GTP NO-16 GUARANTEED TECHNICAL PARTICULARS FOR 33kV, 200A, 50 Hz AB SWITCH, 3 POLE, SINGLE BREAK TYPE			
Sl. No	**Name of the Particulars**	**Desired value**	**Bidder's offer**
1	Maker's name and country of origin	To be specified by the tenderer	
2	Type of Switch	Rotating type only	
3	Suitable for mounting	Horizontal only	
4	Number of supporting Post Insulators per phase	4 nos.(22kV / 24kV Post Insulators per phase as per ISS-2544/1 973)	
5	Post Insulator.		
a)	Maker's name and country of origin	To be specified by the tenderer	
c)	Type of cementing	To be quoted for original cemented only & as per IS-2544-1 973 & relevant IEC.	

d)	One minute power frequency withstand voltage Dry	95kV rms.	
e)	One minute power frequency withstand voltage Wet	75kV rms.	
f)	Visible discharge voltage	27kV rms.	
g)	Dry Flash Over Voltage	125 kV	
g)	Power frequency puncture with stand voltage	1.3 times of actual dry flash over voltage	
h)	Impulse withstand voltage (switch in position)	170kV(peak)	
i)	Creepage distance (mm)	380mm minimum. (actual Creepage distance for which type test have been conducted is to be specified by the tenderer)	

6	Impulse withstand voltage for positive and negative polarity 1.2 / 50 mircro-second wave		
a)	Across the isolating distance	195kV(peak)	
b)	To earth & between poles	170kV(peak)	
7	One minute power frequency withstand voltage		
a)	Across the isolating distance	80kV(rms)	
b)	To earth & between poles	70kV(rms)	
8	Rated normal current and rated frequency	200 Amp 50 Hz	
9	Rated short time current. for 3 sec	25kA (rms)	
10	Rated short circuit making capacity	62.5kA (rms)	

11	Rated peak withstand current	40kA(Peak)	
12	Rated cable charging breaking capacity	16A (rms)	
13	Rated Transformer off load breaking capacity	16 Amp(rms)	
14	Rated line charging breaking capacity	16Amp(rms)	
15	Minimum clearance between adjacent phases		
a)	Switch Closed (centre to centre)	1200 mm	
b)	Switch Opened (centre to edge of blade)	640 mm	
16	Temperature rise		

a)	Temperature rise shall not exceed the maximum limit as specified below at an ambient temperature not exceeding in	40° C	
b)	Copper contacts in air	65^0C	
c)	Terminal of switch intended to be connected to external conductor by bolts	50^0C	
17	Vertical Clearance from top of insulator cap to mounting channel	508 mm (minimum)	
18	Type of Contact: -	a) Self aligned, high pressure jaw type fixed contacts of electrolytic copper of size 80 mm x 50 mm x 8 mm duly silver plated. Each contact should be revetted with three nos. Copper rivets with a bunch (minimum 3 mm thick) consisting of copper foils, each may vary from 0.15 mm to 0.25 mm. These total thickness of copper foils per jaw should be 6 mm. Jaw assemblies are to be bolted through stainless steel bolts and nuts with stainless steel flat and spring washer.	
		b) Solid rectangular blade type moving contact of electrolytic copper size 250 mm x 50 mm x 8 mm duly silver plated ensuring a minimum deposit of 10 micron of silver on copper contacts or as may be prescribed under relevant ISS / IEC.	

		c) Pressure spring to be used in jaw contacts shall be Stainless Steel having 8 nos of turn x 28 mm height x 14.4 mm diameter with 14 SWG wire (minimum six nos springs shall be used)	
19	Connectors:-	Terminal connectors for both movable and fixed should be of copper flats of same size similar to that of moving contact blades (minimum 95% copper composition). The fixed connector shall of size 80 mm x 50 x 8 mm and the size of movable connector shall be size 80 x 50 x 8 mm with machine finishing duly silver plated with 2 nos. of 3/8" stainless steel bolts, nuts, plain washers & spring washers should be provided along with 2 nos solder less bimetallic sockets for each connector suitable sockets for each connector suitable up to 232 mm^2 AAA Conductor.	
20	Moving Contacts:-	Movable contact is to be supported by galvanized angle of 50 x 50 x 5 mm in each phase and the moving contact are to be bolted through 2 no stainless steel bolts and nuts with suitable stainless steel flat and spring washers.	
21	Galvanization	a) Iron parts shall be dip galvanized as per IS- 2633/1972.	
		b) The pipe shall be galvanized as per 4736/1968.	
22	Details of Phase		
a)	Coupling Rod	25 mm nominal bore G.I. pipe medium gauge.	

b)	Operating Rod	32 mm nominal bore G.I. pipe medium gauge single length 6 mtrs. The detailed dimension of the G. I. pipe as per IS-1239 (Pt. I) as mentioned					
		Nominal base (mm)	Outside diameter (mm)	Diameter thickness (mm)	base Nominal (mm)	Outside diameter (mm) Page	Diameter thickness (mm) No 5 of 7 / 33kV AB SWITCH
			Max	Min	Max	Min	
		25	34.2	3.25			
		32	42.9	3.25			
c)	Arcing Horns	10 mm dia G.I. rod with spring assisted operation.					
d)	Force of Fixed contact spring	To be specified by the tenderer.					
e)	Copper braided flexible tapes:-	450 mm length of flexible electrolytic copper tape or braided chord (with tin coated) having minimum weight 450 gms per meter and both ends shall be					
f)	Quick break device	Lever mechanism.					
g)	Bearings	4 nos. self lubricated bearing to be provided with grease nipple including 4th bearing being a thrust bearing.					

h)	Locking arrangement	Pad Lock & Key arrangement at both 'ON' & 'OFF' position.	
i)	Earth Terminal:	To be provided at base channels.	
23	Supporting Channels	100 mm x 50 mm M.S. Channel hot galvanized.	
24	Weight of each pole complete	To be specified by the tender	

GTP NO-17 GUARANTEED TECHNICAL PARTICULARS FOR 11kV, 200A, 50 Hz AB SWITCH, 3 POLE, SINGLE BREAK TYPE BRAKE TYPE			
Sl. No	**Name of the Particulars**	**Desired value**	**Bidder's offer**
1	Maker's name and country of origin	To be specified by the tenderer	
2	Type of Switch	Rotating type only	
3	Suitable for mounting	Horizontal only	
4	Number of supporting Post Insulators per phase	2 nos. (12 kV Post Insulators per phase as per ISS-2544/1973)	
5	Post Insulator.		
a)	Maker's name and country of origin	To be specified by the tenderer	
b)	Type of cementing	To be quoted for original cemented only & as per IS-2544-1973 & relevant IEC.	
c)	One minute power frequency withstand voltage Dry	35kV rms.	

d)	One minute power frequency withstand voltage Wet	35kV rms.	
e)	Visible discharge voltage	9kV rms.	
f)	Dry Flash Over Voltage	55 kV	
g)	Power frequency puncture with stand voltage	1.3 times of actual dry flash over voltage	
h)	Impulse withstand voltage (switch in position)		
i)	Creepage distance (mm)	330 mm minimum. (actual Creepage distance for which type test have been conducted is to be specified by the tenderer)	
6	Impulse withstand voltage for positive and negative polarity 1.2 / 50 mircro-second wave		
a)	Across the isolating distance	85kV(peak)	
b)	To earth & between poles	75kV(peak)	

7	One minute power frequency withstand voltage		
a)	Across the isolating distance	32kV(rms)	
b)	To earth & between poles	28kV(rms)	
8	Rated normal current and rated frequency	200 Amp 50 Hz	
9	Rated short time current.	16kA(rms)	
10	Rated short circuit making capacity	25kA(rms)	
11	Rated peak withstand current	40kA(Peak)	
12	Rated cable charging breaking capacity	10kA(rms)	

13	Rated Transformer off load breaking capacity	6.3 Amp(rms)	
14	Rated line charging breaking capacity	2.5 Amp(rms)	
15	Minimum clearance between adjacent phases		
a)	Switch Closed (centre to centre)	760 mm	
b)	Switch Opened (centre to edge of blade)	380 mm	
16	Temperature rise		
a)	Temperature rise shall not exceed the maximum limit as specified below at an ambient temperature not exceeding in	40^0C	
b)	Copper contacts in Silver Plated	65^0C	

c)	Terminal of switch intended to be connected to external conductor by bolts	50^0C	
17	Vertical Clearance from top of insulator cap to mounting channel	254 mm (minimum)	
18	Type of Contact: -	a) Self aligned, high pressure jaw type fixed contacts of electrolytic copper of size 80 mm x 50 mm x 8 mm duly silver plated. Each contact should be revetted with three nos. Copper rivets with a bunch (minimum 3 mm thick) consisting of copper foils, each may vary from 0.15 mm to 0.25 mm. These total thickness of copper foils per jaw should be 6 mm. Jaw assemblies are to be bolted through stainless steel bolts and nuts with stainless steel flat and spring washer.	
		b) Solid rectangular blade type moving contact electrolytic copper size 220 mm x 50 mm x 8 mm duly silver plated ensuring a minimum deposit of 10 micron of silver on copper contacts or as may be prescribed under relevant ISS / IEC.	
		c) Pressure spring to be used in jaw contacts shall be Stainless Steel having 8 nos of turn x 28 mm height x 14.4 mm diameter with 14 SWG wire (minimum six nos springs shall be used)	

19	Connectors:-	Terminal connectors for both movable and fixed should be of copper flats of same size similar to that of moving contact blades (minimum 95% copper composition). The fixed connector shall of size 80 mm x 50mm x 8 mm and the size of movable connector shall be size (80 x 50) x(80x50)x 8 mm with machine finishing duly silver plated with 2 nos. of 12mm dia. hole with suitable brass & double nuts with brass flat washers and 2nos solderlss bimetallic sockets per each connector suitable 80 mm^2 AAA Conductor.	
20	Moving Contacts:-	Movable contact is to be supported by galvanized angle of 50 x 50 x 5 mm in each phase and the moving contact are to be bolted through 2 no stainless steel bolts and nuts with suitable stainless steel flat and spring washers.	
21	Galvanization	a) Iron parts shall be dip galvanized as per IS-2633/1972.	
		b) The pipe shall be galvanized as per IS-4736/1 968.	
22	Details of Phase		

a)	Coupling Rod	25 mm nominal bore G.I. pipe medium gauge.	
b)	Operating Rod	32 mm nominal bore G.I. pipe medium gauge single length 6 mtrs. The detailed dimension of the G. I. pipe as per IS-1 239 (Pt. I) as mentioned below :-	
c)	Arcing Horns	8 mm dia G.I. rod with spring assisted operation.	
d)	Force of Fixed contact spring	To be specified by the tenderer.	
e)	Copper braided flexible tapes:-	320 mm length of flexible electrolytic copper tape or braided chord (with tin coated) having minimum weight 450 gms per meter and both ends shall be crimped with copper sockets through brass bolts and nuts with brass flat washers. Two nos of suitable copper sockets shall be used at both ends. The minimum no. of flexible wires should be 1536 of 36 SWG for each flexible chord.	
f)	Quick break device	Lever mechanism.	

g)	Bearings	4 nos. self lubricated bearing to be provided with grease nipple including 4th bearing being a thrust bearing.			
h)	Locking arrangement	Pad Lock & Key arrangement at both ‘ON’ & ‘OFF’ position.			
i)	Earth Terminal:	To be provided at base channels.			
j)	T connection	The T connection provided on the channel having moving contact shall be of G.I Nut & bolt at the bottom end to facilitate replacement of this unit only during requirements & avoid entire change of the arm			
k)	I Bolt	The I bolt shall be longer with 75mm thread			
23	Supporting Channels	100 mm x 50 mm M.S. Channel hot dip galvanized.			
24	Weight of each pole complete	To be specified by the tender			

GTP NO.18 GUARANTEED TECHNICAL PARTICULARS PSC Pole			
Sl No.	**Name of the Particulars**	**Unit**	**Bidder's Offer**
1	Type of pole		
2	Factor of Safety		
3	Overall Length of Pole Meters	meters	
4	Working Load Kg	Kg	
5	Overall Dimensions		
	A.Bottom Depth	mm	
	B.Top Depth	mm	
	C.Breadth	mm	
6	Reinforcement Detail		
7	Diameter of prestressing wire		
8	No. of Tensioned wires		
9	No. of Untensioned wire		
10	Length of each untensioned wire		
11	Concrete Detail		
	A.Cement Type		
	B.Grade		
	C.Type		
	D.Quantity	Cubic meter/pole	
	E.Standard confirming to:		
12	Steel Quality	Kg/Pole	
	A.Ultimate Tensile Strength (UTS)	Km/Cm^2	
	B.Weight		

GTP NO-19 GUARANTEED TECHNICAL PARTICULARS FOR 100 mm2 AAAC			
Sl. No	**Name of the Particulars**	**Desired Value**	**Bidder's offer**
1	Make		
2	No. of strands	7	
3	Wire dia in mm.:		
a)	Nominal	4.26	
b)	Minimum	4.22	
c)	Maximum	4.3	
4	Approximate overall dia of the conductor in mm. Cross-sectional area of:	12.78	
5.a)	Individual wire in mm^2	14.25	
b)	Stranded conductor in mm^2	99.81	
6.a)	Approx Mass of :		
b)	Individual wire in Kg/Km	38.48	

c)	Stranded Conductor in Kg/Km	272.86	
7.a)	Minimum breaking load in KN		
b)	Individual wire	4.18	
c)	Conductor (U.T.S.)	29.26	
8.a)	Calculated maximum DC resistance at 20 ^{0}C in Ohm/ Km		
b)	Individual wire	2.345	
c)	Conductor	0.339	
9	Lay ratio for 7 wire conductor	Min : 10, Maxm : 14	
10	Direction of Lay	Right handed	

11	Modulus of Elasticity (Kg/ cm^2)	0.6324×10^6	
12	Co-efficient of linear expansion per ^{0} C	23.0×10^{-6}	
13	Standard length (Mtr.)	2000 ± 5%	
14	Size of drum in mm.		
15	No. of lengths in one drum		
16	No. of cold pressure butt welding		

GTP NO-20 GUARANTEED TECHNICAL PARTICULARS FOR 148 mm2 AAAC			
Sl.No	**Name of the Particulars**	**Desired Value**	**Bidder's offer**
1	Make		
2	No. of strands	7	
3	Wire dia in mm.:		
a)	Nominal	3.15	
b)	Minimum	3.12	
c)	Maximum	3.18	
4	Approximate overall dia of the conductor in mm. Cross-sectional area of:	15.75	
5.a)	Individual wire in mm^2	7.793	
b)	Stranded conductor in mm^2	148	
6.a)	Approx Mass of :		
b)	Individual wire in Kg/Km	21.04	
c)	Stranded Conductor in Kg/Km	406.91	
7.a)	Minimum breaking load in KN		
b)	Individual wire	2.289	
c)	Conductor (U.T.S.)	43.5	
8.a)	Calculated maximum DC resistance at 20 ^{0}C in Ohm/ Km		
b)	Individual wire	4.351	
c)	Conductor	0.229	
9	Lay ratio for 7 wire conductor	Min : 10, Maxm : 16	
10	Direction of Lay	Right handed	
11	Modulus of Elasticity (Kg/ cm^2)	0.6324 x 106	

12	Co-efficient of linear expansion per ^{0} C	23.0 x 10 -6	
13	Standard length (Mtr.)	2000 ± 5%	
14	Size of drum in mm.	To be offered by the bidder	
15	No. of lengths in one drum	To be offered by the bidder	
16	No. of cold pressure butt welding		

GTP NO-21 Guaranteed Technical Particulars of 33kV INSULATOR PIN TYPE			
Sl No.	**Name of the Particulars**	**Desired Value**	**Bidder's Offer**
1	Make	To be Specified by Bidder	
2	Type	Confirming to IEC 273 (solid core)	
3	Voltage class (kV)	36	
4	Dry and wet one minute withstand voltage (kV rms)	70	
5	Dry lightning impulse withstand voltage (kV p)	170	
6	Wet switching surge withstand voltage (kV p)	NA	
7	Max. RIV at corona extinction voltage (micro volts)	NA	
8	Corona extinction voltage (kV rms)		
9	Total minimum cantilever strength (kg)	Not < 300	
10	Minimum torsion moment	As per IEC 273	

11	Total height of insulator (mm)	508	
12	Minimum PCD (mm) top/bottom	76	
13	No. of bolts top/bottom	4/8	
14	Diameter of Bolts Hole (mm) top /Bottom	M12	
15	Pollution level as per IEC 815	Heavy	
16	Minimum total creepage distance (mm)	1050	

GTP NO- 22 Guaranteed Technical Particulars of 11kV INSULATOR PIN TYPE			
Sl No.	**Name of the Particulars**	**Desired Value**	**Bidder's Offer**
1	Make	To be Specified by Bidder	
2	Type	Confirming to IEC 273 (solid core)	
3	Voltage class (kV)	12	
4	Dry and wet one minute withstand voltage (kV rms)	28	
5	Dry lightning impulse withstand voltage (kV p)	75	
6	Wet switching surge withstand voltage (kV p)	NA	
7	Max. RIV at corona extinction voltage (micro volts)	NA	
8	Corona extinction voltage (kV rms)		
9	Total minimum cantilever strength (kg)	Not < 300	
10	Minimum torsion moment	As per IEC 273	
11	Total height of insulator (mm)	254	
12	Minimum PCD (mm) top/bottom	57	
13	No. of bolts top/bottom	04-Aug	
14	Diameter of Bolt holes (mm) top/ Bottom	M12	
15	Pollution level as per IEC 815	Heavy	
16	Minimum total creepage distance (mm)	450	

GTP NO-23 GUARENTEED TECHNICAL PARTICULARS FOR METAL OXIDE (GAPLESS) 33kV SURGE ARRESTERS			
Sl. No	**Name of the Particulars**	**Desired Value**	**Bidder's Offer**
1	Make	To be Specified by Bidder	
2	Nominal system voltage (phase to phase) (KV rms).	33	
3.a)	Highest system voltage (phase to phase) (KV rms).	36	
4	System Frequency (HZ).	50 ±5%	
5	System Neutral earthing.	Effectively earthed	
6	Installation.	Outdoor	
7	Class.	Station class, 10 KA, heavy duty type.	
8	Type of construction for 10 KA rated arrester.	Single column, single phase	
9	No. of phases.	Three	
10	Maximum duration of earth fault (Sec.)	3	
11	Maximum prospective symmetrical fault current at arrester location	40	
12	Rated arrester voltage (KV rms)	30	
1 3.a)	Nominal discharge current (KAP)	10 KA of 8/20 µsec Wave.	

	b) Discharge current at which insulation co-ordination will be done		
14	Minimum energy discharge capability (KJ/KV)	As per relevant ISS/IEC	
15	Maximum continuous operating voltage at 50º C (KV rms)	25	
16	Maximum switching surge residual voltage (KVP)	72 at 500A	
17	Maximum residual voltage at 8/20 micro second(KVP)		
(i)	5KA.	85	
(ii)	10 KA Nominal discharge current.	90	
(iii)	20 KA.	100	
18	Long duration discharge class	2	
19	High current short duration test value (KAP) (4/10 Micro-second wave).	100	
20	Current for pressure relief test (KA-rms)	40	
21	Minimum total creepage distance (mm).	900	
22	One minute dry and wet power frequency withstand voltage of Arrester housing (KV-rms).	70	

23 (a)	Impulse withstand voltage of arrester housing with 1.2/ 50 micro-second wave (KVP).	110.5	
b)	Switching Impulse Voltage (Wet) (KVP)		
24	Pressure relief class.	A	
25	Corona extinction voltage (KV-rms).	-	
26	RIV at 92 KV rms.	Less than 500 micro volts	
27	Partial discharge at 1.05 times continuous over-voltage.	Nor more than 50 PC	
28	Seismic acceleration.	0.3g horizontal 0.15g vertical	
29	Reference ambient temperature.	50ºC	
30.(a)	IR at MCOV.	Less than 400 micro amperes	
b)	IC at MCOV.	Less than 1200 micro amperes	
31.a)	Reference Current (mA)	1 to 5 mA	
b)	Reference voltage at reference current.	Greater than rated voltage.	

32	Maximum steep current Impulse RDV (KVP). at KAP	100	
33	Maximum cantilever strength of the arresters (KGM).	325	
34	TOV(KVP).		
(i)	0.1 sec.	53	
(ii)	1.0 sec.	51	
(iii)	10.0 sec.	49	
(iv)	100.0 sec.	47	

GTP NO-24 Guaranteed Technical Particulars Of 11 kV Surge Arrestors			
Sl. No	**Name of the Particulars**	**Desired Value**	**Bidder's Offer**
1	Make	To be Specified by Bidder	
2	Nominal system voltage (phase to phase) (KV rms).	11	
3	Highest system voltage (phase to phase) (KV rms).	12	
4	System Frequency (HZ).	50 (+5% to -3%)	
5	System Neutral earthing.	Effectively earthed	
6	Installation.	Outdoor	
7	Class.	Station class, 10 KA, heavy duty type.	
8	Type of construction for 10 KA rated arrester.	Single column, single phase	
9	No. of phases.	Three	
10	Maximum duration of earth fault (Sec.)	3	
11	Maximum prospective symmetrical fault current at arrester location (KA rms)	40	
12	Rated arrester voltage (KV rms)	9	
13	Nominal discharge current (KAP)	10 KA of 8/20 µsec Wave.	
14	Minimum energy discharge capability (KJ/KV)	As per relevant ISS/IEC	
15	Maximum continuous operating voltage at 50º C (KV rms)	9.6	
16	Maximum switching surge residual voltage (KVP)	28	
17	Maximum residual voltage at 8/20 micro second(KVP)		

(i)	5 KA.	32	
(ii)	10 KA Nominal discharge current.	35	
(iii)	20 KA.	40	
18	Long duration discharge class	2	
19	High current short duration test value (KAP) (4/10 Micro-second wave).	100	
20	Current for pressure relief test (KA-rms)	40	
20	Minimum total creepage distance (mm).	380	
21	One minute dry and wet power frequency withstand voltage of Arrester housing (KV-rms).	28	
22	Impulse withstand voltage of arrester housing with 1.2/ 50 micro-second wave (KVP).Switching Impulse Voltage (Wet) (KVP)	41.6	
23	Pressure relief class.	A	
24	Corona extinction voltage (KV-rms).	-	
25	RIV at 92 KV rms.	Less than 500 micro volts	
26	Partial discharge at 1.05 times continuous over voltage.	Nor more than 50 PC	
27	Seismic acceleration.	0.3g horizontal 0.15g vertical	
28	Reference ambient temperature.	50ºC	

29. (a)	IR at MCOV.	Less than 400 micro amperes	
(b)	IC at MCOV.	Less than 1200 micro amperes	
30. (a)	Reference Currenent (mA)	1 to 5 mA	
(b)	Reference voltage at reference current.	Greater than rated voltage.	
31	Maximum steep current Impulse RDV (KVP). at KAP	100	
32	Maximum cantilever strength of the arresters (KGM).	325	
33	TOV(KVP).		
(i)	0.1 sec.	20	
(ii)	1.0 sec.	18	
(iii)	10.0 sec.	16	
(iv)	100.0 sec.	14	

GTP NO – 25 GUARANTEED TECHNICAL PARTICULARS FOR NUMERICAL RELAY			
Sl No	**Name of the Particulars**		**Bidder's Offer**
1	Manufacturer's Name and country of origin		
2	Manufacturer's design Ref / Type		
3	Applicable Standards		
4	Current setting range for		
	(a)Over current relay	IDMTL Instantaneous	
	(b)Earth-fault relay	IDMTL Instantaneous	
	(c)Contact Rating		
5	Details on IDMTL characteristics		
6	Whether High Set is Transient free		
7	Whether separate Time setting for IDMTL / Instantaneous Elements available		
8	Whether Relay senses True RMS Current		
9	Accuracy for different settings and limits of errors		
10	Whether settings site selectable and HMI provided		
11	Whether Alpha Numeric LED display		
12	Whether Compatible for 48 V DC		

13	Whether Compatible for 1 A CT Secondary	
14	Whether Self diagnostic features available	
15	Whether Communication IEC 61850	
16	Whether Blocking characteristics available for blocking the unscrupulous tripping of Upstream Breakers	
17	(a)Whether relay test block is provided	
	(b)Type of test block with literature	
18	Whether draw out type unit	
19	Types of case	
20	Reset time	
21	Burden of relay	

GTP NO-51 GUARANTEED TECHNICAL PARTICULARS FOR 33/0.11 kV INDUCTIVE VOLTAGE TRANSFORMERS			
Sl. No	**Name of the Particulars.**	**Desired Value**	**Bidder's Offer**
1	Type	Singlephase,50Hz,oil filled, self cooled, Hermetically sealed, outdoor porcelain type	
2	Nominal system voltage.	33KV.	
3	Highest system voltage.	36KV	
4	Frequency.		
5	System earthing.	Effectively solidly earthed	
6	Number of phases.	3 [single phase]	
7	(i)Number of secondary windings. (ii)Purpose of windings.	2 (two) one protection and one Metering)	
8	Rated primary voltage.	33/1.732KV	

9	Rated secondary voltage.	110/1.732V (Metering) 110/1.732V Protection	
10	Ratio	33KV/1 .732/ 110/1 .732	
11	Rated burden.	Winding-I(P)- 15VA Winding-II(M)- 15 VA	
12	Accuracy class .	3P & 0.2	
13	Rated voltage factor at rated frequency.	1.2 continuous. 1.5 for 30 seconds	
14	Temperature rise at 1.2 times the rated primary voltage, rated frequency & rated	As per IEC-186.	
15	Temperature rise at 1.5 times the ratedprimary voltagefor 30seconds, rated frequency &rated	As per IEC-186	
16	One-minute power frequency dry withstands test voltage for primary winding.	70KV (rms)	
17	1-minute power frequency wet withstands test voltage for primary winding.	70KV (rms)	

18	1.2/50 microsecond impulse withstandtest voltage for primary winding	170KV (peak)	
20	One-minute power frequency withstands test voltage for Secondary winding Between LV(HF) terminal & earth terminal Class of insulation.	3 KV (rms) 'A'	
21	Material of the conductor of primary and secondary windings.	Copper	
22	Fault level of the bus to which PTs will be connected.	25KA for 3 second.	
23	Minimum creepage distance.	900mm	
24	Quality of oil.	EHV Grade As per IS-335	
25	Radio interference voltage at 1.1 times maximum rated voltage at 1.0 MHZ.	-	
26	Partial discharge level.		

27	Seismic acceleration- Horizontal – Vertical.	0.3g. 0.15g.	
28	Accuracy class of standard V.T. to be used during testing towards determination of ratio errors and phase angle errors for metering windings.	0.05 or better.	
29	Capacitance (Pf)	-	

GTP NO-8 GUARANTEED TECHNICAL PARTICULARS FOR 11/0.11 kV INDUCTIVE VOLTAGE TRANSFORMERS			
Sl. No	**Name of the Particulars.**	**Desired Value**	**Bidder's Offer**
1	Type	Singlephase,50Hz,oil filled, self cooled, Hermeticallysealed, outdoor porcelain type	
2	Nominal system voltage.	33KV.	
3	Highest system voltage.	36KV	
4	Frequency.		
5	System earthing.	Effectively solidly earthed	
6	Number of phases.	3 [single phase]	
7	(i)Number of secondary windings.	2 (two) one protection and one Metering)	
	(ii)Purpose of windings.		
8	Rated primary voltage.	33/1.732KV	
9	Rated secondary voltage.	110/1.732V (Metering)	
		110/1 .732V	
		Protection	

10	Ratio	33KV/1 .732/	
		110/1 .732	
11	Rated burden.	Winding-I(P)-15VA	
		Winding-II(M)- 15VA	
12	Accuracy class .	3P and 0.2	
13	Rated voltage factor	1.2 continuous.	
	at rated frequency.	1.5 for 30 seconds	
14	Temperaturerise at 1.2 times the rated primary voltage, rated frequency & rated burdens.	As per IEC-186.	
15	Temperature riseat 1.5 times the ratedprimary voltagefor 30seconds, rated frequency &rated	As per IEC-186	
16	One-minute power frequency dry withstands test voltage for primary winding.	28KV (rms)	
17	1.2/50 microsecond impulse withstandtest voltage for primary winding	75KV (peak)	

18	One-minute power frequency withstands test voltage for Secondary winding	3 KV (rms)	
(i)	Between LV(HF) terminal & earth terminal	3 KV (rms)	
20	Class of insulation.	'A'	
21	Material of the conductor of primary and secondary windings.	Copper	
22	Fault level of the bus to which PTs will be connected.	25KA for 3 second	
23	Minimum creepage distance.	900mm	
24	Quality of oil.	EHV Grade	
		As per IS-335	
25	Radio interference voltage at 1.1 times maximum rated voltage at 1.0 MHZ.		
26	Partial discharge level.		
27	Seismic acceleration- Horizontal – Vertical.	0.3g.	
		0.15g.	

28	Accuracy class of standard V.T. to be used during testing towards determination of ratio errors and phase angle errors for metering windings.	0.05 or better.	

GTP NO 28 GURANTEED TECHNICAL PARTICULARS OF 33 KV & 11 kV V-CROSS ARM				
Sl. No.	**Name of the Particulars**	**Unit**	**33kV**	**11kV**
1	Type of crossarm			
2	Grade of steel			
3	Steel standard			
4	Fabrication Standard			
5	Dimensions	Mm		
6	Steel section utilized			
7	Steel tensile strength	N/cm^2		
8	Working load	Kg		
9	Details of Galvanising Methods utilized and Standard/Specification			
10	Weight of cross arm	kg		
11	Whether drawing has been submitted with the bid			

GTP NO – 29 GUARANTEED TECHNICAL PARTICULARS OF (RS JOISTS of sizes 150x150mm)			
Sl. No.	**Name of the Particulars**	**Desired Value**	**Bidder's Data**
1	Length of Joist in mtr with +100mm/-0% Tolerance	11 mtr	
2	Weight kg/m with±2.5% Tolerance	34.6	
3	Sectional Area (cm^2)	44.1	
4	Depth(D) of Section (mm) with +3.0mm/ - 2.0mm Tolerance as per IS 1852-1 985	150	
5	Width (B)of Flange (mm) with ±2.5mm Tolerance for116 x 100 mm ISMB & ±4.0mm Tolerance for 150 x 150 mm ISHB IS 1852-1985	150	
6	Thickness of Flange (Tf) (mm) with±1 .5mm Tolerance	9	
7	Thickness of Web(Tw) (mm) with±1 .0mm Tolerance	11.8	
8	Corner Radius of Root (mm)	8	
9	Corner Radius of Tow (R2) (mm)	4	
10	Moment of Inertia		
	Ixx (cm^4)	1640	

	Iyy (cm^4)	495	
11	Radius of Gyration (cm)		
	Rxx	6.09	
	Ryy	3.35	
12	Modulus of Section		
	Zxx(cm^3)	218	
	Zyy(cm^3)	63.2	
13	Flange Slope(a) in Degree	94	
14	Tolerance in Dimension	As per IS:1 852	
15	Distinct Non-Erasable Embossings to be made on each R.S. Joist	a) Name & Logo of the Manufacturer.	
		b) B.I.S Logo(ISI Mark) if applicable.	
		c) Size	

GTP NO- 30	GURANTEED TECHNICAL PARTICULARS OF HT STAY SET				
Sl NO	**Name of the Particulars**	**Specified Parameters**			**Bidder's Offer**
		Section Tolerances	**Fabrication Tolerances**	**Material**	
1	Anchor Plate	8mm thick+2.5%-5%	300x300mm+1%	5 GI Plate 8 mm thick	
2	Anchor Rod	20mm dia +3%-2%	Length 1800mm +0.5% Round Eye 40mm inside dia + 3%. Threading 40mm =11 %-5%	GI Round 20mm dia	
3	Turn Buckle Bow	16mm dia +5%-3%	Length180mm +1% 50x50x6mm Channel length 200mm + 1%	GI Round 16mm dia. GI Angle GI Channel 100x50x4.7mm	
4	Eye Bolt Rod	20mm dia + 3% - 2%	Length450mm +1 %Threading 300mm +1% Round Eye 40 mm inside dia +3%	GI Round 20mm dia.	