

ANNEXURE-1
LIST OF EQUIPMENTS – LOT 1

Sl. No.	Description	Quantity Nos	Recommended Make
1	Digital Multimeter	2	Fluke
2	AC/DC Clamp meter with flexi clamp	2	Fluke/Kyoritsu
3	AC/DC Clamp meter(20mA to 20A)	2	Kyoritsu/Fluke/Hioki
4	Digital Megger(0-5KV)	3	Megger
5	Digital Megger(0-10KV)	1	Megger
6	Primary current Injection Kit, 3000A	1	AE/RE/Equivalent
7	Temperature Gun	3	Fluke/Flir/Raychem
8	Portable Hydrogen Leakage Detector	2	As per specification
9	Battery discharge resistor (250A)	1	As per specification
10	Battery discharge resistor (100A)	1	As per specification
11	1-Phase Variac (10A)	3	AE/RE/Equivalent
12	1-Phase Variac (50A)	1	AE/RE/Equivalent
13	Motor checker(LCR meter)	2	MCM or Equivalent
14	Oil sampling bottles (SS)	12	As per specification
15	Low, medium & High voltage proximity detector	3	Salisbury/Amprobe/Equivalent
16	Single phase relay test kit	1	Megger(Sverker)/Omicron
17	Digital Tachometer(both contact & Non-contact type)	2	Amprobe/Extech/Fluke/Testo
18	Knee point voltage Test Kit	1	As per specification
19	Manual Earth tester	1	As per specification
20	Vacuum bottle tester	1	Megger or equivalent
21	Surge arrester tester	1	ISA/Scope

ANNEXURE-2

1. TECHNICAL SPECIFICATIONS FOR DIGITAL MULTIMETER

Sr. No	Specification	Yes/ No		
1	Instrument should measure accurate voltage and frequency measurements on adjustable speed motor drives and other electrically noisy equipment			
2	Digit display with bright, two-level backlight			
3	True RMS AC voltage and current for accurate measurements on non linear signals			
4	True RMS AC voltage and current for accurate measurements on non linear signals			
5	Selectable filter for accurate voltage and frequency measurements on motor drives			
6	4-1/2 digit mode for precise measurements (20,000 counts)			
7	Measure up to 1000 VAC and DC			
8	10,000 μ F capacitance range for components and motor caps			
9	Min/Max-Average recording with Min/Max Alert to capture variations automatically			
10	Peak capture to record transients as fast as 250 μ s			
11	Relative mode to remove test lead interference from low ohms measurements			
12	Auto and manual ranging for maximum flexibility			
13	Touch Hold to capture stable readings avoiding noisy signals			
14	Improved selectable sleep mode for long battery life			
15	Voltage DC	Maximum voltage	1000 V	
		Accuracy	$\pm(0.05\% + 1)$	
		Maximum resolution	10 μ V	
16	Voltage AC	Maximum voltage	1000 V	
		Accuracy	$\pm(0.7\% + 2)$ True RMS	
		AC bandwidth	18 kHz with low pass filter; 3 db @ 1 kHz	
		Maximum resolution	0.1 mV	
17	Current DC	Maximum amps	10 A (20 A for 30 seconds maximum)	
		Amps accuracy	$\pm(0.2\% + 2)$	
		Maximum resolution	0.01 μ A	
18	Current AC	Maximum amps	10 A (20 A for 30 seconds maximum)	
		Amps accuracy	$\pm(1.0\% + 2)$ True RMS	

		Maximum resolution	0.1 μ A	
19	Resistance	Maximum resistance	50 M Ω	
		Accuracy	$\pm(0.2\% + 1)$	
		Maximum resolution	0.1 Ω	
20	Capacitance	Maximum capacitance	9,999 μ F	
		Accuracy	$\pm(1\% + 2)$	
		Maximum resolution	0.01 nF	
21	Frequency	Maximum frequency	200 kHz	
		Accuracy	$\pm(0.005\% + 1)$	
		Maximum resolution	0.01 Hz	
22	Duty cycle	Maximum duty cycle	99.90%	
		Accuracy	$\pm(0.2\% \text{ per khz} + 0.1\%)$	
		Maximum resolution	0.10%	
23	Temperature measurement	-200.0 $^{\circ}$ C – 1090 $^{\circ}$ C		
		-328.0 $^{\circ}$ F – 1994.0 $^{\circ}$ F		
24	Conductance	Maximum conductance	60.00 nS	
		Accuracy	$\pm(1.0\% + 10)$	
		Maximum resolution	0.01 nS	
25	Diode	Range	3 V	
		Resolution	1 mV	
		Accuracy	$\pm(2\% + 1)$	
26	Duty cycle range	Accuracy	Within $\pm(0.2\% \text{ per kHz} + 0.1\%)$	
27	Environmental Specifications	Operating temperature	0 $^{\circ}$ C to + 55 $^{\circ}$ C	
		Storage temperature	0 $^{\circ}$ C to + 60 $^{\circ}$ C	
28	Safety Specification	Overvoltage category	EN 61010-1 to 1000 V CAT III, 600V CAT IV	
29	Battery Life	Alkaline	~400 hours typical, without backlight	
30	Shock	1 Meter drop per IEC 61010-1:2001		

2. TECHNICAL SPECIFICATIONS FOR DIGITAL CLAMPMETER WITH FLEXIBLE CLAMP

Sr. No	Specification	Yes/ No
1	1000 A ac and dc current measurement	
2	2000 A ac current measurement with iFlex flexible current probe	
3	1000 V ac and dc voltage measurement	

4	True-rms voltage and current for accurate measurements on non-linear signals		
5	Frequency measurement to 500 Hz with body jaw and iFlex		
6	Resistance measurement to 60 kΩ with continuity detection		
7	Min, max, average, and inrush recording to capture variations automatically		
8	500 mV dc measurement range to interface with other accessories		
9	1000 μF capacitance measurement		
10	AC Current via Jaw	Range	999.9 A
		Resolution	0.1 A
		Accuracy	1.5% ±5 digits (10 Hz to 100 Hz)
		Crest Factor (50 Hz/60 Hz)	2.5Max @ 600 A
11	AC Current via Flexible Current Probe	Range	2500 A
		Resolution	0.1 A (≤ 600 A) 1 A (≤ 2500 A)
		Accuracy	3% ±5 digits (5 – 500 Hz)
12	DC Current	Range	1000 A
		Resolution	0.1 A
		Accuracy	2% ±5 digits
13	AC Voltage	Range	1000 V
		Resolution	0.1 V (≤600.0 V) 1 V (≤1000 V)
		Accuracy	1.5% ±5 digits (20 Hz to 500 Hz)
14	DC Voltage	Range	1000 V
		Resolution	0.1 V (≤600.0 V) 1 V (≤1000 V)
		Accuracy	1% ±5 digits
15	Frequency via Jaw	Range	5.0 Hz to 500.0 Hz
		Resolution	0.1 Hz
		Accuracy	0.5% ±5 digits
16	Frequency via Flexible Current Probe	Range	5.0 Hz to 500.0 Hz
		Resolution	0.1 Hz
		Accuracy	0.5% ±5 digits
17	Resistance	Range	60 kΩ
		Resolution	0.1 Ω (≤600 Ω)
		Accuracy	1% ±5 digits
18	Capacitance	Range	1000 μF

		Resolution	0.1 μ F (\leq 100 μ F) 1 μ F (\leq 1000 μ F)	
		Accuracy	1% \pm 4 digits	
19	Jaw opening	Minimum 32mm		
20	Flexible current probe cable length	Minimum 1.8 m		
21	Safety	IEC 61010-2-033:CAT III 1000 V / CAT IV 600 V		

3. TECHNICAL SPECIFICATION FOR AC/DC MILLI AMPERE CLAMP METER

Sr. No	Specification		Yes/ No
1	High sensitivity, miniature AC/DC clamp meter		
2	0.1mA minimum resolution for AC current and 1mA minimum resolution for DC current.		
3	Output terminal for recorder connection.		
4	Should be suitable for measuring CT secondary, relay and transducer currents with high precision accuracy.		
5	AC A	200mA/2/20A	
		\pm 1%rdg \pm 2dgt [50/60Hz] (200mA)	
		\pm 1.5%rdg \pm 8dgt [40Hz - 2kHz] (200mA)	
		\pm 1%rdg \pm 2dgt [50/60Hz] (2A)	
6	DC A	\pm 2.5%rdg \pm 10dgt [40Hz - 2kHz] (2/20A)	
		2/20A	
		\pm 1%rdg \pm 2dgt (2A)	
		\pm 1.5%rdg \pm 4dgt (20A)	
7	Conductor size	\varnothing 7.5mm max.	
8	Frequency response	DC, 40Hz - 2kHz	
9	Output	Recorder :	
		DC200mV against AC200mA/2/20A	
		DC200mV against DC2/20A	
10	Power source	Rechargeable battery AC Adaptor	
11	Accessories	Carrying Case	
		Instruction Manual	

4. TECHNICAL SPECIFICATION FOR DIGITAL MEGGER (5KV)

Sr. No	Specification	Yes/ No
1	The instrument should perform automatic tests and measure insulation resistance, current, capacitance, polarization index.	
2	Instrument should display direct reading of voltage across the test piece, pi value.	
3	The tester shall be suitable for DC battery operation and ac mains operation. The DC batteries should be	
4	Digital and software filter should be available in the instrument to remove induced noise.	
5	Capacitor charging time should be available.	
6	Auto discharge feature should be available.	
7	Instrument should have high voltage warning display when input voltage across the terminal is above 50V.	
8	Guard: 5% error guarding 500K Ω leakage with 100M Ω load	
9	Measuring range	10K Ω to 10T Ω
10	Analog display Resistance range	100K Ω to 10T Ω
11	Test Voltage Ranges (DC)	500 V, 1000 V, 2500 V, 5000 V, USER DEFINED TEST VOLTAGE: 100 V TO 1 KV IN 10 V STEPS, 1 KV TO 5 KV IN 25 V STEPS,
12	Withstanding Test Voltage	5kV
13	Leakage Current Range	3mA or higher
14	Voltage Measurement AC/DC Range	30 V to 660 V AC or DC, 50/60 Hz
15	Accuracy	\pm 5% to 2 T Ω , \pm 20% to 10T Ω
16	Polarization Index (PI) Range	Auto
17	Capacitance and time constant	15nF to 10 μ F
18	Power Supply	Independent mains as well as battery operated
19	Protection Classification	Meets the requirements of IEC 61010-1, CATIV 600 V
20	Over-Voltage Category	CATIV
21	Degree of Protection	IP65 (lid closed), IP40 (lid open)
22	Visual and Sound Warnings	Yes
23	Display	Large LCD display with automatic backlight
24	Working Temperature Range	0 $^{\circ}$ C to 50 $^{\circ}$ C

25	Storage Temperature Range	0 °C to 65 °C	
26	Maximum Humidity	90% RH non-condensing at 40 °C	
27	Induction Suppression Capability	1 mA per 250 V upto maximum of 3 mA	

5. TECHNICAL SPECIFICATION FOR DIGITAL MEGGER (10KV)

Sr. No	Specification	Yes/ No
1	The instrument should be suitable for testing water filled stator of Generator, equipment in live switchyards etc.,	
2	The instrument should performs automatic tests and measure Insulation Resistance, current, capacitance, Polarization Index, Step voltage tests, DAR & Dielectric Discharge, Ramp Test.	
3	Voltage selection – 40V to 1KV in 10V steps, 1KV to 5KV ,5kV to 10kV in 25 V steps, With Enable Voltage Lock Option	
4	Instrument should have provision to operate in both modes i.e. (i) In AC 250 V RMS, 50Hz mains (ii) Internal rechargeable Battery mode. The Battery supplied with tester should have minimum 3 hour charging time, should be able to operate from main supply even with flat battery	
5	Rated analogue display resistance Minimum 100 KΩ to 10 TΩ.	
6	Rated Digital Display Resistance 10 KΩ to30 TΩ.	
7	Resistance range for each rated voltage shall be indicated in the offer.	
8	Instrument should display direct reading of voltage across the test piece, PI value, and Dielectric discharge value when the test is in progress.	
9	Instrument should display leakage measurement.	
10	Short Circuit current 6 mA @ 10KV	
11	Instrument should have 7mA or better Interference Rejection, plus instrument should have additional filter of 10, 30 and 100,200 seconds time constant selectable.	
12	Guard terminal should have at least 2% error guarding 500KΩ leakage with 100MΩ load for proper measurement upon high leakage current specimen.	
13	Insulation Resistance Measurement should be in Digital and Analogue with backlit display.	
14	Instrument should have capability for 10 hours logging as internal memory with date/time stamp	
15	Insulation resistance measurement range Digital display 10 KΩ to 35 TΩ. Analogue display 100KΩ to 10TΩ.	

16	Current measurement range 0.01 nA to 6 mA	
17	Voltage measurement range 30 to 660VDC or AC	
18	The Equipment should be able to perform the live data streaming along with real time graphing, storage with the supplied software with the interface via USB Cable.	
19	Digital and software filter should be available in the instrument to remove induced noise.	
20	Safety should Conform to IEC 1010-1 (1995)	
21	Environmental Protection: Instrument should be rated to IP65	
22	Instrument should have compliance to following Safety standards IEC1010-1 (1995), EN61010 (1995) to installation category IV, 600 V,	

6. TECHNICAL SPECIFICATION FOR AC PRIMARY CURRENT INJECTION TEST SET (3000A)

Sr. No	Specification	Yes/ No
1	Primary Injection Test System for testing for Current Transformer shall consist of a load unit with knob for adjusting current range.	
2	The load unit shall have following values given at supply voltage of 240V.	
3	Injection up to 3000A at minimum 15kVA power shall be possible .Current shall be stable regardless of load change or input fluctuations with accuracy of $\pm 0.2\%$ of the value.	
4	The output transformer should have built-in thermal cut-out, and the primary side should be protected by a circuit breaker.	
5	Weight of the kit with better portability will be preferred. The weight and size shall be such that one person can handle the equipment at site for transportation from one place to other.	
6	Enclosure& Safety The primary injection test system shall include a rugged, shock-proof enclosure equipped with handle and wheels for ease of transportation. The test system shall be certified to meet one or more of the following international safety standards. - CE marking (LVD 2006/95/EC) - EMC 2004/108/EC - ANSI-C39.5, Safety Standard for Electrical and Electronic Equipment - IEC-61010-1, International Safety Standard	

7. TECHNICAL SPECIFICATION FOR TEMPERATURE GUN

Sr. No	Specification	Yes/ No
1	The equipment should be of non-contact thermometer of portable size and light weight so that it enables professionals to diagnose heating and ventilation problems and monitor the temperature of electrical motors and electrical panels without contact.	
2	Single point offset laser sighting	
3	Accuracy of $\pm 1\%$ of reading	
4	Should have capability to hold temperature readings for minimum of 5sec.	
5	Should be able to display current and MAX measurements simultaneously.	
6	Backlit display for poorly lit areas.	
7	Comfortable ergonomic handle with protective rubber boot for added durability	
8	Fitted carrying case	
9	Temperature range from 0° to 500°C (-20° to 932°F)	

8. TECHNICAL SPECIFICATION FOR PORTABLE HYDROGEN LEAKAGE DETECTOR

Sr. No	Specification	Yes/ No
1	The instrument should be of detecting & pinpoint the gas leaks higher concentrations of hydrogen in the surrounding air.	
2	The detector should also has an audible alarm that warns option when a threshold is crossed and a headphone jack which allows you to connect earphones for more focused and productive working in loud or distracting environments.	
3	Flexible measurement probe for inaccessible places	
4	Optical and audible alarm with bar display for increasing and dangerous gas concentrations.	
5	Trend display showing maximum leakage	
6	Rechargeable battery with charger	
7	Measuring range	10 ppm to 4.0 Vol.%
8	Lower response	10 ppm
9	1st alarm limit	200 ppm
10	2nd alarm limit	10000 ppm

9. TECHNICAL SPECIFICATION FOR BATTERY DISCHARGE RESISTOR (250A)

Sr. No	Specification	Yes/ No
1	The instrument able to discharge the substation battery set of 12V/24/48/110/220V/380V DC system with facility of regulating discharge rate manually.	
2	The discharge current capacity of the kit shall be 250A	
3	The discharge current shall be user adjustable with sufficient amount of current selection switches/MCBs of discharge current rating 4A, 5A, 10A, 50A	
4	The discharge current can be settable at every voltage, subject to maximum current value.	
5	The kit shall display the running parameters during discharges like discharge currents (A), present Voltage (V) and temperature inside enclosure.	
6	The Instrument should have internal cooling arrangement.	
7	Test leads and necessary cables should be provided.	
8	The equipment shall be supplied with roller arrangement to transport from one location to other easily and a user manual.	

10. TECHNICAL SPECIFICATION FOR BATTERY DISCHARGE RESISTOR (100A)

Sr. No	Specification	Yes/ No
1	The instrument able to discharge the substation battery set of 12V/24/48/110/220V/380V DC system with facility of regulating discharge rate manually.	
2	The discharge current capacity of the kit shall be 100A	
3	The discharge current shall be user adjustable with sufficient amount of current selection switches of discharge current rating 2A, 5A, 10A, 40A	
4	The discharge current can be settable at every voltage, subject to maximum current value.	
5	The kit shall display the running parameters during discharges like discharge currents (A), present Voltage (V) and temperature inside enclosure.	
6	The Instrument should have internal cooling arrangement.	
7	Test leads and necessary cables should be provided.	
8	The equipment shall be supplied with roller arrangement to transport from one location to other easily and a user manual.	

11. TECHNICAL SPECIFICATION FOR 1-PHASE VARIAC (10A)

Sr. No	Specification	Yes/ No
1	Phase: Single	
2	Input: 240V, 50/60Hz AC 1 ph.	
3	Output: 0-270V, 50/60Hz AC 1 ph.	
4	Maximum output Current 10A	
5	Variac should be portable, enclosed air cooled Type	
6	Excellent Regulation	
7	High Efficiency	
8	No Waveform Distortion	
9	Silver Plated Commutator	
10	Smooth & Linear Output	
11	Low magnetizing current	

12. TECHNICAL SPECIFICATION FOR 1-PHASE VARIAC (50A)

Sr. No	Specification	Yes/ No
1	Phase: Single	
2	Input: 240V, 50/60Hz AC 1 ph.	
3	Output: 0-270V, 50/60Hz AC 1 ph.	
4	Maximum output Current 50A	
5	Variac should be portable, enclosed air cooled Type	
6	Excellent Regulation	
7	High Efficiency	
8	No Waveform Distortion	
9	Silver Plated Commutator	
10	Smooth & Linear Output	
11	Low magnetizing current	

13. TECHNICAL SPECIFICATION FOR MOTOR CHECKER

Sr. No	Specification			Yes/ No
1	The kit should be Digital portable and is used for quick on - site checks of electric motor and other three - phase machines			
2	The instruments should have separate operating modes to measure different types of faults like fully insulation, open circuits / loose connections, short circuits and rotor defects. Motor insulation is tested with a high voltage of 500V & 1000V DC supplied by the instrument.			
3	Shall be capable of identifying open and short circuits / loose connections in a winding coil.			
4	Inductance of the winding with respect to different positions for rotor for detecting blow holes or cracks in the rotor bars.			
5	Simple operation, accurate & quick assessment of motor condition.			
6	Battery operated with rechargeable batteries and AC adaptor for charging the same.			
7	Measurement specifications			
		Range	Resolution	
7.1	Insulation resistance	0-199M ohms at 500V DC	0.1M ohms	
		0-2000M ohms at 1000V DC	0.1M ohms	
7.2	Resistance	0-200milli ohms	0.10milli ohms	
		0-2 ohms	0.001ohms	
		0-20 ohms	0.01 ohms	
		0-200 ohms	0.10 ohms	
7.3	Inductance	0-2mH	0.001mH	
		0-20mH	0.01mH	
		0-200mH	0.1mH	
		0-2000mH	1mH	

14. TECHNICAL SPECIFICATION FOR OIL SAMPLING BOTTLES

Sr. No	Specification	Yes/ No
1	Sampling bottle shall be made of Stainless steel 304 and 316 material	
2	Other accessories like nipples etc., shall also be made of stainless steel 304 grade.	
3	Gas tight valve to ensure there is no loss of gas during transport form site to lab for DGA test.	
4	Sampling bottles volume capacity shall be of 1 liter	

15. TECHNICAL SPECIFICATION FOR PROXIMITY DETECTOR

Sr. No	Specification	Yes/ No
1	The instrument should be rugged and reliable.	
2	The instrument should be capable of verifying the presence of voltage in low, medium and high voltage test applications up to 400 kV without contacting the energized conductor.	
3	Instrument should be provided with hot-stick arrangement including hot-stick.	
4	Voltage selection feature for verifying different voltage levels	
5	Alert with visual and loud audible indication when used in proximity of live source.	

16. TECHNICAL SPECIFICATION FOR SINGLE PHASE RELAY TEST KIT

Sr. No	Specification	Yes/ No
1	The single phase Relay Testing equipment should be capable of secondary testing of protective relays, excitation curve plotting in CTs Current and voltage transformer ratio tests burden measurement for protective relays.	
2	Current source should provide 0-100 A AC.	
3	Voltage source should provide 0-250V AC or 0-350V DC,	
4	Auxiliary voltage source should provide 20-220 V DC	
5	The test set should have Built-in capacitors providing phase shift when testing directional protection, and a set of resistors which can be used to divide voltages.	
6	Output ports used to start external timers or relays like LBB or Auto re-closure relays.	
7	Terminal for external start / stop of built-in timer should be available.	
8	Terminal for connecting serial impedance when testing nonlinear protection should be available.	
9	Kit should be portable and easy to carry.	
10	Timer range of 0-999.999sec with 1msec resolution	

17. TECHNICAL SPECIFICATION FOR DIGITAL TACHOMETER

Sr. No	Specification	Yes/ No
1	The equipment should accurately measures rotational or surface speed as well as length.	
2	It should come with a LCD display that allows the user to easily read the measurement.	
3	It should have built in memory function that permits automatic storage of maximum, minimum, average values plus the last measurement displayed.	
4	The Tachometer should supplied with all the necessary accessories designed with optimal mechanical stability to ensure accurate, reliable, and repeatable measurements.	
5	Should be provided with mechanical adapters that accepts a variety of tips, as well as the surface speed wheel for contact rpm measurement.	

6	Tachometer should also perform non-contact measurement by using the infrared beam function.	
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18. TECHNICAL SPECIFICATION FOR KNEE POINT VOLTAGE TEST KIT

Sr. No	Specification	Yes/ No
1	Knee point tester should be suitable for outdoor applications involving application of AC high voltage to test objects, particularly knee point tests on CVTs and CTs at site.	
2	Should be provide Panel mounted controls and indicators with easy to read legend.	
3	Continuously variable output by one knob control.	
4	Kit should have the linear scaled kV meter and leakage mA meter.	
5	Fused overload protection should be provided for safety purpose.	
6	Output voltage range should be minimum 0-3kV with 500mA output current.	
7	Kit should be provided with minimum 3mtrs long mains cable and 6mtr long test leads.	

19. TECHNICAL SPECIFICATION FOR MANUAL EARTH TESTER

Sr. No	Specification	Yes/ No
1	The Manual, hand driven Earth Tester is required for the measurement of Resistance of Earth under the following conditions. <ul style="list-style-type: none"> • Measurement of Earth Resistance for large complex earthing systems. • Accurate measurement of Earth Resistance in sub-station site where variation of soil resistivity values will be large. 	
2	Manual Earth Tester shall be robust, compact instrument designed for measuring electrode resistance. The instrument should have facility to measure Ground Resistance by standard Fall of Potential method using 3 terminal methods by Current and Potential spikes	
3	Shall have silent Generator with collapsible handle	
4	Centrifugal Clutch (Governor) For Constant Output Voltage	
5	Check nut locking arrangement to prevent anti-clockwise rotation	
6	Wide and anti-parallax mirror scale	

7	Shall have anti-magnetic, aluminum body with protected metallic flap over glass window of scale	
8	Accurate, reliable and quick response for measurement of resistance of earth	
9	Accuracy shall confirm to IS : 923/1979	

20. TECHNICAL SPECIFICATION FOR VACUUM BOTTLE TESTER

Sr. No	Specification	Yes/ No
1	The Vacuum bottle test kit should be able to ascertain whether or not the vacuum bottle is intact before putting back into service by giving optical Indication.	
2	Safety as per EMC standards.	
3	Voltage Range: 10kv to 60kv DC (User Selectable)	
4	Resolution: > 350 micro Amperes	
5	Ripple: Not more than 3%	
6	Indications/Warnings while performing operation: <ul style="list-style-type: none"> - When High voltage being applied. - When Vacuum bottle is healthy - When Vacuum bottle is Defective - When test carried out for more than 1min - When Test Interrupted 	
7	Protection: Overload Cut-Out	
8	Mains voltage 230 V AC +/-10, 50 / 60 Hz	
9	Accessories: The bidder should provide High voltage cable with large test clip connectors for easy & firm connection.	

21. TECHNICAL SPECIFICATION FOR SURGE ARRESTER TESTER

Sr. No	Specification	Yes/ No		
1	Instrument should be used to check regularly the efficiency of the metal oxide surge arrester in service that are installed on the high voltage transmission and distribution networks.			
2	Instrument should measure the following parameters <ul style="list-style-type: none"> - True RMS of the total current. - Peak value of the total current. - True RMS of the third harmonic. - Temperature. 			
3	Third harmonic range: 199.9 μ A for currents less than 1mA, or 1999 μ A for higher currents with automatic range selection.			
4	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; text-align: center; vertical-align: middle;">Current Clip-On Transformer</td> <td> Current ratio: 1000:1. Ratio error from 0.1 mA to 10 mA: 5% \pm 0.05μA. Load resistance: 47 Ohm. Frequency response: less than - 0.5 dB from 50 Hz to 10000 Hz. Tightening diameter: 54 mm. Jaw opening: over 55 mm. Connection: 2 m screened cable, ending with a bayonet connector. </td> </tr> </table>	Current Clip-On Transformer	Current ratio: 1000:1. Ratio error from 0.1 mA to 10 mA: 5% \pm 0.05 μ A. Load resistance: 47 Ohm. Frequency response: less than - 0.5 dB from 50 Hz to 10000 Hz. Tightening diameter: 54 mm. Jaw opening: over 55 mm. Connection: 2 m screened cable, ending with a bayonet connector.	
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5	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; text-align: center; vertical-align: middle;">Voltage measuring probe</td> <td> Test probe for measuring the third harmonic of the system voltage, 2 m long, with banana plugs for the connection to the PT secondary Nominal voltage: 100 V phase to phase (57.8 V phase to neutral). Maximum voltage: 200 V phase to phase. The cable should incorporate a resistor divider made of two resistors. </td> </tr> </table>	Voltage measuring probe	Test probe for measuring the third harmonic of the system voltage, 2 m long, with banana plugs for the connection to the PT secondary Nominal voltage: 100 V phase to phase (57.8 V phase to neutral). Maximum voltage: 200 V phase to phase. The cable should incorporate a resistor divider made of two resistors.	
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