



Pak-Austria Fachhochschule: Institute of Applied Sciences & Technology, Haripur

KHYBER PAKHTUNKHWA

REQUEST FOR PROPOSAL (RFP) FOR “Supply of Teaching Lab Equipment”

Submission of Bids: Monday the February 24, 2020 @ 12:00 noon

Opening of Bids: Monday the February 24, 2020 @ 12:30 pm

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Section 1. Letter of Invitation

The Pak-Austria Fachhochschule: Institute of Applied Sciences & Technology (PAF- IAST), Haripur invites sealed bids from interested firms for the “Supply of Teaching Lab Equipment” under the following Lots.

Lot No. 1. Electronics/DLD/Embedded Systems Lab Equipment
Digital Oscilloscope (Qty: 50 Units), Handheld Digital Multimeter (Qty: 75 Units), Dual DC power supply (Qty: 50 Units), Digital Logic Trainer Kits (Qty: 25 Sets), Arduino Starter kit (Qty: 25 Sets), Spartan-3 FPGA Evaluation Kit (Qty: 25 Sets), Microprocessor Based Trainer Kits (Qty: 25 Sets), Raspberry Pi-3 kit (Qty: 25 Sets), Matlab license 2019b (Server-based License), Breadboard module (Qty: 25 sets), Function generator (Qty: 25 Units), Soldering station (Qty: 6 Units), LCR Meter (Qty: 5 Units)
Lot No. 2. Electrical Workshop Equipment
Home Electric Wiring Trainers (Qty: 25 Sets), Electric Installation Safety Measurement Trainers (Qty: 25 Sets), Electrical Welding Machines (Qty: 1 Unit), Gas Welding Machine (Qty: 1 Unit)
Lot No. 3. Thermodynamics Lab Equipment
One unit each (Otherwise mentioned)
Expansion Process unit, Temperature Measurement and Calibration unit, Pressure Measurement and Calibration unit, Saturation Pressure Unit, Recycle Loop, Mechanical Heat Pump, Solar Energy Demonstration Unit, Refrigeration Cycle Demonstration Unit, Single Cylinder Steam Engine, Mechanical Equivalent of Heat Apparatus, Laser Thermometers
Lot No. 4. Fluid Mechanics Lab Equipment
One unit each (Otherwise mentioned)
Flow Meter Trainer, Fluid Friction Apparatus, Bernoulli’s Theorem Apparatus, Drag Coefficient Apparatus, Free & Forced Vortex Apparatus, Hydraulics Bench, Fluid Statics and Manometry, Osborne-Reynold’s Demonstration Unit, Multi-Pump Test Rig, Fixed and Fluidized Bed Equipment, Centrifugal Fan Demonstration Unit (Computer Linked), Centrifugal Pump Demonstration Unit (Computer Linked)
Lot No. 5. Heat Transfer Lab Equipment
One unit each (Otherwise mentioned)
Concentric Double Pipe Heat Exchanger, Shell & Tube Heat Exchanger, Radiation Heat Transfer Unit, Film & Drop Wise Condensation Unit, Flow Boiling Demonstration Unit, Free and Force Convection Unit, Heat Conduction Unit, Thermal Conductivity Apparatus, Plate and Frame Heat Exchanger
Lot No. 6. Chemistry Lab Equipment
Bomb Calorimeter (Qty: 4), UV/Visible Spectrophotometer (Qty: 4), Mechanical Shaker (Qty: 5), Water Bath 4 & 6 Holes (Qty: 5), UV Lamp (Qty: 15), Water Distillation Assembly (Qty: 4), Melting Point Apparatus, Table-Top Centrifuge (Qty: 2), Conductivity meter (Qty: 10), Abbes Refractometer (Qty: 5), Hot plate with magnetic stirrer (Qty: 12), Oven (Qty: 4), Analytical Electronic Balance: Range min. (0.0001g-100g) (Qty: 8), Analytical Electronic Balance: Range min. (0.001g-3000g) (Qty: 4), Flame Photometer, Oil Bath (Qty: 4), Glass Viscometer (Qty: 8), Ultrasonic Bath (Qty: 5), Desiccator with vacuum pump (Qty: 3), Rotary Evaporator, Fume Hood (Qty: 2), Heating Mantle (Qty: 6), pH Meter (Qty: 10); Furnace (Qty: 2), Autoclave (Qty: 4)
Lot No. 7. Physics Lab Equipment
One unit each (Otherwise mentioned)
Faraday’s Law Apparatus, LRC Circuit Apparatus, Specific Heat Apparatus, Newton’s Laws Apparatus, Projectile Motion Apparatus, Universal Digital Multimeter, General Purpose Digital Multimeter, Inverse Square Law Demonstrator, Coulomb’s Law Demonstrator
Lot No. 8. Workshop Lab Equipment
Pillar drill (Qty: 5), Cut Off Machine (Qty: 5), Bench grinder (Qty: 5), Shaper machine (Qty: 2), Milling machine (Qty: 2), Lath Machine (Qty: 4), CNC Machine, Tool Kit (Qty: 10)
Lot No. 9. Consumable Items
Chemicals and glassware

The bidder must be registered and duly recognized in Pakistan, and be registered with FBR; possess Manufacturer’s status or Distributor/ Dealer status with authorization from Manufacturer/ Principal specific for this tender, with sufficient financial, technical and human resources to take up the task assigned and complete the same within prescribed time limit on the finalization of contract with PAF- IAST.

Tender document containing instructions to bidders covering definitions, introduction/background of the Project, scope of work, general terms and conditions, and special terms, procedure for submission of bids, opening of bid, evaluation criteria, and other related information, can be obtained against a written request on company's letterhead, from Pak-Austria Fachhochschule: Institute of Applied Sciences & Technology, Haripur – Pakistan. Cost of the document is Rs. 300/- Non-refundable (Stationery charges) for each LOT separately. Tender document can also be downloaded from <http://www.paf-iaist.edu.pk/> free of cost, however, interested bidders will be required to have registered copy purchased from PAF-IAST, in order to participate in tender process.

Bidder(s) interested in participating in the tender process are advised to submit their Bid Proposal(s), along with the Earnest Money amounting 2% of their Bid Value in the shape of CDR, in accordance with the instructions in this tender document. Bid Proposal(s) must reach PAF-IAST, Haripur on Monday the February 24, 2020 by 1200 hrs. Any late Bid(s) shall not be accepted and returned unopened. Accepted Bids will be opened on the same day at 1230 hrs, in presence of bidders who chose to attend. In case of sudden holiday on bid opening day, bids will be opened on next working day. The Tender shall be executed in accordance with KPPRA Rule 6 (2)(a) "Single Stage, One Envelope Procedure".

This advertisement is also available on PAF: IAST and PPRA websites <http://www.paf-iaist.edu.pk/> & <http://www.kppra.org.pk> .

Project Director

Pak-Austria Fachhochschule: Institute of Applied Sciences & Technology (PAF-IAST)

Haripur – Khyber Pakhtunkhwa

Phone: 0995-645113-18 E-Mail: info@paf-iaist.edu.pk

Section 2. Instruction to Bidders (ITB)

A. GENERAL TERMS	
1. Introduction	<p>1.1 Bidders shall adhere to all the requirements of this ITB, including any amendments made in writing by PAF-IAST. This ITB will be governed under Clause 6 (2)(a) "Single Stage, One Envelope Procedure" of Khyber Pakhtunkhwa Public Procurement Rules, 2014, as amended from time to time and instructions of the Government of Khyber Pakhtunkhwa received during the completion of the project.</p> <p>1.2 Any Bid submitted will be regarded as an offer by the Bidder and does not constitute or imply the acceptance of the Bid by PAF-IAST. The Institute is under no obligation to award a contract to any Bidder as a result of this ITB.</p> <p>1.3 PAF-IAST reserves the right to cancel the procurement process at any stage without any liability of any kind for PAF-IAST, upon notice to the bidders or publication of cancellation notice on PAF- IAST website.</p>
2. Fraud & Corruption, Gifts and Hospitality	<p>2.1 PAF-IAST strictly enforces a policy of zero tolerance on proscribed practices, including fraud, corruption, collusion, unethical or unprofessional practices, and obstruction of PAF-IAST vendors and requires all bidders/ vendors observe the highest standard of ethics during the procurement process and contract implementation.</p> <p>2.2 Bidders/ vendors shall not offer gifts or hospitality of any kind to PAF-IAST staff members including recreational trips to sporting or cultural events, theme parks or offers of holidays, transportation, or invitations to extravagant lunches or dinners.</p> <p>2.3 In pursuance of this policy, PAF-IAST:</p> <p>(a) Shall reject a bid if it determines that the selected bidder has engaged in any corrupt or fraudulent practices in competing for the contract in question;</p> <p>(b) Shall declare a vendor ineligible, either indefinitely or for a stated period, to be awarded a contract if at any time it determines that the vendor has engaged in any corrupt or fraudulent practices in competing for, or in executing a PAF- IAST contract; or counseling or canvassing staff or elected representatives; or engaging in collusion with other bidders.</p>
3. Eligibility	<p>3.1 A Bidder should not be suspended, debarred, or otherwise identified as ineligible by any Government/ Semi-government/ or any other international Organization. Bidders are therefore required to disclose to PAF-IAST whether they are subject to any sanction or temporary suspension imposed by these organizations.</p> <p>3.2 It is the Bidder's responsibility to ensure that its employees, sub-contractors, service providers, suppliers and/ or their employees meet the eligibility requirements as established by PAF-IAST.</p>
4. General Terms	<p>4.1 The Bidder should be registered with Sales Tax and Income Tax Department as well as with the Khyber Pakhtunkhwa Revenue Authority.</p> <p>4.2 The Bidder should have not been blacklisted by any Government/ semi Government organization.</p> <p>4.3 There should be no litigation against the bidder/ firm.</p>

B. PREPARATION OF BIDS

<p>5. General Considerations</p>	<p>5.1 In preparing the Bid, the Bidder is expected to examine the ITB in detail. Material deficiencies in providing the information requested in the ITB may result in rejection of the Bid.</p> <p>5.2 The Bidder will not be permitted to take advantage of any errors or omissions in the ITB. Should such errors or omissions be discovered, the Bidder must notify the Project Director, PAF-IAST accordingly.</p>
<p>6. Cost of Preparation of Bid</p>	<p>6.1 The Bidder shall bear all costs related to the preparation and/ or submission of the Bid, regardless of whether its Bid is selected or not. PAF-IAST shall not be responsible or liable for those costs, regardless of the conduct or outcome of the procurement process.</p>
<p>7. Language</p>	<p>7.1 The Bid, as well as any, and all related correspondence exchanged by the Bidder and PAF- IAST, shall be written in the language(s) specified in the BDS.</p>
<p>8. Documents Comprising the Bid</p>	<p>8.1 The Bid shall comprise of the following documents and related forms of which details are provided in the BDS. All pages of the Bid shall be signed, stamped and properly paginated.</p> <ul style="list-style-type: none"> a) Returnable Forms as referred in Section 6 shall be properly filled in Ink or Typed. Forms filled in using a pencil shall not be considered and substantiate the annulment of the Bid Proposal. b) Documents Establishing the Eligibility and Qualifications of the Bidder; c) Bid covering Technical Specifications in detail, and covering Price Schedule; d) Bid Security, if required by BDS; e) Any attachments and/ or appendices to the Bid.
<p>9. Documents Establishing the Eligibility and Qualifications</p>	<p>9.1 The Bidder shall furnish documentary evidence of its status as an eligible and qualified supplier, using the Forms provided under Section 6 and providing documents required in those forms. In order to award a contract to a Bidder, its qualifications must be documented to PAF-IAST's satisfaction.</p>
<p>10. Technical Bid Format and Content</p>	<p>10.1 The Bidder is required to submit a Bid using the Standard Forms and templates provided in Section 6 of the ITB.</p> <p>10.2 Samples of items, when required as per Section 5, shall be provided within the time specified and unless otherwise specified by the Purchaser, at no expense to the Institute. If not destroyed by testing, samples will be returned at Bidder's request and expense, unless otherwise specified.</p> <p>10.3 When applicable and required in Section 5, the Bidder shall describe the necessary training program available for the maintenance and operation of the equipment offered as well as the cost to the Institute. Unless otherwise specified, such training as well as training materials shall be provided in the language of the Bid as specified in the BDS.</p> <p>10.4 When applicable and required in Section 5, the Bidder shall certify the availability of spare parts for a period of at least five (5) years from date of delivery, or as otherwise specified in this ITB.</p>
<p>11. Price Schedule</p>	<p>11.1 The Price Schedule shall be prepared using the Forms provided in Section 6 of the ITB and taking into consideration the requirements in the ITB.</p> <p>11.2 Any requirement described in this ITB but not priced in the Price Schedule, shall be assumed to have been included in the prices of other activities or items, as well as in the final total price.</p>

<p>12. Bid Security</p>	<p>12.1 A Bid Security shall be provided in the amount and form indicated in the BDS. The Bid Security shall be valid for the duration as referred in BDS.</p> <p>12.2 The Bid Security shall be included along with the Bid. If Bid Security not found in the Bid, the Bid shall be rejected.</p> <p>12.3 If the Bid Security amount or its validity period is found to be less than what is required, PAF-IAST shall reject the Bid.</p>
	<p>12.4 In the event an electronic submission is allowed in the BDS, Bidders shall include a copy of the Bid Security in their bid and the original of the Bid Security must be sent via courier or hand delivery as per the instructions in BDS.</p> <p>12.5 The Bid Security will be forfeited by PAF-IAST, and the Bid rejected, in the event of any, or combination, of the following conditions:</p> <ul style="list-style-type: none"> a) If the Bidder withdraws its offer during the period of the Bid Validity specified in the BDS, or; b) In the event the successful Bidder fails: <ul style="list-style-type: none"> i. to sign the Contract after PAF-IAST has issued an award; or ii. to furnish the Performance Security, insurances, or other documents that PAF-IAST may require as a condition precedent to the effectivity of the contract that may be awarded to the Bidder.
<p>13. Currencies</p>	<p>13.1 All prices shall be quoted in the currency indicated in the BDS. Where prices are quoted in different currencies, for the purposes of comparison:</p> <ul style="list-style-type: none"> a) PAF-IAST will convert the currency quoted into the currency indicated in BDS, in accordance with the prevailing Inter Bank rate of exchange on the last day of submission of Bids; and b) In the event that PAF-IAST selects a Bid for award that is quoted in a currency different from the preferred currency in the BDS, PAF-IAST shall reserve the right to award the contract in the currency of PAF-IAST's preference, using the conversion method specified above.
<p>14. Joint Venture, Consortium or Association</p>	<p>14.1 If the Bidder is a group of legal entities that will form or have formed a Joint Venture (JV), Consortium or Association for the Bid, they shall confirm in their Bid that : (i) they have designated one party to act as a lead entity, duly vested with authority to legally bind the members of the JV, Consortium or Association jointly and severally, which shall be evidenced by an intent letter or an Agreement among the legal entities duly notarized, and submitted with the Bid; and (ii) if they are awarded the contract, the contract shall be entered into, by and between PAF-IAST and the designated lead entity, who shall be acting for and on behalf of all the member entities comprising the joint venture.</p> <p>14.2 After the Deadline for Submission of Bid, the lead entity identified to represent the JV, Consortium or Association Or any change in the constitution of the JV, Consortium or Association shall not be altered without the prior written consent of PAF-IAST/ Procurement Committee.</p> <p>14.3 The lead entity and the member entities of the JV, Consortium or Association shall abide by the provisions of Clause 15 herein in respect of submitting only one Bid.</p> <p>14.4 The description of the organization of the JV, Consortium or Association must clearly define the expected role of each of the entities in the joint venture in delivering the requirements of the ITB, both in the Bid and the JV, Consortium or Association Agreement or Intent Letter. All entities that comprise the JV, Consortium or Association shall be cumulatively subject to the eligibility and</p>

	<p>technical qualification assessment by PAF-IAST as defined in Section 4: Evaluation Criteria.</p> <p>14.5 A JV, Consortium or Association in presenting its track record and experience should clearly differentiate between:</p> <ul style="list-style-type: none"> a) Those that were undertaken together by the JV, Consortium or Association; and b) Those that were undertaken by the individual entities of the JV, Consortium or Association. <p>14.6 Previous contracts completed by individual experts working privately but who are permanently or were temporarily associated with any of the member firms cannot be claimed as the experience of the JV, Consortium or Association or those of its members, but should only be claimed by the individual experts themselves in their presentation of their individual credentials.</p>
<p>15. Only One Bid</p>	<p>15.1 The Bidder (including the individual members of any Joint Venture) shall submit only one Bid, either in its own name or as part of a Joint Venture.</p> <p>15.2 Bids submitted by two (2) or more Bidders shall all be rejected if they are found to have any of the following:</p> <ul style="list-style-type: none"> a) they have at least one controlling partner, director or shareholder in common; or b) any one of them receive or have received any direct or indirect subsidy from the other/s; or c) they have the same legal representative for purposes of this ITB; or d) they are subcontractors to each other's Bid, or a subcontractor to one Bid also submits another Bid under its name as lead Bidder; or some key personnel proposed to be in the team of one Bidder participates in more than one Bid received for this ITB process. This condition relating to the personnel, does not apply to subcontractors being included in more than one Bid.
<p>16. Bid Validity Period</p>	<p>16.1 Bids shall remain valid for the period specified in the BDS, commencing on the Deadline for Submission of Bids. A Bid valid for a shorter period may be rejected by PAF-IAST and rendered non-responsive.</p> <p>16.2 During the Bid validity period, the Bidder shall maintain its original Bid without any change, including the availability of the Key Personnel.</p>
<p>17. Extension of Bid Validity Period</p>	<p>17.1 In exceptional circumstances, prior to the expiration of the Bid validity period, PAF-IAST may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing and shall be considered integral to the Bid.</p> <p>17.2 If the Bidder agrees to extend the validity of its Bid, it shall be done without any change to the original Bid.</p> <p>17.3 The Bidder has the right to refuse to extend the validity of its Bid, in which case, the Bid shall not be further evaluated.</p>

<p>18. Clarification on ITB (from the Bidders)</p>	<p>18.1 Bidders may request clarifications on any of the ITB documents no later than the date indicated in the BDS. Any request for clarification must be sent in writing in the manner indicated in the BDS. If inquiries are sent other than specified channel, even if they are sent to a PAF-IAST staff member, PAF-IAST shall have no obligation to respond or confirm that the query was officially received.</p> <p>18.2 PAF-IAST will provide the responses to clarifications through the method specified in the BDS.</p> <p>18.3 PAF-IAST shall endeavor to provide responses to clarifications in an expeditious manner, but any delay in such response shall not cause an obligation on the part of PAF-IAST to extend the submission date of the Bids, unless PAF-IAST deems that such an extension is justified and necessary.</p>
<p>19. Amendment in ITB</p>	<p>19.1 At any time prior to the deadline of Bid submission, PAF-IAST may for any reason, such as in response to a clarification requested by a Bidder, modify the ITB in the form of an amendment to the ITB. Amendments will be made available to all prospective bidders.</p> <p>19.2 If the amendment is substantial, PAF-IAST may extend the Deadline for submission of Bid to give the Bidders reasonable time to incorporate the amendment into their Bids.</p>
<p>20. Alternative Bids</p>	<p>20.1 Unless otherwise specified in the BDS, alternative Bids shall not be considered. If submission of alternative Bid is allowed by BDS, a Bidder may submit an alternative Bid, but only if it also submits a Bid conforming to the ITB requirements. Where the conditions for its acceptance are met, or justifications are clearly established, PAF-IAST reserves the right to award a contract based on an alternative Bid.</p> <p>20.2 If multiple/ alternative bids are being submitted, they must be clearly marked as "Main Bid" and "Alternative Bid"</p>
<p>21. Pre-Bid Conference</p>	<p>21.1 When appropriate, a pre-bid conference may be conducted at the date, time and location specified in the BDS. All Bidders are encouraged to attend. Nonattendance, however, shall not result in disqualification of an interested Bidder. Minutes of the Bidder's conference will be disseminated on the procurement website and/ or shared by email as specified in the BDS. No verbal statement made during the conference shall modify the terms and conditions of the ITB, unless specifically incorporated in the Minutes of the Bidder's Conference or issued/ posted as an amendment to ITB.</p>

C. SUBMISSION AND OPENING OF BIDS

<p>22. Bid Proposal Submission</p>	<p>22.1 The Bidder shall submit a duly signed and numbered all pages of the complete Bid in an Envelope sealed and marked as per ITB 22.6, and in accordance with KPPRA Rule 6 (2)(a).</p> <p>22.2 The Envelope should contain all the Returnable Forms (A – G) along with Technical Specifications meeting or exceeding the requirements as stipulated in this ITB, and supporting documents in accordance with requirements in the BDS.</p> <p>22.3 The Bid Security as referred in BDS must be placed in the Bid Envelope.</p> <p>22.4 Bid can be delivered either personally, or by courier as specified in the BDS.</p> <p>22.5 The Bid shall be signed by the Bidder or person(s) duly authorized to commit the Bidder. The authorization shall be communicated through a document evidencing such authorization issued by the legal representative of the bidding entity, or a Power of Attorney, accompanying the Bid. There should not be errors</p>
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	<p>and/ or over-writings. Corrections (if any) should be made clearly and initialed with dates.</p> <p>22.6 Bidders must be aware that the mere act of submission of a Bid, in and of itself, implies that the Bidder fully accepts the General Contract Terms and Conditions.</p> <p>22.7 Hard copy submission by courier or hand delivery allowed or specified in the BDS shall be governed as follows:</p> <p>a) The signed Bid shall be marked "Original", and its copies marked "Copy" as appropriate. The number of copies is indicated in the BDS. All copies shall be made from the signed original only. If there are discrepancies between the original and the copies, the original shall prevail.</p> <p>(b) The Bid Proposals must be sealed and submitted in an envelope, which shall:</p> <ul style="list-style-type: none"> i. Bear the name of the Bidder; ii. Be addressed to PAF - IAST as specified in the BDS; and iii. Bear a warning not to open before the time and date for Bid opening as specified in the BDS. <p>If the envelope with the Bid is not sealed and marked as required, PAF-IAST shall assume no responsibility for the misplacement, loss, or premature opening of the Bid.</p>
<p>23. Deadline for Submission of Bids and Late Bids</p>	<p>23.1 Complete Bids must be received by PAF-IAST in the manner, and no later than the date and time, specified in the BDS. PAF-IAST shall only recognize the actual date and time that the bid was received by PAF-IAST.</p> <p>23.2 PAF-IAST shall not consider any Bid that is received after the deadline for the submission of Bids.</p>
<p>24. Withdrawal, Substitution, and Modification of Bids</p>	<p>24.1 A Bidder may withdraw, substitute or modify its Bid after it has been submitted at any time prior to the deadline for submission.</p> <p>24.2 A bidder may withdraw, substitute or modify its Bid by sending a written notice to PAF- IAST, duly signed by an authorized representative, including a Power of Attorney. The corresponding substitution or modification of the Bid, must accompany the respective written notice. All notices must be submitted in the same manner as specified for submission of Bids, by clearly marking them as "WITHDRAWAL" "SUBSTITUTION," or "MODIFICATION"</p> <p>24.3 Bids requested to be withdrawn shall be returned unopened to the Bidders, except if the bid is withdrawn after the bid has been opened.</p>
<p>25. Bid Opening</p>	<p>25.1 The Procurement Committee of PAF- IAST will open the Bid in the presence of Bidders' representative(s) who choose to attend.</p> <p>25.2 The Bidders' names, modifications, withdrawals, the condition of the envelope labels/ seals, the number of folders/ files and all other such other details as PAF- IAST may consider appropriate, will be announced at the opening. No Bid shall be rejected at the opening stage, except for late submissions, in which case, the Bid shall be returned unopened to the Bidders.</p> <p>25.3 In case of public holiday on bid opening day, bids will be opened on next working day.</p>

D. EVALUATION OF BIDS

26. Confidentiality	<p>26.1 Information relating to the examination, evaluation, and comparison of Bids, and the recommendation of contract award, shall not be disclosed to Bidders, even after publication of the contract award.</p> <p>26.2 Any effort by a Bidder to influence PAF-IAST in the examination, evaluation and comparison of the Bids or contract award decisions may, at PAF-IAST's decision, result in the rejection of its Bid and may subsequently be subject to consequences.</p>
27. Preliminary Examination	27.1 PAF-IAST shall examine the Bids to determine whether they are complete with respect to minimum documentary requirements, whether the documents have been properly signed, and whether the Bids are generally in order, among other indicators that may be used at this stage. PAF-IAST reserves the right to reject any Bid at this stage.
28. Evaluation of Eligibility and Technical Qualification	<p>28.1 Eligibility and Technical Qualification of the Bidder will be evaluated against the Minimum Eligibility/ Qualification requirements specified in the Section 4: Evaluation Criteria.</p> <p>28.2 In general terms, Bidders that meet the following criteria may be considered qualified:</p> <ul style="list-style-type: none"> a) They are not included in the list of blacklisted or barred companies published on KPPRA website, any federal or provincial government department; b) They have a good financial standing and have access to adequate financial resources to perform the contract and all existing commercial commitments, c) They have the necessary experience, technical expertise, production capacity, quality certifications, quality assurance procedures and other resources applicable to the supply of goods and/ or services required; d) They are able to comply fully with the General Terms and Conditions of Contract; e) They do not have a consistent history of court/ arbitral award decisions against the Bidder; and f) They have a record of timely and satisfactory performance with their clients.
29. Evaluation of Bid Proposals	29.1 The evaluation team shall review and evaluate the Bids on the basis of their responsiveness to the Schedule of Requirements and Technical Specifications and other documentation provided, applying the procedure indicated in the BDS and other ITB documents. When necessary, and if stated in the BDS, PAF- IAST may invite technically responsive bidders for a presentation related to their Bids. The conditions for the presentation shall be provided in the bid document where required.
30. Due diligence	<p>30.1 PAF- IAST reserves the right to undertake a due diligence exercise, aimed at determining to its satisfaction, the validity of the information provided by the Bidder. Such exercise shall be fully documented and may include, but need not be limited to, all or any combination of the following:</p> <ul style="list-style-type: none"> a) Verification of accuracy, correctness and authenticity of information provided by the Bidder; b) Validation of extent of compliance to the ITB requirements and evaluation criteria based on what has so far been found by the evaluation team; c) Inquiry and reference checking with Government entities with jurisdiction on the Bidder, or with previous clients, or any other entity that may have done business with the Bidder;

	<ul style="list-style-type: none"> d) Inquiry and reference checking with previous clients on the performance on on-going or completed contracts, including physical inspections of previous works, as deemed necessary; e) Physical inspection of the Bidder's offices, branches or other places where business transpires, with or without notice to the Bidder; f) Other means that PAF-IAST may deem appropriate, at any stage within the selection process, prior to declaring the Bidder as Qualified.
31. Clarification of Bids	<p>31.1 To assist in the examination, evaluation and comparison of Bids, PAF- IAST may, at its discretion, request any Bidder for a clarification of its Bid.</p> <p>31.2 PAF- IAST's request for clarification and the response shall be in writing and no change in the prices or substance of the Bid shall be sought, offered, or permitted, except to provide clarification, and confirm the correction of any arithmetic errors discovered by PAF-IAST in the evaluation of the Bids in accordance with the ITB.</p> <p>31.3 Any unsolicited clarification submitted by a Bidder in respect to its Bid, which is not a response to a request by PAF-IAST, may not be considered during the review and evaluation of the Bids.</p>
32. Responsiveness of Bid	<p>32.1 PAF-IAST's determination of a Bid's responsiveness will be based on the contents of the bid itself. A substantially responsive Bid is one that conforms to all the terms, conditions, specifications and other requirements of the ITB without material deviation, reservation, or omission.</p> <p>32.2 If a bid is not substantially responsive, it may be rejected by PAF-IAST and may not subsequently be made responsive by the Bidder by correction of the material deviation, reservation, or omission.</p>
33. Right to Accept, Reject, Any or All Bids	<p>33.1 PAF-IAST reserves the right to accept or reject any proposal in response to the ITB, to render any or all of the proposals as non-responsive, and to reject all Proposals in response to the ITB at any time prior to award of contract, while assigning the reason(s) thereof.</p> <p>33.2 PAF- IAST shall not be obliged to award the contract to the lowest priced offer.</p>
34. Nonconformities, Repairable Errors and Omissions	<p>34.1 Provided that a Bid is substantially responsive, PAF-IAST may waive any nonconformities or omissions in the Bid that, in the opinion of PAF-IAST, do not constitute a material deviation.</p> <p>34.2 PAF-IAST may request the Bidder to submit the necessary information or documentation, within a reasonable period, to rectify nonmaterial nonconformities or omissions in the Bid related to documentation requirements. Such omission shall not be related to any aspect of the price. Failure of the Bidder to comply with the request may result in the rejection of its Bid.</p> <p>34.3 For the Price Schedule that are submitted, PAF-IAST shall check and correct arithmetical errors as follows:</p> <ul style="list-style-type: none"> a) if there is a discrepancy between the unit price and the line item total that is obtained by multiplying the unit price by the quantity, the unit price shall prevail and the line item total shall be corrected, unless in the opinion of PAF-IAST there is an obvious misplacement of the decimal point in the unit price; in which case, the line item total as quoted shall govern and the unit price shall be corrected; b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

	<p>c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail.</p> <p>34.4 If the Bidder does not accept the correction of errors made by PAF- IAST, its Bid shall be rejected.</p>
35. Bidder Grievance	35.1 PAF- IAST’s grievance readdress procedure provides an opportunity for appeal to those persons or firms not awarded a contract through a competitive procurement process. In the event that a Bidder believes that it was not treated fairly, the Bidder may lodge a complaint to the PAF-IAST’s Grievance Readdress Committee.
E. AWARD OF CONTRACT	
36. Evaluation	<p>36.1 PAF-IAST will conduct the evaluation solely on the basis of response to this tender received from the firms.</p> <p>36.2 Evaluation shall be undertaken in the following steps:</p> <ul style="list-style-type: none"> a) Preliminary Examination including Technical Specifications and other compliances b) Arithmetical check and ranking of bidders who passed preliminary examination by price. c) Evaluation of prices <p>36.3 Price comparison shall be based on the landed price, including transportation, insurance and the total cost of ownership (including spare parts, consumption, installation, commissioning, training, special packaging, etc., where applicable)</p>
37. Integrity Pact	37.1 Bidders will also be required to submit a signed Integrity Pact on a stamp paper of appropriate value as part of their response. The text of Integrity Pact is available at Annex – I.
38. Award Criteria	<p>38.1 Prior to expiration of the period of Proposal validity, PAF-IAST shall award the contract to the Bidder that is found to be responsive to the requirements of the Technical Specifications and has offered the lowest price.</p> <p>38.2 PAF-IAST shall not be obliged to award the contract to the lowest priced offer, if the response is found deficient to the Technical Specifications and other compliances.</p> <p>38.3 In case of tie in Financial Bid Value, the Contract will be awarded to the bidder having more closest match to the Technical Specifications.</p>
39. Contract Signing	<p>39.1 After the approval of any Work Award, a Contract Agreement on the stamp paper of appropriate value, shall be executed by PAF-IAST with Selected Bidder (i.e. Contractor) within 15 days from the date of issuance of Lol (Letter of Intent)/ Work Order.</p> <p>39.2 Failure to signing of Contract Agreement by the selected Bidder Firm with PAF-IAST within the stipulated time may constitute sufficient grounds for the annulment of the award, and forfeiture of the Bid Security, if any, and on which event, PAF- IAST may award the Contract to the Second highest rated or call for new Proposals.</p>
40. Right to Vary quantity at the Time of Award	40.1 At the time of award of Contract, PAF-IAST reserves the right to vary the quantity of goods and/ or services, without any change in the unit price or other terms and conditions.
41. Sample draft Contract	41.1 A sample draft Contract to be signed, containing applicable General Terms and Conditions can be found at Annex – II.

42. Performance Security	42.1 A performance security, if required in the BDS, shall be provided in the amount specified in BDS, well prior to the Contract signing by both parties. Where a performance security is required, the receipt of the performance security by PAF-IAST shall be a condition for rendering the contract effective.
43. Bank Guarantee for Advanced Payment	43.1 No Payment will be released in advance.
44. Liquidated Damages	<p>44.1 PAF-IAST shall apply Liquidated Damages for the damages and/ or risks caused to PAF-IAST resulting from the Contractor's delays or breach of its obligations as per Contract.</p> <p>a) In case of delay, the Procurement Committee, PAF-IAST reserves the right to impose a penalty not exceeding 10% of the total amount of the Contract Value at the rate as referred in the Sample Contract at Annexure – II.</p> <p>b) If the Contractor fails to complete work as per PAF-IAST requirement, the Rector, PAF-IAST reserves the right to reject it altogether or impose a penalty not exceeding 50% of the total amount of the Contract.</p> <p>c) If the Contractor fails to provide supplies/ services as per PAF-IAST requirements, PAF-IAST may forfeit his earnest money as well as Performance Security, and the work will be done at the risk and cost of Contractor.</p> <p>d) In case of any dispute, matter will be referred to Rector, PAF-IAST whose decision will be binding on both the parties.</p>
45. Force Majeure	45.1 "Force Majeure" means an event which is beyond the reasonable control of a party and which makes a party's performance of its obligations under the Purchase Order/ Work Order/ Contract impossible or so impractical as to be considered impossible under the circumstances, and includes, but is not limited to, War, Riots, Storm, Flood or other industrial actions (except where such strikes, lockouts or other industrial issues are within the power of the party invoking Force Majeure), confiscation or any other action by Government agencies. In all disputes between the parties as to matters arising pursuant to this Purchase Order/ Work Order/ Contract, the dispute will be referred to Project Director, PAF-IAST whose decision will be final.
46. Delivery of Goods	46.1 Contractor will be required to deliver the goods as per the Delivery Schedule referred in BDS without claiming any additional cost to the PAF-IAST at the designated site(s) and in quantities as referred in the Contract.
47. Payment Provisions	<p>47.1 Payment will be made only upon PAF- IAST's acceptance of the goods and/ or services performed. The terms of payment shall be within thirty (30) days, after receipt of invoice, and certification of acceptance of goods and/ or services issued by the proper authority in PAF: IAST. Payment will be affected by bank transfer in the currency of the contract.</p> <p>47.2 The Contractor shall provide all necessary supporting documents along with GST invoice, delivery challan and any other relevant documents as required by the PAF- IAST.</p>

Section 3. Bid Data Sheet

The following data for the goods and/ or services to be procured shall complement, supplement, or amend the provisions in the Invitation to Bid. In the case of a conflict between the Instructions to Bidders, the Bid Data Sheet, and other annexes or references attached to the Bid Data Sheet, the provisions in the Bid Data Sheet shall prevail.

BDS No.	Ref. to Section.2	Data	Specific Instructions / Requirements
1.		Background of the Project	Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology (PAF: IAST) is novel in its content and holistic in approach. The project concept is based on the slogan of “Skilling Pakistan” to create a high-quality technical education infrastructure. This unique educational institution in Pakistan will closely collaborate with several institutions in Austria and China and award multiple foreign degrees. This is a historic and visionary initiative as it is probably the first time that an institution will be established in Pakistan with many foreign universities giving degrees to students who study in it.
2.		Objective	The main objective of this Tender is to equip the PAF-IAST with necessary and advanced level of laboratory facilities, providing enabling environment to the students and faculty to perform their academic and research work in a conducive and productive environment and deliver beyond the expectations.
3.		Scope of Work	<p>Supply of Teaching Lab Equipment The required items in various Lots as referred in Section – 5 have been sought by PAF-IAST from a reputed Firms/ Companies. The supplier is expected to supply high quality products meeting the specification as stipulated in this ITB, which conforms to the international quality standards. The time specified for delivery, Installation and Commissioning in the tender form shall be deemed to be the essence of the contract and the Successful Bidder shall arrange within the specified period.</p> <p>Post-Delivery Warranty and Support Services It is required that Manufacturer’s Warranty and Post-delivery Bidder’s Support Services for at least One (01) year from the date of delivery to PAF-IAST be provided by the Supplier within the quoted cost of items.</p> <p>Moreover, additional Warranty and Support Services for next Three (03) years should be quoted separately by the Bidder on annual payment basis. However, it will be at sole discretion of PAF-IAST to avail additional Warranty and Support Services in subsequent year(s) or otherwise.</p>
4.	7	Language of the Bid	English
5.	22, 23, 27	Submitting Bids for Parts or subparts of the Schedule of Requirements (partial bids)	The Purchase Committee shall consider the Bids Lot-wise (i.e. package against each of the Lots) as referred in Section – 5. Any item not quoted in the respective Lot shall have reasonable grounds to reject the Bid for that Lot.
6.	20	Alternative Bids	Not Allowed.

7.	21	Pre-Bid conference	N/A
8.	16	Bid Validity Period	90 days
9.	13	Bid Security/ Earnest Money (Refundable)	<p>Required in the amount of: 2% of the Bid Value of each Lot (separately) against which the Bidder is participating. In case of options, earnest money shall be based on the maximum quoted price of the same items in the Lot.</p> <p><u>Acceptable Forms of Bid Security:</u> Denominated in Pak Rupees duly issued by a Pakistani Bank or branch of a Foreign Bank, in the form of CDR in favor of the Project Director, PAF-IAST</p>
10.	42	Liquidated Damages	<p>Will be imposed as follows:</p> <p>Percentage of contract price per day of delay: as referred in Draft Contract Sample in Annexure – II.</p>
11.	40	Performance Security	Within one week of issuance of Lol/ Purchase Order and well prior to the signing of Contract, as 10% of the Contract value for the duration of Warranty period referred in RFP.
12.	12	Currency of Bid	Pakistani Rupees (PKR)
13.	31	Deadline for submitting requests for clarifications/ questions	5 days before the submission deadline
14.	31	Contact Details for submitting clarifications/ questions	<p>Focal Person in PAF: IAST: Dr. Muhammad Aamir (Lot 1, 2) Dr. Rizwan Ahmad (Lot 3, 4, 5, 6, 7, 8, 9) labs@paf-iaست.edu.pk 0995-645112</p>
15.	18, 19, and 21	Manner of Disseminating Supplemental Information to the ITB and responses/ clarifications to queries	<p>Direct communication to prospective Bidders by email and/ or Posting on the PAF: IAST website: labs@paf-iaست.edu.pk http://www.paf-iaست.edu.pk/</p>
16.	23	Deadline for Submission	Monday the February 24, 2020 on or before 12:00 noon (PST)
17.	22	Number of Set(s) of Bid	<p>Bid Proposal(s)</p> <ul style="list-style-type: none"> - One (01) Original - One (01) Copy <p><i>Note: Bidders are required to prepare and submit the Proposal(s) against the Lot(s) separately in separate envelopes, in which they intend to participate.</i></p>
18.	22	Allowable Manner of Submitting Bids	<input checked="" type="checkbox"/> Courier/ Hand Delivery

19.	22	Bid Submission Address	<input checked="" type="checkbox"/> By Courier / Hand Delivery: Convener Procurement Committee, PAF- IAST, Mang, Haripur												
20.	22	Electronic submission (email) requirements	Not Allowed												
21.	25	Date, time and venue for the opening of bid	Date and Time: Monday the February 24, 2020 at 12:30 PM Venue: Conference Room, PAF-IAST, Mang, Haripur												
22.	27, 36	Evaluation Method	Eligible and qualified bids meeting the PAF- IAST requirements and technically responsive as stipulated in this ITB												
23.		Evaluation Method for the Award of Contract	Lowest priced technically responsive.												
24.		Expected date for commencement of Contract	March 2020												
25.		Maximum expected duration of Contract	48 months												
26.	35	PAF: IAST will award the contract to:	One Bidder Only against each Lot												
27.	39	Type and Contract Terms and Conditions that will apply	PAF-IAST General Terms and Conditions for Contracts for Goods and/ or Services as per Sample at Annex – II.												
28.	46	Delivery, Installation and Testing/ Training	<table border="1"> <thead> <tr> <th></th> <th>Delivery</th> <th>Installation</th> <th>Testing/ Training</th> </tr> </thead> <tbody> <tr> <td>LOT # 3, 4, & 5</td> <td>6 - 8 weeks</td> <td>2 weeks</td> <td>1 week</td> </tr> <tr> <td>LOT #1, 2, 6, 7, 8, & 9</td> <td>4 – 6 weeks</td> <td>2 weeks</td> <td>1 week</td> </tr> </tbody> </table>		Delivery	Installation	Testing/ Training	LOT # 3, 4, & 5	6 - 8 weeks	2 weeks	1 week	LOT #1, 2, 6, 7, 8, & 9	4 – 6 weeks	2 weeks	1 week
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LOT # 3, 4, & 5	6 - 8 weeks	2 weeks	1 week												
LOT #1, 2, 6, 7, 8, & 9	4 – 6 weeks	2 weeks	1 week												

Section 4. Evaluation Criteria

Preliminary Examination Criteria

Bids will be examined to determine whether they are complete and submitted in accordance with ITB requirements as per below criteria on a Yes/ No basis:

- Appropriate signatures
- Power of Attorney
- Minimum Bid documents provided
- Bid Validity
- Bid Security submitted as per ITB requirements with compliant validity period

Minimum Eligibility Criteria

Eligibility will be evaluated on a Pass/ Fail basis. If the Bid is submitted as a Joint Venture, there should be no more than two (02) companies in the Joint Venture and each company should meet the minimum criteria, unless otherwise specified.

ELIGIBILITY			
S. #	Subject	Criteria	Reference Returnable Form(s)
1.	Bidder's Status	Participating as <input type="checkbox"/> Individual Company <input type="checkbox"/> JV/ Consortium	Form B: Joint Venture/ Consortium/ Association Information Form
2.	Legal Status	Bidder is a legally registered entity in Pakistan. Bidder is/ are also registered with FBR for Income Tax and Sales Tax	Form C: Bidder Information Form
3.	Location of Offices	Bidder (Lead Bidder) has either declared office(s) in Islamabad/ Rawalpindi/ Peshawar or in Haripur. Alternately, if the Contract is awarded, the Bidder shall establish office in either of these cities.	Form C: Bidder Information Form
4.	Principal's Authorization	Bidder or at least one member of JV/ Consortium/ Association must be Authorized Partner/ Reseller/ Dealer for the supply and services of quoted goods/ services.	Form C: Bidder Information Form
5.	Company in Operation	Bidder (Lead Bidder) is in operation for at least Five (05) years.	Form C: Bidder Information Form
6.	Financial Strength	Average annual turnover over last 3 years no less than Rs. 10 million <i>(For JV/ Consortium/ Association, all Parties cumulatively should meet requirement).</i>	Form C: Bidder Information Form
7.	Relevant Experience	Minimum No. of Projects of similar nature, value, and complexity in last 3 years Two (02) projects <i>(For JV/Consortium/Association, all Parties cumulatively should meet requirement).</i>	Form C: Bidder Information Form
8.	Eligibility	Bidder(s) is not suspended, nor debarred, nor otherwise identified as ineligible by any Government/ Semi-government/ Autonomous organization in Pakistan, in accordance with ITB clause 3. Non-Blacklisting certificate will be required.	Form A: Bid Submission Form
9.	Bankruptcy	Bidder(s) has not declared bankruptcy, is not involved in bankruptcy or receivership proceedings, and there is no judgment or pending legal action against the vendor that could impair its operations in the foreseeable future.	Form A: Bid Submission Form

Section 5a: Technical Specifications of the Required Goods

Lot No. 1: Electronics/DLD/Embedded systems Lab		
Sr. No.	Item	Specifications
1	Digital Oscilloscope	<ul style="list-style-type: none"> a. Analog channels: ≥ 2 b. Digital channels: preferable c. Bandwidth: ≥ 100 MHz d. Sampling rate (Realtime): At least 1 GSa/s per channel e. Connectivity: USB, GPIB (preferable) f. Connectors: SMA, BNC
2	Handheld Digital Multimeter	<ul style="list-style-type: none"> a. Measurement functions: <ul style="list-style-type: none"> • DC Voltage and current (DCV/DCI) • AC Voltage and current (ACV/ACI) • Diode/continuity test • Capacitance and resistance • Transistor test (hfe) • Frequency (preferable) • Temperature (preferable) b. DC current measurement: microamp range is a must c. Display: preferably 4 ½ digit display
3	Dual DC power supply	<ul style="list-style-type: none"> a. Operation: Constant voltage/constant current b. Display: At least 3 ½ digital display c. Output voltage: 0 to ± 30 V d. Max current: ≥ 3 A e. Protection: Current-limiting and short-circuit protection
4	Breadboard module	<ul style="list-style-type: none"> a. Fixed DC: ± 5V and ± 12V b. Variable DC supply: continuously adjustable up to ± 18V c. AC voltage: Yes d. Func generator (50Ω): Sine, square, triangular; freq. up to 100 KHz e. Digital Voltmeter f. DC Ammeter: micrometer range g. Speaker: at least 0.25W h. Variable resistors: 1 kΩ to 1 MΩ i. Breadboard: removable
5	Function generator	<ul style="list-style-type: none"> a. Maximum frequency: ≥ 5 MHz b. Waveforms: Sine, square, triangular c. Attenuation: fixed and variable d. Modulation: AM/FM
6	Soldering station	<ul style="list-style-type: none"> a. Soldering iron with variable temperature b. Hot air
7	LCR meter	<ul style="list-style-type: none"> a. Auto L/C/R mode: Yes b. Display: At least 4 ½ digit for L/C/R values c. Secondary measurements: Q, ESR d. Test freq: 100 Hz to 100 KHz e. Inductance: μH range f. Capacitance: pF range g. Resistance: sub-Ω range h. Interface: USB
8	Digital Logic Training System along with all the accessories	<p>The training system should have the following features:</p> <ul style="list-style-type: none"> • Bread Board • Power Supplies • Basic Measuring Instruments • Flexibility to Perform Custom Experiments • Output Devices like LEDs and 7-Segment • Input Devices like Push Switches, Toggle Switches • Passive Components • Protection Circuits • User friendly

9	Arduino Starter kit	<p>This kit should have:</p> <ul style="list-style-type: none"> • Arduino UNO R3 (1pc) • Bread Board (1pc) • F-F Jumper strip (1pc) • M-M Jumper Strip (2pc) • M-F Jumper Strip (1pc) • Bluetooth HC-05 (1pc) • ADXL 345 (GY291) (1pc) • Servo SG90 9G (1pc) • LCD 16x2 (1pc) • Line Follower sensor (1pc) • LM 35 Temperature Sensor (1pc) • Variable Resistor (2pc) • Distance Sensor HC-SR04 (1pc) • DC Motor Small (1pc) • LDR Small (1pc) • 2N2222 Transistor (1pc) • Male Pin Header (1pc) • Push Button (6pc) • LEDs (6pc) • Resistors
10	Spartan-3 FPGA Evaluation Kit	<p>FPGA trainer/evaluation kit with following options:</p> <ul style="list-style-type: none"> • Artix 7 or Spartan-3 or equivalent • Internal clock speed \geq 450 MHz • Should target beginners to start with FPGA technology. • Should be suitable for introductory computational circuits to complex sequential circuits. • Fast block RAMs • Clock management tiles, each with a phase-locked loop (PLL) • DSP slices • On-chip analog-to-digital converter (XADC) • USB-JTAG port for FPGA programming and communication • Micro-B USB cable • Serial Flash • USB-UART Bridge • 12-bit VGA output • USB HID Host for mice, keyboards and memory sticks • User switches • User LEDs • User pushbuttons • 4-digit 7-segment display • All connectors • Free software
11	Microprocessor Based Trainer Kits	<p>Features of the kit should include the following:</p> <ul style="list-style-type: none"> • 33MHz Intel 8086/80186 Compatible Processor • XDOS (PC DOS 3.3 Compatible) • 415K Flash • I/O lines • RS-232 Ports with USB-UART interface • Software for program uploading / execution • 3x16 Bit Timer Channels • Selected PC BIOS Functions • Full Address/Data Expansion Bus • A/D & D/A Converter • 7-Segment Displays • Monitor LEDs • DIP Switches • Keypad

		<ul style="list-style-type: none"> • Breadboard • Software: Borland C/C++ 4.5 or later Compiler
12	Raspberry Pi Model - 3 kit	<p>This kit should include:</p> <ul style="list-style-type: none"> • Raspberry Pi 3 B+ • SparkFun Pi Wedge • SparkFun FTDI Basic Breakout --- 3.3V • Breadboard --- Full-Size (Bare) • Pi Tin for the Raspberry Pi --- Black • 16GB microSD (Preloaded with OS) • microSD USB Reader • Multicolor Buttons (4 pack) • Assorted LED (20 pack) • Resistor 330 Ohm 1/6 Watt PTH --- 20 pack • Raspberry Pi GPIO Ribbon Cable --- 40-pin, 6" • SparkFun USB Mini-B Cable --- 6 Foot • Wall Adapter Power Supply --- 5.1V DC 2.5A (USB Micro-B) • Jumper Wires Premium 6" M/F --- 10 Pack • Jumper Wires Standard 7" M/M --- 30 Pack
13	Matlab 2019b license	Server-based license

Lot No. 2: Electrical Workshop

Sr. No.	Item	Specifications
1	Home Electric Wiring Trainer	<p>Its features should include the following:</p> <ul style="list-style-type: none"> • 1 standard electrical enclosure unit with 4 breakers (15A, 20A, 30A) • 1 industrial bell/buzzer assembly • 2 standard electrical outlet receptacles • 2 single standard electrical switches • 2 3-way standard electrical switches • 1 standard 240V receptacle • 2 standard light bulbs with wiring base • Single Phase Energy Meter, MCB, Controlling Switches
2	Electric Installation Safety Measurement Trainer	<p>This trainer should include:</p> <ul style="list-style-type: none"> • Insulation resistance • Ground resistance • Auxiliary earth resistivity • Earth point rod • Earth voltage • Phase test points • Leakage current load for test • DC voltage output for test • Electric leak breaker • Circuit breaker • AC output socket for load • Power indicator • Input power • Size / Weight
3	Electrical Welding Machines	Output current ranging from 20 to 200A
4	Gas Welding Machine	Any suitable welding machine to be used in workshop lab

Lot No. 3. Thermodynamics Lab Equipment

Sr. No.	Item	Specifications
1	Expansion Process unit	Two Transparent interconnected vessels (One operating under pressure and the other under vacuum), Temperature sensors, Air pump, computer controlled
2	Temperature Measurement and Calibration unit	A unit containing large variety of temperature measuring devices including thermocouples, thermistor, bimetallic, vapor pressure, platinum resistance, volumetric expansion etc. with error investigation and calibration
3	Pressure Measurement and Calibration Unit	Manometer, Electronic pressure sensor, Vessel to facilitate the priming of the calibrator, Electronic console, Pressure sensor connection, Digital display for the pressure sensor, Software to acquire data and to obtain the calibration
4	Saturation Pressure Unit	Water boiler (including Computer controlled immersion heating element, Sight glass, Throttling calorimeter, Water filling and emptying valve), Temperature sensors, Pressure sensors, Force sensor, Safety valve, High pressure switch, Graduated glass beaker with orifices to allow handling the valves and collecting the condensed steam in a glass beaker
5	Recycle loop	Water inlet tube, Flow meter, Valve to regulate the water inlet flow, Recycle loop (including hot water impulsion pump, Heating element, Water regulation valves, Three different volumes of recycle loop, Temperature sensors, One flow meter), Water outlet pipe with temperature sensor, Flow meter, Electronic console, Temperature sensors connectors. Digital display, Pump regulator, Electrical heating element controller, Cables and Accessories
6	Mechanical Heat Pump	Should include units including Compressor, Condenser (Shell and coil or plate type), Liquid Receiver, Evaporator (Shell and coil or plate type), Digital Thermometers, Flow Meters, Pressure Gauges, Electrical Energy Meter
7	Solar energy demonstration unit	Should include units including Photovoltaic solar panels with high transparency, encapsulating material, Solar simulator, Ventilation system (computer controlled), DC load and battery charger regulator, Auxiliary battery charger, DC loads module, Solar radiation sensors
8	Refrigeration cycle demonstration unit	Should include units including Compressor, Power, Condenser, Expansion valve, Evaporator, Instrumentation (temperature sensors, pressure sensors), power measurement from computer, isolation valves
9	Single cylinder steam engine	Should include units including Steam engine (Power: 3-5W), Generator, Measuring ranges (Temperature: -20-200°C, Pressure: 0-6bar, Flow rate: 0-110 L/h (gas); 15-105 L/h (water), Voltage: 0-10V DC)
10	Mechanical Equivalent of Heat	Electric motor with variable speed, Sets of weights (heavy and light), Set of brake bands, Spring balance, Thermometer, Counter for recording the revolutions
11	Laser Thermometer	Infrared Thermometer (Range: -30°C to 500°C), High accuracy

Lot No. 4. Fluid Mechanics Lab Equipment

Sr. No.	Item	Specifications
01	Flow Meter Trainer	Flow regulation valves, pressure measurement gauges, air entrainment device, hydraulics bench, centrifugal pumps, orifice plates, venturi, rotameters, shunt-gap meter, pitot tube, volumetric rotary piston, sump tanks, swinging flap, helical rotary, velocity meters, digital manometer, etc.
02	Fluid Friction Apparatus	Mobile hydraulic bench, pipes of different diameter and roughness, different types of valves (angle-seat valve, gate valve, diaphragm valve, ball valve), different types of couplings, strainers, T-junctions, Y-branch, pitot tubes, venturi tubes, pressure tapplings, water manometers, bourdon manometers, flowmeters, centrifugal pumps, sump tanks, etc.
03	Bernoulli's Theorem Apparatus	Different manometers with number of tubes, easy and quick coupling system built-in, and aluminum structure and panel of painted steel, etc.
04	Drag Coefficient Apparatus	Glass tubes, hydrometers, thermometers, Vernier caliper, electronic balance, etc.
05	Free & Forced Vortex Apparatus	Tanks with different diameters, mouthpieces orifice with various diameters, pitot tube with various measuring points, measurement bridge, inlet and outlet pipes, diameter measurement system, blind mouthpiece with X-shaped crosses, easy and quick coupling system built-in, etc.
06	Hydraulics Bench	Mobile hydraulic bench, made of fiber glass reinforced polyester, centrifugal pump, runner made of stainless steel, sump tanks, flow measurement system, volumetric tanks, control valves, measuring cylinders, remote hand-operating dump valve in the base of the volumetric tank, rapid and easy interchange of the different modules, etc.
07	Fluid Statics and Manometry	The module should be mounted on an aluminum structure and painted steel panels and consists of a vertical tank, containing water that is connected to different vertical manometer tubes including U-shape, vertical, parallel vertical, vertical tube with variable sections, one vertical tube with a pivot that allows it to incline from 0 to 90°, Vernier hook and point gauge, piezometric tube, manual air pump, purge valve, etc.
08	Osborne-Reynolds' Demonstration	Tubing system with different diameters, visualization pipes, dye tank, flow control valves (diaphragm type), the colored fluid should be regulated with a needle valve, etc.
09	Centrifugal pump demo unit (computerized linked)	Centrifugal pump: 0.37 KW, 30 - 80 L/min, bourdon type manometers, digital control panel (with NPSH and cavitation monitoring system, rpm regulator, the power consumption display with on/off switch), manometers, flow control valves, diffusers, vacuum meter, etc.
10	Multi-pump test rig	Five different pump positions, centrifugal, gear, axial, turbine, flexible impeller, diaphragm, plunger pumps, with accessories pump, control valves, electronic measurement (flow, pressure head, suction head, and motor torque), Optional volumetric flow measurement system for reciprocating pumps, computerized linked with data logging and educational software.
11	Fixed and Fluidized bed apparatus	Bench-top unit, diagram in the front panel with distribution of the elements similar to the real one, transparent cylindrical columns (for air and water), bed plates, water tanks, water pumps, compressors, water regulation valve and water flow meter, air regulation valves and air flow meters, pressure meters, manometers, electrical panel (contains lamp, compressor and Pump switch), etc.
12	Centrifugal fan demo unit (computerized linked)	Bench-top unit, centrifugal fan with speed regulation, aspiration transparent duct, butterfly valves, orifice plate, discharge transparent duct, interchangeable turbines,

		blades, manometers, speed sensors, wattmeter, temperature and humidity meter, electronic console (metallic box, fan speed controller, speed sensor connector), etc.
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Lot No. 5. Heat Transfer Lab Equipment

Sr. No.	Item	Specifications
01	Concentric Double Pipe Heat Exchanger	Main metallic elements made of stainless steel, two concentric copper tubes, temperature sensors ("J" type), computer control software, sampling velocity, etc.
02	Shell and Tube Heat Exchanger	Main metallic elements made of stainless steel, diagram in the front panel, tubes of stainless steel, segmented baffles, temperature sensors ("J" type), computer control software, analog and digital PID control, etc.
03	Radiation Heat Transfer Unit	Metal plates with a resistance at one side and a lamp in another side, heating element (ceramic), computer-controlled lamp, diffuser, light accessories, filters, radiation accessories, radiometer, planes surfaces, temperature sensors, black bodies, variable slit, temperature sensors, computerized measurement system, etc.
04	Film & Drop wise Condensation Unit	Main metallic elements in stainless steel, steam chamber, dropwise condenser-gold plated, film wise condenser-natural finish, temperature sensors, electric heating elements, air extraction system, pressure and flow meters, pressure switches, electronic console, etc.
05	Flow Boiling Demonstration Unit	Glass concentric tubes, refrigerant control valve, condensing chamber, security valve, placed on the top of the condensing chamber, condensate coil, thermostatic bath, centrifugal pump, water control valve, water jet pump, temperature sensors, absolute pressure sensors, etc.
06	Free and force convention unit	Bench-top unit, stainless steel tunnel of rectangular section, heat exchangers, temperature sensors, ("J" type), maximum working temperature: 120°C, flow sensor, aluminum exchangers, flat heat exchanger, pins heat exchanger, pins, fins heat exchanger, fins, computer controlled, variable speed fan, etc.
07	Heat conduction Unit	Bench top unit consist of two separate modules, linear and radial heat conduction module, input heat section, electric heating element, computer controlled, refrigeration section with a surface cooled by water, water flow sensor, regulation flow valve, thermal paste, temperature sensors, power measurement from the computer, etc.
08	Thermal conductivity apparatus	Bench-top thermally insulated unit, cooling system, plate temperature control, Peltier system, thermal resistance range: 0.1 to 8.0 m·K/W. Thermal conductivity range: 0.002 to 1.0 W/m·K, heat flux sensors, temperature sensors, Materials: black nitrile rubber, polyacetal, expanded polystyrene, PTFE, PMMA, PVC, glass fiber and glass fiber with resin. computer linked via USB connection cable, etc.
09	Plate and frame heat exchanger	The exchanger should allow measuring cold and hot temperatures, main metallic elements made of stainless steel, diagram in the front panel, four ports or connections of hot and cold water, temperature sensors, computer control software:

Lot No. 6. Chemistry Lab Equipment

Sr. No.	Item	Specifications
01	Bomb Calorimeter	Material: Stainless steel vessel, Capacity: 300ml or higher. Thermometer: Digital, Reading: 2 decimal places, Display Screen: LED
02	UV/Visible Spectrophotometer	Wavelength Range: 190-1100 nm, Multicell compartment, With additional quartz cells
03	Mechanical Shaker	Temperature Range: 10°C below ambient to 65°C, Temperature Uniformity: ± 0.5°C at 37°C, Speed Range using Microplates: 100 to 1200 rpm, Timer: 1 second to 160 hours, Capacity: 2L to higher
04	Water Bath 4 & 6 Holes	Capacity: 12L, Operation mode temperature/time: Digital Keyboard, Hermetically sealed membrane, Temperature range: +5°C - 100°C (+/-1°C), Draining pump: Electrical, Extra Features: Lid and reduction rings included (removable), Overheating signal measure: > 10°C

05	UV Lamp	Wavelength: Ultraviolet spectrum around 254nm, Output: 4 W, Light Sources: 5 UV LEDs, 4 White LEDs, Recommended Accessories: UV-A Meter, Visible Light Meter, UV-A Safety Glasses
06	Melting Point Apparatus	Number of samples: 2, Temperature range: Ambient to 300°C, Display: Three digit LED, Ramp rates: 20°C
07	Table-Top Centrifuge	Max. RPM: 5000 -10,000, Max. Capacity: 4*100ml or 6*50ml, Temp. Range: -20°C to +40°C, Temp. Accuracy: ±1°C, Speed Increment ±35-55 r/min
08	Conductivity meter	pH; DO; Ion; ORP, Channel: Dual-channel, pH measuring range: -2 – 19.999, pH resolution: 0.001; 0.01; 0.1, pH accuracy (±): 0.002, Ion concentration measuring range: 1.00E-9– 9.99E+9
09	Abbes Refractometer	Display: LED, Axis: 0~180°, Prism: Sapphire, Pupil distance: 10~85mm
10	Hot plate with magnetic stirrer	Display: LED, Working temperature: Room Temperature~300°C
11	Oven	Polished stainless-steel chamber, with LCD displays, Microprocessor temperature controller, Temp. Range: RT-250 °C, Temp. Accuracy: 0.1 °C, Ambient Temp.: +5-40 °C, Timing Range: 1-9999min, Shelves: 2 -3, Interior size: 140L
12	Analytical Electronic Balance	Capacity: 100 g, Accuracy: 0.0001g, Display: LCD, Stainless steel pan, Automatic fault detector
13	Flame Photometer	Sodium (Na), Potassium (K), Lithium (Li) and Calcium (Ca), Measuring range: 0.01-4500 ppm, Detection limit: 0.1 ppm, Sample Volume: 2.5 ml, Combustion Gas: LPG, Display: TFT. With touch screen, Interfaces: USB, Ethernet, Printer
14	Oil Bath	Temperature range: RT to over 200 °C, Stainless steel interior, Digital display (LED), With Magnetic stirrer
15	Glass Viscometer	Glass viscometer, Without stopcock, Time of outflow for water at room temperature: 60 to 100 seconds
16	Ultrasonic Bath	Large area oscillating systems, Timer 1-15 minutes and continuous operation, Stainless steel tank, Digital LED Display and Control
17	Desiccator with vacuum pump	Material: Polycarbonate, Capacity: 700mL, Extra Features, Plastic pump handle, chemical-resistant ABS plastic vacuum pump and cover, release button on top, O-Ring-sealed cover
18	Rotary Evaporator	With digital control panel
19	pH Meter	pH measuring range: 0-14; pH resolution: 0.001; 0.01; 0.1, pH accuracy: 0.002, Working mode: ATC, Automatic Temperature Compensation
20	Furnace	Heating rate~30°C/min, suggestion ≤20°C, Heating elementResistance wire, Crucible diameter 150-500mm, Crucible depth 150-600mm, Furnace chamberAlumina fiber, work temperature≤1100°C, Max. temperature 1200°C, Max. Vacuum Limit 10Pa/10-3Pa, Temperature control typePID programmable control, Constant temperature precision±1°C
21	Autoclave	Material: Stainless steel, Capacity: 100 ml with PPL and PPE, Purpose: For hydrothermal synthesis, Lining: Teflon line
22	Fume Hood	Laboratory Fume hood, with accessories, installation and flammable-liquids-storage-cabinets.
23	Water Distillation Assembly	No. of stages: Two, Output: 4 LPH, Apparatus: Quartz glass, Heater: Spiral heater, Optional: Low water cut-off device
24	Heating Mentle	Temperature range: 650°C, Separate stirring control switch up to 1600 rpm, Includes support rod holder

Lot No. 7. Physics Lab Equipment

Sr. No.	Item	Specifications
1	Faraday's Law Apparatus	Induction Wand, Large Rod Base, Stainless Steel Rod, Multi-Clamp, Voltage Sensor, Magnetic Field sensor, Rotary Motion Sensor
2	LRC Circuit Apparatus	With accessories

3	Specific Heat Apparatus	Unit measuring time accurately, measure and observe the change in temperature and then calculate the energy transferred, use appropriate apparatus and methods to determine the specific heat capacity of a sample of material, Voltmeter and ammeter to measure the heat Input
4	Newton's Laws Apparatus	Experimental setups for demonstrating Newton's Laws
5	Projectile Motion Apparatus	Launch angle: 0 to 70 degrees, Launch speed: 0-6 m/s, Variable Launch Speed, Flexible Launch Positions
6	Universal Digital Multimeter,	Compatible with universal multimeters, Maximum current: 10A, Test voltage range: 1000V Max.
7	General Purpose Digital Multimeter	Diode assembly test/Transistor P-N junction test/Transistor HFE test, Continuity test with buzzer sound in circuit, Low battery voltage indication, Fuse protection, Operating Temperature: -0°C to 40°C, Overrange Indication
8	Inverse Square Law Demonstrator	Sliding stand with precise measurement, Light Source with height adjustment, One fixed stand and sliding stand, Photo detector with height adjustable facility, Online product tutorial
9	Coulomb's Law Demonstrator	Third Conductive Sphere, Charging Probe, Allen Wrench and Calibration Masses

Lot No. 8. Workshop Lab Equipment

Sr. No.	Item	Specifications
1	Pillar drill	19-38 mm drilling capacity pillar type drill machine
2	Cut Off Machine	Cutting in Pipe, Angle Iron, Conduit and More, 1300 to 3100 RPM, Heavy-duty use, Fence that bevels from 0 to 45 degrees
3	Bench grinder	2800-3,600 rpm, Double ended Heavy Duty
4	Milling Machine	Feed 50-500 mm, Cutting capacity: 2x1.5 mm
5	Shaper Machine	Length of stroke Max.500 mm, Stroke per minute: 15 to 90
6	Lathe Machine	Horizontal Lathe, Max Swing Over Bed 0-250 mm, Max Spindle Speed 0-500 rpm, Max Turning Diameter 0-500 mm, Easy to operate, Low maintenance, Compact design, User-friendly
7	CNC Machine	Automatic Grade, Hole Diameter 25-50 mm, 0-25 mm, 50-100 mm, 150-200 mm, 100-150 mm
8	Tool Kit	Should contains all tools necessary for workshop lab

Lot No. 9. Consumable Items

Glassware		
Sr. No.	Item	Specifications
1	Beakers	(1000 ml)
2	Beakers	(500 ml)
3	Beakers	(250 ml)
4	Beakers	(100 ml)
5	Pipette	(Glass 10 ml)
6	Pipette	(Glass 5 ml)
7	Pipette	(Glass 2ml, 1 ml)
8	Measuring cylinder	(500 ml)
9	Measuring cylinder	(250 ml)

10	Measuring cylinder	(100 ml)
11	Measuring cylinder	(50 ml)
12	Measuring cylinder	(25 ml)
13	Volumetric flask	(1000 ml)
14	Volumetric flask	(500 ml)
15	Volumetric flask	(250 ml)
16	Pipette bulb	NA
17	Auto pipette	NA
18	Disposal plastic dropper	1000
19	Petri dish	(60 mm)
20	Petri dish	(100 mm)
21	lab disposable gloves	(S, M, L)
22	Spatula	(Different size)
23	Cleaning brush	(Different size)
24	Crucible	(25 and 50 ml)
25	Adhesive labels	NA
26	Distill water bottle	(500 ML)
27	Plastic tubes	(1.5 ml -5ml)
28	Centrifuge tubes	plastic 10 ml
29	Test tube rack	plastic
30	Pipette holder	Plastic/metal
31	Auto pipette tips	5 mL
32	Whatman Filter paper	Microfiber (GF/A, GF/B, GF/C),
33	pH paper	(1-14)
34	pH paper	(0-5.5)
35	pH paper	(5.5-9)
36	UV quartz cell cleaning paper	NA
37	Reagent bottles	100 mL
38	Reagent bottles	250 mL
39	Reagent bottles	500 mL
40	Conical flask	250 mL
41	Conical flask	100 mL
42	Volumetric flask	50 mL
43	Distilled water can	10 L
44	Test tube	50 ml
45	Weighing paper	NA

46	Laboratory stands with clamps	NA
47	Safety Goggles	NA
48	Lab coat	Cotton
49	Digital Thermometer	Wide temperature range
50	Stopwatch	NA
51	Refrigerator	(Direct Cool, 15 Cubic Feet, Top Mount Refrigerator)

Chemicals

Sr. No.	Item
1	Ethylene glycol
2	Ethanol (for washing purpose)
3	Glacial acetic acid
4	Acetone
5	Ferrous sulfate $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$
6	Titanium butoxide (tetrabutyl titanate)
7	Titanium tetrachloride (TiCl_4)
8	Urea
9	Potassium hydroxide (KOH)
10	Manganese (II) sulfate $\text{MnSO}_4 \cdot \text{H}_2\text{O}$
11	Mn (IV) chloride MnCl_4
12	Silver nitrate (AgNO_3)
13	Sodium bicarbonate NaHCO_3
14	Sodium carbonate Na_2CO_3
15	Potassium permanganate (KMnO_4)
16	Sodium Nitrate (NaNO_3)
17	Ammonia (NH_3)
18	Hydrazine (N_2H_4)
19	Methanol
20	Potassium persulfate (PS)
21	Potassium peroxymonosulfate (PMS)
22	Silver sulfate Ag_2SO_4
23	Mercuric sulfate HgSO_4
24	Fructose
25	Peptone
26	Yeast extract
27	Citric acid
28	Sodium Dihydrogen Phosphate NaH_2PO_3

29	Hydrochloric acid (HCl)
30	Sulfuric acid (H ₂ SO ₄)
31	Nitric acid (HNO ₃)
32	Ethanol (C ₂ H ₅ OH) Analytical grade
33	Phosphoric acid (H ₃ PO ₄)
34	Hydrogen per oxide(H ₂ O ₂)
35	Sodium Hydroxide (NaOH)
36	Sodium molybdate dihydrate (Na ₂ MoO ₄ ·2H ₂ O)
37	Thiourea ((NH ₂) ₂ CS)
38	Potassium dichromate (K ₂ Cr ₂ O ₇)
39	1,5-Diphenylcarbazide C ₁₃ H ₁₄ N ₄ O
40	Ferric Nitrate Fe(NO ₃)
41	Ferrous Chloride (FeCl ₂)
42	Phenophthalene
43	Iodine
44	Methyl Blue
45	Methyl Orange
46	Methyl Red
47	Congo Red
48	Methanol
49	Sodium Borohydride
50	Calcium Carbonates
51	Oleylamine
52	Benzene
53	Propanol
54	Carbamazepine
55	Cetyl Trimethyl Ammonium bromide
56	Diethyl ether
57	Graphite (Powder)
58	Toluene
59	Chloro Benzene
60	Chloroform
61	Zinc Chloride
62	Gold Tetra Chloride
63	Poly vinyl Chloride
64	Poly Ether Sulfone

65	Graphene Oxide
66	Reactive Green 19
67	Reactive Green 8
68	Reactive Black 5
69	Calgon Granular activated carbon
70	Sodium Alginate (1 kg)
71	Humic Acid (50 g)
72	Sodium Propionate
73	Silica

Note:

1. PAF-IAST may re-adjust the quantities within the total quantities specified against the specifications of same genre in any of the Lots.
2. The Bidder shall indicate in their offer,
 - a. detailed specifications of their offered product(s),
 - b. standard accessories,
 - c. make and origin, as part of confirming Compliance as per the format given in Form – D.
3. The Unit Price, Total Bid Price, and Additional Warranty Price of the quoted items shall be indicated as per the given format in Form – G.

Section 5b: Special Terms and Conditions

Standard

- The goods supplied must be capable of functioning properly under the climatic conditions of Haripur.
- There shall be no deviation from specification and country of make as provided with each item. In case of any ambiguity in specification/ accessories needed for the full functioning of the equipment, the firm must clear it with the Procurement Committee. However, the decision of the Procurement Committee will be final.
- The goods with standard accessories supplied under this tender shall conform to the standard maintenance in the technical specification.

Training

- The firm supplying the item/ equipment(s) will demonstrate the operation/ working of the supplied goods to the satisfaction of PAF- IAST and provide training. Suppliers are advised to provide details on formal training for the LOT(s) covering aspects as mentioned below, but not limited to, as required in Form – E (Section 3).

LOT(s)		
Level	1 to 8	9
Basic	Demonstrate the operations/ working to end users; Identify the do's and don'ts; and aspects deem necessary for long-life functioning of supplied goods.	
Hands-on	Demonstrate technical features; Elaborate technical configuration(s) performed for integration with the overall setup; Documented guidelines for generating reports using software and/ or systems' interface	
Advanced	Provide trainings to Operators for troubleshooting and smooth operations using system manuals	

Calibration of item/equipment

- The supplier will install the good(s) in the presence and satisfaction of the Procurement Committee, if need be. In case of any defect in the supplied good(s) or if it is not in accordance with the desired specification(s), the goods will be changed at the cost of the supplier.

Warranty/ Guarantee

- The Supplier will give comprehensive onsite warranty/ guarantee that the goods/ stores/ articles would continue to conform to the description and quality as specified for a period of at least One (01) year and additional three (03) years as Extended Warranty from the date of delivery, installation and commissioning of the said goods/ stores/ articles to be purchased and that notwithstanding the fact that the purchaser may have inspected and/ or approved the said goods/ stores/ article, if during the aforesaid period, the said goods/ stores/ articles, be discovered not to conform to the description and quality aforesaid or have determined (and the decision of the Procurement Committee in that context will be final and conclusive), the PAF: IAST will be entitled to reject the said goods/ stores/ articles or such portion thereof as may be discovered not to conform to the said description and quality, on such rejection the goods/ articles/ stores will be at the supplier's risk and all the provisions relating to rejection of goods etc. shall apply.
- The Supplier shall, if so called upon to do, replace the goods etc., or such portion thereof as is rejected by Procurement Committee, otherwise the supplier shall pay such damage as may arise by the reason of the breach of the condition herein contained. Nothing herein contained shall prejudice any other right of the Procurement Committee in that behalf under this contract or otherwise.

- The Supplier shall also replace equipment, in case it is found defective which cannot be put to operation due to manufacturing defect, etc. In case of equipment specified by the Procurement Committee, the supplier shall be responsible from carrying out annual maintenance and repairs on the terms and conditions as may be agreed. The supplier shall also be responsible to ensure adequate regular supply of spare parts needed for a specific type of equipment whether under their annual maintenance and repairs contract or otherwise. In case of change of model, supplier will give sufficient notice to the Procurement Committee who may like to purchase spare parts from them to maintain the equipment in perfect condition.

Section 6: Returnable Bidding Forms / Checklist

This section serves as a checklist for preparation of your Bid. Please complete the Returnable Bidding Forms in accordance with the instructions in the forms and return them as part of your Bid submission. No alteration to format of forms shall be permitted and no substitution shall be accepted.

Before submitting your Bid, please ensure compliance with the Bid Submission instructions of the BDS 22.

Bid Proposal:

Have you duly completed all the Returnable Bidding Forms?	
✦ Form A: Bid Submission Form	<input type="checkbox"/>
✦ Form B: Joint Venture/Consortium/ Association Information Form	<input type="checkbox"/>
✦ Form C: Bidder Information Form	<input type="checkbox"/>
✦ Form D: Qualification Form	<input type="checkbox"/>
✦ Form E: Bid Proposal Form	<input type="checkbox"/>
✦ Form F: Specifications Compliance Form	<input type="checkbox"/>
✦ Form G: Price Schedule Form	<input type="checkbox"/>
Have you provided the required documents to establish compliance with the evaluation criteria in Section 4?	<input type="checkbox"/>

Form A: Bid Submission Form

(To be Submitted in an envelope duly sealed and marked as Technical Proposal)

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	PAF: IAST-LE-ITB-102-20		

We, the undersigned, submit our Bid for the award of contract to supply the goods and related services required for [Insert Title of goods and services] in accordance with your Invitation to Bid No. [Insert ITB Reference Number]. We hereby submit our Bid, which includes this Bid proposal.

We hereby declare that our firm, its affiliates or subsidiaries or employees, including any JV/ Consortium/ Association members or subcontractors or suppliers for any part of the contract:

- a) is not under procurement prohibition by any of the Government/ Semi-government/ Autonomous organization;
- b) have not been suspended, debarred, sanctioned or otherwise identified as ineligible by any Organization in Pakistan;
- c) have not declared bankruptcy, are not involved in bankruptcy or receivership proceedings, and there is no judgment or pending legal action against us that could impair our operations in the foreseeable future;
- d) undertake not to engage in proscribed practices, including but not limited to corruption, fraud, coercion, collusion, obstruction, or any other unethical practice, with the PAF: IAST, and to conduct business in a manner that averts any financial, operational, reputational or other undue risk to the PAF: IAST.

We declare that all the information and statements made in this Bid are true and we accept that any misinterpretation or misrepresentation contained in this Bid may lead to our disqualification and/ or sanctioning by the PAF-IAST.

We offer to supply the goods and related services in conformity with the Bidding documents, including the PAF-IAST General Conditions of Contract and in accordance with the Schedule of Requirements and Specifications.

Our Bid shall be valid and remain binding upon us for the period specified in the Bid Data Sheet.

We understand and recognize that you are not bound to accept any Bid you receive.

I, the undersigned, certify that I am duly authorized by [Insert Name of Bidder] to sign this Bid and bind it should PAF- IAST accept this Bid.

Name: _____

Title: _____

Date: _____

Signature: _____

[Stamp with official stamp of the Bidder]

Form B: Joint Venture/ Consortium/ Association Information Form

(To be Submitted in an envelope duly sealed and marked as Technical Proposal)

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	PAF: IAST-LE-ITB-102-20		

To be completed and returned with your Bid if the Bid is submitted as a Joint Venture/Consortium/Association.

No	Name of Partner and contact information <i>(address, telephone numbers, fax numbers, e-mail address)</i>	Proposed proportion of responsibilities (in %) and type of goods and/or services to be performed
1	[Complete]	[Complete]
2	[Complete]	[Complete]
3	[Complete]	[Complete]

Name of leading partner (with authority to bind the JV, Consortium, Association during the ITB process and, in the event a Contract is awarded, during contract execution)	[Complete]
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We have attached a copy of the below referenced document signed by every partner, which details the likely legal structure of and the confirmation of joint and severable liability of the members of the said joint venture:

Letter of intent to form a joint venture **OR** JV/Consortium/Association agreement

We hereby confirm that if the contract is awarded, all parties of the Joint Venture/Consortium/Association shall be jointly and severally liable to PAF: IAST for the fulfillment of the provisions of the Contract.

Name of partner: _____

Name of partner: _____

Signature: _____

Signature: _____

Date: _____

Date: _____

Name of partner: _____

Name of partner: _____

Signature: _____

Signature: _____

Date: _____

Date: _____

Form C: Bidder Information Form

(To be Submitted in an envelope duly sealed and marked as Technical Proposal)

Legal name of Bidder	[Complete]
Legal address & Branch Offices	[Complete]
Year of registration	[Complete]
Bidder's Authorized Representative Information	Name and Title: [Complete] Telephone numbers: [Complete] Email: [Complete]
Are you a PAF: IAST registered vendor?	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, [insert PAF- IAST vendor number]
Countries of operation	[Complete]
No. of full-time employees	[Complete]
No. of Technical Staff	[Complete]
Quality Assurance Certification (e.g. ISO 9000 or Equivalent) (If yes, provide a Copy of the valid Certificate):	[Complete]
Does your Company hold any accreditation such as ISO 14001 or ISO 14064 or equivalent related to the environment? (If yes, provide a Copy of the valid Certificate):	[Complete]
Does your Company have a written Statement of its Environmental Policy? (If yes, provide a Copy)	[Complete]
Does your organization demonstrates significant commitment to sustainability through some other means, for example internal company policy documents on women empowerment, renewable energies, education, vocational trainings, social responsibility towards people with Special needs, or membership of trade institutions promoting such issues	[Complete]
Contact person that PAF: IAST may contact for requests for clarifications during Bid evaluation (Only Lead Bidder)	Name and Title: [Complete] Telephone numbers: [Complete] Email: [Complete]

Please attach the following documents:

1. Company Profile, which should not exceed fifteen (15) pages, including printed brochures and product catalogues relevant to the goods and/ or services being procured.
2. Proposed timetable for delivery, installation and commissioning plan for the required and quoted items to PAF: IAST after the award of Contract.
3. Certificate of Registration of the business.
4. Principal's Authorization Letter in favor of Bidder to participate in this Tender.
5. A proofing document confirms the offered warranty for at least One (01) year, supported by the manufacturer's certificates, if applicable.
6. A proofing document confirming supply of same or similar items of this magnitude to various clients/ customers in Pakistan.
7. Proven records of no less than the required Projects of similar nature/ value/ complexity in which delivery and services were extended.
8. Full detailed description of the specifications of the proposed items in addition to catalogues clearly showing the proposed specifications responding to the requirements.
9. Supporting photos of the proposed items, if applicable.
10. Quality certifications: ISO 9001:2015 (if applicable)
11. Latest Audited Financial Statements (Income Statement and Balance Sheet) including Auditor's Report for the past (3 years).

Note: To be filled in by each partner in case Bid is submitted as a JV/ Consortium/ Association

Form D: Qualification Form

(To be submitted in an envelope duly sealed and marked as Technical Proposal)

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	PAF: IAST-LE-ITB-102-20		

If JV/ Consortium/ Association, to be completed by each partner.

Previous Relevant Experience

Please list all Projects successfully completed in the last 3 years, covering following aspects;

- Scope of the projects/ assignments.
- Activities performed for the successful completion of the project.
- Support Services Contracts in hand with SLA for the supplied goods.

List only those assignments for which the Bidder was legally contracted or sub-contracted by the Client as a company or was one of the Consortium/ JV partners. Assignments completed by the Bidder's individual experts working privately or through other firms cannot be claimed as the relevant experience of the Bidder, or that of the Bidder's partners or sub-consultants, but can be claimed by the Experts themselves in their CVs. The Bidder should be prepared to substantiate the claimed experience by presenting copies of relevant documents and references if so requested by PAF- IAST.

Project name & Country of Assignment	Client & Reference Contact Details	Contract Value	Period of activity and status	Types of activities undertaken

Bidders may also attach their own Project Data Sheets with more details for assignments above.

History of Non-Performing Contracts

<input type="checkbox"/> Non-performing contracts did not occur during the last 3 years			
<input type="checkbox"/> Contract(s) not performed in the last 3 years			
Year	Non- performed portion of contract	Contract Identification	Total Contract Amount (current value in US\$)
		Name of Client: Address of Client: Reason(s) for non-performance:	

Financial Standing

Annual Turnover for the last 3 years	Year	PKR
	Year	PKR
	Year	PKR

Latest Credit Rating (if any), indicate the source

--

Financial information (in PKR equivalent)	Historic information for the last 3 years		
	Year 1	Year 2	Year 3
	<i>Information from Balance Sheet</i>		
Total Assets (TA)			
Total Liabilities (TL)			
Current Assets (CA)			
Current Liabilities (CL)			
	<i>Information from Income Statement</i>		
Total / Gross Revenue (TR)			
Profits Before Taxes (PBT)			
Net Profit			
Current Ratio			

Attached are copies of the audited financial statements (balance sheets, including all related notes, and income statements) for the years required above complying with the following condition:

- a) Must reflect the financial situation of the Bidder or party to a JV, and not sister or parent companies;
- b) Historic financial statements must be audited by a certified public accountant;
- c) Historic financial statements must correspond to accounting periods already completed and audited. No statements for partial periods shall be accepted.

Form E: Technical Bid Proposal Form

(To be submitted in an envelope duly sealed and marked as Technical Proposal)

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	PAF: IAST-LE-ITB-102-20		

The Bidder's Bid should be organized to follow this format of the Technical Bid Proposal. Where the bidder is presented with a requirement or asked to use a specific approach, the bidder must not only state its acceptance, but also describe how it intends to comply with the requirements. Where a descriptive response is requested, failure to provide the same may be viewed as non-responsive.

SECTION 1: Qualification, capacity and expertise

- 1.1 Bidder's general organizational capability: management structure, financial stability and project financing capacity, project management controls, extent of work to be subcontracted (if so, provide details).
- 1.2 Bidder's relevance of specialized knowledge and experience on similar engagements done in the region/ country. Bidder should submit a detailed description of the projects executed (quantities, value, beneficiary)
- 1.3 Manufacturer's strengths covering the regional/ global market presence, hi-tech products portfolio, manufacturing capacity, R&D activities resulting in national and international patents, quality control and assurance practices, and international certifications in relevant areas.

SECTION 2: Management Structure and Key Personnel

- 2.1 Describe the overall management approach toward planning and implementing the project. Include an organization chart for the management of project describing relationship of key positions and designations.
- 2.2 Provide CVs for key personnel that will be provided to support the implementation of this project using the format below. CVs should demonstrate qualifications in areas relevant to scope of goods and/or services.

Format for CV of Proposed Key Personnel

Name of Personnel	[Insert]
Position	[Insert]
Nationality	[Insert]
Language proficiency	[Insert]
Education/ Qualifications	<i>[Summarize college/university and other specialized education of personnel member, giving names of schools, dates attended, and degrees/qualifications obtained.]</i> [Insert]
Professional certifications	<i>[Provide details of professional certifications relevant to the scope of goods and/or services]</i> ✦ Name of institution: [Insert] ✦ Date of certification: [Insert]
Employment Record/ Experience	<i>[List all positions held by personnel (starting with present position, list in reverse order), giving dates, names of employing organization, title of position and location of employment.]</i> [Insert]

I, the undersigned, certify that to the best of my knowledge and belief, the data provided above correctly describes my qualifications, my experiences, and other relevant information about myself.

SECTION 3: Scope of Supply, Technical Specifications and Training(s)

This section should demonstrate the Bidder's responsiveness to the specification by identifying the specific components proposed, addressing the requirements, as specified, point by point; providing a detailed description of the essential performance characteristics proposed; and demonstrating how the proposed bid meets or exceeds the requirements/specifications. All important aspects should be addressed in sufficient detail.

- 3.1 A detailed description of how the Bidder will deliver the required goods and services, keeping in mind the appropriateness to local conditions and project environment. Details how the different service elements shall be organized, controlled and delivered.
- 3.2 Explain whether any work would be subcontracted, to whom, how much percentage of the requirements, the rationale for such, and the roles of the proposed sub-contractors and how everyone will function as a team.
- 3.3 Implementation plan including a Gantt Chart or Project Schedule indicating the detailed sequence of activities that will be undertaken and their corresponding timing.
- 3.4 Details on post-deployment trainings on-site hands-on training for all LOTs except LOT # 9.

SECTION 4: Registration & Certifications

This section should demonstrate the Bidder's responsiveness towards its registration with the relevant national body and international organizations Certifying the bidder's qualifications with respect to Quality and Project Management.

- 4.1 Provide a copy of valid registration with the Pakistan Engineering Council (if applicable).
- 4.2 Provide a copy of valid Certificate issued by International Organization for Standardization certifying the bidder's compliance and practices towards quality management principles and standards in their offered products/ solutions and services.
- 4.3 Provide a copy of valid Certificate issued by International Organization for Standardization certifying the bidder's compliance and practices towards information security management principles and standards in their offered products/ solutions and services.

SECTION 5: Warranty and Support Services

This section should demonstrate the Bidder's responsiveness to the post-commissioning warranty and support services of the goods supplied, addressing the requirements, as specified, point by point; providing a detailed description of the essential performance characteristics proposed; and demonstrating how the proposed bid meets or exceeds the requirements. All important aspects should be addressed in sufficient detail.

- 5.1 A detailed description of how the Bidder will provide the Warranty claims to the users, keeping in mind the span and complexity of the project in context of local conditions and project environment.
- 5.2 Explain whether any services or work would be subcontracted, to whom, how much percentage of the requirements, the rationale for such, and the roles of the proposed sub-contractors and how everyone will function as a team.
- 5.3 Details how the post-delivery/ deployment Support Services will be provided to the users keeping in consideration the criticality of systems, and dependency of university administration and operations on such systems.

Form F: Specifications Compliance Form

(To be submitted in an envelope duly sealed and marked as Technical Proposal)

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	PAF: IAST-LE-ITB-102-20		

The Bidder's Bid should be organized to follow this format of the Technical Bid Proposal. Where the bidder is presented with a requirement or asked to use a specific approach, the bidder must not only state its acceptance, but also describe how it intends to comply with the requirements. Where a descriptive response is requested, failure to provide the same may be viewed as non-responsive.

Goods and services to be Supplied <i>(based on the Technical Specifications provided in Section 5a & Section 5b)</i>		Your response Compliance with specifications	
		Comply (Yes/ No) <i>(If No, indicate discrepancies)</i>	Quoted Specifications
Required Items		Offered Items	
LOT #1: Lot No. 1. Electronics/DLD/Embedded Systems Lab Equipment			
1.	Digital Oscilloscope		(Bidders are required to attach Compliance Comparison Sheet supported by Product Data Sheet against the Specifications provided in Section – 5)
2.	Handheld Digital Multimeter		
3.	Dual DC power supply		
4.	Digital Logic Trainer Kits		
5.	Arduino Starter kit		
6.	Spartan-3 FPGA Evaluation Kit		
7.	Microprocessor Based Trainer Kits		
8.	Raspberry Pi-3 kit		
9.	Matlab license 2019b (Server-based License),		
10.	Breadboard module		
11.	Function generator		
12.	Soldering station		
13.	LCR Meter		
LOT #2: Electrical Workshop Equipment			
1.	Electric Installation Safety Measurement Trainers		(Bidders are required to attach Compliance Comparison Sheet supported by Product Data Sheet against the Specifications provided in Section – 5)
2.	Electrical Welding Machines		
3.	Gas Welding Machine		
LOT #3: Thermodynamics Lab Equipment			
1	Expansion Process unit,		(Bidders are required to attach Compliance Comparison Sheet supported by Product Data Sheet against the Specifications provided in Section – 5)
2	Temperature Measurement and Calibration unit		
3	Pressure Measurement and Calibration unit		
4	Saturation Pressure Unit		

5	Recycle Loop			
6	Mechanical Heat Pump			
7	Solar Energy Demonstration Unit,			
8	Refrigeration Cycle Demonstration Unit,			
9	Single Cylinder Steam Engine			
10	Mechanical Equivalent of Heat Apparatus			
11	Laser Thermometers			
LOT #4: Fluid Mechanics Lab Equipment				
1.	Flow Meter Trainer		(Bidders are required to attach Compliance Comparison Sheet supported by Product Data Sheet against the Specifications provided in Section – 5)	
2.	Fluid Friction Apparatus			
3.	Bernoulli's Theorem Apparatus			
4.	Drag Coefficient Apparatus			
5.	Free & Forced Vortex Apparatus,			
6.	Hydraulics Bench,			
7.	Fluid Statics and Manometry			
8.	Osborne-Reynold's Demonstration Unit			
9.	Multi-Pump Test Rig,			
10.	Fixed and Fluidized Bed Equipment			
11.	Centrifugal Fan Demonstration Unit (Computer Linked),			
12.	Centrifugal Pump Demonstration Unit (Computer Linked)			
LOT #5: Heat Transfer Lab Equipment				
1.	Concentric Double Pipe Heat Exchanger		(Bidders are required to attach Compliance Comparison Sheet supported by Product Data Sheet against the Specifications provided in Section – 5)	
2.	Shell & Tube Heat Exchanger			
3.	Radiation Heat Transfer Unit, Film & Drop Wise Condensation Unit,			
4.	Flow Boiling Demonstration Unit			
5.	Free and Force Convection Unit			
6.	Heat Conduction Unit			
7.	Thermal Conductivity Apparatus			
8.	Plate and Frame Heat Exchanger			
LOT #6 Chemistry Lab Equipment				
1.	Bomb Calorimeter		(Bidders are required to attach Compliance Comparison Sheet supported by Product Data Sheet against the Specifications provided in Section – 5)	
2.	UV/Visible Spectrophotometer			
3.	Mechanical Shaker			
4.	Water Bath 4 & 6 Holes			
5.	UV Lamp			
6.	Water Distillation Assembly			
7.	Melting Point Apparatus			
8.	Table-Top Centrifuge			
9.	Conductivity meter			
10.	Abbes Refractometer			
11.	Hot plate with magnetic stirrer			
12.	Oven			

13.	Analytical Electronic Balance: Range min. 0.0001g-100g)			
14.	Analytical Electronic Balance: Range min. (0.001g-3000g)			
15.	Flame Photometer			
16.	Oil Bath			
17.	Glass Viscometer			
18.	Ultrasonic Bath			
19.	Desiccator with vacuum pump			
20.	Rotary Evaporator			
21.	Fume Hood			
22.	Heating Mental			
23.	pH Meter			
24.	Furnace			
25.	Autoclave			
LOT #: 7 Physics Lab Equipment				
1.	Faraday's Law Apparatus		(Bidders are required to attach Compliance Comparison Sheet supported by Product Data Sheet against the Specifications provided in Section – 5)	
2.	LRC Circuit Apparatus			
3.	Specific Heat Apparatus			
4.	Newton's Laws Apparatus			
5.	Projectile Motion Apparatus			
6.	Universal Digital Multimeter			
7.	General Purpose Digital Multimeter			
8.	Inverse Square Law Demonstrator			
9.	Coulomb's Law Demonstrator			
10.	Inverse Square Law Demonstrator			
Lot #: 8 Workshop Lab Equipment				
1.	Pillar drill		(Bidders are required to attach Compliance Comparison Sheet supported by Product Data Sheet against the Specifications provided in Section – 5)	
2.	Cut Off Machine			
3.	Bench grinder			
4.	Shaper machine			
5.	Milling machine			
6.	Lath Machine			
7.	CNC Machine			
8.	Tool Kit			
Lot #: 9 Consumable Items				
1.	Ethylene glycol		(Bidders are required to attach Compliance Comparison Sheet supported by Product Data Sheet against the Specifications provided in Section – 5)	
2.	Ethanol (for washing purpose)			
3.	Glacial acetic acid			
4.	Acetone			
5.	Ferrous sulfate $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$			
6.	Titanium butoxide (tetrabutyl titanate)			
7.	Titanium tetrachloride (TiCl_4)			
8.	Urea			
9.	Potassium hydroxide (KOH)			
10.	Manganese(II) sulfate $\text{MnSO}_4 \cdot \text{H}_2\text{O}$			
11.	Mn(IV) chloride MnCl_4			
12.	Silver nitrate (AgNO_3)			

13.	Sodium bicarbonate NaHCO_3			
14.	Sodium carbonate Na_2CO_3			
15.	Potassium permanganate (KMnO_4)			
16.	Sodium Nitrate (NaNO_3)			
17.	Ammonia (NH_3)			
18.	Hydrazine (N_2H_4)			
19.	Methanol			
20.	Potassium persulfate (PS)			
21.	Potassium peroxymonosulfate (PMS)			
22.	Silver sulfate Ag_2SO_4			
23.	Mercuric sulfate HgSO_4			
24.	Fructose			
25.	Peptone			
26.	Yeast extract			
27.	Citric acid			
28.	Sodium Dihydrogen Phosphate NaH_2PO_3			
29.	Hydrochloric acid (HCl)			
30.	Sulfuric acid (H_2SO_4)			
31.	Nitric acid (HNO_3)			
32.	Ethanol ($\text{C}_2\text{H}_5\text{OH}$) Analytical grade			
33.	Phosphoric acid (H_3PO_4)			
34.	Hydrogen per oxide(H_2O_2)			
35.	Sodium Hydroxide (NaOH)			
36.	Sodium molybdate dihydrate ($\text{Na}_2\text{MO}_4 \cdot 2\text{H}_2\text{O}$)			
37.	Thiourea ($(\text{NH}_2)_2\text{CS}$)			
38.	Potassium dichromate ($\text{K}_2\text{Cr}_2\text{O}_7$)			
39.	1,5-Diphenylcarbazine $\text{C}_{13}\text{H}_{14}\text{N}_4\text{O}$			
40.	Ferric Nitrate $\text{Fe}(\text{NO}_3)$			
41.	Ferrous Chloride (FeCl_2)			
42.	Phenophthalene			
43.	Iodine			
44.	Methyl Blue			
45.	Methyl Orange			
46.	Methyl Red			
47.	Congo Red			
48.	Methanol			
49.	Sodium Borohydride			
50.	Calcium Carbonates			
51.	Oleylamine			
52.	Benzene			
53.	Propanol			
54.	Carbamazepine			
55.	Cetyl Trimethyl Ammonium bromide			
56.	Diethyl ether			
57.	Graphite (Powder)			

58.	Toluene			
59.	Chloro Benzene			
60.	Chloroform			
61.	Zinc Chloride			
62.	Gold Tetra Chloride			
63.	Poly vinyl Chloride			
64.	Poly Ether Sulfone			
65.	Graphene Oxide			
66.	Reactive Green 19			
67.	Reactive Green 8			
68.	Reactive Black 5			
69.	Calgon Granular activated carbon			
70.	Sodium Alginate (1 kg)			
71.	Humic Acid (50 g)			
72.	Sodium Propionate			
73.	Silica			
Glassware				
1.	Beakers (1000 ml)			
2.	Beakers (500 ml)			
3.	Beakers (250 ml)			
4.	Beakers (100 ml)			
5.	Pipette (Glass 10 ml)			
6.	Pipette (Glass 5 ml)			
7.	Pipette (Glass 2ml, 1 ml)			
8.	Measuring cylinder (500 ml)			
9.	Measuring cylinder (250 ml)			
10.	Measuring cylinder (100 ml)			
11.	Measuring cylinder (50 ml)			
12.	Measuring cylinder (25 ml)			
13.	Volumetric flask (1000 ml)			
14.	Volumetric flask (500 ml)			
15.	Volumetric flask (250 ml)			
16.	Pipette bulb			
17.	Auto pipette			
18.	Disposal plastic dropper			
19.	Petri dish (60 mm)			
20.	Petri dish (100 mm)			
21.	lab disposable gloves (S, M, L)			
22.	Spatula (Different size)			
23.	Cleaning brush (Different size)			
24.	Crucible (25 and 50 ml)			
25.	Adhesive labels			
26.	Distill water bottle (500 ML)			
27.	Plastic tubes (1.5 ml -5ml)			
28.	Centrifuge tubes plastic 10 ml			
29.	Test tube rack plastic			
30.	Pipette holder			
31.	Auto pipette tips 5 mL			

32.	Whatman Filter paper			
33.	pH paper (1-14)			
34.	pH paper (0-5.5)			
35.	pH paper (5.5-9)			
36.	UV quartz cell cleaning paper			
37.	Reagent bottles, 100 mL			
38.	Reagent bottles 250 mL			
39.	Reagent bottles 500 mL			
40.	Conical flask 250 mL			
41.	Conical flask 100 mL			
42.	Volumetric flask 50 mL			
43.	Distilled water can 10 L			
44.	Test tube 50 ml			
45.	Weighing paper			
46.	Laboratory stands with clamps			
47.	Safety Goggles			
48.	Lab coat			

Form G: Price Schedule Form

(To be Submitted in a separate and sealed envelope duly marked as Financial Proposal)

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	PAF: IAST-LE-ITB-102-20		

[The Bidder is required to prepare the Price Schedule following the below format. The Price Schedule must include a detailed cost breakdown of all goods and related services to be provided.]

We, the <<Name of Bidder>>, hereby submit our Financial Bid for the Supply of Items as below. We assure you of our full compliance to the required specifications, delivery schedule and other terms without any deviation and/ or reservations. We reiterate our acceptance to the terms and conditions of the RFP. Our Financial proposal as below is submitted for your kind consideration;

Quoted Items in compliance to the Technical Specifications as referred in Section – 5a and Section – 5b		Quantity (a)	Unit Price [in Rs.] (b)	GST [in Rs.] (c)	Total Price [in Rs.] $d=a*[b+c]$
Lot No. 1. ELECTRONICS/DLD/EMBEDDED SYSTEMS LAB EQUIPMENT (As per specifications)					
1	Digital Oscilloscope	50			
2	HANDHELD DIGITAL MULTIMETER	75			
3	Dual DC power supply	50			
4	Digital Logic Trainer Kits	25			
5	Arduino Starter kit	35			
6	Spartan-3 FPGA Evaluation Kit	25			
7	Microprocessor Based Trainer Kits	25			
8	Raspberry Pi-3 kit	25			
9	Matlab license 2019b	Server based license			
10	Breadboard module	25			
11	Function generator	25			
12	Soldering station	6			
13	LCR Meter	5			
LOT #2: ELECTRICAL WORKSHOP EQUIPMENT					
1	Home Electric Wiring Trainers	25			
2	Electric Installation Safety Measurement Trainers	25			
3	Electrical Welding Machines	1			
4	Gas Welding Machine	1			
LOT #3: Lot No. 3. THERMODYNAMICS LAB EQUIPMENT					
1	Expansion Process unit	1			
2	Temperature Measurement and Calibration unit	1			
3	Pressure Measurement and Calibration unit	1			
4	Saturation Pressure Unit	1			
5	Recycle Loop	1			
6	Solar Energy Demonstration Unit	1			
7	Mechanical Heat Pump	1			
8	Refrigeration Cycle Demonstration Unit	1			
9	Single Cylinder Steam Engine	1			
10	Mechanical Equivalent of Heat Apparatus	1			
11	Laser Thermometers	1			
LOT #4: FLUID MECHANICS LAB EQUIPMENT					
1	Flow Meter Trainer	1			
2	Fluid Statics and Manometry	1			

3	Hydraulics Bench	1			
4	Osborne-Reynold's Demonstration Unit	1			
5	Multi-Pump Test Rig	1			
6	Fixed and Fluidized Bed Equipment	1			
7	Centrifugal Fan Demonstration Unit (Computer Linked),	1			
8	Centrifugal Pump Demonstration Unit (Computer Linked)	1			
9	Drag Coefficient Apparatus	1			
10	Bernoulli's Theorem Apparatus	1			
11	Free & Forced Vortex Apparatus	1			
12	Fluid Friction Apparatus	1			
LOT #5: HEAT TRANSFER LAB EQUIPMENT					
1	Concentric Double Pipe Heat Exchanger	1			
2	Shell & Tube Heat Exchanger	1			
3	Radiation Heat Transfer Unit	1			
4	Film & Drop Wise Condensation Unit	1			
5	Flow Boiling Demonstration Unit	1			
6	Free and Force Convection Unit	1			
7	Heat Conduction Unit	1			
8	Thermal Conductivity Apparatus	1			
9	Plate and Frame Heat Exchanger	1			
LOT #6: CHEMISTRY LAB EQUIPMENT					
1	Bomb Calorimeter	4			
2	UV/Visible Spectrophotometer	4			
3	Mechanical Shaker	5			
4	Water Bath 4 & 6 Holes	5			
5	UV Lamp	15			
6	Water Distillation Assembly	4			
7	Melting Point Apparatus	1			
8	Table-Top Centrifuge	2			
9	Conductivity meter	10			
10	Abbes Refractometer	5			
11	Hot plate with magnetic stirrer	12			
12	Oven	4			
13	Analytical Electronic Balance: Range min. (0.001g-3000g)	4			
14	Analytical Electronic Balance: Range min. (0.0001g-100g)	8			
15	Autoclave	4			
16	pH Meter	10			
17	Furnace	2			
18	Heating Mantle	6			
18	Fume Hood	2			
20	Rotary Evaporator	1			

21	Desiccator with vacuum pump	3			
22	Ultrasonic Bath	5			
23	Glass Viscometer	8			
24	Flame Photometer	2			
25	Oil Bath	4			
LOT #7: PHYSICS LAB EQUIPMENT					
1	Faraday's Law Apparatus	3			
2	LRC Circuit Apparatus	4			
3	Specific Heat Apparatus	5			
4	Newton's Laws Apparatus	4			
5	Projectile Motion Apparatus	3			
6	Universal Digital Multimeter	4			
7	Inverse Square Law Demonstrator	4			
8	Coulomb's Law Demonstrator	3			
9	General Purpose Digital Multimeter	3			
10	Inverse Square Law Demonstrator	3			
LOT NO. 8. WORKSHOP LAB EQUIPMENT					
1	Pillar drill	5			
2	Tool Kit	10			
3	Milling machine	2			
4	Bench grinder	5			
5	CNC Machine,	1			
6	Lath Machine	4			
7	Shaper machine	2			
8	Cut Off Machine	5			
LOT NO. 9. CONSUMABLE ITEMS					
1	Ethylene glycol 500 ml	12			
2	Ethanol (for washing purpose) 500 ml	20			
3	Glacial acetic acid 500 ml	6			
4	Acetone 500 ml	6			
5	Ferrous sulfate $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ 500 gram	1			
6	Titanium butoxide (tetrabutyl titanate) 500 ml	1			
7	Titanium tetrachloride (TiCl_4) 500 ml	1			
8	Urea 1000 gram	3			
9	Potassium hydroxide (KOH) 1000 grams	3			
10	Manganese(II) sulfate $\text{MnSO}_4 \cdot \text{H}_2\text{O}$ 500 grams	1			
11	Mn(IV) chloride MnCl_4 500 grams	1			
12	Silver nitrate (AgNO_3) 25 grams	2			
13	Sodium bicarbonate NaHCO_3 1000 gram	4			
14	Sodium carbonate Na_2CO_3 1000 gram	4			
15	Potassium permanganate (KMnO_4) 500 gram	2			
16	Sodium Nitrate (NaNO_3) 500 gram	1			
17	Ammonia (NH_3) 500 ml	10			
18	Hydrazine (N_2H_4) 500 ml	4			
19	Methanol 500 ml	10			
20	Potassium persulfate (PS) 500 grams	1			
21	Potassium peroxymonosulfate (PMS) 500 grams	1			
22	Silver sulfate Ag_2SO_4 5 grams	2			
23	Mercuric sulfate HgSO_4 5 grams	2			
24	Fructose 1000 grams	1			
25	Peptone, 1000 grams	1			
26	Yeast extract 1000 grams	1			
27	Citric acid 500 grams	1			

28	Sodium Dihydrogen Phosphate NaH_2PO_3 5000 grams	1			
29	Hydrochloric acid (HCl) 500 ml	30			
30	Sulfuric acid (H_2SO_4) 500 ml	30			
31	Nitric acid (HNO_3) 500 ml	30			
32	Ethanol ($\text{C}_2\text{H}_5\text{OH}$) Analytical grade 500 ml	6			
33	Phosphoric acid (H_3PO_4) 500 ml	6			
34	Hydrogen per oxide (H_2O_2) 500 ml	6			
35	Sodium Hydroxide (NaOH) 1000 grams	10			
36	Sodium molybdate dihydrate ($\text{Na}_2\text{MO}_4 \cdot 2\text{H}_2\text{O}$) 500 grams	4			
37	Thiourea ($(\text{NH}_2)_2\text{CS}$) 1000	4			
38	Potassium dichromate ($\text{K}_2\text{Cr}_2\text{O}_7$) 500 grams	4			
39	1,5-Diphenylcarbazide $\text{C}_{13}\text{H}_{14}\text{N}_4\text{O}$ 100 grams	2			
40	Ferric Nitrate $\text{Fe}(\text{NO}_3)$ 500 grams	2			
41	Ferrous Chloride (FeCl_2) 500 grams	2			
42	Phenophthalene, 25 grams	2			
43	Iodine 100 grams	2			
44	Methyl Blue 100 grams	2			
45	Methyl Orange 100 grams	2			
46	Methyl Red 100 grams	2			
47	Congo Red 100 grams	2			
48	Methanol 500 ml	20			
49	Sodium Borohydride 500 grams	4			
50	Calcium Carbonates 500 grams	2			
51	Oleylamine 5 grams	2			
52	Benzene 500 ml	6			
53	Propanol 500 ml	4			
54	Carbamazepine 100 grams	2			
55	Cetyl Trimethyl Ammonium bromide 100 grams	2			
56	Diethyl ether, 500 ml	6			
57	Graphite (Powder) 1000 grams	4			
58	Toluene, 500 ml	2			
59	Chloro Benzene, 500 ml	4			
60	Chloroform 500 ml	6			
61	Zinc Chloride 250 grams	2			
62	Gold Tetra Chloride 25 gram	2			
63	Poly vinyl Chloride 1000 grams	4			
64	Poly Ether Sulfone (1000 grams)	4			
65	Graphene Oxide (1 g)	1			
66	Reactive Green 19 (25 g)	3			
67	Reactive Green 8 (25 g)	3			
68	Reactive Black 5 (100 g)	2			
69	Calgon Granular activated carbon (10-25 kg)	1			
70	Sodium Alginate (1 kg)	1			
71	Humic Acid (50 g)	2			
72	Sodium Propionate (500 g)	1			
73	Silica (100 g)	1			
GLASSWARE					
1	Beakers (1000 ml)	25			
2	Beakers (500 ml)	50			
3	Beakers (250 ml)	100			
4	Beakers (100 ml)	100			
5	Pipette (Glass 10 ml)	50			

6	Pipette (Glass 5 ml)	50			
7	Pipette (Glass 2ml, 1 ml)	25			
8	Measuring cylinder (500 ml)	50			
9	Measuring cylinder (250 ml)	50			
10	Measuring cylinder (100 ml)	100			
11	Measuring cylinder (50 ml)	50			
12	Measuring cylinder (25 ml)	50			
13	Volumetric flask (1000 ml)	50			
14	Volumetric flask (500 ml)	100			
15	Volumetric flask (250 ml)	100			
16	Pipette bulb	50			
17	Auto pipette	10			
18	Disposal plastic dropper	1000			
19	Petri dish (60 mm)	100			
20	Petri dish (100 mm)	100			
21	lab disposable gloves (S, M, L)	50PKT			
22	Spatula (Different size)	50			
23	Cleaning brush (Different size)	100			
24	Crucible (25 and 50 ml)	100			
25	Adhesive labels	20 PKT			
26	Distill water bottle (500 ML)	50			
27	Plastic tubes (1.5 ml -5ml)	10 PKT			
28	Centrifuge tubes plastic 10 ml	20 PKT			
29	Test tube rack plastic	50			
30	Pipette holder	10			
31	Auto pipette tips 5 mL	10 PKT			
32	Whatman Filter paper	500 PKT			
33	pH paper (1-14)	50 PKT			
34	pH paper(0-5.5)	50 PKT			
35	pH paper (5.5-9)	50 PKT			
36	UV quartz cell cleaning paper	50 PKT			
37	Reagent bottles, 100 mL	200			
38	Reagent bottles 250 mL	200			
39	Reagent bottles 500 mL	200			
40	Conical flask 250 mL	100			
41	Conical flask 100 mL	100			
42	Volumetric flask 50 mL	100			
43	Distilled water can 10 L	25			
44	Test tube 50 ml	50			
45	Weighing paper	50 pkt			
46	laboratory stands with clamps	25			
47	Safety Googles	50			
48	Lab coat	50			

Extended Warranty Price (at discretion of PAF-IAST)

Annual Warranty & Support Services beyond Standard Warranty of the Quoted Items		2 nd Year (in PKR)	3 rd Year (in PKR)	4 th Year (in PKR)
LOT #1: Electronics/DLD/Embedded Systems Lab Equipment				
1.	Digital Oscilloscope			
2.	Handheld Digital Multimeter			
3.	Dual DC power supply			
4.	Digital Logic Trainer Kits			
5.	Arduino Starter kit			
6.	Spartan-3 FPGA Evaluation Kit			
7.	Microprocessor Based Trainer Kits			
8.	Raspberry Pi-3 kit			
9.	Matlab license 2019b (Server-based License),			
10.	Breadboard module			
11.	Function generator			
12.	Soldering station			
13.	LCR Meter			
LOT #2: Electrical Workshop Equipment				
1.	Electric Installation Safety Measurement Trainers			
2.	Electrical Welding Machines			
3.	Gas Welding Machine			
LOT #3: Thermodynamics Lab Equipment				
1.	Expansion Process unit,			
2.	Temperature Measurement and Calibration unit			
3.	Pressure Measurement and Calibration unit			
4.	Saturation Pressure Unit			
5.	Recycle Loop			
6.	Mechanical Heat Pump			
7.	Solar Energy Demonstration Unit,			
8.	Refrigeration Cycle Demonstration Unit,			
9.	Single Cylinder Steam Engine			
10.	Mechanical Equivalent of Heat Apparatus			
11.	Laser Thermometers			
LOT #4: Fluid Mechanics Lab Equipment				
1.	Flow Meter Trainer			
2.	Fluid Friction Apparatus			
3.	Bernoulli's Theorem Apparatus			
4.	Drag Coefficient Apparatus			
5.	Free & Forced Vortex Apparatus,			
6.	Hydraulics Bench,			
7.	Fluid Statics and Manometry			
8.	Osborne-Reynold's Demonstration Unit			
9.	Multi-Pump Test Rig,			
10.	Fixed and Fluidized Bed Equipment			
11.	Centrifugal Fan Demonstration Unit (Computer Linked),			
12.	Centrifugal Pump Demonstration Unit (Computer Linked)			
LOT #5: Heat Transfer Lab Equipment				
1.	Concentric Double Pipe Heat Exchanger			
2.	Shell & Tube Heat Exchanger			

3.	Radiation Heat Transfer Unit, Film & Drop Wise Condensation Unit,			
4.	Flow Boiling Demonstration Unit			
5.	Free and Force Convection Unit			
6.	Heat Conduction Unit			
7.	Thermal Conductivity Apparatus			
8.	Plate and Frame Heat Exchanger			
LOT #:6 Chemistry Lab Equipment				
1.	Bomb Calorimeter			
2.	UV/Visible Spectrophotometer			
3.	Mechanical Shaker			
4.	Water Bath 4 & 6 Holes			
5.	UV Lamp			
6.	Water Distillation Assembly			
7.	Melting Point Apparatus			
8.	Table-Top Centrifuge			
9.	Conductivity meter			
10.	Abbes Refractometer			
11.	Hot plate with magnetic stirrer			
12.	Oven			
13.	Analytical Electronic Balance: Range min. 0.0001g-100g)			
14.	Analytical Electronic Balance: Range min. (0.001g-3000g)			
15.	Flame Photometer			
16.	Oil Bath			
17.	Glass Viscometer			
18.	Ultrasonic Bath			
19.	Desiccator with vacuum pump			
20.	Rotary Evaporator			
21.	Fume Hood			
22.	Heating Mantle			
23.	pH Meter			
24.	Furnace			
25.	Autoclave			
LOT #: 7 Physics Lab Equipment				
1.	Faraday's Law Apparatus			
2.	LRC Circuit Apparatus			
3.	Specific Heat Apparatus			
4.	Newton's Laws Apparatus			
5.	Projectile Motion Apparatus			
6.	Universal Digital Multimeter			
7.	General Purpose Digital Multimeter			
8.	Inverse Square Law Demonstrator			
9.	Coulomb's Law Demonstrator			
10.	Inverse Square Law Demonstrator			
Lot #: 8 Workshop Lab Equipment				
1	Pillar drill			
2	Cut Off Machine			
3	Bench grinder			
4	Shaper machine			
5	Milling machine			

6	Lath Machine			
7	CNC Machine			
8	Tool Kit			

Total Bid Value in Figures (including Extended Warranty Price): _____

Total Bid Value in words (including Extended Warranty Price): _____

Name & Designation of Authorized Person: _____

Signature: _____ (Please affix company stamp here)

Note: Quoted price must be inclusive of all taxes and duties.

Annex – I: Integrity Pact

The Bidders will be required to submit the below text on stamp paper after filling in the details and duly signed as well as stamped, as part of their Technical Proposal.

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC
PAYABLE BY THE SUPPLIER OF GOODS, SERVICES & WORK IN CONTRACTS WORTH
RS. 10.0 MILLION OR MORE

(To be filled by the bidder as a part of technical proposal)

Contract Number: _____ Dated: _____

Contract Value: _____

Contract Title: _____

_____ hereby declare that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan or any administrative subdivision or agency thereof or any other entity owned or controlled by it (GoP) through any corrupt business partner.

Without limiting the generality of the forgoing, _____ represents and warrants that it has fully declared the brokerage, commission, fees etc. paid or payable to anyone and not given or not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any nature or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultant fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit in whatever from GoP, except that which has been expressly declared pursuant hereto.

_____ certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with GoP and has not taken any action or will not take any action to circumvent the above declaration, representation or warranty.

_____ accept full responsibility and strict liability for making any false declaration, not making full discloser, misrepresenting facts or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right, interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other right and remedies available to GoP under any law, contract or other instrument, be voidable at the option of GoP.

Notwithstanding any rights and remedies exercised by GoP in this regard, _____ agrees to identify GoP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GoP in an amount equivalent to ten time the sum of any commission, gratification, bribe, finder's fee or kickback given by _____ as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever from GoP.

[Buyer] [Seller / Supplier]

Annex – II: Draft Contract Sample

Available at PAF: IAST website at <http://www.paf-iastr.edu.pk/downloads>