GURU JAMBHESHWAR UNIVERSITY OF SCIENCE AND TECHNOLOGY, HISAR

TENDER NOTICE

Sealed tenders are invited from reputed manufacturers/suppliers for the supply of Experimental Instruments/Kits for the development of Electrical Machine-II Lab. required for the Department of Electrical Engineering.

The tender document having detailed specifications may be obtained from the Department of Electrical Engineering or may be downloaded from the University website **www.gjust.ac.in** for which a demand draft of Rs.300/- per tender document drawn in favour of the Registrar, GJUS&T and payable at Hisar is to be submitted with the technical bid itself. Technical and Financial bids should be submitted separately with full name of the equipment on the envelope. The tender complete in all respect must reach Chairman, Department of Electrical Engineering, GJUS&T, Hisar on or before **13.02.2020 upto 5.00 P.M.** The tenders will be opened on **14.02.2020 at 12.00 Noon.** The tenders/representative may remain present at the time of opening of tenders at their own cost.

REGISTRAR

GURU HAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR-125001

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GURU HAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR-125001

Tender For Supply of Equipment (s)

To

Subject: Invitation for tender for supply of Experimental Instruments/Kits for the development of Electrical Machine-II Lab.

Dear Sir (s)

You are invited to submit your most competitive tender for the following equipment (s) With the following terms and conditions:-

A. SCHEDULE OF EVENTS:-

1.	TENDER NO.*	::	EE/2020/28
2.	TENDER FLOATING DATE	::	24-01-2020
3.	TENDER SUBMISSION CLOSING DATE & TIME::		13-02-2020; 17:00 Hrs.
4.	TENDER OPENING DATE & TIME	::	14-02-2020; 12:00 Hrs.
5.	VENUE FOR TENDER SUBMISSION & OPENING::		TB-7, Chairman, Department of Electrical Engineering, GJUS&T, Hisar
6.	PRE-BID CONFERENCE(IF ANY)	::	N/A
	DATE, TIME AND VENUE		N/A
7.	TENDER DOCUMENT COST	::	Rs. 300.00

*Tender number must be mentioned in all correspondence.

B. BRIEF DISCRIPTIONOF TENDER DOCUMENT :-

This tender document consists of four parts namely:

i) Brief description of the equipment name;
ii) Technical data sheet (technical specifications of the equipment);
iii) General standard Terms and conditions; and
iv) Special Terms and conditions (If any).

1. Brief description of the equipment(s):-

It mentions the name of the equipment required and its quantity. The quantity is subject to increase and decrease, at the discretion of the indenter.

2. Technical data sheet (technical specification of the equipment):-

It contains the technical details /specification of the equipment. It should be submitted in separate sealed envelope marked as "Technical Bid''. Bids having deviation in technical specification will be declared as "technically non- responsive'' and it will not be considered for commercial evaluation.

3. Commercial Data Sheet:-

This format deals with the commercial aspect of the tender. The bidder should quote the basic/ex-works rate of goods and other overhead charges only in his format.

4. General /standard Terms and conditions :-

This portion contains the general/standard terms and conditions of the tender and its compliance is essential, failing which the contract may be cancelled and bidder may be liable for penal action against it.

5. Special Terms and conditions:-

It contains special terms and condition which may be in addition to/in super-session of the referred "General /Standard Terms and conditions" and its compliance is also compulsory in the same manner, as in the case of the General/Standard Terms and conditions.

C. EQUIPMENT DETAILS:

i) Brief description of the equipment name:-

S. No.	Name of Equipment (s)	Qty. Required
1.	Experimental Setup to perform Load test on a 3-phase induction motor & DC generator set and to determine the efficiency of induction motor.	1
2.	Experimental Setup to perform light running and block rotor test to determine the parameters of the equivalent circuit of single phase induction motor.	1
3.	Experimental Setup to perform the open circuit test and block rotor test on three phase induction motor and draw the circle diagram.	1
4.	Experimental Setup to find out the rotor resistance of a poly phase induction motor.	1
5.	Experimental Setup to calculate regulation by synchronous impedance method: a) Conduct open and short circuit test on a three phase alternator. b) Determine and plot variation of synchronous impedance with I_f. c) Determine S.C.R.	1

	d) Determine regulations for 0.8 lagging power factor, 0.8 leading power factor and unity power factor.	
6.	Experimental Setup to plot V-Curves of a synchronous machine. a) Determination of Xo of a synchronous machine. b) Measurement Xd' + Xq' (Direct axis and Quadrant axis).	1
7.	Experimental Setup to conduct the load test to determine the performance characteristics of the three Phase Induction Motor.	1
8.	Squirrel cage induction motor by Siemens/ABB/Crompton /Kirloskar/ Havells: 3 Phase, 2 HP, 415V, 1500 R.P.M.	1
9.	Squirrel cage induction motor by Siemens/ABB/Crompton /Kirloskar/ Havells: 3 Phase, 0.5 HP, 415V, 1500 R.P.M.	1
10.	Capacitor Single Phase induction motor by Siemens/ABB/ Crompton/ Kirloskar/ Havells: 1 HP, 230V, 1500 R.P.M.	1
11.	Universal Motor 1 Phase 1HP, 1500 RPM, 240 volts	1
12.	Digital Tachometer (Generic)	4
13.	AC Wattmeter Portable, 1-Phase, 5/10A, 150/300/600V, 250/500 Watt (AE Make)	2
14.	AC Wattmeter Portable, 1-Phase, 5/10A, 75/150/300 V, 150/300 Watt (AE Make)	2
15.	AC Ammeter Portable Moving Iron 1/2A (AE Make)	2
16.	AC Ammeter Portable Moving Iron 5/10A (AE Make)	2
17.	AC Voltmeter Portable 150/300 (AE Make)	2
18.	AC Voltmeter Portable 300/600 (AE Make)	2
19.	Three Phase, 3 HP, Star/ Delta Starter by L&T/Siemens/ABB	1
20.	Three Phase, 5 HP, DOL Oil immersed Starter by L&T/Siemens/ABB	1
21.	Single Phase, 1 HP, DOL Starter by L&T/Siemens/ABB	1
22.	Phase Sequence Indicator	2

ii) Technical data sheet (Technical specifications of the equipment):-

S. No.	Description of the Equipment(s)	Technical Specifications
1.	Experimental Setup to perform Load test on a 3-phase induction motor & DC generator set and to determine the efficiency of induction motor.	ANNEXURE-l
2.	Experimental Setup to perform light running and block rotor test to determine the parameters of the equivalent circuit of single phase induction motor.	ANNEXURE-l
3.	Experimental Setup to perform the open circuit test and block rotor test on three phase induction motor and draw the circle diagram.	ANNEXURE-l
4.	Experimental Setup to find out the rotor resistance of a poly phase induction motor.	ANNEXURE-l
5.	Experimental Setup to calculate regulation by synchronous impedance method: a) Conduct open and short circuit test on a three phase alternator. b) Determine and plot variation of synchronous impedance with I_f. c) Determine S.C.R. d) Determine regulations for 0.8 lagging power factor, 0.8 leading power factor and unity power factor.	ANNEXURE-l

6.	Experimental Setup to plot V-Curves of a synchronous machine. a) Determination of Xo of a synchronous machine. b) Measurement Xd' + Xq' (Direct axis and Quadrant axis).	ANNEXURE-l
7.	Experimental Setup to conduct the load test to determine the performance characteristics of the three Phase Induction Motor.	ANNEXURE-l
8.	Squirrel cage induction motor by Siemens/ABB/Crompton/Kirloskar/ Havells: 3 Phase, 2 HP, 415V, 1500 R.P.M. with Brake Pony loading arrangement	ANNEXURE-l
9.	Squirrel cage induction motor by Siemens/ABB/Crompton /Kirloskar/ Havells: 3 Phase, 0.5 HP, 415V, 1500 R.P.M. with Brake Pony loading arrangement	ANNEXURE-l
10.	Capacitor Single Phase induction motor by Siemens/ABB/ Crompton/ Kirloskar/ Havells: 1 HP, 230V, 1500 R.P.M. with Brake Pony loading arrangement	ANNEXURE-l
11.	Universal Motor 1 Phase 1HP, 1500 RPM, 240 volts Brake Pony loading arrangement	ANNEXURE-l
12.	Digital Tachometer (Generic)	ANNEXURE-l
13.	AC Wattmeter Portable, 1-Phase, 5/10A, 150/300/600V, 250/500 Watt (AE Make)	ANNEXURE-l
14.	AC Wattmeter Portable, 1-Phase, 5/10A, 75/150/300 V, 150/300 Watt (AE Make)	ANNEXURE-l
15.	AC Ammeter Portable Moving Iron 1/2A (AE Make)	ANNEXURE-l
16.	AC Ammeter Portable Moving Iron 5/10A (AE Make)	ANNEXURE-l
17.	AC Voltmeter Portable 150/300 (AE Make)	ANNEXURE-l
18.	AC Voltmeter Portable 300/600 (AE Make)	ANNEXURE-l
19.	Three Phase, 3 HP, Star/ Delta Starter by L&T/Siemens/ABB	ANNEXURE-l
20.	Three Phase, 5 HP, DOL Oil immersed Starter by L&T/Siemens/ABB	ANNEXURE-l
21.	Single Phase, 1 HP, DOL Starter by L&T/Siemens/ABB	ANNEXURE-l
22.	Phase Sequence Indicator	ANNEXURE-l

D. GENERAL/ STANDARD TERMS AND CONDITIONS OF THE TENDER:-

1. TWO ENEVELOPE BID:-

The tender is to be submitted on two envelope bid pattern i.e. "Technical bid" and "Price/commercial bid" in separately sealed envelopes. Both of these envelopes should be put in and sealed in another envelope addressed to Chairman, Department of Electrical Engineering, Guru Jambheshwar University of Science & Technology, Hisar-125001 (Haryana), India and super-scribed in bold as **"TENDER FOR SUPLLY OF ELECTRICAL MACHINE-II LAB EQUIPMENT".**

The "Technology bid" should mention only in the **"Price/commercial bid format".**

2. BID SIGNING:-

The Tender must be signed by authorized signatory of the bidding firm/company on each page, along with seal of the firm/company, as the case may be.

3. Conditional Bid:-

Conditional Bid is not acceptable. Hence, the supplier is advised neither to alter the specification nor to mention anything on the Tender form, except cost, signature with seal, otherwise his Tender will not be considered.

4. Delivery Destination:-

The Tender of the material will be handed over to the authorized official of the freight charges etc, if any need to be mentioned separately of the basic/ ex-works price of the quoted item.

5. Delivery Acceptance:-

The delivery of the material will be handed over to the authorized official of the concerned indenting department/office, however, the goods will be deemed to accepted subject to the approval of the inspection committee of GJUS&T. In case of rejection of the consignment, the supplier should immediately remove the consignment from the university premises failing which it will remain there at the risk and responsibility of the supplier and university will not be responsible for any kind of liability in this regard.

6. Delivery Period:-

The supply is to be made within 30 days of the date of dispatch of the supply order. However, in case of imported goods this time limit will be 60 days, instead of 30 days.

7 Delivery Period Extension:-

The supply order(s) shall be executed within the time specified in this regard. However, in case of Force Majure / reasons beyond control of the supplier, he may make a written request to the Vice-Chancellor for grant of extension for delivery period. The written request in this regard should clearly spelling out such reasons.

The Vice Chancellor, if he is satisfied of such reasons and further that the requested extension will not be detrimental to the interests of the university, may grant extension for a reasonable period for delivery of the goods. The supplier would be required to indemnify the university against any loss on account of downfall of the price during the extended period.

8. Penality for delayed supply:-

In the even of the delayed supply, if accepted, the Registrar will be competent to impose penalty @ 1% per day of the purchase order, provided that the entire amount of penalty shall not exceed 10% of the total amount of Purchase order. The supply will be deemed to be complete on the day when 100% supply is handed over to the indenter (in case of supply in installments) and its installation is done. An appeal against these orders shall, lie to the Vice-Chancellor whose decision shall be final.

9. EMD forfeiture:-

In case of the contractor backs out the supply, the earnest money deposited by him shall be forfeited. Apart from it, he will be liable for any other action against him, as may be considered necessary by the Vice-Chancellor.

10. Rejection of incomplete tenders:-

Incomplete Tender such as unsigned Tender, late submitted Tender, conditional Tender, not confirming to the eligibility criteria and Technical specification or with any vaguer term such as 'Extra as applicable', will be considered as rejected.

11. Quantity Variation:-

The quantity shall be subject to increase or decrease as the case may be.

12. Manual/literature:-

The detailed literature/catalogue of the quoted instrument and its accessories should also be attached with the tender. The specifications claimed by the firm should be

clearly mentioned in the literature/catalogue also. Its manual should also be supplied with the equipment.

13. Taxation:-

Taxes/Excise duty/custom duty etc. should be quoted independent of the ex-works price of the item and it will be paid as applicable under Government rules, if so quoted by the Supplier in the tender, subject to the certificate in the bill of costs as follows. However, wherever exemption from duty (excise/custom duty) is applicable, the university will provide the exemption certificate, along with supply/purchase order itself.

"Certified that the taxes/duties charged in this bill is leviable under Government Rules".

In case of imported goods the custom clearance is to be arranged by the supplier at his own. Charges, if any, in this regard, however, need to be mentioned accordingly in the quote itself. University will provide necessary documents for this purpose. In case the quote is silent with regard to taxation and clearance charges etc, no such charges will be paid by the university.

14. Right to Bid rejection:-

The University reserves the right to reject any or all offers without assigning any reason.

15. Packaging of Consignment:-

The material should be packed in a strong case so as to avoid any damage, theft or pilferage in the transit, in which case the responsibility shall be that of the supplier.

16. Warranty :-

The warranty should not be less than 24 months from the date of installation of the equipment.

17. Performance Warranty:-

Before release of the payment, the successful bidders will be required to submit a performance warranty in form of bank guarantee equal to 10% of the purchase order for the warranty period of the Equipments.

In case of imported goods requiring opening of LC or advance copy of the draft, the bank guarantee on account of performance warranty, having validity for warranty period plus 4 months, should be submitted before issuance of the purchase order by the indenter. If required, its validity will be got suitably extended by the supplier before release of his EMD.

18. Payment:-

The payment will be made within 30 days of the successful installation and its inspection and further after the on-site training imparted, if it is the requirement of the tender document.

19. Currency:-

The rates be quoted in Indian Currency (I N R). However, in case of imported item it may be quoted in foreign currency where in the date of floating of tender will be taken as the conversion date for bid evaluation and comparassion purpose

20. Earnest Money Deposit (EMD):-

The earnest money of the amount, as per the slab given below, in the form of bank draft Payable at Hisar and drawn in favour of the Registrar, Guru Jambheshwar University Of Sc & Tech. Hisar or a irrevocable bank guarantee, will be required to be remitted

with the tenders. **EMD should be enclosed with price bid and the same should be indicated in the Technical bid also.**

21. Arbitration :

In case of any dispute both the parties will be bounded by the decision of the Vive-Chancellor, GJUS&T, Hisar, as the arbitrator.

22. Jurisdiction:-

All disputes shall be subject to Hisar jurisdiction.

23. EMD Slab :-

Sr. No.	Contract Value	Earnest Money
1.	Rs.3,00,001/- to Rs. 5,00,000/	Rs. 20,000/-
2.	Rs. 5,00,001/- to Rs. 10,00,000/-	Rs. 40,000/-
3.	Rs. 10,00.001/- to Rs.20,00,000/-	Rs. 70,000/-
4.	Above Rs. 20,00,000/-	Rs. 1,00,000/-

The terms & conditions of tender have been read and I/We certify that I/We clearly Understand the same and undertake for its compliance

Place:---------

Dated:_____

Signature of authorized representative of the bidding firm/company with seal.
(Affix Rubber Stamp of the firm)

GURU HAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR-125001

TENDER NO.: _____

DATE: _____

SPECIAL TERMS & CONDITIONS, IF ANY:_____

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR

Format of Tender – Price/commercial bid

TENDER NO & DATE : EE/2020/28; 21-01-2020

A. BASIC/ EX -WORKS PRICE.

Sr. No.	**Brief Description of the Equipments**	**Specifications**	**Qty**	*** Cost per Unit**	*** Total Cost**

* SPECIFY CURRENCY

B. Over Head Charge (Taxation etc.)

Sr.No	Nature of Overhead Charges (Tax/insurance/freight etc.)	Rate	Total amount (Rs)

Total A +B = Rs ---------- (in words Rs……)

We agree to supply the above Equipments in accordance with the above technical specifications for a total contract price referred as above, with in the period specified in the Invitation for Tender. We also confirm that the normal commercial warranty/guarantee as per tender document shall apply to the offered Equipments/Software/Furniture.

Signature of Supplier

Correspondence address of the company
With phone, Fax, and E-mail and
Name & address of contact person.

Place:-

Date:- Signature with seal

ANNEXURE-l

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY HISAR

TENDER NO & DATE: EE/2020/28; 21-01-2020

TECHNICAL SPECIFICATION / TECHNICAL DATA SHEET OF THE EQUIPMENT/ITEM REQUIRED

S. No.	Description of the Equipment(s) with Technical Specifications
1.	**Experimental Setup to perform Load test on a 3-phase induction motor & DC generator set and to determine the efficiency of induction motor.** **Details:** 1 M. G. Set Comprised of Squirrel cage induction motor (Siemens/ABB/ Crompton/Kirloskar/Havells make) of 3 Phase, 3 HP, 415V, 1440 RPM, DOL Starter (L & T Make) coupled with DC Shunt Generator of 2 KW, 1500 RPM, 230 Volts. Motor Generator set is horizontal foot mounted with M.S. frame and channel base. Experimental panel fitted on Engraved Bakelite sheet enclosed in almirah type ms box suitable for table mounting with all necessary connection/circuit terminals (insulated), measuring instruments (voltmeter, ammeter, portable wattmeter and digital tachometer of AE make), protective devices and other relevant accessories.
2.	**Experimental Setup to perform light running and block rotor test to determine the parameters of the equivalent circuit of single phase induction motor.** **Details:** Capacitor start Single phase Induction Motor (Siemens/ABB/ Crompton/Kirloskar/ Havells make) of 1 HP, 230 V, 50 Hz, 1500 RPM with DOL starter (L&T Make) and Pony Brake loading arrangement. Motor is horizontal foot mounted TEFC enclosure, with brake pony mechanical loading arrangement which consists of water cooled C.I. drum pulley, round dial spring balances, canvass belt with hooks, C.P. threaded studs with C.P. wheels for tightening the belt, M.S. frame and channel base. Experimental panel fitted on Engraved Bakelite sheet enclosed in almirah type ms box suitable for table mounting with all necessary connection/circuit terminals (insulated), measuring instruments (voltmeter, ammeter, portable wattmeter and digital tachometer of AE make), protective devices and other relevant accessories.
3.	**Experimental Setup to perform the open circuit test and block rotor test on three phase induction motor and draw the circle diagram.** **Details:** Squirrel cage induction motor (Siemens/ABB/Crompton/ Kirloskar/Havells make) 3 Phase, 3 HP, 415V, 1440 R.P.M. with DOL Starter (L&T Make) with Brake Pony loading arrangement Motor is horizontal foot mounted TEFC enclosure, with pony brake mechanical loading arrangement which consists of water cooled C.I. drum pulley, round dial spring balances, canvass belt with hooks, C.P. threaded studs with C.P. wheels for tightening the belt, M.S. frame and channel base. Experimental panel fitted on Engraved Bakelite sheet enclosed in almirah type ms box suitable for table mounting with all necessary connection/circuit terminals (insulated), measuring instruments (voltmeter, ammeter, portable wattmeter and digital tachometer of AE make), protective devices and other relevant accessories.

4.	**Experimental Setup to find out the rotor resistance of a poly phase induction motor.** **Details:** Slip-ring Induction Motor (Siemens/ABB/Crompton/ Kirloskar/Havells make) of 3 HP, 415 V, 1440 RPM with Rotor Resistance Starter (L&T/ABB/Siemens/Generic make) Push button type having inter lock arrangement and Brake Pony loading arrangement. Motor is horizontal foot mounted TEFC enclosure, with brake pony mechanical loading arrangement which consists of water cooled C.I. drum pulley, round dial spring balances, canvass belt with hooks, C.P. threaded studs with C.P. wheels for tightening the belt, M.S. frame and channel base. Experimental panel fitted on Engraved Bakelite sheet enclosed in almirah type ms box suitable for table mounting with all necessary connection/circuit terminals (insulated), measuring instruments (voltmeter, ammeter, portable wattmeter and digital tachometer of AE make), protective devices and other relevant accessories.
5.	**Experimental Setup to calculate regulation by synchronous impedance method:** **a) Conduct open and short circuit test on a three phase alternator.** **b) Determine and plot variation of synchronous impedance with I_f.** **c) Determine S.C.R.** **d) Determine regulations for 0.8 lagging power factor, 0.8 leading power factor and unity power factor.** **Details:** 1 M. G. Set Comprised of DC Shunt of 3 HP, 220V, 1500 RPM, directly coupled to Alternator of Rotating field type separately excited of 3 Phase, 2 KVA, 415 V, 1500 RPM, 0.8 P.F., 3 Phase Resistive Load of 3.75 KW, 3 Phase Inductive Load of 6 A, 3 Phase Capacitive Load of 5 A. Motor Generator set is horizontal foot mounted with M.S. frame and channel base. Experimental panel fitted on Engraved Bakelite sheet enclosed in almirah type ms box suitable for table mounting with all necessary connection/circuit terminals (insulated), measuring instruments (voltmeter, ammeter, portable wattmeter and digital tachometer of AE make), protective devices and other relevant accessories.
6.	**Experimental Setup to plot V-Curves of a synchronous machine.** **a) Determination of Xo of a synchronous machine.** **b) Measurement Xd' + Xq' (Direct axis and Quadrant axis).** **Details:** 1 M. G. Set Comprised of Self synchronising Induction Start with built in separate Excitation controlling arrangement Synchronous Motor of 3 Phase, 3HP, 1500 RPM, 440 volts coupled with DC Shunt Generator of 1.5 KW, 230 V, 1500 RPM with Class 'B' Insulation, DC Shunt Motor 1 HP for excitation. Motor Generator set is horizontal foot mounted with M.S. frame and channel base. Experimental panel fitted on Engraved Bakelite sheet enclosed in almirah type ms box suitable for table mounting with all necessary connection/circuit terminals (insulated), measuring instruments (voltmeter, ammeter, portable wattmeter and digital tachometer of AE make), protective devices and other relevant accessories.
7.	**Experimental Setup to conduct the load test to determine the performance characteristics of the three Phase Induction Motor.** **Details:** Squirrel Cage Induction Motor of 3 phase (Siemens/ABB/ Crompton/ Kirloskar/Havells make), 3HP, 415V, 1440 RPM with Star/Delta starter (L&T/Siemens/ABB) with Brake Pony loading arrangement. Motor is horizontal foot mounted TEFC enclosure, with ponney brake mechanical loading arrangement which consists of water cooled C.I. drum pulley, round dial spring balances, canvass belt with hooks, C.P. threaded studs with C.P. wheels for tightening the belt, M.S. frame and channel base. Experimental panel fitted on Engraved Bakelite sheet enclosed in almirah type ms box

	suitable for table mounting with all necessary connection/circuit terminals (insulated), measuring instruments (voltmeter, ammeter, portable wattmeter and digital tachometer of AE make), protective devices and other relevant accessories.
8.	Squirrel cage induction motor by Siemens/ABB/Crompton /Kirloskar/ Havells: 3 Phase, 2 HP, 415V, 1500 R.P.M. with Brake Pony loading arrangement Motor is horizontal foot mounted TEFC enclosure, with pony brake mechanical loading arrangement which consists of water cooled C.I. drum pulley, round dial spring balances, canvass belt with hooks, C.P. threaded studs with C.P. wheels for tightening the belt, M.S. frame and channel base.
9.	Squirrel cage induction motor by Siemens/ABB/Crompton /Kirloskar/ Havells: 3 Phase, 0.5 HP, 415V, 1500 R.P.M. with Brake Pony loading arrangement Motor is horizontal foot mounted TEFC enclosure, with pony brake mechanical loading arrangement which consists of water cooled C.I. drum pulley, round dial spring balances, canvass belt with hooks, C.P. threaded studs with C.P. wheels for tightening the belt, M.S. frame and channel base.
10.	Capacitor Single Phase induction motor by Siemens/ABB/ Crompton/ Kirloskar/ Havells: 1 HP, 230V, 1500 R.P.M. with Brake Pony loading arrangement Motor is horizontal foot mounted TEFC enclosure, with pony brake mechanical loading arrangement which consists of water cooled C.I. drum pulley, round dial spring balances, canvass belt with hooks, C.P. threaded studs with C.P. wheels for tightening the belt, M.S. frame and channel base.
11.	Universal Motor 1 Phase 1HP, 1500 RPM, 240 volts Brake Pony loading arrangement Motor is horizontal foot mounted TEFC enclosure, with pony brake mechanical loading arrangement which consists of water cooled C.I. drum pulley, round dial spring balances, canvass belt with hooks, C.P. threaded studs with C.P. wheels for tightening the belt, M.S. frame and channel base.
12.	**Digital Tachometer (Generic)**
13.	**AC Wattmeter Portable, 1-Phase, 5/10A, 150/300/600V, 250/500 Watt (AE Make)**
14.	**AC Wattmeter Portable, 1-Phase, 5/10A, 75/150/300 V, 150/300 Watt (AE Make)**
15.	**AC Ammeter Portable Moving Iron 1/2A (AE Make)**
16.	**AC Ammeter Portable Moving Iron 5/10A (AE Make)**
17.	**AC Voltmeter Portable 150/300 (AE Make)**
18.	**AC Voltmeter Portable 300/600 (AE Make)**
19.	**Three Phase, 3 HP, Star/ Delta Starter by L&T/Siemens/ABB**
20.	**Three Phase, 5 HP, DOL Oil immersed Starter by L&T/Siemens/ABB**
21.	**Single Phase, 1 HP, DOL Starter by L&T/Siemens/ABB**
22.	**Phase Sequence Indicator**

HISAR
DATED:

SIGNATURE
Chairman, Department of Electrical Engineering,
GJUS&T, Hisar
(WITH OFFICE SEAL)

BIDDER’S ACKNOWLEDGEMENT

I UNDERTAKE TO SUPPLY THE EQUIPMENT / ITEM AS PER ABOVE TECHNICAL SPECIFICATIONS

PLACE: (SIGN WITH SEAL OF THE BIDDER)

DATED :