

**GOVERNMENT OF TRIPURA
EDUCATION (HIGHER) DEPARTMENT
TRIPURA INSTITUTE OF TECHNOLOGY, NARSINGARH, TRIPURA (WEST)
NOTICE INVITING TENDER**

Dated:- 29/04/2016

NIT NO. 09/TIT/PSL/2016-2017

Sealed item rate tender is hereby invited on behalf of the Governor of Tripura from the manufacturers/ authorized dealers/ distributors/reputed firms having experience for supplying the followings up to 02/06/2016 upto 3:30 PM. The tenders will be opened on the same day, if possible.

Sl. No.	Name of Work	Estimated Cost	Earnest money	Cost of Tender From	Date of Selling of Tender Form	Last Date of Receiving Tender	Time for Completion
1.	Supplying , testing & Demonstration of Laboratory Equipments for Power System Laboratory, Department of Electrical Engineering of Tripura Institute of Technology, Narsingarh, Tripura (West).	Rs.12,00,000/- (Rupees Twelve Lakhs only)	Rs. 12,000/ (Rupees Twelve Thousand only)	Rs.500.00	w.e.f 04/05/2016 to 3:00 PM of 01/06/2016	02/06/2016 upto 3:00 PM	90 (Ninety) days

TERMS AND CONDITIONS:-

Earnest money should be deposited in the form of **Bank Demand Draft** of any BANK scheduled by Reserve Bank of India. Tender forms including terms and conditions can be had from the office of the Principal, Tripura Institute of Technology, Narsingarh, Tripura (West) w.e.f. 04/05/2016 from 12:00 Noon to 01/06/2016 at 3:00 PM on any working day on payment of an amount of Rs. 500.00 (Rupees Five Hundred) only by Demand Draft (non-refundable) in favour of the Principal, Tripura Institute of Technology, Narsingarh and Payable at Agartala or by downloading from the website www.titagartala.nic.in , www.titagartala.ac.in and www.tenders.gov.in. The bid forms so downloaded from above website shall accompany a Bank Draft of an amount of Rs. 500/- for bid in favour of the Principal, Tripura Institute of Technology, Narsingarh, Tripura (w), Pin: 799009 payable at Agartala .

Tender(s) may be sent through Registered Post /Speed post only or dropped in the tender box placed at the office of the Principal, TIT, Narsingarh within stipulated date and time mentioned above. The authority reserves the right to accept or reject any tender and to cancel the bidding process and reject all tenders at any time prior to the award of contract without assigning any reason there off.

1. **Bid Price**

- a) Bidders are to quote price for the full /part package as indicated in Annexure "A"
- b) Contract may be made for the full/ part package as per the discretion of the purchaser. Correction, if any shall be made by Crossing out, dating, rewriting and initial signature.
- c) All duties, taxes (VAT) payable by the contractor under the contract shall be included in the total price **strictly as per format** (bill of quantities) and no conditional pricing should be made. **Details break up such as basic price, Taxes (VAT) as applicable etc. required to be furnished clearly against total price of each item. Nothing Extra will be entertained thereafter.**

Full Signature of Supplier/ Contractor.

Signature of the Principal.

Tripura Institute of Technology, Narsingarh

- d) The rates quoted by the bidders shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
2. Each bidder shall submit only one Tender.

3. **Validity of tender;**

Tender shall remain valid for a period not less than **90 days** after the deadline date specified for submission.

4. **Evaluation of Tenders ;**

The purchaser will evaluate and compare the tenders determined to be substantially responsive i.e. which

- (a) are properly signed and
 (b) conform to the terms and conditions and specifications.

5. **Award of contract;**

The purchaser will award the contract to the bidder whose tender has been determined to be substantially responsive and who has offered the lowest evaluated quoted price.

- a. Notwithstanding the above, the purchaser reserves the right to accept or reject any tender and to cancel the bidding process and reject all tenders at any time prior to the award of contract.
- b. The bidder whose bid to be accepted will be notified for the award of contract by the purchaser prior to expiry of the tender validity period. The terms of the accepted offer shall be incorporated in the purchase order.

6. Payment :-

(i) Advance:- No advance Payment.

(ii) On delivery :- No payment after delivery.

(iii) On final acceptance :- 100% payment of the contract Price shall be paid to the supplier within 30 (thirty) days after the date of the acceptance for the respective goods.

7. Warranty / Guarantee shall be for a period of 01 (One) year as a whole . If normal commercial warranty/guarantee exceeds by 01 (One) year, then higher of the two as indicated shall be applicable to the supplied goods.

8. The bidders are to submit copies of the following documents duly signed by the Owner of the Firm or Authorized Person of the Owner of the Firm.

- (i) **PAN CARD** (ii) **STCC of current validity or equivalent such TAX/VAT documents / certificates which established or qualify as bonafied traders / supplier which ever are applicable to be a valid bidder. _**

9. ***Brand Name / Model No., if any has to be mentioned wherever applicable along with the copies of authorization letter of the manufacturers / Distributorship or Dealership certificate (duly signed by the bidder or Authorized person of the bidder) from Manufacturers etc. in favour of the bidder.***

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10. Tender has to be submitted along with Manufacturers' Original or downloaded brochure / catalogues, if any duly signed by the bidder or his Authorized person, without which tender may be rejected at the discretion of the Authority.
11. **Earnest money deposit :-**
- 11.1 Earnest money Rs. @ 1% (Rs.12000/-) of the estimated cost put to the tender shall be deposited in the State Bank of India or any schedule bank of India guaranteed by the Reserve Bank of India , in the shape of **Bank Demand Draft** only drawn in favor of the Principal Tripura Institute of Technology, Narsingarh, Tripura (west) payable at Agartala must be submitted along with the Tender(s) failing which the tender(s) will be summarily rejected.
- 11.2 *Validity of EMD / Bid security will be 45 (forty five) days more beyond the original period of validity of bid / Tender or beyond any period of extension subsequently requested in exceptional circumstances.*
- 11.3 The earnest money deposited by the successful bidder will not carry any interest and it will be dealt with as provided in the conditions stipulated in the tender.
- 11.4 The EMD shall be forfeited.
- (a) In 50%, if the Tenderer withdraws the Tender during the validity period of Tender.
- (b) In full, in case the supplier fails to start supply (or cannot show valid reasons which is acceptable to the authority) specified in the tender documents within 30th day or such time period as mentioned in letter of award after the date on which the Authority issues written orders to commence the work / supply.
12. Security deposit will be 10% of the contract value without any ceiling limit . The Earnest money of the successful tenderer deposited before issue of work / supply order will also form a part of security deposit. . Security money will be deducted from Running Account bill(s) @10% (ten percent) of the bill(s) amount of the successful bidder till full Security Money is retained and will be retained up to “ defect liability period ” .
13. Supply, assembling, testing etc. of all equipment including others accessories shall be the responsibility of the contractor.
14. The contractor shall not be permitted to tender for works in Tripura Institute of Technology, Narsingarh responsible for award and execution of contract in which near relatives is posted as an Accountant / as an Officer in any capacity between the grades of the Principal to Assistant Professor. He shall also intimate the name of persons who are working with him in any capacity or are subsequently employed by him and who are nearer relatives to any gazetted officer in Tripura Institute of Technology, Narsingarh, Agartala, Tripura – 799009.
15. Confusions / errors, if any noticed need to be clarified / corrected from the Principal, Tripura Institute of Technology, Narsingarh prior to dropping of tender. Any claim on such issues after dropping of tender will not be entertained.
16. The contractors should initial all correction if any, to rate(s) and items in the tender. ***The contractor in full name should signed every pages.*** Letters etc. found in the tender box of raising or lowering the quoted rates or dealing with any other points in connection with tender shall not be considered.
17. The bidder shall seal the bid / tender in an envelope (for each work separately) addressed to the Principal, Tripura Institute of Technology, Narsingarh, Tripura(w) subscribing on it the Name of Work & DNIT/NIT No.
18. Tender(s) must be received in the office of the Principal, Tripura Institute of Technology, Narsingarh, Tripura(w) [employer] not later than the time and date given in the notice of invitation. If the specified date is declared holiday, tender(s) shall be received upto the appointed time on the next working day.
19. Tenderers shall not add or deduct any percentage after the totals have been worked out in an item rate tender. Such tenders shall be liable to rejection.
20. Sale Tax (VAT) or any other Taxes of materials in respect of his contract shall be payable by the contractor and the Government shall not entertain any claim whatsoever in this respect.
21. Before submitting tender, tenderers are to satisfy themselves by actual visit to the site of work / supply as regards the prevailing condition to approaches and roads and availability of labourers and materials etc. and the tenderers submitting tenders shall be deemed to have done so. No claim on the above account will be entertained after wards.

Full Signature of Supplier/ Contractor.

Signature of the Principal.

22. Any bid received by the Principal, Tripura Institute of Technology, Narsingarh, Tripura(w) [employer] after the deadline for submission of bid(s) will be summarily rejected and returned unopened to the bidder.
23. Supply order may be issued to the successful bidder(s) depending on the available sanctioned amount. Hence, quantity may be increased or decreased at the discretion of the authority during the time of evaluation of tender.
24. In addition to deduction of Income tax at source Tax (VAT) will also be deducted at source as per applicable rates from the bills of the contractor from running / final bill.
25. The contractors should quote in figures as well as in words the rates and amount tendered by them. The amount for each item should be worked out and requisite totals shall be given.
26. **Correction of Errors**
 - a) The contractor shall quote the rates and amounts tendered by them **both in figures as well as in words**. The amount for each item shall be worked out and requisite totals shall be given.
 - b) Special care must be taken so that the rates and amounts are always written both in figures and words in such a way that interpolation is not possible. In case of figure, the words Rs, should be written before the figure and paise at the end (Viz. Rs, 250.50p). in case of rate or amount in words, the words Rs. should precede and the word only shall be written at the end (Viz. two hundred fifty and paise fifty only).
 - c) Item(s) for which no rate or price has been entered by the contractor / agency shall not be paid for and shall be deemed covered by the other rates / prices in the contract.
 - d) When there is a difference between the rates in figures and in words, the rates, which correspond to the amounts worked out by the contractor, shall be taken as correct.
 - e) When the amount of an item is not worked out by the contractor or it does not correspond with the rates written either in figures or in words, then the rate quoted by the contractor in words shall be taken as correct.
 - f) When the rate quoted by the contractor in figures and words tallies but the amount is not worked out correctly. The rate quoted by the contractor shall be taken as correct and not the amount.
 - g) All corrections to rates and amounts in the tender shall be initialed by the contractor. **Every pages including the blank pages of bid document shall be signed by the contractor**.
27. The Equipment shall be loaded and unloaded by the suppliers at his / her own cost and risk.
28. The Equipment shall be dispatched under coverage of transit insurance at the supplier own cost and risk.
29. The firm shall test the equipment at the site selected by the department and render demonstration / operational training to the departmental staff for a period suitable for the purpose.
30. Operation and service manual / catalogues and recommended maintenance chart should be supplied at free of cost along with each equipment.
31. Earnest money of the unsuccessful tenderer will be refunded on finalization of tender or on expiry of validity period which ever is earlier.
32. Transit permit / interstate clearance and such other issues will be the responsibility of the tenderer, Nothing extra will be entertained.
33. No transfer of earnest money from any amount already at the credit of tenderers (as earnest money or security money in connection with other works) will be allowed unless however, it is absolutely free and order for its release has been passed.
34. Canvassing in connection with tenders is strictly prohibited and the tender submitted by the tenderer who will resort to canvassing will be liable to rejection.
35. No non-Indian National as laborer, who does not possess valid passport and visa will be allowed to work under any contractor. If otherwise the contract will be cancelled and there is no bar by police for prosecution of these contractors along with their labourers.

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36. Bids will be opened in presence of bidders or their authorized representatives (who choose to attend) on the date and time and at the place specified in the said bid.
37. Defects liability :-
The “Defects liability Period” for the work is 1 (One) year (for articles having commercial warranty more than 1 (one) year, the defect liability for those items will be in accordance with the commercial warranty period as applicable) from the date of acceptance. If any defects noticed within the “Defects liability Period” the same shall be rectified / replaced (same configuration or latest) by the bidder or firm at their cost and risk within 1(one) month from the date of intimation and the defect liability period for the replaced item(s) will be considered from the date of replacement for which proportionate Security Money would be retained till end of the defect liability period as would be applicable for particular Item(s).
38. **The bidder has to provide the duly signed (by the bidder or his Authorized Person) copy of Work / Supply order in similar nature of work / supply in support of previous experience as a prime contractor at least for one similar work of value not less than 80% of the estimated cost put to tender in the last 3 (Three) years to qualify for awarding of the work.**
39. Tenderer(s) who do not fulfill any of these conditions or are incomplete in any respect, are liable to be rejected. The authority also reserves the right to cancel any of the tenders with out assigning any reason.

Full Signature of Supplier/ Contractor.

Signature of the Principal.

AGREEMENT FORM

Name of work : Supplying , testing & Demonstration of Power System Laboratory Equipments for Electrical Engineering Department of Tripura Institute of Technology, Narsingarh, Tripura (West).

ARTICLES OF AGREEMENT

1. This deed of agreement is made in the form of agreement on _____ day _____ month _____ 2016 _____, between the _____ (Employer), or his authorized representative (hereinafter referred to as the first party) and _____ (Name of the Contractor), S/O _____ resident of _____ (hereinafter to as the second party), to execute the work / supply of _____ (hereinafter referred to as work / supply) on the following terms and conditions.

2. Cost of the Contract

The total cost of the work / supply (hereinafter refer to as the “total cost”) is Rs. _____ as reflected in Annexure – “A”

3. payments under its contract

a) Payment to the second party for the work will be released by the first party in the following manner :-
payment shall be made immediate after successful completion of the work/supply.

b) Payments at each stage will be made by the first party:-

on the second party submitting an invoice for an equivalent amount;

2. Completion time

The supply is to be completed within **90 (ninety) days**. The time shall be reckoned from the 15th (fifteenth) day from the date of issue of supply order. In exceptional circumstances, the time period stated in this clause may be extended in writing by mutual consent of both the parties.

3. Any willful delay on the part of the second party in completing the supply within the stipulated period will render him liable to pay liquidated damages @ **Rs. 0.01%** of the contract price per day which will be deducted from payments due to him. The first party may cancel the contract and take recourse to such other action as deemed appropriate once the total amount of liquidated damages exceeds **10%** of the contract amount.

4. The second party shall:

a) Take up the supply and arrange for its completion within the time period as stipulated.

b) Employ suitable skilled persons to carry out the assembling (where necessary) and commissioning; etc.

c) Be responsible for bringing any discrepancy to the notice of the representative of the first party and seek necessary clarification;

d) Keep the first party informed about the progress of work;

Full Signature of Supplier/ Contractor.

Signature of the Principal.

- e) Be responsible for all security and watch and ward arrangements at site till completion of the work and handing over as well.
- f) Pay all duties, taxes (VAT) and other levies payable by agencies as per law under the contract (First party will effect deduction from running bills in respect of such taxes as may be imposed under the law).

5. Security money

The Security money shall be refunded after expiry of the “**defects liability period**”.

6. Dispute settlement:-

Except where otherwise provided in the contract all questions and disputes relating to the meaning of the specifications, designs, drawings and instructions hereinbefore mentioned and of workmanship or materials used on the work or as to any other question, claim, right matter or thing whatsoever, in any way arising out of or relating to the contract, designs, drawing, specifications, estimates, instructions orders or those, conditions or otherwise concerning the work / supply, or the execution or failure to execute the same whether arising during the progress of the work / supply or after the completion or abandonment thereof shall be referred to the sole arbitration of the person appointed by the Director of Higher Education, Government of Tripura. It will be no objection to any such appointment that arbitrator so appointed is a Government servant, that he had to deal with

the matters to which the contract relates and that in the course of his duties as Government servant he had expressed views on all or any of the matters in dispute or difference. The arbitrator to whom the matter is originally referred being transferred or vacating his office or being unable to act for any reason, such Director of Higher Education or as aforesaid at the time of such transfer, vacation of office on inability to act, shall appoint another person to act as arbitrator in accordance with the terms of the contract. Such persons shall be entitled to proceed with the reference from the stage at which it was left by his predecessor. It is also a term of this contract that no person other than a person appointed by such Director of Higher Education Department or as aforesaid should act as arbitrator and if for any reason that is not possible, the matter is not to be referred to arbitration at all. In all cases where the amount of the claim in dispute is Rs. 50,000 (Rupees fifty thousand) and above, the arbitrator shall give reasons for the award.

Subject as aforesaid the provisions of the Arbitration act, 1940, or any statutory modification or re-enactment thereof and the rules made there under and for the time being in force shall apply to the arbitration proceeding under this part.

It is also a term of the contract that the party invoking arbitration shall specify the dispute or disputes to be referred to arbitration under this part together with the amount or amounts claimed in respect of each such dispute.

Full Signature of Supplier/ Contractor.

Signature of the Principal.

It is also a term of the contract that the party invoking arbitration shall specify the dispute or disputes to be referred to arbitration under this part together with the amount or amounts claimed in respect of each such disputes.

It is also a term of the contract that if the contractor(s) do / dose not make any demand for arbitration in respect of any claim(s) in writing within 90 days of receiving the intimation from the Government that the bill is ready for payment the claim of the contractor(s) will be deemed to have been waived and absolutely barred and the Government shall be discharged and released of all liabilities under the contract in respect of these claims.

The arbitrator(s) may from time to time with consent of the parties and enlarge the time for making and publishing the award.

The Arbitration proceedings shall be held at Agartala, Tripura, India and the language of the arbitration proceedings and that of all documents and communications between the parties shall be English.

DECLARATION :-

I / wehave gone through carefully all the tender conditions and solemnly declare that I / we will abide by any penal action such as disqualification or black listing or termination of contract or any other action deemed fit, taken by, the department against us, if it is found that the statements, documents, certificates produced by us are false / fabricated.

I / we hereby declare that, I / we have not been black listed / debarred / suspended in any department in Tripura or in any other state of India due to any reason.

Full Signature of Supplier/ Contractor.

Signature of the Principal.

Annexure –“A”

Name of work :- **Supplying , testing & Demonstration of Power System Laboratory Equipments for Electrical Engineering Department of Tripura Institute of Technology, Narsingarh, Tripura (West).**

1	2	3	4	5	6	7	8	9	10
SL. No.	Name of Equipments with Specifications.	Brand name / Model no:	Quantity	Unit	Unit Price In figure. (In INR)	Unit Price in Words	Tax if any , if contract is awarded (In INR)	Rate in Figure (In INR)	Total Amount Col.(4 X 9)
1.	Power Transmission Line Trainer <ul style="list-style-type: none"> • Input 3 phase DOL Starter panel • 4 pole MCB of 415 V/4A. • DOL 9A Contactor with 230V / 50 Hz / 11VA COIL • Bimetallic thermal O/L relay with range 2.5A-6A • FWD-OFF-REV, Switch panel • FWD/REV, 3 pole 3 way switch with center OFF, 6A/440V. • Integrated AC 3 Phase Measurement Panel x2 <ul style="list-style-type: none"> • Consist of (96 X 96 mm) Digital meters for 3 phase. • Measures V, I, PF (0.2 lag – unity 0.2 lead), Hz. 		01 Set						

Full Signature of Supplier/ Contractor.

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<ul style="list-style-type: none"> • VAR Compensation panel <ul style="list-style-type: none"> • Consisting of VAR compensating capacitors of 2, 4, 6, 8, 10 & 15μF each of 3 nos with 3 pole 7 way switch for selection. • Transmission line Panel <p>Table Top Panel consisting of :</p> <ul style="list-style-type: none"> • Simulated model for transmission line (250kms) using R(10 ohm/600W), L(0.15H/5A) & C (2.2μF/630V) 6 No. each component. • Simulated model for medium /long length transmission line for π model. • Simulated model for medium / long length transmission line for T model • Optionally 2 transmission line panels supplied to simulate upto 500kms length. • RLC load panel <p>Table Top Panel consisting of</p> <ul style="list-style-type: none"> • 3 nos of 600W resistors with switch selectable 7 nos of taps at 100, 112, 125, 150, 175, 200 & 225. • 3 nos. of inductor 1.5H/1A with switch selectable 6 nos of taps at 0.3, 0.6, 0.75, 0.9, 1.2 & 1.5H. • Capacitors 440VAC rating (3 nos, one per phase) with switch selectable 7 nos of value of 2, 5, 10,15, 20, 30 & 50μF. • 3 phase dimmer panel <p>Table Top Panel consisting of :</p> <ul style="list-style-type: none"> • 3 phase dimmer I/P : 415VAC, 50Hz, O/P:0- 470 V AC, 6A, 3 phase. <p>The following are to be conducted using this Trainer</p> <ul style="list-style-type: none"> • Working with bi-directional 3 AC measurement panel, observing flow of real & reactive power & optionally modbus communication with PC. • No load test & Ferranti effect. • Determination of transmission line constants (ABCD) by experimental measurement using 2-port method as well as by knowing components values and its verification. • Load Test & Calculation of Regulation, efficiency of Transmission Line. • Working with power circle diagram & to find steady state power limit of transmission line. • Capacitive VAR compensation • Per unit representation 								
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Full Signature of Supplier/ Contractor.

Signature of the Principal.

	<ul style="list-style-type: none"> • Symmetrical & unsymmetrical faults in transmission line. <p>Predicting Power Flow in Transmission Line (2 bus) by Numerical method [Newton Raphson Method]</p>								
2.	<p>Generation Trainer</p> <ul style="list-style-type: none"> • Input 3 phase DOLstarter panel • 4 pole MCB of 415V/2A. • DOL 9A Contactor with 230/50Hz/11VA Coil. • Bimetallic thermal O/L relay with range 1.4A-2.3A. • R-Y-B Input Indicators. • FWD/REV, Star-Delta starter panel <ul style="list-style-type: none"> • FWD/REV, 3 pole 3 way switch with center OFF, 6A/440V. • Star/Delta switch 3 pole, 3 way with center OFF, 6A/440V • Instrumentation Power supply cum MultichannelDPM panel <ul style="list-style-type: none"> (a) +/-12 V, 500 mA (b) +5V, 300mA <ul style="list-style-type: none"> • Unregulated 17V dc/750 mA • Line synchronizing signal • Multichannel DPM for digital display of torque speed etc. • SCR Actuator (variable DC) cum sensor signal conditioning panel x 3 nos. • Full bridge SCR based 0V-195V / 5 Amp cosine firing with linear characteristics. • Supports signal conditioning circuit for speed, torque in kg wt to output 0-2.5Vdc (FS). • 3 Nos. of these supplies required for DC Armature, DC motor field and AC generator field. • Rotor Resistance cum 3 phase Synchronous Motor Control Panel • Rotor resistors of 30E/5A with 3 taps of 0E, 15E, 21E, 30E each ---3 nos • Rotor resistor selector switch, 3 pole, 6 Way, 6A/440 V. • DC Rotor excitation over current relay (3Amp) • DC voltmeter and DC ammeter panel • DC voltmeter (0-300V) • DC Ammeter (0-5A) with polarity protection diode 		01 Set						

Full Signature of Supplier/ Contractor.

Signature of the Principal.

	<ul style="list-style-type: none"> • Field failure relay to control Armature supply. Both 6A/6B needed simultaneously. • Integrated AC 3 phase measurement panel • Consist of (96 X 96 mm) Digital meters for 3 phase. • Measures V, I, PF (0.2 lag – unity 0.2 lead), Hz. Hence separate analog wattmeters (3 ph., 1ph.) are not needed. • Table Top Panels, M/C's Key Resource : Trunnion mounted DC integrated machine 300W coupled to 3 phase salient pole alternator, 300VA, 415VAC, 50Hz • Resistor Load Panel • AC Resistors : 10K/5K/3.5K/2.5K/2K/1.5K/ OFF 200W x 3 phases/ 6 taps • DC Resistors : 750E/600E/ 300E/212E/162E/ 125E/ 112E/100E/400W /8 taps + OFF + separate 60E tap for DC series Gen. • LC Load Panel • Inductive load : 0.15H/0.3H/0.45H/0.6H/0.75H/ 1.5H/3H/400mA X 3Nos • Capacitive load : 1.25u /2.5u/5u/415VX 3Nos <p>The following are to be conducted using this Trainer</p> <p>1] Regulation of 3 phase alternator by:</p> <ul style="list-style-type: none"> • Synchronous impedance method • ZPF or POTIER method • Actual load test <p>2] Determination of :</p> <ul style="list-style-type: none"> • Direct axis and quadrate axis subtransient reactance X_d'' & X_q''. • Zero sequence reactance X_0. Negative sequence reactance X_2. 								
3.	<p>DC DISTRIBUTION SYSTEM TRAINER</p> <ul style="list-style-type: none"> • Two number of Variable dc source (act as DC Generator source) – is provided for Two wire or three wire - $\pm 12V$ system simulation • Provision to connect loads at variable line locations. • Different types of Load resistor is provided with load selector switch • Variable Line resistance is provided and selector switch is provided to select line resistance value • Measurement of voltage and current at any point on the line segments • Two numbers of Digital Voltmeter is provided • 10 numbers of digital dc ammeter is provided to measure line current • All are mounted on a nice cabinet with sticker front panel 		01 Set						

Full Signature of Supplier/ Contractor.

Signature of the Principal.

	<p>230V AC input with Power ON/OFF Switch. This dc distribution system Trainer is required to study the various type of dc distribution network system like</p> <ul style="list-style-type: none"> • distribution system fed at one end • distribution system fed at both end • distribution system fed at centre • Ring Main distribution system 							
4.	<p>BUCHHOLZ RELAY</p> <ul style="list-style-type: none"> • One number of Gas activated Bucholtz Relay fixed on a frame • One number Alarm contact & Trip contact • Mechanical set up to simulate the Transformer model • Foot pump is provided to simulate low Oil level simulation <p>Lamp is provided to indicate the trip status This set is required to study the working principle of Bucholtz relay.</p>	01 Set						
5.	<p>BIASED DIFFERENTIAL RELAY STATIC TYPE Percentage biased differential Relay</p> <ul style="list-style-type: none"> • 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. <p>Test set up</p> <ul style="list-style-type: none"> • One number 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 • One number of 230/ 48v Step down transformer is provided for Fault simulating transformer input • Two number of digital AC Ammeter (0-10A) is provided to measure the primary and secondary current of fault simulating transformer • One number of 5A rheostat is provided as short circuit resistor • One number of Automatic trip time measurement circuit (ATTM Circuit) is 	01 Set						

Full Signature of Supplier/ Contractor.

Signature of the Principal.

	<p>provided</p> <ul style="list-style-type: none"> • One number START push button is provided in ATTM Circuit • One number STOP push button is provided in ATTM Circuit • One number 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. <p>230VAC@50Hz AC Input with power ON/OFF Switch</p> <p>This set up is required to study the working principle % biased single phase differential relay. This set up consists of</p> <ul style="list-style-type: none"> • Static type Percentage biased differential Relay • Test set up for Differential protection of transformer. 							
6.	<p>Static NSC Relay</p> <ul style="list-style-type: none"> • Static Negative sequence Current Relay • 1A Ratings • Model –CTNM12 • Make –ALSTOM/Equivalent <p>Microcontroller based Negative sequence current relay</p> <ul style="list-style-type: none"> • dsPIC Microcontroller based relay • Two mode of operation – DMT • 4 number of Digital key is provided to select the function and time setting • 20X4 LCD is provided to display Mode, trip time, set time, etc. • One number of “NC” & “NO” Contact @ 5A Ratings • Led is provided to indicate the Relay Trip Status • Relay is mounted on a nice cabinet with sticker front panel <p>Test set up</p> <ul style="list-style-type: none"> • One number of Three phase Autotransformer is provided to adjust the voltage output individually • Facility to change the RYB reversal • One number of three phase Lamp load with unbalance load selection facility • One number of digital AC Ammeter (0-300V) is provided to measure the Voltage output • One number of Automatic trip time measurement circuit (ATTM Circuit) is provided • One number START push button is provided in ATTM Circuit • One number STOP push button is provided in ATTM Circuit • One number Digital stop Clock is provided in ATTM Circuit to measure relay 		01 Set					

Full Signature of Supplier/ Contractor.

Signature of the Principal.

	trip time • 230VAC@50Hz AC Input with power ON/OFF Switch.							
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Gross Total Cost : Rs.-----

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

We also confirm that the normal commercial warranty / guarantee of months shall apply to the offered goods.

Full Signature of Supplier/ Contractor.

Signature of the Principal.