION ISSUED TO:

M/S-----

CHAPTER- XI A

RATE SCHEDULE(FOR PACKAGE 'A')

ITEM NUM	DESCRIPTION OF WORK	TOTAL VALUE 'A' IN INR (IN FIGURES AND WORDS)
1.0	TOTAL LUMSUM PRICE FOR PACKAGE 'A' "FOR ERECTION, TESTING, COMMISSIONING & HANDING OVER OF ALL C&I EQUIPMENTS OF UNIT NO. 1 and STATION C&I OF UNIT 1,2 AND 3 OF 660 MW LALITPUR STPP, DISTT: LALITPUR (U.P.)"	

Notes:

- 1. The rates of individual item for the entire scope of work as define in BOQ Chapter X shall be arrived as per Calulation defined in Chapter XI'B'**
- 2. The derived item rate will remain firm through out the contract period.**

CHAPTER - XI 'B'

FOR PACKAGE- 'A' CALCULATION RATIO FOR DIFFERENT ITEMS BASED UPON TOTAL QUOTED VALUE AS PER RATE SCHEDULE OF CHAPTER XI-A

	Description of Item	Unit	Quantity (Q)	Item Factor (F)	Item Rate/unit (I)
					Item Rate(I)= (Item factor (F) *Lumsum Price (A))/ 100000
1	suit of one panel	No.	18	43.581	
2	suit of two panels	No.	18	73.550	
3	suit of three panels	No.	66	97.626	
4	suit of Four panels	No.	7	245.021	
5	suit of five panels	No.	1	75.195	
6	DAVR panel	Set	1	168.567	
7	Grounding Brush Monitor	Set	1	12.340	
8	Generator Relay panel/STRP panel with Generator disturbance recorder panel	Set	1	149.018	
9	Generator Control Panel	No.	1	64.120	
10	Electrical Interface System Panel	No.	3	20.000	
11	Availability based Tariff System panel	No.	1	20.000	
12	Steam Leak Detection Panel	No.	1	71.170	
13	Gas Analyser cabinet	No.	2	19.621	
14	Acoustic Steam leak detection system panel(ASLD)	No.	1	20.000	
15	Vibration Monitoring System	Set	4	148.282	
16	Acoustic pyrometer remote cabinet including PC station	Set	1	31.236	
17	FTP LOCAL STARTER Box	No.	2	16.404	
18	Elevator control Panel	No.	1	17.341	

CHAPTER - XI 'B'

FOR PACKAGE- 'A' CALCULATION RATIO FOR DIFFERENT ITEMS BASED UPON TOTAL QUOTED VALUE AS PER RATE SCHEDULE OF CHAPTER XI-A

	Description of Item	Unit	Quantity (Q)	Item Factor (F)	Item Rate/unit (I)
					Item Rate(I)= (Item factor (F) *Lumsum Price (A))/ 100000
19	SCANNER AIR FAN STARTER	No.	1	37.527	
20	FOPH PMCC (1000 A)	SET	1	307.347	
21	Sub emergency MCC (2500 A)	SET	1	377.198	
22	Boiler PMCC	SET	1	463.608	
23	Boiler Valve & Damper MCC	SET	1	405.657	
24	Boiler ACDB	SET	1	100.899	
25	Turbine PMCC	SET	1	373.785	
26	Turbine Valve and Damper MCC	SET	1	369.440	
27	Unit Service MCC	SET	1	380.305	
28	Condensate Polishing Unit MCC	SET	1	307.347	
29	Mill Reject System MCC	SET	1	307.347	
30	Data Concentrator Panel	SET	6	52.157	
31	HART Management System for SMART Transmitter Panel dimension	SET	1	61.759	
32	AH Main Control Panel	No.	1	23.745	
33	AH LCS Sector Plate 1&2 Drive Panel	No.	6	13.127	
34	HWL-1&2 and MEF Control valve Panel	No.	1	13.127	
35	SOOT BLOWER MCC	Set	1	315.363	
36	Furnace Flame Viewing System –Remote Panel	No.	1	40.753	

CHAPTER - XI 'B'

FOR PACKAGE- 'A' CALCULATION RATIO FOR DIFFERENT ITEMS BASED UPON TOTAL QUOTED VALUE AS PER RATE SCHEDULE OF CHAPTER XI-A

	Description of Item	Unit	Qunantity (Q)	Item Factor (F)	Item Rate/unit (I)
					Item Rate(I)= (Item factor (F) *Lumsum Price (A))/ 100000
37	Furnace Flame Viewing System –Local Panel	No.	2	21.873	
38	GRAVIMETRIC FEEDER REMOTE PANEL	No.	8	45.818	
39	Gravimetric Feeder Integral Panel	No.	8	12.500	
40	NETWORK PANEL With accessories	No.	6	21.974	
41	Power Distribution Panel	No.	2	26.086	
42	Starter cabinet for Emergency Lube Oil Motor, DC seal oil Motor	No.	2	20.936	
43	Max engineer/max Storian/max operator/max link stations/station supervisor/shift in charge terminal/MIS PC/PCAL PC/LVS PC/TFT monitor along with installation of workstation with all connectivity	No.	45	7.144	
44	Printers(A4 & A3 Colour Laser Jet, Inkjet, Dot Matrix) With Printer Table	No.	10	2.770	
45	LARGE VIDEO SCREEN(80"/40")	No.	5	32.618	
46	Ethernet switches-16 ports	Set	1	5.189	
47	Control Desk	Set	2	103.556	
48	Computer Furniture(for all servers ,pc, printer) including simulator package	Set	3	50.502	

CHAPTER - XI 'B'

FOR PACKAGE- 'A' CALCULATION RATIO FOR DIFFERENT ITEMS BASED UPON TOTAL QUOTED VALUE AS PER RATE SCHEDULE OF CHAPTER XI-A

	Description of Item	Unit	Quantity (Q)	Item Factor (F)	Item Rate/unit (I)
					Item Rate(I)= (Item factor (F) *Lumsum Price (A))/ 100000
49	Simulator Package for Power Plant including:1.Control logic station-02 nos.,2. 08 work station,Color Printer-02 nos.,ethernet switches-02 nos.,Monitors 24 nos.,with associated connectors and UTP/OFC cable.. LVS 02 nos.,Control desk- 01 nos.,digital projector-01 nos. and associated items to complete system.	Set	1	108.639	
50	UPS for Simulator Package (80 KVA)	Set	1	448.379	
	LIE/LIR/LGB				
51	Local Instrument racks (LIR) Type A 1650x2150x800	No.	28	12.539	
52	Local Instrument racks (LIR) Type B 1300x800x2150 mm	No.	32	13.418	
53	Local Instrument racks (LIR) Type C 800x850x1650 mm	No.	11	12.998	
54	Local Instrument enclosures (LIE) Type A 1450x2200x950	No.	14	17.995	
55	Local Instrument enclosures(LIE) Type B 1100x800x2300 mm	No.	12	17.531	
56	Local Instrument enclosures(LIE) Type C 700x600x2100 mm	No.	2	17.356	
57	Local Gauge Boards(LGB)	No.	8	12.673	
	PRESSURE INSTRUMENTS RACKS (IR1 to IR7)				
58	Rack of size 2150x700x2150 mm	No.	9	15.465	
59	Rack of size 1250x700x2150 mm	No.	9	15.780	

CHAPTER - XI 'B'

FOR PACKAGE- 'A' CALCULATION RATIO FOR DIFFERENT ITEMS BASED UPON TOTAL QUOTED VALUE AS PER RATE SCHEDULE OF CHAPTER XI-A

	Description of Item	Unit	Quantity (Q)	Item Factor (F)	Item Rate/unit (I)
					Item Rate(I)= (Item factor (F) *Lumsum Price (A))/ 100000
	24 V DC BATTERY & CHARGER SYSTEM				
60	24 V DC Battery for SG and TG	Set	1	151.038	
61	24 V DC Battery for Station C&I	Set	1	107.012	
62	24 V DC Battery Charger for SG ,TG alongwith DCDB	Set	1	168.704	
63	24 V DC Battery Charger for Station C&I alongwith DCDB	Set	1	122.103	
64	UPS system comprising of the following: UPS Panel, Voltage stabilizer cubicle, Input Iso. Transformer cubicle, Static invertors etc. including ACDB and bateeries	Set	1	412.580	
	INSTALLATION,CALIBRATION& COMMISSIOINGOFLOCAL/FIELD INSTRUMENTATION/EQUIPMENT				
65	Flow meters/Flow transmitters	No.	186	4.627	
66	Temperature gauges/Pressure gauges/ Diff. Pressure gauge	No.	1416	1.023	
67	Temp. Transmitter /Pressure Transmitters / Differential	No.	862	2.109	
68	Level Transmitter/Level gauge	No.	190	4.764	
69	Temp. switches/Pressure switches /DP switches	No.	283	1.501	
70	Level switch/Level switch(Conductivity type)/ Level switch(Float type) / Level Instruments	No.	59	2.873	

CHAPTER - XI 'B'

FOR PACKAGE- 'A' CALCULATION RATIO FOR DIFFERENT ITEMS BASED UPON TOTAL QUOTED VALUE AS PER RATE SCHEDULE OF CHAPTER XI-A

	Description of Item	Unit	Qunantity (Q)	Item Factor (F)	Item Rate/unit (I)
					Item Rate(I)= (Item factor (F) *Lumsum Price (A))/ 100000
71	Pneumatic Pressure controller with accessories	Set	1	3.679	
72	Electronic/Guided Wave Radar /Ultrasonic type level Transmitters	No.	383	4.005	
73	Limit switches	No.	56	0.829	
74	Conductivity cell	No.	6	4.066	
75	ERV Controller	No.	4	4.053	
76	ASLD sensor assy	No.	24	4.392	
77	Sonic tube & sensor asy	No.	24	36.639	
78	Field amplifier Box	Set	24	4.011	
79	Rotor Stoppage Alarm Box-including sensors for Air pre heaters	No.	2	4.971	
80	Reverse Rotation Monitoring system	No.	3	6.981	
81	Flame scanner head assy. Along with fibre optic cable length 130 ",lens	No.	32	5.864	
82	Microprocessor based Flame scanner amplifier	No.	8	7.389	
83	Hand Held HART communicator	Set	1	4.962	
84	Conductivity/Dissolved oxygen/sodium/pH/silica/analyser	Set	86	12.893	
85	Gas Analyser(wt- 400 kg)	Set	2	11.030	
86	Moisture sensor	Set	1	5.026	
87	Cathode conductivity	Set	15	10.766	

CHAPTER - XI 'B'

FOR PACKAGE- 'A' CALCULATION RATIO FOR DIFFERENT ITEMS BASED UPON TOTAL QUOTED VALUE AS PER RATE SCHEDULE OF CHAPTER XI-A

	Description of Item	Unit	Qunantity (Q)	Item Factor (F)	Item Rate/unit (I)
					Item Rate(I)= (Item factor (F) *Lumsum Price (A))/ 100000
88	Flue gas analysers comprising of SOX/NOX/CO/Co2 analyzer, along with Sensor head, in situ probe,Pressure, temp. transmitter, Display, control & Air drier unit other accessories.	Set	1	124.236	
89	Steam and water analysis system, SWAS consisting of: Conductivity analyser-13 No.,pH analyser-10 No.,Dissolved oxygen analyser-5 No.,Silica analyser-1 No.,Sodium analyser-1 No.,Conductivity analyser with drawable type-2 no.,SWAS primay rack- 2 set,Wet panel-1 set,Dry panel- 1 set,Chiller-1 set,Swas Sample Handling System-01 set,	Set	1	335.870	
90	Oxygen Analyser –Low temperature along with Electronic Unit and other	Set	10	19.279	
91	Thermocouples(K/R type)	No.	444	2.988	
92	RTDs with thermo well	No.	755	1.292	
93	Cr- Al Thermocouple assy	No.	1379	1.400	
94	MTM Thermo Couple up to 32 M (duplex)	No.	359	4.083	
95	Thermo well	No.	40	1.104	
96	Thermometer(Bimettalic)/Gas filled/MIS	No.	27	1.141	
97	Co –AXL dial thermometer	No.	7	1.141	
98	Bearing Elerment	No.	16	2.667	

CHAPTER - XI 'B'

FOR PACKAGE- 'A' CALCULATION RATIO FOR DIFFERENT ITEMS BASED UPON TOTAL QUOTED VALUE AS PER RATE SCHEDULE OF CHAPTER XI-A

	Description of Item	Unit	Quantity (Q)	Item Factor (F)	Item Rate/unit (I)
					Item Rate(I)= (Item factor (F) *Lumsum Price (A))/ 100000
99	Burner Tilt shear pin failure indication box	No.	4	4.131	
100	Heavy Duty Limit switch(Burner tilt)	No.	20	2.371	
101	Furnace temp. Probe	No.	2	6.869	
102	HEA exciter box assembly	Set	20	9.680	
103	Air Filter Regulators	No.	65	1.129	
104	I/P Converters	No.	62	1.216	
105	Vibration Transducers/Monitor/ Detectors/Element	No.	294	2.052	
106	Shaft Axial Detector	No.	2	3.275	
107	Proximitors	No.	6	1.446	
108	Rota meters	No.	2	0.445	
109	Solenoid Valves	No.	148	0.833	
110	Speed Regulators / Air lock valves in oil gun corner rack	No.	40	0.968	
111	Speed measuring loop	Set	6	3.080	
112	Coal bunker level Monitoring system consists of Ultrasonic level sensor-14	Set	1	102.868	
113	Coal Flow Monitor	No.	8	13.878	
114	Recorder 3/6/24 channel	No.	1	3.615	
115	Opacity Monitor	No.	1	99.863	
116	Electronic /Digital Indicators(Bar Graph Indicators, Temperature Indicatorsetc.)	No.	40	1.365	

CHAPTER - XI 'B'

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	Description of Item	Unit	Quantity (Q)	Item Factor (F)	Item Rate/unit (I)
					Item Rate(I)= (Item factor (F) *Lumsum Price (A))/ 100000
117	Pressure/ Temperature Indicators (MovingCoil Type)	No.	5	1.365	
118	Speed switch / Speed detector	No.	4	1.219	
119	Pneumatic Temperature controller with accessories	No.	2	1.820	
120	GPS based Master & Slave clock system (Panel dimen. 900*600*2415 mmapprox))	Set	1	53.859	
	CONTROL/SIGNAL/SCREENED/POWER CABLES LAYING,DRESSING,CLAMPING				
	<u>LT Sheilded /Screened Cable//FRLS/Power cable</u>				
121	2P X 0.5 SQ MM	Mtr	112448	0.021	
122	2 Triad X 0.5 SQ MM	Mtr	5200	0.025	
123	4P X 0.5 SQ MM	Mtr	182300	0.030	
124	8P X 0.5 SQ MM	Mtr	177950	0.035	
125	12P X 0.5 SQ MM	Mtr	28167	0.037	
126	20P X 0.5 SQ MM	Mtr	8000	0.048	
127	2P X 1.5 SQ MM	Mtr	11600	0.021	
128	4P X 1.5 SQ MM	Mtr	5000	0.025	
129	2C X 2.5 SQ MM	Mtr	30600	0.021	
130	3C X 2.5 SQ MM	Mtr	85200	0.021	
131	7C X 2.5 SQ MM	Mtr	23200	0.023	

CHAPTER - XI 'B'

FOR PACKAGE- 'A' CALCULATION RATIO FOR DIFFERENT ITEMS BASED UPON TOTAL QUOTED VALUE AS PER RATE SCHEDULE OF CHAPTER XI-A

	Description of Item	Unit	Quantity (Q)	Item Factor (F)	Item Rate/unit (I)
					Item Rate(I)= (Item factor (F) *Lumsum Price (A))/ 100000
132	10C X 2.5 SQ MM	Mtr	26000	0.023	
133	16C X 2.5 SQ MM	Mtr	500	0.035	
134	19C X 2.5 SQ MM	Mtr	11600	0.037	
135	3C X 6 SQ MM	Mtr	2200	0.025	
136	2Px16 AWG T/C ext. cable	Mtr	14435	0.030	
137	4Px16 AWG T/C extension cable	Mtr	2000	0.030	
138	6Px16 AWG T/C extension cable	Mtr	50000	0.030	
139	Flame scanner cables	Mtr	8500	0.027	
140	UTP E-CAT cable	Mtr	5000	0.037	
141	Fibre optic cable	Mtr	3500	0.097	
142	Compensating cable	Mtr	5800	0.027	
143	Extension Cable	Mtr	960	0.030	
	<u>LT XLPE Power Cables</u>				
144	1C - 10- AL ARMoured LT XLPE CABLE	Mtr	4667	0.018	
145	1C - 25- AL ARMoured LT XLPE CABLE	Mtr	1000	0.028	
146	1C - 50- AL ARMoured LT XLPE CABLE	Mtr	500	0.004	
147	1C - 95- AL ARMoured LT XLPE CABLE	Mtr	3333	0.115	
148	1C - 185- AL ARMoured LT XLPE CABLE	Mtr	1667	0.044	

CHAPTER - XI 'B'

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	Description of Item	Unit	Quantity (Q)	Item Factor (F)	Item Rate/unit (I)
					Item Rate(I)= (Item factor (F) *Lumsum Price (A))/ 100000
149	1C - 400- AL ARMoured LT XLPE CABLE	Mtr	3000	0.055	
150	1C - 630- AL ARMoured LT XLPE CABLE	Mtr	1333	0.165	
151	2C - 10- AL ARMoured LT XLPE CABLE	Mtr	833	0.027	
152	2C - 25- AL ARMoured LT XLPE CABLE	Mtr	4500	0.032	
153	3C - 10- AL ARMoured LT XLPE CABLE	Mtr	8500	0.034	
154	3C - 25- AL ARMoured LT XLPE CABLE	Mtr	27333	0.037	
155	3C - 50- AL ARMoured LT XLPE CABLE	Mtr	7833	0.041	
156	3C - 95- AL ARMoured LT XLPE CABLE	Mtr	4167	0.048	
157	3C - 150- AL ARMoured LT XLPE CABLE	Mtr	333	0.067	
158	3C - 240- AL ARMoured LT XLPE CABLE	Mtr	4667	0.082	
159	3.5C - 25- AL ARMoured LT XLPE CABLE	Mtr	9000	0.067	
160	3.5C - 50- AL ARMoured LT XLPE CABLE	Mtr	3667	0.041	
161	3.5C - 95- AL ARMoured LT XLPE CABLE	Mtr	5167	0.048	
162	3.5C - 300- AL ARMoured LT XLPE CABLE	Mtr	1167	0.082	
163	4C - 10- AL ARMoured LT XLPE CABLE	Mtr	7333	0.032	
164	1C - 2.5- CU ARMoured LT XLPE CABLE	Mtr	7667	0.018	
165	2C - 2.5- CU ARMoured LT XLPE CABLE	Mtr	15333	0.021	
166	3C - 2.5- CU ARMoured LT XLPE CABLE	Mtr	68333	0.021	

CHAPTER - XI 'B'

FOR PACKAGE- 'A' CALCULATION RATIO FOR DIFFERENT ITEMS BASED UPON TOTAL QUOTED VALUE AS PER RATE SCHEDULE OF CHAPTER XI-A

	Description of Item	Unit	Quantity (Q)	Item Factor (F)	Item Rate/unit (I)
					Item Rate(I)= (Item factor (F) *Lumsum Price (A))/ 100000
	<u>LT PVC CONTROL CABLES</u>				
167	1.1 kV LT PVC-2C-1.5-ARMOURED LT PVC Cable	Mtr	24333	0.023	
168	1.1 kV LT PVC-7C-1.5-ARMOURED LT PVC Cable	Mtr	3333	0.034	
169	1.1 kV LT PVC-12C-1.5-ARMOURED LT PVC Cable	Mtr	333	0.028	
170	1.1 kV LT PVC-5C-2.5-ARMOURED LT PVC Cable	Mtr	1000	0.021	
171	1.1 kV LT PVC-19C-2.5-ARMOURED LT PVC Cable	Mtr	2000	0.062	
	<u>EARTHING MATERIAL</u>				
172	65 x 10 mm GI earthing flat	Mtr	2340	0.133	
173	50 x 6 mm GI earthing flat	Mtr	2820	0.122	
174	25x3 mm GI earthing flat	Mtr	2260	0.094	
175	8SWG Galvanised steel wire	Mtr	4660	0.023	
176	Electronic Earthing Pit	No.	1	39.601	
	<u>CABLE TRAYS COMPLETE WITH COUPLER PLATES, FASTENERS, CLAMPS AND FIXING HARDWARES ETC ERECTION INCLUDING SUPPORT & COVERS</u>				
177	Ladder/ Perforated type Cable tray, W=50mm	Mtr	9950	0.163	

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					Item Rate(I)= (Item factor (F) *Lumsum Price (A))/ 100000
178	Ladder/ Perforated type Cable tray, W=100mm	Mtr	6575	0.183	
179	Ladder/ Perforated type Cable tray, W=150mm	Mtr	1047	0.218	
180	Ladder/ Perforated type Cable tray, W=300mm	Mtr	13818	0.365	
181	Ladder/ Perforated type Cable tray, W=450mm	Mtr	357	0.165	
182	Ladder/ Perforated type Cable tray, W=600mm	Mtr	13978	0.349	
	CABLE TRAY ACCESSORIES				
	Ladder/ Perforated type Horizontal 90 deg bend, Vertical 90 deg bend, Cross AND REDUCERS				
183	300 mm wide	No.	150	1.001	
184	450 mm wide	No.	25	1.590	
185	600 mm wide		795	1.083	
	INSTALLATION & FABRICATION OF STRUCTURAL STEEL				
186	ANGLE ,ISM,PLATES etc	MT	45	42.545	
	IMPULSE PIPES/ TUBES ALONG WITH FITTINGS				
187	Copper Tube-6mm/8mm/1/4"	Mtr	4520	0.158	
188	1' CS PipeSCH 80	Mtr	1025	0.399	
189	CS Pipe 21.3 x3.73	Mtr	400	0.429	
190	CS Pipe 60.3x3.91	Mtr	60	0.512	
191	1/2" CS Pipe SCH 80	Mtr	6000	0.351	

CHAPTER - XI 'B'

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	Description of Item	Unit	Quantity (Q)	Item Factor (F)	Item Rate/unit (I)
					Item Rate(I)= (Item factor (F) *Lumsum Price (A))/ 100000
192	1/2" CS Pipe XXS	Mtr	500	0.365	
193	1/2" CS Pipe SCH 160	Mtr	1600	0.317	
194	3/4" CS Pipe SCH 80	Mtr	3600	0.390	
195	1' AS Pipe	Mtr	1000	0.340	
196	1/2" AS Pipe SCH 160	Mtr	700	0.333	
197	1/2" AS Pipe SCH 80	Mtr	650	0.406	
198	1/2" AS Pipe XXS	Mtr	900	0.358	
199	1/2" SS PipeSCH 40	Mtr	1500	0.298	
200	1/2" SS PipeSCH 80	Mtr	450	0.337	
201	1/2" SS PipeSCH 160	Mtr	300	0.276	
202	Cr-Al pipe 21.3x3.73	Mtr	330	0.372	
203	Seam less CS tube 13.5x2.6	Mtr	423	0.250	
204	Carbon steel tube 88.9x4	Mtr	40	0.324	
205	Carbon steel tube 33.7x3.38	Mtr	2	0.358	
206	Seam less CS tube 21.3x2.3	Mtr	140	0.284	
207	Seam less AS tube 21.3x2.77	Mtr	710	0.257	
208	Seam less AS tube 13.5	Mtr	206	0.583	
209	SS Tube 12.7x2.1	Mtr	700	0.261	

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					Item Rate(I)= (Item factor (F) *Lumsum Price (A))/ 100000
210	SS Tube 6x1.5	Mtr	30	0.223	
211	GI pilica conduit with fittings(up to 1" size)	Mtr	1500	0.261	
212	GI pilica conduit with fittings(above 1" size)	Mtr	1500	0.234	
213	GI Rigid conduit up to 1"	Mtr	1500	0.183	
214	GI pipe ½" NB	Mtr	3600	0.136	
215	GI pipe 1" NB	Mtr	150	0.145	
216	Flexible conduiting /Rubber hoses/pipes	Mtr	1000	0.259	
JUNCTION BOXES/INDICATION BOXES/LOCAL CONTROL STATIONS					
217	JB 12 way	No.	37	1.391	
218	JB 24 way	No.	143	1.423	
219	JB 36 way	No.	33	1.558	
220	JB 48 way	No.	114	1.806	
221	JB 64 way	No.	5	1.870	
222	JB 72 way	No.	29	1.912	
223	JB 96 way	No.	2	1.976	
224	6 way miniature Junction box	No.	32	1.232	
225	Shear Pin failure Indication box	No.	4	2.219	
226	Local oil gun maintenance switch	No.	16	1.462	

CHAPTER - XI 'B'

FOR PACKAGE- 'A' CALCULATION RATIO FOR DIFFERENT ITEMS BASED UPON TOTAL QUOTED VALUE AS PER RATE SCHEDULE OF CHAPTER XI-A

	Description of Item	Unit	Qunantity (Q)	Item Factor (F)	Item Rate/unit (I)
					Item Rate(I)= (Item factor (F) *Lumsum Price (A))/ 100000
227	Local start stop Push button	No.	11	1.629	
228	Erection & commissioning of C&I Lab specifications as as per C I 2.8.P.	Set	1	116.765	
	COMMISSIONING/CALIBRATION/TESTING of control valves, on/off valves, /pneumatic valves, actuators, power cylinders etc.				
229	Commissioning of Pneumatic actuators(Power cylinder) -On/Off type	No.	68	3.208	
230	Commissioning of Pneumatic actuators(Power cylinder) -Regulating type	No.	123	3.208	
231	SADC drives	No.	88	11.840	
232	Over fire air tilt drives	No.	4	3.904	
233	Pulversier Lube oil skid The scope of work includes removal of instruments calibration, refixing, checking cable connection from JB to instruments etc.approx..instrument per set RTD-04 no., Temp. Gauge-02 no. ,Pressure switch-03 no., Pressure gauge-02 no., level switch-02 no., Level gauge-01 no., Flow switch-02 no.	Set	7	12.968	

CHAPTER - XI 'B'

FOR PACKAGE- 'A' CALCULATION RATIO FOR DIFFERENT ITEMS BASED UPON TOTAL QUOTED VALUE AS PER RATE SCHEDULE OF CHAPTER XI-A

	Description of Item	Unit	Qunantity (Q)	Item Factor (F)	Item Rate/unit (I)
					Item Rate(I)= (Item factor (F) *Lumsum Price (A))/ 100000
234	Lub oil skids for FD/ ID/ PA Fans The scope of work includes removal of instruments calibration, refixing, checking cable connection from JB to instruments etc. The approximate total quantity of instruments for all the 06 Nos skids put together is given below: DP Gauges - 06 Nos., Pressure Gauges – 18 Nos , Temperature Gauges – 12 Nos, Diff. Pressure Transmitters- 06 Nos, Pressure Transmitters-12 Nos, Pressure Switches – 06 Nos, Level transmitters- 06 Nos, Flow indicator with flow switch - 06 Nos	Set	6	36.126	
235	Gravimetric feeder mounted C&I Equipment like motion ,monitor sensor, micro switches, etc.	Set	7	7.160	
236	Commissioning of Electric actuators/dampers/valves Open/Close type	No.	55	4.062	
237	Commissioning of Control Valves	No.	51	2.926	
238	Commissioning of motorised actuators Open/close type	No.	56	5.085	
239	Commissioning of Pneumatic Valves/Safety relief valves/NRV	No.	50	2.502	