SCHEDULE – III

TECHNICAL SPECIFICATION FOR AC STATIC INSULATION RESISTANCE TESTER AGAINSTTN-2560.

1.0 SCOPE:

The Static Insulation tester shall be used for the measurement of Insulation Resistance of Transformers Switches, High Voltage Systems, Low and High Tension Lines etc**.** which precision in the charge Yard of 33 KV Environment having Electro magnetic field and interference.

2.0 REQUIREMENT:

The requirement of AC Static Insulation Resistance Tester is **95 Nos.**

3.0 The Instrument shall confirm to relevant international industry standards and should be able to carry out the testing as per recommended practices. The following standards should also complied with:-

S.No.	Standard No.	Title
1	IS:11994-1986(with latest amendments)	Specification for Portable Insulation resistance Tester (Mains Operated)
2	EN 61010-1:2010 CAT IV600 V	Safety
3	EN:61326-1 : 1998	EMC
4	IP54	Ingress Protection

4.0 CLIMATIC CONDITIONS:

The equipment to be supplied under the specification shall be suitable for satisfactory operation under the following tropical humid conditions:

1. Max. ambient air Temperature : 55 Deg.C.
2. Max.ambient air Temperature in shade : 45 Deg.C.
3. Max. Temperature attainable by the meter exposed to sun : 60 Deg.C.
4. Min. ambient Temperature : (-5) Deg.C.
5. Av. Daily ambient temperature : 40Deg.C.
6. Max. relative humidity : 95%
7. Number of months during which tropical Monsoon conditions : 4 months.
8. Max. altitude above meansea level : 1000 meters.
9. Av. Annual rain fall : 10-100 cms.
10. Max. wind pressure : 200Kg./Cm.Sq.m
11. Isoceraunic level (days per year) : 40
12. Seismic level (horizontal accn) :0.30 g.
13. Permitted noise level : 45 Db.

The atmosphere is to be considered as laden with industrial smoke / gas and dust in suspension during dry months. Fog, smoke and mild acids are also present.

Heavy rainfall and lightning may also be present during the months from June to October.

5.0 TECHNICAL REQUIREMENTS:

a) Voltage Selection – 250 V to 5000 V in steps of 125/250 V.

b) Instrument should have provision to operate in both modes i.e.

i) 230 V AC (+6/-10%) 45 Hz – 65 Hz, 25 VA (maximum).

ii) Internal rechargeable battery with inbuilt battery charging circuit.

- Battery Charge – 2.50 Hrs.
- Battery life single charging - 5.0 Hrs. at 5KV & 100 MΩ.

c) Rated resistance 1 KΩ to 10 TΩ.
Resistance range for each rated voltage shall be indicated in the offer.

d) Instrument should display direct reading of voltage across the test piece when the test is in progress.

e) Instrument should display direct reading of the current through the 'device under test' when the test is in progress.

f) The instrument must display the capacitance of the 'Device under test' when the test is in progress or after the completion of the test.

g) Short Circuit current should be at least 1.4 mA.

h) Guard terminal should have guard resistance 300 KΩ(+/-10%).

i) Insulation Resistance Measurement should be in Digital and Analogue (bar graph) with backlit display.

j) The backlit display must be able to switch ON and OFF from a single button from the front console.

k) The instruments shall discharge the 'device under test' after every test.

l) The equipment shall conduct 'automatic calibration' at every start up of the equipment.

m) The instrument must be able to take the following tests with selectable parameters in every test:

-Voltage Measurement
-Insulation Resistance Measurement
-Polarization Index Calculation
-Dielectric Absorption Ratio Calculation

n) The test start button shall also work as stop button to start the test and to stop the test when the test is being conducted (even before the test is conducted).

6.0 Measurement Range:

Insulation Resistance Range.

a) Digital display 1 KΩ to 10 TΩ.

b) Current measurement: 1 micro A to ± 3.0 mA. (or twice of short time current whichever is maximum)

c) Capacitance measurement: 5nF to 50 µF.

Test time should be selectable from 1 second to 30 minutes.

Capacitor charging time should be ≤6.0 seconds per µF

Capacitor discharging time should be ≤2.0 seconds per µF

Voltage Measurement Range**:**

0 to 600 VDC or AC in voltage measuring feature.

0 to 5000 VDC when testing.

e)Type:

Mains Input Voltage: 230 V AC(+6/-10%),45Hz-65 Hz, 25 VA (Maximum).

The tester shall be suitable for D.C. battery operation and AC mains operation.

The D.C. batteries shouldbe rechargeable with the. 230 V AC (+6/-10%), 45Hz-55Hz,25 VA.

A.C.Supply: The necessary accessories for this purpose shall be supplied by bidder. The ratings of D.C. batteries shall be indicated in the offer.

PC compatibility: Suitable port and software if any for download of digital data to a computer should be possible.

Filter:- Digital and software filter should be available in the instrument to remove induced noise in the measuring circuit.

Operating Temperature : -10 Deg.C to 55 Deg.C.

Storage Temperature : -20 Deg.Cto 70 Deg.C.

Data storage: Storage of 1000 reading with Real Time RS232 & USB download capability to store test results for trending analysis.

Safety Compliance: should conforms to safety standard EN 61010-1 for instrument and EN 61010-031 for accessories.

Environmental Protection Instrument should be rated to IP54.

EMC standard : EMC Meets IEC 61326 Class B.

-Instrument should have compliance to following safety standards EN 61010-1 for instrument and EN 61010-031.

-Over voltage category IV, 600 V

Noise current rejection (resistive load): Noise current rejection of 1.0 mA to 4mA using the filters.

7.0 Standard / associated accessories:

Following standard accessories shall be supplied along with each equipment:-

1. Test leads of 10Mtr. Length.
2. Operation and maintenance Manual (in English): 1 No.
3. Any other accessories, bidder feels necessary for normal operation of instrument and carrying out requisite testing, should be offered / supplied with the instrument.
4. The guard test lead.

8.0 CERTIFICATE:

The type and model of measuring & testing equipments offered shall be calibrated from the laboratories which are traceable to National / International Test House and as per relevant standards. The bidder must furnish one set of calibration certificates of the offered model along with the bid. These calibration certificates must not be older than one year and test certificates must not be older than three years.**The bidder must have to submit ISI certificate with license No. alongwiththe calibration certificates.**

9.0 INSPECTION AND TESTING :

Before dispatch, the instrument shall be inspected and tested by the authorized inspecting officer / agency of the Nigam. The manufacturer / suppliers shall furnish the details of the tests which will be arranged at the time of inspection to ascertain routine test at the manufacturer's works in presence of purchase representative. Further before commencement of supply, the supplier has to arrange the demonstration of instrument in the field, location of which will be intimated by the Nigam.

10.0 TYPE TEST CERTIFICATES

i) The test & calibrations certificates shall be essentially provided along with each instrument, traceable to any NABL / NPL International Standards.

ii) All the necessary tests / check shall be carried as per stipulation of IS:11994-1986 latest amendment or equivalent international standards.

iii) The type test certificates from Govt. Recognized Laboratory as per IS:11994-1986 (latest amended) or International Standards for the model quoted should be furnished along with the bid submission, clearly stating the ambient condition under which test has been conducted. The effect of variation in temperature and vibration on accuracy limit should also be stated.

11.0 AUTHORIZATION CERTIFICATE:

Authorization letter shall be enclosed from manufacturer that bidder is an authorized dealer/distributor in the region and authorized to quote on their behalf. Simultaneously, in case of any imported brand / model a letter from the manufacturer should be there that bidder is their authorized representative in the country and authorized to quote on their behalf.

12.0 SAMPLE :

Samples along with bid – The bidder shall furnish one sample conforming to this specification duly sealed along with routine test certificates in the office of SE(MM),JVVNL, Jaipur one day prior to the date of opening of Tender. If the samples are not received, the bid shall be considered as Non-responsive. This sample shall be tested by the M&P Wing of Nigam as per specification in presence of firm's representative. If samples do not conform to our specification, the offer shall be considered as Non-Responsive and price bid of such bidder will not be opened.

14.0 MARKING ON INSTURMENT:

The marking on every instrument shall be indelible & distinct. The marking should not fade or otherwise be adversely affected by UV exposure with lapse of time. The basic markings on the Instrument shall be as follows:-

i. Manufacturer's name or trade mark and place of manufacture
ii. Serial number
iii. Month and year of manufacture
iv. Principal unit(s) of measurement
v. Property of JVVNL
vi. Purchaser's order Number & date
vii. Guarantee period - 36 months

15. GUARANTEE TECHNICAL PARTICULARS:

The bidder shall furnish all the necessary information as desired in the schedule of GTP appended at Annexure-A.

16.0 GUARANTEE:-

The guarantee shall be for the period of 36 months from the date of receipt of last supply of the material. The bidder shall replace the defective Insulation Resistance Tester within a period of 30 days from the date of intimation of failure/defect. In case defective Insulation Resistance Testers are not replaced in stipulated period, then the penalty as per clause of delay in delivery shall be applicable.

11. SCHEDULES:

The tenderer shall fill in the enclosed schedules, which are part and parcel of the tender specification and offer. If the schedules are not submitted duly filled in with the offer, the offer shall be liable for rejection.

Schedule' A'- Guaranteed Technical Particulars of AC STATIC INSULATION RESISTANCE TESTER

All deviations from the specification shall be brought out in the schedules of deviations (Schedule VI A & VI B). The discrepancies, if any between the specification and the catalogues and / or literatures submitted as part of the offer by the bidders shall also be brought out.

If it is observed that there are deviations in the offer in Guaranteed Technical Particulars other than those specified in the deviation schedules then such deviations shall be treated as deviations.

18.0 DELIVERY SCHEDULE:

The bidder is required to quote monthly delivery. The delivery of quoted quantity should be completed in **3 months** period including commencement period of 30 days. In case ordered quantity is different than quoted quantity then monthly delivery shall be adjusted proportionately. Tenders in which monthly delivery schedule is not indicated shall be ignored.
After clearance from purchaser, the material shall be dispatched to Nigam's stores.

19.0. AFTER SALES SERVICE

Bidder shall have to submit the documentary evidence of having established mechanism in India for prompt after sales services.

20.0 <u>ADDITIONAL ORDER</u>

Repeat orders for additional quantities, upto 50% of original ordered quantities, may be placed by the Nigam, on the same rates, terms and conditions given in the contract.
