

MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

No. F5 (431) ST/MNIT/ELECT/2011

Phone : 0141-2713312,2713352

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To,

M/s
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NOTICE INVITING QUOTATIONS

1. Quotations are invited for the supply of Equipments & Softwares required for Electrical Engineering Department of this Institute as per list attached by **11.01.2012 at 02:00 PM**. The quotations will be opened **at 03:00 PM on 11.01.2012**. The covers containing the quotations must be marked **"QUOTATION FOR ELECTRICAL ENGINEERING DEPARTMENT DUE ON 11.01.2012 AT 02:00 PM."**

(TWO BID SYSTEM WILL BE FOLLOWED ALL THE BIDDER ARE REQUIRED TO SUBMIT TECHICAL AND FINANCIAL BIDS IN SEPARATE ENVELOPS FOR EACH DEPARTMNET. EMD SHOULD BE SUBMITTED WITH THE TECHNICAL BIDS.)

2. **THE RATES QUOTED SHOULD BE F.O.R. JAIPUR** inclusive of all charges e.g. packing, forwarding local taxes, railway freight, transit insurance, for outside firms and free delivery at Institute stores in the case of local firms. The rates may also be quoted separately "ex-godown/F.O.R. dispatching station. In case of Ex-Godown rates, please mention your packing and forwarding charges. Where there is no mention regarding delivery period in the quotations or where the items are offered ex-stock, the firms will be required to supply goods within one-month time.
3. Quotations should preferably be given only for those articles, which are available ex-stock. Other items should be quoted separately giving the delivery period. Rates of imported goods be quoted excluding custom duty as this institution is exempted from payment of custom duty. The rates of indigenous equipments may be quoted without Excise Duty as this institute is exempted from payment of Excise Duty.
4. As far as possible, quotations should be given for goods of India manufacture and foreign goods, which are readily available. Foreign goods quoted and proposed to be supplied should be covered by normal import quota of the dealer. This institute is exempted from payment of custom duty.
5. Detailed specifications and "make" of each item should be clearly given supported by the illustrated pamphlets wherever possible. Quotations without specifying the make and other particulars may be rejected. The payment will be made after the goods have been received, opened, checked and found to be in order up to our entire satisfaction. The accessories included in the equipment should also be clearly mentioned.
6. Losses or damage in transit will be in to the account of the supplier in case of rates **F.O.R. JAIPUR**. The supplier may, if he so desires, get the goods insured and include such charges in the tendered rate.
7. The payment for the ordered items would be made after the articles have been received and found in order. Normally payment shall be made through a crossed cheque within 30 days of the receipt of goods.

8. Your rates should be valid at least for three months from the last date of receipt of quotations.
9. All legal proceedings, if necessity arises to institute may be any of the parties (Institute or Contractor/Supplier) shall have to be lodged in the courts situated at Jaipur and not elsewhere.
10. The undersigned is not bound to accept the lowest tender and may reject any tender or any part of the tender giving justification for such an action.
11. The rates must be quoted item-wise by giving Serial No. of our enquiry letter.
12. The quotations should preferably be sent duly typed.
13. (a) The Penalty Clause is as under :-

Should the tenderer fail to deliver the goods within the period specified in the tender form the Institute may, at its discretion, allow an extension in time subject to recovery from the tenderer as agreed liquidated damages, and not by way of penalty, a sum equal to the percentage of the value of stores which the tenderer has failed to supply for period of delay as stated below: -

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| (i) | Delay up to one month | 1% |
| (ii) | Delay exceeding one month but not exceeding two month | 2% |
| (iii) | Delay exceeding two month but not exceeding three month | 5% |
| (iv) | Delay exceeding three month | 5% for each month and part there of subject to maximum 10% |

(b) In case of failure to supply the goods within the prescribed time and in accordance with the specifications given in the Quotations, the institute shall be free to cancel the order and make purchases from the next higher tenderer or from the open market as the case may be. In that case the loss sustained by the institute shall be recovered from the defaulting supplier. The institute will be at liberty to recover the loss from the permanent earnest money/or any other pending claims of the supplier without prejudice to its general right to affect recovery from the supplier.

- 14 EARNEST MONEY: A Demand Draft for Rs. @ 2% of the quoted cost only in the name of the Registrar, M.N.I.T. may please be sent along with your tender as Earnest Money **without which no tender shall be considered. Cheques are not accepted as earnest money amount.** No interest is paid by us on the amount of earnest money.
- 15 Successful bidder will have to furnish. Performance security @ 10% of the equipment cost, valid for one year two month in the form of Bank's Guarantee from Nationalize Bank.

Note Equipments & Software Specification are as per list attached.

ASSISTANT REGISTRAR
Stores & Purchases

S. No.	Name of the Item	Specification	Qty.	Cost
1.	2 Channel 20 MHz Oscilloscope	High Intensity CRT (12 kV) with scale illumination High sensitivity 1mV/div (dc to 5 MHz) Maximum sweep rate 20 ns/div (X10 MAG) X-Y Mode Make: FEEDBACK	2	
2.	3 1/2 Digit Digital LCD Multimeter	32 range Basic ac and dc voltage and current ranges Ranges for capacity, temperature, frequency measurement Make: FEEDBACK	2	
3.	Function Generator	Sine, Square and Triangle waveforms Frequency Range: 0.001 Hz to 1 MHz Pushbutton selection of frequency Main output: 20 V pk to pk, 600 ohm Continuous availability of triangle output at 2 V, Voltage Control of Frequency Make: FEEDBACK	1	
4.	Power Function Generator	Sine, Square, Triangle and Trapezoid waveforms Frequency Range: 0.0001 Hz to 1 kHz Adjustable output: 0-100 V pk to pk Current Output upto 200 mA Attenuation: X1, X0.1, X0.01, X0.001 Square and Triangle Auxiliary Outputs Hold and Set facilities External input facilities for power amplifier Make: FEEDBACK	1	
5	Ammeter moving iron type (portable)	accuracy 0.5, (0-10) A (0-0.5-1) A (0-1-2) A (0-2.5-5) A (0-50) mA	03 05 03 02 02	
6.	Voltmeter moving iron type (portable)	accuracy 0.5, (0-50) V (0-75-150) V	02 03	
7.	Fluxmeter	moving coil type 230V, 5V(portable)	03	
8.	Mutual Inductance	1Henry	03	
9.	Digital Storage Oscilloscope	25MHz , Four Channel with all accessories	03	
10.	Low power factor Single phase Dynamometer type Wattmeter (portable)	Accuracy 0.5, I = 0.5-1 A, V = 0-75-150-300V,	03	
11	Three-phase Resistive load bank :	Loading capacity – 2.5 kW Max. Amp. 6A No. of steps 12	02	
12	Single phase Auto Transformer	(230/0-270)V, 8A	02	
13	KVAR Meter 2 element dynamometer type for 3-phase balanced and unbalanced load (portable).	Range: 2.5/5A, 250/500V	03	
14.	Three phase Auto Transformer:	(400/0-470)V, 15A	02	
15.	Decade Capacitance Box		05	
16.	Clamp Meter AC/DC TRMS	600V, 600A Make: Fluke or equivalent	03	
17.	Milliamp Clamp Meter	Resolution and Range: 0 to 20.99 mA, Accuracy: 0.2% +2 counts, Resolution and Range: 21.0 mA to 100.0 mA, Accuracy: 1% + 5 counts Make: Fluke or equivalent	03	
18.	Electrical Tester	AC/DC Voltage: 12 V – 600 V on LED bar, 10.2 V – 600 V on LCD, Maximum working voltage: 1000 V ac/dc, AC voltage \pm (3 % rdg + 2 digits),DC voltage \pm (2 % rdg + 2 digits),Resistance \pm (5	05	

		% rdg + 3 digits) Make: Fluke or equivalent		
19.	Phase Rotation Indicator	Voltage range 40-700 V ,Frequency range 15-400 Hz Make: Fluke or equivalent	03	
20.	Digital Multimeter	6000 Count Display, DC voltage and A.C voltage range from 100 microvolts to 1000 volts. D.C. & A.C. current ranges from 0.01mA to 10A, Resistance range from 0.1 Ω to 50 M Ω , Capacitance range from 1nF to 10,000 μ F Make: Fluke or equivalent	05	
21.	Kelvin Double Bridge:	One ratio box of 1-1 Ω , 0. 1-0.1 Ω 0.01-0.01 Ω , 10-10 Ω , 100-100 Ω , for connection of Galvanometer ; One decade dial of X0.01W; Slide wire of resistance 0.05W with scale of 100 equal divisions; Four terminals for connecting unknown resistance wire; Two terminals for Battery; Terminals provided to attach thick wire ;with all accessories	03	
22.	Wein's Bridge:	Three decade dials X 10 Ω , 100 Ω , 1000 Ω ; one decade dial X 0. 1 μ F; Terminals provided for connection of Ac supply / oscillator, head phone/CRO as detector; Unknown capacitor; with all accessories	03	
23.	Anderson Bridge:	Two Ratio dial each having 10 Ω , 100 Ω ,1000 Ω ;Three decade dials X 10 Ω ,100 Ω ,1000 Ω ; Four decade dials X 1 Ω ,10 Ω ,100 Ω and 1000 Ω in series with inductance; Three decade dials X 1 Ω ,10 Ω ,100 Ω ; Terminals for condenser, inductance, AC supply & head phone/CRO; with all accessories	03	
24.	Desauty Bridge:	Three decade dials X 10 Ω , 100 Ω , 1000 Ω ;Three decade dials X 10 Ω , 100 Ω , 1000 Ω ; Terminals provided for connection of Ac supply / oscillator, head phone/CRO as detector and Unknown Capacitor. Panel with one decade dial X 0. 1 μ F;with accessories including Decade Capacitance Box with Sine Wave Oscillator & Inductance Sensitive Head Phone	03	
25.	Maxwell Inductance Bridge:	Three decade dials of X0.01 Ω , 0.1 Ω , 1 Ω ;3 decade dials X 10 Ω , 100 Ω , 1000 Ω ; 3 decade dials X 10 Ω , 100 Ω , 1000 Ω ;Sockets are provided for connection of standard inductance, unknown inductance, sine wave oscillator and for detector as head phone/CRO. With Decade Inductance Box with Sine Wave Oscillator & Inductance , Sensitive Head Phone Detector	03	
26.	Schering Bridge:	Two ratio dial for resistances each having 1 Ω , 10 Ω , 100 Ω , 1000 Ω coil; Three decade dials X 0.001 μ F, 0.01 μ F,0.1 μ F ; Variable gang Capacitor C2 (Calibrated for 50pF- 1000pF); Three decade resistance dials X 1 Ω ,10 Ω ,100 Ω ; Terminals provided for condenser, AC supply & head phone/CRO. With Accessories including Decade Capacitance Box with Sine Wave Oscillator & Inductance Sensitive Head Phone.	03	
27.	Hay's Bridge:	Panel with two ratio dial X 1 Ω , 10 Ω , 100 Ω , 1000 Ω ; Three decade dials X 10 Ω , 100 Ω , 1000 Ω Three decade dials X 0.01 μ F, 0.1 μ F, 1 μ F Three decade dials X10 Ω , 100 Ω , 1000 Ω ; Terminal provided for unknown inductor, AC supply & detector on the front panel; with accessories including Decade Inductance Box with Sine Wave Oscillator & Inductance Sensitive Head Phone.	03	
28.	Single Phase double element Power Factor Meter	250V, 5A	03	
29.	Function Generator	Range 0.1 mHz to 10MHz, Resolution 7 digits or 0.1 mHz, Sine, Square, Triangle, Ramp pulses and TTL outputs 20 Vpp output and DC Offset. Make: Fluke or equivalent	03	
30.	Basic Electricity & Electronics Kit	Make: Feedback or equivalent	01	
31.	Electromagnetism Trainer Kit	Make: Feedback or equivalent	01	
32.	Transducer Kit comprising Measurement package, Electromechanical , Heat and Light Transducer with all accessories	Make: Feedback or equivalent	01	

33.	Upgradation of existing LabView to NI LabView 2010 Academic Site License with all 25 Toolkits.	Department Teaching License should Include 1 Year of SW Maint, LabVIEW PDS, Meas. Studio, Imaq Vision, LabVIEW RT, LabVIEW DSC, and all other Add on SW. (Perpetual License) For Academic Use Only	01 (50 Users)	
34	Educational Laboratory Virtual Instrumentation Suite	National Instruments ELVIS II Prototyping Board with Power cord - Integrated Suite of 12 Virtual Instruments. (For Academic Use only)	1 Unit	
35	Speed control of DC motor using 3ph Rectifier:	Setup consisting of a) Micro controller (89C51) based firing circuit with LCD display b) Three phase Half and fully controlled converter power circuit suitable for 1Hp/220V DC motor with MCB, Voltmeter, Ammeter and field supply c) DC Shunt motor 1Hp/220V/1500 rpm with mechanical loading arrangement	1	
36	Speed control of 3-phase Induction motor using PWM Inverter:	Setup consisting of a) TOSHIBA/ABB make Inverter for speed control of 1Hp3 Φ /230V/1440rpm Induction motor b) Three phase squirrel cage Induction motor (ABB/SIEMENS) 1Hp/230V/1440rpm with mechanical loading arrangement	1	
37	DSP based closed loop drive for Induction motor:	Setup consisting of α) TMS 320F 2808 based DSP controller β) Mitsubishi make IGBT based Intelligent power module χ) ABB/SIEMENS make 3phase squirrel cage Induction motor – 1Hp/230V/1440 rpm with mechanical loading arrangement. δ) Encoder coupled to Induction motor for closed loop speed control	1	
38	Induction motor speed control using FPGA:	Setup consisting of α) Xilinx Spartan 3E FPGA controller β) Mitsubishi make IGBT based Intelligent power module χ) ABB/SIEMENS make 3phase Squirrel cage Induction motor – 1Hp/230V/1440 rpm with mechanical loading arrangement	1	
39	Speed control of brushless DC motor:	Setup consisting of a) TMS 320F2808 based controller b) Mitsubishi make IGBT based Intelligent power module c) 1Hp brushless DC motor with mechanical loading arrangement	1	
40	DSP based Chopper fed DC motor drive:	Setup consisting of α) TMS 320F2808 based controller β) Mitsubishi make iGBT based Intelligent power module χ) DC shunt motor 1Hp/220V/1500 rpm with mechanical loading arrangement	1	
41	Switched Reluctance motor drive:	Setup consisting of a) TMS 320F2808 based controller b) IGBT based power circuit c) 1Hp switched reluctance motor with mechanical loading arrangement	1	
42	PLC based drive:	Setup consisting of a) ABB/TOSHIBA/OMRON make PLC b) Motor control trainer for 24V PMDC motor with 24V/50 watts PMDC motor c) Motor control trainer for 3 Φ Induction motor with 1Hp/415V/1400 rpm run motor	1	
43	Integrated Thyristor Controller	With microprocessor based firing circuit	1	
44	SCR, TRIAC, DIAC, MOSFET & IGBT characteristics Study Unit – CSU		1	
45.	SCR Turn – On Circuits : -	a) R & R-C Firing Circuit – RCF b) UJT Relaxation Oscillator - URT c) Single Phase Converter Firing Unit - SCF d) Single Phase converter firing unit (micro controller based) e) Digital Firing circuit	1	

46.	Forced Commutation Study Unit - FCU		1	
47.	Single Phase Half Controlled Converter Power Circuit -	230V / 15A	1	
48.	Single Phase Fully Controlled Converter Power Circuit -	230V / 15A	1	
49.	Three phase converter firing circuit	Micro controller based	2	
50.	Three Phase Half Controlled Converter Power Circuit -	415V/ 15A	1	
51.	Three Phase Fully Controlled Converter Power Circuit -	415V / 15A	1	
52.	Three Phase AC Voltage controller power circuit –	415V / 15A	1	
53.	DC Chopper Firing Unit	Micro controller based	1	
54.	DC Chopper Power Circuit -	220V/5A	1	
55.	Single Phase McMurray Inverter firing Unit -		1	
56.	Single Phase McMurray Inverter Power Circuit -	30V/2A	1	
57.	Single Phase Dual Converter Firing Unit	Micro Controller Based	1	
58.	Single Phase Dual Converter Power Circuit -	15A/ 230V	1	
59.	Single Phase Transistorized PWM Converter-	220V/2A	1	
60.	1ph Isolation Transformer with tappings	230V /15A	5	
61.	3-ph Isolation Transformer with tappings	440V /15A	3	
62.	Unregulated DC source -	220V/10A	2	
63.	Rheostats	50 Ω /2A	4	
64.	Rheostats : -	150 Ω /5A	4	
65.	Resistive load Bank - Single phase	230V /3.5kW	1	
66.	Resistive load Bank - Single phase	230V /5 kW	1	
67.	Resistive load Bank - Three phase	440V/7.5kW	1	
68.	Loading Inductor	with tappings 0-25-50-100-150mH, 5 A	1	
69.	Variable Inductor - 1ph	15A /230V	1	
70.	Variable Inductor – 3ph	15A/440 V	1	
71.	Capacitate load -1ph	230V /15A	1	
71.	Capacitate load -3ph	415V /15A	1	
72.	DC MOTOR-	1.0HP /220V /1500rpm	1	
73.	1ph Induction motor	Kirloskar / Crompton make- 1.0HP /230V	1	
74.	3ph induction motor	SIEMENS make- 1.0 HP/440V	1	
75.	PMDC motors -	220V /0.5 HP	1	
76.	PMDC motors -	24V /2A	1	
77.	IGBT chopper -	4 quadrant - 24V/2A	1	
78.	SCR Converter Module -	25A/1200V	10	
79.	TRAIC Power Circuit Module -	25A/600V	10	
80.	Power Rectifier Diode Module -	25A/1000V	10	
81.	Power IGBT Module -	19A/ 1200V	10	
82.	Power MOSFET Module -	15A/400V	10	

83	8085 Based Microprocessor Trainer Kit with SMPS and cable & connector set.	Vi-Microsystems, Dynalog/Vinytics/Anshuman or equivalent	20	
84	Multi functional Programmable digital relay	Siemens make	01	
85	Single phase Power quality analyzer	Model 43B (Fluke make)	02	
86	Digital Oscilloscope	Non Storage Type Make: Tectonics/ Philips	05	
87	ETAP Electrical Power System Software	Educational Version 10 user with modules.	01	
88	Three phase transmission line model	for 220 KV or higher with matching SIL and power suitable for various power system studies	01	
89	Digital Multimeter	Model 77-IV Fluke make	05	
90	Clamp Meter	Model 337 Fluke make	05	
91	Three phase overcurrent plus earth fault relay	Model MC31A L&T make	02	
92	Single phase overcurrent or earth fault relay	Model MC12A L&T make	04	
93.	Reverse Power Relay	model MRP11 L&T make	02	
94.	Motor protection relay	model MPR300 L&T make	02	
95	Synchronous machine experiment set up with Virtual Instrumentation option	Comprising: Universal Power supply, Three phase synchronous Motor/Generator-Wound rotor (Rated at 415/240V 300W max. Synchronous speed 3,000 rev/min@50Hz. Power Requirement 380/415V Three Phase ac star or 220/240V delta. Rotor supply 100V dc. 12mm shaft diameter. Double ended shaft. Safety earth connection provided), Torque and Speed control panel, Swinging Field Dynamometer, Shaft coupling & Key, System frame, switched three phase resistance load, standard set of patch leads, single phase & three phase measurements, voltmeter & ammeter panel.	1	
96	Single phase and three phase transformer experiment set up	Comprising: Single Phase Transformer Multi-windings for series and parallel connection. 400V, 230V and 2 x 115V windings. Power rating 100VA, Three Phase Transformer Primaries for 380/415V ac Star or Delta connection. 2 x 115V, 0.43A secondaries per phase. Power rating 300VA. Connects via 4mm colour coded shrouded safety sockets on mimic panel. Frame mounting. Safety earth connection provided. Universal Power Supply, switched three phase resistance load, system frame, standard set of patch leads, Rectifier voltmeters and ammeters, Electrodynamic wattmeters	1	
97	Complete set of Recording characteristics of electrical machines	Comprising of: 1. Electrical machine test system Cradle-type three-phase asynchronous machine (0.3 kW, 250 V, 50Hz) with Control unit and PC interface, Digital Panel. 2. DC Multifunction Machine (0.3 kW, 220V, 1.8A, 2000 rpm) 3. Capacitor Motor (0.25 kW, 230 V, 2.2 A, 50 Hz, 085 pf, 4 pole, 1420 rpm) 4. Squirrel Cage Motor (0.27 kW, 400/690V Δ/Y, 1/0.58 A, 50 Hz, 0.7 pf, 4 pole, 1350 rpm) 5. Synchronous Machine (0.3 kW, 230/400 V Δ/Y, 0.66/1.14 A, 50 Hz, 0.97 pf, 4 pole, 1500 rpm) 6. DC supply (300W, 40-250 V/0-6A DC) 7. Three Phase Supply with FCCB	1	

		8. Adjustable transformer (230V, 50Hz, 4 A) 9. RMS Meter (3-1000V, 0.1-30A) 10. Power Factor Meter (-90 to +90 with voltage range 3-1000V, current range 0.1-30A with overload protection) 11. On/off switch 3 pole 12. Capacitive load suitable for parallel, series, star and delta connections, 3x1/2/4 μ F, 450 V 13. Motor Protection Switches with setting range 1-1.6A & 2.4-4A 14. power circuit breaker module (set of 10 safety bridging plugs black and set of 10 safety bridging plugs yellow/green) 15. Set of 32 safety connecting leads in red, blue and black colours & set of 10 safety connecting leads in yellow/green colour. 16. two level panel frame 17. Rubber coupling sleeve for mechanical connection, shaft end guard, coupling guard. All above with necessary literature in soft and hard format in English.		
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ASSISTANT REGISTRAR
(Stores & Purchases)