

DETAILS OF EQUIPMENT FOR HI TECH LAB

SR. NO.	EQUIPMENT	TEST TO BE PERFORMED	TEST TO BE PERFORMED ON	RELEVANT IS/IEC FOR TESTING	PROPOSED MAKES	QUANTITY	UNIT PRICE (IN LAC)	TOTAL AMOUNT (IN LAC)
1	Upgradation of AUTOMATIC METER TEST BENCH for testing of smart Energy meters as per IS 15959/IS16444	Communication test of Smart meter Disconnection/Switching test	Smart Energy meter (Single phase & three phase meter) Three phase meter HTCT meter Prodigy meter All type of net meter	IS 15959/IS16444	Existing supplier	1	62.00	62.00
2	CT/PT Test kit (Secondary injection method) (PORTABLE)	CT ratio voltage mode & polarity. CT excitation curve CT knee voltage Accuracy Test (Ratio Error & Phase error) CT/PT Winding resistance. CT Polarity check test	LTCT CT (All ranges), PT (All ranges)	IS16227 PART 2, PART 3	RED PHASE/Omicron/Vanguard/Dobble/ISA	1	25.75	25.75
3	RELAY TEST KIT (PORTABLE)	Delay time accuracy Tripping time accuracy	Tripping relay (86) Differential Protection relay Definite & Inverse time relay Over current & earth fault (directional & non directional) & Auxiliary relay	IS: 3231 / IEC: 60255	Omicron/Dobble/Vanguard/ISA	1	25.48	25.48
4	CIRCUIT BREAKER ANALYZER (PORTABLE)	CB open time CB close time CB static contact resistance CB dynamic contact resistance CB motion analysis	Circuit Breaker (11 KV & 33 KV)	IEC 62271-100	ISA/SBKT/Dobble	1	21.00	21.00

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5	POWER ANALYZER	No load loss Load losses Impedance voltage	Distribution Transformers	IS 1180 (Part 3)/ IS 2026 (Part 2)	METREL/Yokogawa/Hioki	1	11.00	11.00
6	OIL BDV TESTING EQUIPMENT	Testing of dielectric strength/breakdown voltage	Transformer Oil	IS 1866	Baur/Omicrom/Globecore	1	12.38	12.38
7	DIGITAL INSULATION TESTER 10 KV (PORTABLE)	Insulation Measurement Step voltage test Withstanding voltage test (DC) up to 10 kV	IR test on power transformers and distribution transformers. Testing insulation resistance of cables. IR Testing on breaker.	IS 1180 (Part 3)/ IS 1180 (Part 1)	METREL/Fluke/Megabras	1	8.50	8.50
8	WINDING ANALYSER (PORTABLE)	Bidirectional resistance measurement from 0,1 $\mu\Omega$ up to 2000 Ω with test current up to 30 A Temperature compensation (with optional temperature probe)	Transformer winding resistance. Any type of cable/conductor resistance,	IS 2026 (Part 1)/ IEC 60076 (Part 1)/ IS 1180 (Part 1)	RTGS/RAYTECH/Hafely	1	34.00	34.00
9	AUTOMATIC CAPACITANCE AND TAN DELTA BRIDGE	Insulation tests	Windings of transformers Capacitor voltage transformers (CVT)&PT Grading capacitors of circuit breakers. High voltage (EHV Class) bushing.	IS 2026 (Part 11) /IEC 60076-1	HAFELY/RAYTECH/DOBLE	1	34.90	34.90
10	URNS RATIO TESTER (PORTABLE)	Turns ratio test (accuracy)	Distribution transformers Current transformers. Power trnasformers.	IEC 60076-1/ IEEE Std.C57.152.13	METREL/DOBBLE/ISA	1	6.48	6.48

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11	HI-POT (HIGH VOLTAGE TESTER 70 KV)	Insulation test or breakdown voltage test.	Insulated cables (HT & LT) all size. Current transformers. Distribution transformers.	IS 2071-1	BAUR/PHONIX	1	30.00	30.00
12	ELECTRONIC UNIVERSAL TESTING MACHINE (UTE)	Breaking load Elongation Bend test	Dog conductor ABC messenger DPC copper and aluminum wire Insulators	IS 398 Part 2/ IS 731	REPUTED MAKE	1	12.50	12.50
13	HOT AIR OVEN	Heat behavior observation. Thermal Elongation Test	Cork sheet. Cable Jointing Kit Sleeves	IS 4253-1 (2008)	REPUTED MAKE	1	1.78	1.78
14	DIGITAL WEIGHING MACHINE	Weight observation	DPC wire Any conductor Lug Bushing rod etc.	IS 398-Part-2 ASTM A472729	SONY/ZENITH/ MITSUYA/REPUTED MAKE	2	0.48	0.96
15	DIGITAL MULTIMETER	AC and DC voltage Resistance (Ω) measurements Diode/continuity test Capacitance measurements AC and DC current	Switchgear , Vcb panels, Control cables, Relays	IEC 61140:2016/ IEC 61557-1:2007	METREL/AGEIL ENT/Fluke/	2	0.48	0.96
16	DIGIMATIC MICROMETER	Measure thickness of object Measuring force: 5 - 10 N Quantizing error: ± 1 is not included. Measuring system: Electromagnetic induction type rotary sensor Battery: SR44 (1 pc), 938882, for initial operational checks (standard accessory)	conductors electrical hardware cables	IS 398 Part 2	MITSUYO/REPUTED MAKE	2	0.18	0.36

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17	DIGITAL VERNIER CALIPERS	Measure ID and od of object Resolution: 0.01 mm Repeatability: 0.01mm ABS (absolute) measurement function. Battery life: Approx. 3.5 years under normal use Maximum response speed: Unlimited	conductors electrical hardware. cables	IS 398 Part 2	MITSUYO/REPUTED MAKE	2	0.14	0.28
18	OIL TAN DELTA	Oil tan delta Dissipation factor measurement. specific resistance Measurement of the relative permittivity ϵ_r . Oil temperature measurement test	Oil in power transformer & distribution transformer	IS 1866/ IEC 60422/ IS335	BAUR/DOBBLE/ALTANOVA	1	39.00	39.00
19	DISSOLVED GAS ANALYZER (DGA) 7 Gases	Dissolved gas analysis of power transformers and distribution transformers 7 gases	Power transformer & distribution transformer	IS 10593/ IEC 60599/ ASTM D 3612/ IS 9434.	AGELIENT/ENERGY SUPORT	1	74.00	74.00
20	TRANSFORMER TEMPERATURE RISE TEST	No Load Test Milliohm measurement	Distribution Transformers	IS 1180 (Part 3)/ IEC 60076 (Part 2)	reputed make	1	56.00	56.00

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21	EARTH ANALYZER TEST SET (PORTABLE)	Earth resistance test. Soil resistivity test set.	Transformers and substation earth testing	IS3043:2018/IEC 60634	METREL/ISA/DOB BLE	1	11.20	11.20
22	DIGITAL CLAMP LEAKAGE METER	Measures leakage current. Helps in diagnosing frequent circuit breaker tripping	Ac current accuracy (1.2%rdg 5dgt- 5.0%rdg 5dgt) Ac current range (Amp) (0-30 mA, 300 mA, 30 A, 300A)	IEC 60335	METREL/AGEILE NT/ Fluke/	2	0.52	1.04
23	HIGH VOLTAGE DETECTOR	Safety equipment to detect High Voltage Equipment (1 KV to 66 VV)	Equipment in Laboratory	IEC 61243-1	Reputed Make	1	0.52	0.52
24	FORK TROLLEY (3MT)	Safe carriage of material (transformer/CTPT unit etc.) in lab premises	all heavy equipment transportation		Argomec/Godrej	1	0.45	0.45
25	TOOL KIT SET	Tool Kit	for lab general purpose usage		Taparia/Everest/Pye	2	0.28	0.56
26	INSULATION MAT (In Sq. Feet)	For reducing the risk of static charge build up in the lab premises.	for lab general purpose usage			800	0.02	16.00
					Sub Total			487.10
					Civil works (with Furniture & safety equipment)			50.00
					GST @18 %			96.68
					Grand Total			633.78