MINUTES OF THE PRE-BID MEETING OF ELECTRICAL ENGINEERING TECHNOLOGY TENDER

The aforesaid meeting was held on 11.09.2023 at 11:00 a.m. in the Conference Room of UOT, Nowshera. Following attended the meeting.

1. Dr. Shahid Iqbal, Chairman/Member
2. Engr. Muhammad Lais, DD (P&D)
3. Mr. Mehran Khan, AD (Fin)/Member
4. Mr. Tauseef Ahmad, AR (Admin)/Member
5. Mr. Abubakar Shinwari, Proc: Officer/Member
6. Mr. Momin Shah, External Procurement Expert/Member
7. Mr. Irshad Ali, External Procurement Expert/Member
8. Dr. Naved Jan, HoD Electrical Engineering Technology
9. Dr. Saad Ijaz Majid, Lecturer Electronics Engineering Technology

Representatives of the prospective bidders also attended the meeting as per list attached.

The meeting started with the name of ALLAH. Thereafter, Dr. Shahid Iqbal, Chair of the Procurement Committee welcomed the participants and invited the representatives of prospective bidders to ask queries, if any in the terms and conditions of tender documents or specifications. The details of the queries and their clarifications/recommendations are as under:

S. NO	QUERY	CLARIFICATION/RECOMMENDATIONS
1	Bidders expressed concerns regarding the certification of lab equipment as specified in the bidding documents.	The committee agreed and recommended that certificate of ISO 14001 and of OHSAS 18001/ISO 45001 “mandatory certifications” mentioned under Lot-1 at page-35 and Lot-2 at page-39 of the bidding documents may be removed.
2	The bidders raised concerns regarding training as mentioned in **Form 7**of the bidding documents.	The committee members recommended that the statement “(Original/Equipment Manufacturer premises Address)” may be removed from **Form 7** of BSDs.
3	Modification in specifications of Lab Equipment	The technical committee revised the lists of items and technical specifications in some items. The Committee recommended that the lists of items given in the bidding documents may be replaced with the attached revised lists of items prepared by the Technical Committee.
4	Extension of Bid Submission Date	The committee recommended that the due date for submission and opening of bids may be extended to **25/09/2023**
5	Lot-wise and item-wise prices and evaluation	The committee recommended that ITB 11.3 (page-7), ITB 11.4 (page-14), may be substituted as under: - “Prices shall be quoted for all the items given in lot-1 and for the entire quantity demanded. Partial lot or partial quantity offers shall be rejected for lot-1. For lot-2 and lot-3, prices can be quoted for all the items or for any particular item. However, the price offered for any line item must be for the entire quantity demanded. Partial quantity offers shall

		straightaway be rejected. Conditional offers shall be considered as non-responsive".

After thorough deliberation, all committee members unanimously agreed that the above recommendations shall be forwarded to the Competent Authority for consideration and approval. Following the approval by the Competent Authority, a corrigendum may be issued in the national dailies for extension in date of submission/opening of bids, and the above changes may be made part of bidding documents and uploaded on the KPPRA/University website and shared with the bidders who have purchased the bidding documents.

Electrical Engineering Technology

Revised list of items and specifications After Pre-Bid Meeting dated 11/09/2023

LOT # 1

Valid Certificate of ISO 9001 Registration/ Certifications is Mandatory

S. No.	Name of Equipment	Specifications	Quantity
1	DC Permanent magnet machine	**Motor and Generator** • **Rating: Min.** 300 watt • **Speed:**Min. 2000 rpm • **Connection Method:** Shielded, double conductor leads for enclosed version. Solder terminals on open unit. • **Rotation:** Direction is CCW when positive terminal is plus and viewing shaft end. • **Reversibility**: Motor reverses when voltage is reversed.	3 Each
2	DC Shunt wound machine	• Power: **Min.** 300 watt •Voltage: 220 V • Speed: Min. 2000 rpm	3
3	DC Series wound machine	• Power: **Min.** 300 watt • Voltage: 220 V • Speed: Min. 2000 rpm	3
4	DC Compound wound machine	• Power: **Min.** 300 watt • Voltage: 220 V • Speed: Min. 2000 rpm	3
5	Universal Motor	• Power: Min. 300 Wac / 300 W dc • Voltage: 220 Vac / 220 V dc • Speed: Min. 2000 rpm, 50 Hz	3
6	Single Phase Transformer	• Rated power: Min. 300 VA • Frequency: 50 Hz	3
7	Single Phase Transformer with variable output	• Rated power: Min. 300 VA • Frequency: 50 Hz	3
8	Single Phase Auto Transformer	• Rated power: Min. 300 VA • Frequency: 50 Hz	3
9	Three Phase Transformer	• Power: Min. 300 VA • Frequency: 50/60 Hz	3
10	DC Motor/ Generator Field regulator	**AC INPUT:** • 230 VAC ± 10%, 50/60 Hz ± 2 Hz, 1 Phase • 460 VAC ± 10%, 50/60 Hz ± 2 Hz, 1Phase **MAXIMUM DC FIELD OUTPUT:** • 200 VDC, 10 Amps, 35 Amps for @ 230 VAC input • 400 VDC, 10 Amps, 35 Amps for @ 460 VAC input	3 Each

		MAXIMUM TACHOMETER INPUT: • 250 VDC	
11	Digital RPM meter	• Testing Range Contact: 1 To 19999 RPM • Non-Contact 1 to 99999 RPM • Resolution: ⊖ Contact: RPM :0.1RPM ○ Non-Contact: 0.1RPM • Accuracy ±0.05%	3
12	Digital Power Factor meter	• **Measuring Method:** Cosine of Phase Shift between Voltage and Current • **Sampling Rate**: 2.5 Samples per Second • **Display Type:** Red or green LED (Standard) • **Maximum Display**: 4 Digits to indicate PF • **Resolution:** 0.001 PF	3
13	Magnetic Powder brake unit compatible with the above mentioned machines	• Electromagnetic brake. • Provided with water level, arms, weight and balance weight for measuring the output torque of the motor. • Provision of assembling a load cell. • The brake should include an axial cooling fan that is supplied by the mains voltage. • Maximum supply voltage: 20 Vdc • Maximum speed: 4000 rpm • Maximum power: 400 W	3
14	Brake control Unit	Brake control unit should be suitable for power supplying with variable voltage for the powder brake. • Output: 0-10 V, 2 A or 0-20 V, 2 A • Power supply: single-phase from mains	3
15	Coupling sleeves	Should be compatible with all the listed equipment	6
16	Coupling guards	Should be compatible with all the listed equipment	6
17	Shaft end guard	Should be compatible with all the listed equipment	6
18	Power Supply	Power supplies for all the listed equipment mentioned above and should be compatible with each other.	3
19	Load switch	Load switch compatible with all the listed items and equipment.	3
20	Reversing switch	Reversing switch compatible with all the listed items and equipment.	3
21	Star delta switch	Star/delta switch compatible with all the listed items and equipment.	3
22	Selector switch	Selector switch compatible with all the listed items and equipment.	3
23	Universal starter	Universal starter compatible with all the listed items and equipment.	3
24	3- phase load resistor	• Three-phase resistive step-variable load. • Max power: 3 x 110 W • Max. voltage: 220/380 V Δ/Y	3
25	3- phase load inductor	• Three-phase inductive step-variable load. • Max. power: 3 x 100 VAR • Max. voltage: 220/380 V Δ/Y	3
26	3- phase load capacitor	• Three-phase capacitive step-variable load. • Max. power: 3 x 105 VAR • Max. voltage: 220/380 V Δ/Y	3
27	AC Power Energy meter	**<u>Single phase energy meter</u>** • Operating voltage 240 Volts	3 Each

		• Basic/Max Current 10/40 Amp • Reference Frequency 50Hz • Accuracy Class 1.0 • Meter Constant 1000 imp/kWh • Starting Current Less than 40mA • Compatible with all the listed equipment and machines **Three Phase Energy meter:** • Connection Wiring 3-Phase, 4-Wire • Connection Configuration Direct Connected • Display LCD • Display Resolution 6 Digits • Storage of Data Non-Volatile Memory (EEPROM) • Operating Voltage 3×230/400V • Basic / Max Current 10 / 100 A • Reference Frequency 50Hz • Accuracy Class - For Active Energy Class 1.0 - For Reactive Energy Class 2.0 • Meter Constant - Active and reactive 1000imp/KWh • Starting Current Less than 40mA	
28	Ammeter	• Digital ammeter • Analog bar graph representation of current • Current measuring range: 0-20 A (AC) • Input Voltage range: 0- 240V (AC) • Compatible with all the listed items and equipment	3
29	Voltmeter	• Digital Voltmeter • Analog bar graph representation of voltage • Voltage measuring range: 0- 300V (AC) • Compatible with all the listed items and equipment	3
30	Machine bed	Universal Bed compatible with all the machines and equipment listed.	3

List of Experiments:

The above equipment (Lot 1) should be capable of performing at least the below listed experiments.

1. Running of DC motor as generator action.
2. Speed control of DC motor by armature control.
3. Speed control of DC motor by field control.
4. No load saturation characteristics of separately excited DC generator.
5. Speed/voltage characteristics of self-excited DC generator.
6. Speed/torque characteristics of DC motor.
7. Determination of BHP of motor by brake test.
8. Determination of torque and efficiency by dynamo meter.
9. Regenerative or Hopkinson's test.
10. Determination of efficiency of a single phase transformer by open and short circuit tests.

LOT # 2 (Lot-based procurement)

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S. No	Name of Equipment	Specifications	Quantity
1	Closed Loop Control Engineering Trainer	A control systems trainer capable of providing training on control related topics, especially about the design, deployment and analysis of PID controller.	3

List of Experiments:

The above equipment (Lot 2) should be capable of performing at least the below listed experiments.

1. Study of DC servomechanism.
2. Perform speed control of servo motor in open loop configuration.
3. Perform position control of servo motor in open loop configuration.
4. Perform speed control of servo motor in closed loop configuration.
5. Perform position control of servo motor in closed loop configuration.
6. Demonstration of Temperature Control Loop on Temperature Trainer.
7. Demonstration of Level Control Loop on Level Trainer.
8. Study of AC Servomechanism.
9. Servomotor OR Ball Beam OR inverted pendulum control using PID controller.

(Item wise procurement)

Valid Certificate of ISO 9001 Registration/ Certifications is Mandatory

1	Digital Multimeter	DC Voltage: Max. resolution 0.1 mV Maximum 1000 V AC Voltage: Max. resolution 0.1 mV Maximum 1000 V DC Current: Max. resolution 0.01 mA Maximum 10 A AC Current: Max. resolution 0.01 mA Maximum 10 A Resistance: Max. resolution 0.1 Ω Maximum 50 MΩ Capacitance: Max. resolution 1 nF Maximum 10,000 µF Frequency: Max. resolution 0.01 Hz Maximum 100 kHz	08
3	Digital Dual Power Supply	**AC Input:** VAC 115/230 ±10%, 50/60 Hz **Max Output Power:** 100 W Number of Outputs: 2 independent & electrically isolated outputs **Range Variable:** 1. 0-30 VDC / 0-3 A 2. Fixed: 5 V / 3 A **Line Regulation:** • CC Mode= ±0.05% + 3 mA • CV Mode= ±0.05% + 3 mV	05

		Display Accuracy: • Voltage & Current= 0.1% + 2 digits • Fixed 5 V Output= ± 0.25 V	
4	Digital Oscilloscope	1. Bandwidth 100 MHz 2. Channels 4 channels 3. Sampling Rate 1 Giga Samples/sec or above 4. Record length 1 M points or above 5. Trigger Types: Edge, Video, Pulse width, Setup and Hold, Logic, Runt, Rise/Fall time triggering 6. Trigger Modes: Auto, normal and Single 7. Vertical Sensitivity: 2 mV to 5 V/div or better 8. DC vertical accuracy: ± 3 % or better 9. Vertical Resolution 8 bits or higher 10. Time Base Range: 5 ns to 50 s/div or better 11. Input Impedance 1 M Ω ± 2% 12. FFT Function Must be available 13. Maximum Input voltage: Maximum Input voltage of the analog channel should be 300 V RMS 14. Time base accuracy: 50 ppm or better 15. Display Color LED/LCD display with minimum 7 inch screen size	03