



**Indira Gandhi Engineering College, Sagar, Jabalpur Road, Baheriya
Gadgad, Near Makronia Railway Station, Sagar – 470021
Email Id – prinigec.sgr@mp.gov.in**

INVITATION FOR QUOTATION

Package Code: TEQIP-III/2019/MP/igec/68
Package Name: IGEC/EE/PSPL-1/EQIP/01 to 14

Current Date: 18-Sep-2019
Method: Shopping Goods

For uploading on the Institute Website

Subject: INVITATION FOR QUOTATION FOR SUPPLY OF GOODS

Dear Sir,

1. You are invited to submit your most competitive quotation for the following goods with item wise detailed specifications given at Annexure I,

Sr. No	Item Name	Quantity	Place of Delivery	Installation Requirement (if any)
1	Electromechanical type over current relay test kit	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
2	To determine Characteristics of Percentage biased of Static Differential Relay	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
3	Digital Negative sequence Current Relay trainer	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
4	Differential Protection on Single Phase Transformer	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
5	Characteristics of fuse wire testing kit	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
6	Calibration of Tong Tester	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
7	Feeder Protection Simulation Experimental Unit	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
8	Electromechanical type under voltage relay test kit	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
9	Electromechanical type over voltage relay test kit	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
10	Determination of Sequence Impedances of an alternator by fault analysis and measure the power angle characteristics	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
11	Determination of Sequence Impedances of 3-phase transformer	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
12	Complete setup to determine the string Efficiency of suspension type insulator with & without guard rings	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
13	3-phase Electrical Power Distribution Panel (415V, 100A, 50Hz)	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
14	Itemwise Cabling of motors and panel, Cabling and earthing of panels and motors	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.

2. Government of India has received a credit from the International Development Association (IDA) towards the cost of the **Technical Education Quality Improvement Programme [TEQIP]-Phase III** Project and intends to apply part of the proceeds of this credit to eligible payments under the contract for which this invitation for quotations is issued.

3. Quotation

- 3.1 The contract shall be for the full quantity as described above.
 - 3.2 Corrections, if any, shall be made by crossing out, initialling, dating and re writing.
 - 3.3 All duties and other levies payable by the supplier under the contract shall be included in the unit Price.
 - 3.4 Applicable taxes shall be quoted separately for all items.
 - 3.5 The prices quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
 - 3.6 The Prices should be quoted in Indian Rupees only.
4. Each bidder shall submit only one quotation.
5. Quotation shall remain valid for a period not less than **90** days after the last date of quotation submission.
6. Evaluation of Quotations: The Purchaser will evaluate and compare the quotations determined to be Substantially responsive, i.e., which
- 6.1 are properly signed; and

[Handwritten signatures and initials]

- 6.2 Confirm to the terms and conditions, and specifications.
7. The Quotations would be evaluated for all items together.
8. Award of contract - The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price.
8. Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of Contract.
8. The bidder whose bid is accepted will be notified of the award of contract by the Purchaser prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the purchase order.
9. Payment shall be made in Indian Rupees as follows:

Payment Description	Expected Delivery Period (in Days)	Payment Percentage
Satisfactory Delivery, Acceptance, Installation & Testing	30	100

10. Liquidated Damages will be applied as per the below:
Liquidated Damages Per Day Min % : N/A
Liquidated Damages Max % : N/A
11. All supplied items are under warranty of 24 months from the date of successful acceptance of items and AMC/Others is No.
12. You are requested to provide your offer latest by 14:00 hours on 05-Oct-2019.
13. Detailed specifications of the items are at Annexure I.
14. Training Clause (if any) – **Training on operation and handling of equipments free of cost as per department requirements.**
15. Testing/Installation Clause (if any) – **Full installation and testing/demonstration free of cost.**
16. Performance Security shall be applicable: 0%
17. Information brochures/ Product catalogue, if any must be accompanied with the quotation clearly indicating the model quoted for.
18. Sealed quotation to be submitted/ delivered at the address mentioned below, **Indira Gandhi Engineering College, Sagar, Jabalpur Road, Baheriya Gadgad, Near Makronia Railway Station, Sagar – 470021**
19. **Qualification Criteria :** The bidder/supplier should have :
19.1 A minimum of 3 years experience of supplying similar items.
19.2 A turnover of Rs. 100 lakhs at least once in three years.
19.3 Not been blacklisted by any Government Institution/Organization.
20. The quotation should include the following information :
20.1 The copies of original documents defining the constitution or legal status, place of registration and principal place of business of the company firm or partnership etc. in India.
20.2 Report on financial status (balance sheet and auditor's report for the past three years).
20.3 An affidavit for not being blacklisted by any Government Institution/Organization.
20.4 Authorization Certificate from the OEM/Principal (if bidder/supplier is not an OEM) assuring full guarantee and warranty obligations during the liability period, for the goods offered.
20.5 The list of clients duly supported by copies of purchase orders, installation and performance report signed by purchasers/users.
21. In case of failure to supply the goods within the prescribed time and in accordance with the specifications given in the contract/purchase order, the institute shall be free to cancel the order and make purchase from the next higher tenderer/from the open market as the case may be.
22. The competent authority reserves the right to increase or decrease the quantity of any item of sale, during the period of contract. The tenderer/bidder will be bound to comply with the order of the competent authority without any claim and compensation.
23. Any controversy will be subject to disposal in Sagar Jurisdiction only.
24. Damaged, defective or substandard material will not be accepted under any circumstances.
25. Preference will be given to :
25.1 The bidders possessing relevant certification by an authorized body such as ISO etc., copy of which must be enclosed.
25.2 The bidders that have quoted the item certified for standard, quality and safety such as BIS, ISI etc., copies of which must be enclosed.
26. Please mention following on top of the sealed quotation submission envelope –
26.1 TEQIP – III
26.2 Package Code
26.3 Don't open before 02:00 PM on 05 Oct, 2019.
27. We look forward to receiving your quotation and thank you for your interest in this project.

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(Authorized Signatory)

Name & Designation

Annexure I

Sr. No	Item Name	Specifications
1	Electromechanical type over current relay test kit	<p>Electromechanical type over current relay test kit This set up is designed to study the working principle and IDMT characteristics of Single phase IDMT Type over current relay (electromechanical type). This set up consists of Electromechanical Type – Over Current Relay – IDMT Type, Relay test kit (CURRENT INJECTION Unit). Over Current Relay Type : Single Pole /element Over Current Relay, CT Input: 5A, PMS : 50% -200% in steps of 25%, TMS : 0.1 to 1 in steps of 0.1s, Function :IDMT, Curve : IDMT curve of 3sec as per IEC-255, Features : Self powered Hand reset type-Mechanical Flag Indicator Over Current Relay test kit This relay test set up is designed to test the over current relay with IDMT characteristics. It consists of 1 no. of variable AC current Source of 0-25A, 1 no. of Autotransformer is provided to adjust the current output continuously, 1 no. of digital AC Ammeter (0-30A)/ 3.5 digit is provided to measure the current input in amp, 1 no. of Automatic trip time measurement circuit (ATTM Circuit) is provided, 1 no. START push button is provided in ATTM Circuit, 1 no. STOP push button is provided in ATTM Circuit, 1 no. LCD Digital stop Clock is provided in ATTM Circuit to measure relay trip time in S, S/10, S/100, 1 no. reset switch is provided in front panel to restart the digital stop clock, all are mounted on a nice cabinet with diagram stickered on front panel. 230VAC@50Hz AC Input with power ON/OFF Switch.</p>
2	To determine Characteristics of Percentage biased of Static Differential Relay	<p>To determine Characteristics of Percentage biased of Static Differential Relay This set up consists of 3Ø / 2KVA 3 phase Transformer set up, 3 phase Static Differential Relay, Meter panel with R loads & Fault simulator 3Ø / 2KVA 3 phase Transformer set up 1 no. of 3 phase transformer with primary & secondary tapings is provided with following specification - Input : 0-230VAC (R phase) with 25, 50, 75, 100% tapping's, 0-230VAC (Y phase) with 25, 50, 75, 100% tapping's, 0-230VAC (B phase) with 25, 50, 75, 100% tapping's Output : 0-230VAC (R phase) with 25, 50, 75, 100% tapping's, 0-230VAC (Y phase) with 25, 50, 75, 100% tapping's, 0-230VAC (B phase) with 25, 50, 75, 100% tapping's Capacity : 2KVA, Connection : STAR/DELTA, Both Primary & secondary tapping's are terminated in front panel for simulating fault Relay specifications 1 no. of 3 phase Numerical percentage differential relay, DMT & IDMT Mode of operation, 1 no. of 'NC' & 'NO' Contacts are provided in all relays, LCD is provided to indicate the parameters, Digital keys are provided to set the parameter, Suitable CT & PT's are provided, CT & PT inputs are terminated in relays back side, Relays CT Ratings are 1amp & PT Ratings are 110V Current Transformer & Potential Transformer Necessary Current Transformer with suitable ratings and PY &SY side matched with transformer & Relay rating, Necessary Potential Transformer with suitable ratings and PY &SY side matched with transformer & Relay rating, Relays specification matched with transformer specification using CT/PT's, All are mounted on a nice cabinet with necessary diagram indication Meter panel with R loads Necessary AC digital ammeter provided for transformer primary current measurement, Necessary AC digital ammeter provided for transformer secondary current measurement, Necessary AC digital voltmeter provided for Transformer input voltage measurement, Necessary AC digital voltmeter provided for Transformer output voltage measurement, 1 no. of three phases Lamp load provided (2KVA) with diff-load selector switch. Fault simulator & Trip time measurement set up 1 no. short circuit resistor with start & stop circuit using contactor is provided to simulate the short circuit faults & earth fault, 1 no. of Automatic trip time measurement circuit (ATTM Circuit) is provided for Relay trip time measurement, 1 no. START push button is provided in ATTM Circuit, 1 no. STOP push button is provided in ATTM Circuit, 1 no. Digital stop Clock is provided in ATTM Circuit to measure relay trip time, All are mounted on a nice cabinet with diagram stickered front panel, 230VAC@50Hz AC Input with power ON/OFF Switch, 3 phase 440vac input for transformer section List of experiments: Study and Testing of Differential relay in transformer protection system with DMT</p>

3	Digital Negative sequence Current Relay trainer	<p>& IDMT relay Characteristics</p> <p>Digital Negative sequence Current Relay trainer This set up is designed to study the working / Protection principle of Digital Negative sequence current relay. It consists of 3Ø, Negative Sequence Current Relay, Panel arrangement with Meters, 3 Ø Autotransformer & Load set up. Numerical 3 phase over current relay + earth fault relay & Negative Sequence Relay Type : Digital Relay (Numerical type), Function : Negative sequence Over Current & 3 elements over current + single element EF, CT Input : 1A or 5A, Current Setting up to 120%, Time Setting : available, Function : IDMT, Output : NC&NO Contact@2A, Auxiliary supply : 230 VAC Panel with Meter & Load 3 nos. of Digital Ac ammeter (0-5A) is provided to indicate 3 phase supply current, 1 no. of 3 phase Lamp load-5A with different load selector switch is provided, 3 nos. of 5/1 CT is provided, Necessary MCB, Indicator, CT Input terminals are terminated in front panel, Provision to simulate phase reversal, 1 no. of Automatic trip time measurement circuit (ATTM Circuit) is provided, 1 no. START push button is provided in ATTM Circuit, 1 no. STOP push button is provided in ATTM Circuit, 1 no. LCD - Digital stop Clock is provided in ATTM Circuit to measure relay trip time in S, S/10, S/100, 1 no. reset switch is provided in front panel to restart the digital stop clock, All are mounted on a nice cabinet with diagram stickered on front panel & 230VAC@50Hz AC Input with power ON/OFF Switch. Autotransformer with Load set up 3 nos. of Single phase Transformer (6A per phase) is provided to simulate unbalance & balance 3 phase ac source, 1 no. of 3 phase Lamp load-5A with different load selector switch is provided- facility to simulate balanced & unbalanced load, All are mounted on nice powder coated cabinet with required input, output terminals & indicators etc.</p>
4	Differential Protection on Single Phase Transformer	<p>Differential Protection on Single Phase Transformer This set up is designed to study the differential protection of Single phase Transformer. This set up consists of Static type Percentage biased differential Relay, Test set up for Differential protection of transformer. Percentage biased differential Relay 5A Ratings, Static (Microcontroller) type, IDMT or DMT Type (any one type), With bias setting key & digital display, With One number of "NO" Contact of 5A ratings, With One number of "NC" Contact of 5A ratings, The above relay is mounted on a M.S frame with current input terminations. Test set up 1 no. of single phase Fault simulating transformer for differential protection test set up Primary : 0-6-12-24-48V @ 4A, Secondary: 0-6-12-24-48V @ 4A, 1 no. of 230/ 48v Step down transformer is provided for Fault simulating transformer input, 2 nos. of digital AC Ammeter (0-10A) is provided to measure the primary and secondary current of fault simulating transformer, 1 no. of 5A rheostat is provided as short circuit resistor, 1 no. of Automatic trip time measurement circuit (ATTM Circuit) is provided, 1 no. START push button is provided in ATTM Circuit, 1 no. STOP push button is provided in ATTM Circuit, 1 no. Digital stop Clock is provided in ATTM Circuit to measure relay trip time, All are mounted on a nice cabinet with diagram stickered front panel. 230VAC @ 50 Hz AC Input with power ON/OFF Switch.</p>
5	Characteristics of fuse wire testing kit	<p>Characteristics of fuse wire testing kit This set up consists of VARIAC (1ph, 10A), AC Voltmeter (0-300V), AC Ammeter (0-5A), ON/OFF Switch, Lamp load set up, Digital Stop Watch, All are mounted in a nice MS panel.</p>
6	Calibration of Tong Tester	<p>Calibration of Tong Tester This set up is designed to study the calibration procedure of Tong Tester (in Current Measurement only). This set up consists of Variable AC Current Source, Tong Tester, 1 no. of Variable AC Current source is provided for Clamp meter (TONG TESTER) Testing Input : 230VAC, Output : 0 - 400A, Features : Current adjustable, 1 no. of Autotransformer is provided for output current adjustments, 1 no. of Digital Ammeter 0 - 400A is provided for output current measurement, MCB is provided for input ON/OFF & OL Protection, 1 no. of Tong Tester is provided, AC Current Range: 2/ 20A/ 400A</p>
7	Feeder Protection Simulation Experimental Unit	<p>FEEDER PROTECTION SIMULATION EXPERIMENTAL UNIT This Feeder Protection Simulation Study Unit used for simulating and studying the protection schemes of Radial & parallel feeder protection and various fault conditions. Protection is provided through over current + earth fault relay. Necessary Resistive /lamp load & CT's and PT's are also provided in the testing panel. Proper rating fuses and protection devices are provided in the panel, it consists of Power systems</p>

Protection Relays (Digital Relays), Panel with Meter arrangements Power system Protection Relays 2 nos. of Numerical 3 phase over current relay + earth fault relay, 2 nos. of Numerical Directional -3 phase over current relay + earth fault relay, Numerical over voltage / under voltage relay, Numerical 3 phase over current relay + earth fault relay (non-directional relay), Type : Digital Relay (Numerical type), Function : 3 elements over current +single element EF Relay, CT Input : 1A, Current Setting : up to 120%, Time Setting : available, Function : IDMT, Output : NC&NO Contact@2A, Auxiliary supply : 230VAC, Numerical 3 phase directional over current relay + earth fault relay (directional relay), Type : Digital Relay (Numerical type), Function : 3 elements over current +single element EF Relay, CT Input : 1A, Current Setting up to 120%, Time Setting : available, Function : IDMT, Output : NC&NO Contact@2A, Auxiliary supply : 230 VAC. Numerical 3 phase over /Under Voltage relay Type : Digital Relay (Numerical type), Function : 3 elements over /Under voltage Relay, PT Input : 110 VAC, Voltage Setting : up to 120%, Time Setting: available, Function : IDMT, Output : NC&NO Contact@2A, Auxiliary supply : 230VAC. Panel with Meter arrangements Powder coated MS panel with stickered front panel is provided to fix all the relays, Digital meters, CT & PT etc..The detailed specifications are as below: Instruments Transformers (CT & PT) 5/1 A CT is provided for all current relays, CT secondary outputs are terminated in front panel with necessary terminal identification for relay interconnection by user, 220/110V or 63V PT is provided for all voltage & frequency & synchronizing relays, CT secondary outputs are terminated in front panel with necessary terminal identification for relay interconnection by user, All relays specification matched with feeder panel specification using CT/PT's, All are mounted on a nice cabinet with necessary diagram indication. Digital Meters 18 nos. of AC digital ammeter provided for current measurement in various sections of feeder, 3 nos. of ac digital voltmeter provided for ac voltage measurement. Others features 9 nos. of current limiting resistors - 1.5A with banana terminations is provided for short circuit fault creations, 3 phase breakers & MCB's are provided for protection & Necessary 3 phase indicators are provided. 3 phase Load 1 no. of three phase Lamp load provided with diff-load selector switch is provided for loading, Input : 3 phase 415Vac, Capacity : 3 KVA, Number of load ON/OFF switch : 6 Specifications Input : 3 Phase, 415Vac, Capacity : 3 Phases, 3KVA Experiments 1. Study of radial feeder protection with time /current grading 2. Study of Parallel feeder protection/current grading

8 Electromechanical type under voltage relay test kit

Electromechanical type under voltage relay test kit This set up is designed to study the working principle and IDMT characteristics of Single phase UNDER VOLTAGE RELAY (Electromechanical type). This set up consists of Electromechanical type Under Voltage Relay – IDMT, Relay test kit with meter (Voltage injector kit) Electromechanical type Under Voltage Relay – IDMT Electromechanical type – IDMT Type, With Plug setting & Time setting multiplier, 110V , With “NO” & “NC” Contact @5A Ratings. The above relay is mounted with POWDER COATED MS Cabinet with stickered front panel, Voltage input (PT Input) are terminated by banana connectors for external voltage input. Relay test Kit (Voltage injector kit) 1 no. of variable AC voltage Source of 0-400VAC, 1 no. of Autotransformer is provided to adjust the voltage output, 1 no. of digital AC Voltmeter (0-300V) is provided to measure the Voltage output, 1 no. of Automatic trip time measurement circuit (ATTM Circuit) is provided for Relay trip time measurement, 1 no. START push button is provided in ATTM Circuit, 1 no. STOP push button is provided in ATTM Circuit, 1 no. Digital stop Clock is provided in ATTM Circuit to measure relay trip time, All are mounted on a nice cabinet with diagram stickered front panel. 230VAC@50Hz AC Input with power ON/OFF Switch

9 Electromechanical type over voltage relay test kit

Electromechanical type over voltage relay test kit This set up is designed to study the working principle and IDMT characteristics of Single phase OVER VOLTAGE RELAY (Electromechanical type). This set up consists of Electromechanical type Over Voltage Relay – IDMT, Relay test kit with meter (Voltage injector kit). Electromechanical type Over Voltage Relay – IDMT Electromechanical type – IDMT Type, With Plug setting & Time setting multiplier, 110V , With “NO” &

		<p>"NC" Contact @5A Ratings. The above relay is mounted with POWDER COATED MS Cabinet with stickered front panel, Voltage input (PT Input) are terminated by banana connectors for external voltage input. Relay test Kit (Voltage injector kit) 1 no. of variable AC voltage Source of 0-400VAC, 1 no. of Autotransformer is provided to adjust the voltage output, 1 no. of digital AC Voltmeter (0-300V) is provided to measure the Voltage output, 1 no. of Automatic trip time measurement circuit (ATTM Circuit) is provided for Relay trip time measurement, 1 no. START push button is provided in ATTM Circuit, 1 no. STOP push button is provided in ATTM Circuit, 1 no. Digital stop Clock is provided in ATTM Circuit to measure relay trip time, All are mounted on a nice cabinet with diagram stickered front panel. 230VAC@50Hz AC Input with power ON/OFF Switch</p>
10	Determination of Sequence Impedances of an alternator by fault analysis and measure the power angle characteristics	<p>DETERMINATION OF SEQUENCE IMPEDANCES OF AN ALTERNATOR BY FAULT ANALYSIS AND MEASURE THE POWER ANGLE CHARACTERISTICS 3 phase Fault Analyzer (using Alternator set up) & Power Angle measurements This set up is designed to study the measurement procedure of Sequence impedance (Positive, negative, Zero), and Practical measurement & theoretical calculation of fault current by simulating various types of faults under low field voltage and measurement of Power angle of an alternator. This set up consists of 3Ø Alternator with prime mover set up, Control Panel with Fault simulation switches. Alternator Set Up 2 HP/3 phase Induction motor coupled with 1KVA / 3 phase / 1500rpm / Salient pole Rotor type / Rotating Field Alternator. With all three phase terminals are brought out and terminated outside for impedance measurement experiments. Control Panel This control panel consists of 1 no. of 2 HP (1.5KW) Variable frequency drive (VFD) is provided for Induction motor (Prime mover) speed control, 1 no. of potentiometer is provided for speed adjustment, 1 no. of variable DC Voltage source of 0-200vdc @2A is provided for Alternator field excitation, Autotransformer with diode Rectifier is provided for field DC Voltage adjustment, Digital DC Ammeter & Voltmeter is provided for Alternator field parameter measurements, Digital AC Ammeter & Voltmeter is provided for Alternator stator parameter measurements, Digital Speed indicator is provided for alternator speed measurement, Fault simulating facility with Short circuit Current limiting resistor is provided for fault creation, All are mounted on a nice cabinet with stickered front panel 230VAC input with ON/OFF switch. Power Angle Characteristic It should consist of the following facility/Features with trainer to perform the Power Angle Characteristics of Alternator with infinite Bus bar – 1 no. of synchronizing panel with Synchroscope, Dual Voltmeter, MCB & Indicators etc., Digital display for Power angle measurement. Note: Since alternator is 4 pole M/C – The maximum power angle variation is 2-10 degree. Experiments: 1. Determination of sequence impedances of an alternator by fault analysis (LG, LLG, LLLG) 2. Measure the power angle characteristics infinite bus bar</p>
11	Determination of Sequence Impedances of 3-phase transformer	<p>DETERMINATION OF SEQUENCE IMPEDANCES OF 3 PHASE TRANSFORMER Measurement of Sequence impedance of 3 phase transformer This set up is designed to study the measurement procedure of 'Positive, Negative & Zero sequence impedance' of 3phase transformer. It consists of 1 no. of 3 phase transformer is provided for sequence impedance measurement purpose, Input : 3 Phase 415 Vac, Output : 3 Phase, 110-0-110VAC@ All 3 phases, Capacity : 1KVA, 1 no. of digital AC Ammeter 0-5A AC with LCD display & input banana terminations is provided for Transformer current measurement, 2 nos. of digital AC Voltmeter 0-500V AC with LCD display & input banana terminations is provided for Transformer voltage measurement, All the above transformer & digital meters are mounted on a nice powder coated cabinet with sticker front panel, Necessary transformer terminals & meter terminals are terminated by connectors on front panel, 1 no. of 3 phase Autotransformer -1KVA is provided, 1 no. of digital Multimeter is provided to measure winding resistance. Experiments 1. Measurement of Positive sequence impedance of three phase transformer using meter readings & formula 2. Measurement of Negative sequence impedance of three phase transformer using meter readings & formula 3. Measurement of Zero sequence impedance of three phase transformer using meter readings & formula.</p>

12	Complete setup to determine the string Efficiency of suspension type insulator with & without guard rings	Complete setup to determine the string Efficiency of suspension type insulator with & without guard rings Determination of leakage Current on Pin Insulator System should contain 11KV Disc Insulator String (Min. 05 Discs), Capacitor Divider Unit: 100KV, Efficiency Jig Test Unit, 100kV, 50mA AC Test set and all other required accessories & instruments to perform above experiments.
13	3-phase Electrical Power Distribution Panel (415V, 100A, 50Hz)	3-phase Electrical Power Distribution Panel (415V, 100A, 50Hz)
14	Itemwise Cabling of motors and panel, Cabling and earthing of panels and motors	<p>Cabling Item wise Cabling earthing of motors and panel, Cabling and earthing of panels and motors is required to be done by the supplier Connections of Motors to the panels, panels to the MCB Boxes and cabling necessary to mains supply box of the lab, this will include supply of MCB's with proper ratings and box cabling using conduits and flexible pipes as and where necessary Proper earthing of panels, motors etc to earth using aluminum flat and GI wire of proper thickness and resistance.</p> <p>Installation & Commissioning of Machine Lab Equipments The Machines & panels should be interconnected from AC panel through UG Cable of size 20 / 4 sq mm for 32 Amps switches and 10 / 4 sq mm for 16 Amps switches (depending upon rating of the machine as indicated in the schedule). The make of the underground cable should be of well known standard quality.</p> <p>Grounding/Earthing At least two points of Rod and Plate type of grounding of proper rating as per National Electrical Code, to keep the earth resistance less than 5 ohms are to be provided. In case the earth resistance is more than 5 ohm, Bentonite should be added to each point to keep earth resistance with in 5 ohms. Funnel type of cups should be provided for water injection. All the Machines & Panels should be properly connected to these ground/ earth points.</p> <p>Meters and Switch Gears All digital meters used should be of well-known standard quality. The Switch gears connected should be of well-known standard quality make. Where ever possible Multi Data Monitoring unit should be connected for Machines.</p>

13/11/17

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FORMAT FOR QUOTATION SUBMISSION
(In letterhead of the supplier with seal)

Date: _____

To: _____

Sl. No.	Description of goods \ (with full Specifications)	Qty.	Unit	Quoted Unit rate in Rs. (Including Ex-Factory price, excise duty, packing and forwarding, transportation, insurance, other local costs incidental to delivery and warranty/ guaranty commitments)	Total Price (A)	Sales tax and other taxes payable	
						In %	In figures (B)
Total Cost							

Gross Total Cost (A+B): Rs. _____

We agree to supply the above goods in accordance with the technical specifications for a total contract price of Rs. _____ (Amount in figures) (Rupees) _____ amount in words) within the period specified in the Invitation for Quotations.

We confirm that the normal commercial warranty/ guarantee of _____ months shall apply to the offered items and we also confirm to agree with terms and conditions as mentioned in the Invitation Letter.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

Signature of Supplier _____

Name: _____

Address: _____

Contact No. _____