



University of Agriculture, Faisalabad

Bidding Documents

Tender No.117/2016

SPECIAL INSTRUCTIONS

- No cutting, erasing is allowed in the Tender bid.
- Bid offered strictly in accordance with the bid document will only be accepted.
- Only typed bid will be accepted failing which it will be considered as non responsive.

THIS IS FOR STRICT COMPLIANCE

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Section I.

Invitation for Bids



UNIVERSITY OF AGRICULTURE, FAISALABAD
(TENDER NOTICE No.117/2016)

Sealed tenders are invited from Income Tax and Sales Tax registered firms on the basis of Single Stage (two envelop procedure) for supply/installation/commissioning of Laboratory Equipment under the development project titled "Establishment of Punjab Bio-energy Institute (PBI) at University of Agriculture, Faisalabad (UAF)".

Tender No.117/2016			
Date of Receiving and Opening	20.09.2016	Receiving Time	10:30 a.m.
		Opening Time	11:00 a.m.
		Bid Security	2% of the Estimated Cost
		Tender Fee	Rs.500/-

The bidding documents are available in the office of the undersigned and the same may be obtained subject to the payment of the cost of the printing and provision of the document (tender Fee) as mentioned above to be deposited in the University Income Account (No.11-9/NBP, UAF Branch), in case of city other than Faisalabad add Rs.200/-. The bidding documents can also be down loaded free of cost from the UAF website www.uaf.edu.pk/Admininstration/Directorate of Procurement & Inventory Control.

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Section II.

Instructions to Bidders

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Instructions to Bidders

A. Introduction

1. **Source of Funds** University of Agriculture, Faisalabad.
2. **Eligible Bidders**
 - 2.1 The invitation for Bids is opened to all supplier having trade relations with Pakistan and registration for National Tax Number & Sales Tax Number with Federal Board of Revenue
 - 2.2 Bidders should not be associated, or have been associated in the past, directly or indirectly, with a firm or any of its affiliates which have been engaged by the Purchaser to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the goods to be purchased under this Invitation for Bids.
 - 2.3 Only Government owned enterprises may participate, only if they are legally allowed.
 - 2.4 bidders shall not be under a declaration of ineligibility in accordance with ITB 36.1&37 by any Government organization. The bidder shall provide affidavit to this effect.
3. **Eligible Goods and Services**
 - 3.1 All goods and related services to be supplied under the contract shall have their origin in eligible source countries, and all expenditures made under the contract will be limited to such goods and services.
 - 3.2 For purposes of this clause, “origin” means the place where the goods are mined, grown, or produced, or the place from which the related services are supplied. Goods are produced when, through manufacturing, processing, or substantial and major assembly of components, a commercially-recognized product results that is substantially different in basic characteristics or in purpose or utility from its components.
 - 3.3 The origin of goods and services is distinct from the nationality of the Bidder.
4. **Cost of Bidding**
 - 4.1 The Bidder shall bear all costs associated with the preparation and submission of its bid, and the Purchaser named in the bid date sheet, hereinafter referred to as “the purchaser” will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

B. The Bidding Documents

- 5. Content of Bidding Documents**
- 5.1 The goods required, bidding procedures, and contract terms are prescribed in the bidding documents. In addition to the Invitation for Bids, the bidding documents include:
- (a) Instructions to Bidders (ITB)
 - (b) Bid Data Sheet
 - (c) General Conditions of Contract (GCC)
 - (d) Special Conditions of Contract (SCC)
 - (e) Schedule of Requirements
 - (f) Technical Specifications
 - (g) Bid Form and Price Schedules
 - (h) Bank Guarantee Form if applicable
 - (i) Manufacturer's Authorization Form
 - (j) Integrity pact.
 - (k) Mechanism of Blacklisting and Deregistration
- 5.2 The Bidder is expected to examine all instructions, forms, terms, and specifications in the bidding documents. Failure to furnish all information required by the bidding documents or to submit a bid not substantially responsive to the bidding documents in every respect will be at the Bidder's risk and may result in the rejection of its bid.
- 6. Clarification of Bidding Documents**
- 6.1 A prospective Bidder requiring any clarification of the bidding documents may notify the Purchaser in writing at the Purchaser's address indicated in the **Bid Data Sheet**. The Purchaser will respond in writing to any request for clarification of the bidding documents which it receives prior to the deadline for the submission of bids prescribed in ITB Clause 19.1. Written copies of the Purchaser's response (including an explanation of the query but without identifying the source of inquiry) will be sent to all prospective bidders that have received the bidding documents.
- 7. Amendment of Bidding Documents**
- 7.1 At any time prior to the deadline for submission of bids, the Purchaser, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, may modify the bidding documents by amendment.
- 7.2 All prospective bidders that have received the bidding documents will be notified of the amendment in writing and will be binding on them.
- 7.3 In order to allow prospective bidders reasonable time in which to take the amendment into account in preparing their bids, the

Purchaser, at its discretion, may extend the deadline for the submission of bids.

C. Preparation of Bids

- 8. Language of Bid** 8.1 The bid prepared by the Bidder, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser shall be written in English. Supporting documents and printed literature furnished by the Bidder may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified above, in which case, for purposes of interpretation of the Bid, the translation shall govern.
- 9. Documents Constituting the Bid** 9.1 The bid prepared by the Bidder shall comprise the following components:
- (a) a Bid Form and a Price Schedule completed in accordance with ITB Clauses 10, 11, and 12;
 - (b) documentary evidence established in accordance with ITB Clause 13 that the Bidder is eligible to bid and is qualified to perform the contract if its bid is accepted;
 - (c) documentary evidence established in accordance with ITB Clause 14 that the goods and ancillary services to be supplied by the Bidder are eligible goods and services and conform to the bidding documents; and
 - (d) bid security furnished in accordance with ITB Clause 15.
- 10. Bid Form** 10.1 The Bidder shall complete the Bid Form and the appropriate Price Schedule furnished in the bidding documents, indicating the goods to be supplied, a brief description of the goods, their country of origin, quantity, and prices.
- 10.2 Bidders tendering for engineering goods produced in Pakistan shall be accorded a price preference in rupees up to a specific percentage (in proportion to the value addition) of the lowest quoted landed cost of an item of foreign origin with similar specifications as mentioned in the tenders:
- (1) Provided that-
 - (a) The saving in foreign exchange is not less than the amount of price preference; and
 - (b) It is ensured that in each case of such preference, the total import requirements for producing the supplies tendered for locally manufactured items has been duly indicated by the bidders.

- (2) Price preference shall be allowed as under:-
- (a) Having minimum of twenty percent value addition through indigenous manufacturing price preference shall fifteen percent;
 - (b) Having over twenty percent and up to thirty percent value addition through indigenous manufacturing, price preference shall be twenty percent, and
 - (c) Having over thirty percent value addition through indigenous manufacturing, price preference shall be twenty five percent.

(3) For the purpose of granting a margin of domestic preference bids will be classified into following groups.

Group.A. Bids offering engineering goods produced in Pakistan.

Group.B. Bids offering good of foreign origin to be imported by the purchaser through the supplier's Local (Pakistan) Agent.

Group.C. Bids offering good of foreign origin to be imported by the purchaser directly.

11. Bid Prices

11.1 The Bidder shall indicate on the appropriate Price Schedule the unit prices (where applicable) and total bid price of the goods it proposes to supply under the contract.

11.2 Prices indicated on the Price Schedule shall be entered separately in the following manner or specified otherwise in the Bid Data Sheet:-

a). for goods offered from within Pakistan;

the price shall be quoted on FOR UAF basis. (FOR means the price of goods quoted by the bidder shall be inclusive of all costs, expenses, charges, duties and taxes etc. whatsoever incidental to their delivery, installation and commissioning as the case may be at UAF site).

b). for goods offered from abroad by the local agent of Pakistan:

the price shall be quoted on Free in Stores Plus (FIS+) UAF basis. (FIS+ means the price of goods quoted by the bidder shall be inclusive of all domestic and abroad costs, expenses, charges, duties and taxes etc. whatsoever

except customs duty and of the Pakistan incidental to their delivery installation/commissioning at UAF site). The bidder, in quoting the price, shall be free to use transportation in abroad other than Israel.

c) for goods offered from abroad by the foreign principal directly:

the price shall be quoted CFR/CPT Karachi seaport or Lahore airport Pakistan, as the case may be. The bidder shall also add all cost expenses, charges, duties and taxes etc. whatsoever expect customs duties, incidental to delivery installation/commissioning of goods from the port of destination to UAF site. The bidder, in quoting the price, shall be free to use transportation in abroad other than Israel.

11.3 The terms CFR, CPT, etc., shall be governed by the rules prescribed in the current edition of *Incoterms* published by the International Chamber of Commerce, Paris or otherwise specified in the Bid Data Sheet and SCC

11.4 The Bidder's separation of price components in accordance with ITB Clause 11.2 above will be solely for the purpose of facilitating the comparison of bids by the Purchaser and will not in any way limit the Purchaser's right to contract on any of the terms offered.

11.5 Prices quoted by the Bidder shall be fixed during the Bidder's performance of the contract and not subject to variation on any account, unless otherwise specified in the Bid Data Sheet. A bid submitted with an adjustable price quotation will be treated as non-responsive and will be rejected, pursuant to ITB Clause 24. If, however, in accordance with the Bid Data Sheet, prices quoted by the Bidder shall be subject to adjustment during the performance of the contract, a bid submitted with a fixed price quotation will not be rejected, but the price adjustment would be treated as zero.

12. Bid Currencies

12.1 Prices shall be quoted in the following currencies:

- (a) For goods and services that the Bidder will supply from within the Purchaser Country, the prices shall be quoted in Pak Rupees, unless otherwise specified in the **Bid Data Sheet**.
- (b) For goods and services that the Bidder will supply from outside the Purchaser Country, the prices shall be quoted in any currency. However the payment will only be made by the purchaser in pak rupees in case of ITB clause 11.2 (b) and SCC.

13. Documents

13.1 Pursuant to ITB Clause 9, the Bidder shall furnish, as part of its

**Establishing
Bidder's
Eligibility
and
Qualification**

bid, documents establishing the Bidder's eligibility to bid and its qualifications to perform the contract if its bid is accepted.

- 13.2 The documentary evidence of the Bidder's eligibility to bid shall establish to the Purchaser's satisfaction that the Bidder, at the time of submission of its bid, is from an eligible country as defined under ITB Clause 2.
- 13.3 The documentary evidence of the Bidder's qualifications to perform the contract if its bid is accepted shall establish to the Purchaser's satisfaction:
- (a) that, in the case of a Bidder offering to supply goods under the contract which the Bidder did not manufacture or otherwise produce, the Bidder has been duly authorized by the goods' Manufacturer or producer to supply the goods in the Purchaser Country;
 - (b) that the Bidder has the financial, technical, and production capability necessary to perform the contract;
 - (c) that, in the case of a Bidder not doing business within the Purchaser Country, the Bidder is or will be (if awarded the contract) represented by an Agent in that country equipped and able to carry out the Supplier's maintenance, repair, and spare parts-stocking obligations prescribed in the Conditions of Contract and/or Technical Specifications; and
 - (d) that the Bidder meets the qualification criteria listed in the **Bid Data Sheet**.

**14. Documents
Establishing
Goods'
Eligibility
and
Conformity
to Bidding
Documents**

- 14.1 Pursuant to ITB Clause 9, the Bidder shall furnish, as part of its bid, documents establishing the eligibility and conformity to the bidding documents of all goods and services which the Bidder proposes to supply under the contract.
- 14.2 The documentary evidence of the eligibility of the goods and services shall consist of a statement in the Price Schedule of the country of origin of the goods and services offered which shall be confirmed by a certificate of origin issued at the time of shipment.
- 14.3 The documentary evidence of conformity of the goods and services to the bidding documents may be in the form of literature, drawings, and data, and shall consist of:
- (a) a detailed description of the essential technical and performance characteristics of the goods;
 - (b) a list giving full particulars, including available sources and current prices of spare parts, special tools, etc., necessary for the proper and continuing functioning of the

goods for a period to be specified in the **Bid Data Sheet**, following commencement of the use of the goods by the Purchaser; and

- (c) an item-by-item commentary on the Purchaser's Technical Specifications demonstrating substantial responsiveness of the goods and services to those specifications, or a statement of deviations and exceptions to the provisions of the Technical Specifications.

14.4 For purposes of the commentary to be furnished pursuant to ITB Clause 14.3(c) above, the Bidder shall note that standards for workmanship, material, and equipment, as well as references to brand names or catalogue numbers designated by the Purchaser in its Technical Specifications, are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names, and/or catalogue numbers in its bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications.

15. Bid Security

15.1 Pursuant to ITB Clause 9, the Bidder shall furnish, as part of its bid, a bid security @ 2% of the quoted value or in the amount specified otherwise in the **Bid Data Sheet**.

15.2 The bid security is required to protect the Purchaser against the risk of Bidder's conduct which would warrant the security's forfeiture, pursuant to ITB Clause 15.7.

15.3 The bid security shall be denominated in the currency of the bid or in another freely convertible currency, and shall be in one of the following forms:

- (a) Call deposit receipt (CDR).

15.4 Any bid not secured in accordance with ITB Clauses 15.1 and 15.3 will be rejected by the Purchaser as nonresponsive, pursuant to ITB Clause 24.

15.5 Unsuccessful bidders' bid securities will be discharged or returned as promptly as possible but not later than thirty (30) days after the expiration of the period of bid validity prescribed by the Purchaser pursuant to ITB Clause 16.

15.6 The successful Bidder's bid security will be discharged upon the Bidder signing the contract, pursuant to ITB Clause 34, and furnishing the performance security, pursuant to ITB Clause 35.

15.7 The bid security may be forfeited:

- (a) if a Bidder:
 - (i) withdraws its bid during the period of bid validity

specified by the Bidder on the Bid Form, or

- (ii) does not accept the correction of errors pursuant to ITB Clause 24.2; or
- (b) in the case of a successful Bidder, if the Bidder fails:
 - (i) to sign the contract in accordance with ITB Clause 34; or
 - (ii) to furnish performance security in accordance with ITB Clause 35.

**16. Period of
Validity of
Bids**

16.1 Bids shall remain valid for the period specified in the **Bid Data Sheet** after the deadline date of bid submission prescribed by the Purchaser, pursuant to ITB Clause 19. A bid valid for a shorter period shall be rejected by the Purchaser as nonresponsive.

16.2 In exceptional circumstances, the Purchaser may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing. The bid security provided under ITB Clause 15 shall also be suitably extended. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request will not be required nor permitted to modify its bid.

**17. Format and
Signing of
Bid**

17.1 The Bidder shall prepare an original bid indicated in the **Bid Data Sheet**, clearly marking each "TECHNICAL BID" and "FINANCIAL BID," as appropriate. In the event of any discrepancy between them, the original shall govern.

17.2 The original bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to bind the Bidder to the contract. All pages of the bid, except for unamended printed literature, shall be initialed by the person or persons signing the bid.

17.3 Any interlineations, erasures, or overwriting shall be valid only if they are initialed by the person or persons signing the bid.

17.4 The Bidder shall furnish information as described in the Form of Bid on commissions or gratuities, if any, paid or to be paid to agents relating to this Bid, and to contract execution if the Bidder is awarded the contract.

D. Submission of Bids

18. Sealing and

18.1 The Bidder shall seal the Technical and Financial Bid in

- Marking of Bids** separate envelopes, duly marking the envelopes as “TECHNICAL” and “FINANCIAL.” The envelopes shall then be sealed in an outer envelope.
- 18.2 The inner and outer envelopes shall:
- (a) be addressed to the Purchaser at the address given in the **Bid Data Sheet**; and
 - (b) bear the Project name indicated in the Bid Data Sheet, the Invitation for Bids (IFB) title and number indicated in the Bid Data Sheet, and a statement: “DO NOT OPEN BEFORE,” to be completed with the time and the date specified in the **Bid Data Sheet**, pursuant to ITB Clause 22.1.
- 18.3 The inner envelopes shall also indicate the name and address of the Bidder to enable the bid to be returned unopened in case it is declared “late.”
- 18.4 If the outer envelope is not sealed and marked as required by ITB Clause 18.2, the Purchaser will assume no responsibility for the bid’s misplacement or premature opening.
- 19. Deadline for Submission of Bids**
- 19.1 Bids must be received by the Purchaser at the address specified under ITB Clause 18.2 (a) not later than the time and date specified in the **Bid Data Sheet**.
- 19.2 The Purchaser may, at its discretion, extend this deadline for the submission of bids by amending the bidding documents in accordance with ITB Clause 7, in which case all rights and obligations of the Purchaser and bidders previously subject to the deadline will thereafter be subject to the deadline as extended.
- 20. Late Bids**
- 20.1 Any bid received by the Purchaser after the deadline for submission of bids prescribed by the Purchaser pursuant to ITB Clause 19 will be rejected and returned unopened to the Bidder.
- 21. Modification and Withdrawal of Bids**
- 21.1 The Bidder may modify or withdraw its bid after the bid’s submission, provided that written notice of the modification, including substitution or withdrawal of the bids, is received by the Purchaser prior to the deadline prescribed for submission of bids.
- 21.2 The Bidder’s modification or withdrawal notice shall be prepared, sealed, marked, and dispatched in accordance with the provisions of ITB Clause 18. A withdrawal notice may also be sent by fax, but followed by a signed confirmation copy, postmarked not later than the deadline for submission of bids.
- 21.3 No bid may be modified after the deadline for submission of bids.
- 21.4 No bid may be withdrawn in the interval between the deadline

for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Bid Form. Withdrawal of a bid during this interval may result in the Bidder's forfeiture of its bid security, pursuant to the ITB Clause 15.7.

E. Opening and Evaluation of Bids

22. Opening of Bids by the Purchaser

22.1 The Purchaser will open all bids in the presence of bidders' representatives who choose to attend, at the time, on the date, and at the place specified in the **Bid Data Sheet**. The bidders' representatives who are present shall sign a register evidencing their attendance.

22.2 The bidders' names, bid modifications or withdrawals, bid prices, discounts, and the presence or absence of requisite bid security and such other details as the Purchaser, at its discretion, may consider appropriate, will be announced at the opening. No bid shall be rejected at bid opening, except for late bids, which shall be returned unopened to the Bidder pursuant to ITB Clause 20.

22.3 Bids (and modifications sent pursuant to ITB Clause 21.2) that are not opened and read out at bid opening shall not be considered further for evaluation, irrespective of the circumstances.

22.4 The Purchaser will prepare minutes of the bid opening.

23. Clarification of Bids

23.1 During evaluation of the bids, the Purchaser may, at its discretion, ask the Bidder for a clarification of its bid. The 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.

24. Preliminary Examination

24.1 The Purchaser will examine the bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.

24.2 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected. If there is a discrepancy between words and figures, the amount in words will prevail. If the Supplier does not accept the correction of the errors, its bid will be rejected, and its bid security may be forfeited.

24.3 The Purchaser may waive any minor informality,

nonconformity, or irregularity in a bid which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any Bidder.

- 24.4 Prior to the detailed evaluation, pursuant to ITB Clause 26, the Purchaser will determine the substantial responsiveness of each bid to the bidding documents. For purposes of these Clauses, a substantially responsive bid is one which conforms to all the terms and conditions of the bidding documents without material deviations. Deviations from, or objections or reservations to critical provisions, **such as** those concerning Bid Security (ITB Clause 15), Applicable Law (GCC Clause 31), and Taxes and Duties (GCC Clause 33), will be deemed to be a material deviation. The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.
- 24.5 If a bid is not substantially responsive, it will be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the nonconformity.

**25. Conversion
to Single
Currency**

25.1 To facilitate evaluation and comparison, the Purchaser will convert all bid prices expressed in the amounts in various currencies in which the bid prices are payable to either:

- (a) Purchaser Country at the selling exchange rate established for similar transactions by the State Bank of Pakistan and National Bank of Pakistan or specified otherwise;

25.2 The currency selected for converting bid prices to a common base for the purpose of evaluation is Pak Rupees to be converted as per rate of the bank shown in ITB 25.1 (a) on the date of opening of the financial bid or specified otherwise in the **Bid Data Sheet**.

26. Evaluation and Comparison of Bids

26.1 The Purchaser will evaluate and compare the bids which have been determined to be substantially responsive, pursuant to ITB Clause 24.

26.2 The Purchaser's evaluation of a bid will take into account, in addition to the bid price quoted in accordance with ITB Clause 11.2, one or more of the following factors as specified in the **Bid Data Sheet**, and quantified in ITB Clause 26.3:

- (a) delivery schedule offered in the bid;
- (b) deviations in payment schedule from that specified in the Special Conditions of Contract;
- (c) the cost of components, mandatory spare parts, and service;
- (d) the availability in the Purchaser's country of spare parts and after-sales services for the equipment offered in the bid;
- (e) the projected operating and maintenance costs during the life of the equipment;
- (f) the performance and productivity of the equipment offered; and/or
- (g) other specific criteria indicated in the **Bid Data Sheet** and/or in the Technical Specifications.

26.3 For factors retained in the Bid Data Sheet pursuant to ITB 26.2, one or more of the following quantification methods will be applied, as detailed in the Bid Data Sheet:

- (a) *Delivery schedule.*
 - (i) The goods covered under this invitation are required to be delivered (shipped) within an acceptable range of weeks specified in the Schedule of Requirement. No credit will be given to earlier deliveries, and bids offering delivery beyond this range will be treated as nonresponsive. Within this acceptable range, an adjustment per week, as specified in the **Bid Data Sheet**, will be added for evaluation to the bid price of bids offering deliveries later than the earliest delivery period specified in the Schedule of Requirements.
- (b) *Deviation in payment schedule.*
 - (i) The SCC stipulates the payment schedule offered by the Purchaser. If a bid deviates from the schedule it will be considered as non-responsive bid.

- (c) *Cost of spare parts.*
- (i) The list of items and quantities of major assemblies, components, and selected spare parts, likely to be required during the initial period of operation shall be specified by the bidder. The total cost of these items, at the unit prices quoted in each bid, will be added to the bid price.

or

- (ii) The bidder will draw up a list of high-usage and high-value items of components and spare parts, along with estimated quantities of usage in the initial period of operation. The total cost of these items and quantities will be computed from spare parts unit prices submitted by the Bidder and added to the bid price.
- (d) *Spare parts and after sales service facilities in the Purchaser's country.*

The cost to the Purchaser of establishing the minimum service facilities and parts inventories, if outlined in the **Bid Data Sheet** or elsewhere in the bidding documents, if quoted separately, shall be added to the bid price.

- (e) *Operating and maintenance costs.*

Since the operating and maintenance costs of the goods under procurement form a major part of the life cycle cost of the equipment, these costs will be evaluated in accordance with the criteria specified in the **Bid Data Sheet** or in the Technical Specifications.

- (f) *Performance and productivity of the equipment.*
- (i) Goods offered shall have a minimum productivity specified under the relevant provision in the Technical Specifications to be considered responsive. Evaluation shall be based on the cost per unit of the actual productivity of goods offered in the bid or otherwise specified in the **Bid Data Sheet** or in the Technical Specifications.

(g) *Specific additional criteria*

Other specific additional criteria to be considered in the evaluation and the evaluation method shall be detailed in the **Bid Data Sheet** and/or the Technical Specifications.

26.4. Delivery Schedule.

As mentioned in Bid Data Sheet.

27. Domestic Preference

- 27.1 If the **Bid Data Sheet** so specifies, the Purchaser will grant a margin of preference to goods manufactured in the Purchaser's country for the purpose of bid comparison, in accordance with the procedures outlined in subsequent paragraphs, provided the Bidder shall have established to the satisfaction of the Purchaser that its bid complies with the criteria specified in ITB Clause 10.2 (a):
- 27.2 The Purchaser will first review the bids to confirm the appropriateness of, and to modify as necessary, the bid group classification to which bidders assigned their bids in preparing their Bid Forms and Price Schedules, pursuant to ITB Clauses 10 and 11.
- 27.3 All evaluated bids in each group will then be compared among themselves to determine the lowest evaluated bid of each group. The lowest evaluated bid of each group will next be compared with the lowest evaluated bids of the other groups. If this comparison results in a bid from Group A or Group B being the lowest, it will be selected for contract award.
- 27.4 If, as a result of the preceding comparison, the lowest evaluated bid is from Group C, all Group C bids will then be further compared with the lowest evaluated bid from Group A, after adding to the evaluated bid price of the imported goods offered in each Group C bid, for the purpose of this further comparison only:
- (a) the amount of customs duties and other import taxes that a nonexempt importer would have to pay for the importation of goods offered in each Group C bid;

If the Group A bid in the further comparison is the lowest, it will be selected for award. If not, the lowest evaluated bid from Group C, as determined from the comparison under ITB Clause 27.3 above, will be selected for award.

28. Contacting the Purchaser

- 28.1 From the time of bid opening to the time of contract award, if any bidder wishes to contact the Purchaser on any matter related to the bid, it should do so in writing.
- 28.2 Any effort by a Bidder to influence the Purchaser in its decisions on bid evaluation, bid comparison, or contract award may result in the rejection of the Bidder's bid.

F. Award of Contract**29. Post-**

- 29.1 In the absence of prequalification, the Purchaser will determine

qualification to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated responsive bid is qualified to perform the contract satisfactorily, in accordance with the criteria listed in ITB Clause 13.3.

29.2 The determination will take into account the Bidder's financial, technical, and production capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB Clause 13.3, as well as such other information as the Purchaser deems necessary and appropriate.

29.3 An affirmative determination will be a prerequisite for award of the contract to the Bidder. A negative determination will result in rejection of the Bidder's bid, in which event the Purchaser will proceed to the next lowest evaluated bid to make a similar determination of that Bidder's capabilities to perform satisfactorily.

30. Award Criteria 30.1 Subject to ITB Clause 32, the Purchaser will award the contract to the successful Bidder whose bid has been determined to be substantially responsive and has been determined to be the lowest evaluated bid, provided further that the Bidder is determined to be qualified to perform the contract satisfactorily.

31. Purchaser's Right to Vary Quantities at Time of Award 31.1 The Purchaser reserves the right at the time of contract award to increase or decrease, as per requirement, the quantity of goods and services originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions.

- 32. Purchaser's Right to Accept Bid and to Reject All Bids**
- 32.1 The Purchaser reserves the right to accept bid and to annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to the affected Bidder or bidders.
- 33. Notification of Award**
- 33.1 Prior to the expiration of the period of bid validity, the Purchaser will notify/inform the successful and unsuccessful Bidder in writing by letter or by Fax/ e-mail, or telephonically, that its bid has been accepted and unaccepted as the case may be.
- 33.2 The notification of award will constitute the formation of the Contract.
- 33.3 Upon the successful Bidder's furnishing of the performance security pursuant to ITB Clause 35, the Purchaser will discharge bid security to each unsuccessful Bidder on his written request, pursuant to ITB Clause 15.
- 33.4 If, after notification of award, a Bidder wishes to ascertain the grounds on which its bid was not selected, it should address its request to the Purchaser. The Purchaser will promptly respond in writing to the unsuccessful Bidder.
- 34. Signing of Contract**
- 34.1 After 10 days from the announcement of evaluation report, the Purchaser will send supply order or Formal Contract as the case may be to successful bidder. In case of formal contract, the successful bidder will send back the contract to the purchaser duly signed within 7 days from the issuance date. Failing which the Purchaser reserves the right under ITB Clause 15.7.
- 35. Performance Security**
- 35.1 Within Seven (07) days from the issuance of acceptance letter from the Purchaser, the successful Bidder shall furnish the performance security in shape of CDR or Bank guarantee at the discretion of the Purchaser. In case the amount of bid security is equal or greater than the value of the goods to be supplied then the bidder shall not require furnishing the performance security separately and the bid security will be retained to meet the requirement of performance security.
- 35.2 Failure of the successful Bidder to comply with the requirement of ITB Clause 34.2 or ITB Clause 35.1 shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security, in which event the Purchaser may make the award to the next lowest evaluated Bidder or call for new bids.
- 36. Corrupt or Fraudulent Practices**
- 36.1 The purchaser as well as Bidders/Suppliers/Contractors should observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, the PPRA Govt. of the Punjab;

- (a) the terms set forth below as follows:
 - (i) “corrupt practice” means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution; and
 - (ii) “fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Purchaser, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Purchaser of the benefits of free and open competition;
- (b) The purchaser will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;
- (c) The Purchaser will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a University Contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a University Contract.

36.2 Furthermore, Bidders shall be aware of the provision stated in Clauses 5.4 and 24.1 of the General Conditions of Contract.

37.Blacklisting/37.1 the Purchaser reserves the right to blacklist or deregister (may impose Permanent or temporary bar for participation in the procurement proceedings respectively) the bidder as follows:-

Deregistration

- (a) **Blacklisting:** The bidder who
 - (i) Fail to perform contractual obligations or the performance under the contract is not upto the mark;
 - (ii) Found to be indulging in corrupt or fraudulent practices;
 - (iii) Commit an action causing or liable to cause loss to the University;
 - (iv) Furnish false information;
- (b) **Deregistration:** The bidder who
 - (i) Submit bid as employee of the firm, or proprietor or shareholder being an employee of the University;
 - (ii) Show non-responsive attitude in case of summoning by the University.

- (iii) Back out from their offers after opening of tender;
- (iv) Misbehave with the University employee;

37.2 The bidder shall provide affidavit that the firm was not declared blacklisted or deregistered by any of the Federal and Provincial Government institution.

Section III.

Bid Data Sheet

Bid Data Sheet

The following specific data for the goods to be procured shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict, the provisions herein shall prevail over those in ITB.

A-Introduction	
ITB 2.1	The invitation for Bids is opened to all suppliers having registration for National Tax Number & Sales Tax Number with Federal Board of Revenue.
ITB 2.3	Government owned enterprises may participate, only if they are legally allowed.
ITB 2.4	In addition to the contents of ITB 2.4 the bidder shall not be blacklisted by any organization of the Government of the Punjab as well as Federal Government. The bidder shall provide affidavit to this effect.
ITB 4.1	Name of Purchaser: Project Director, Punjab Bio-Energy Institute (PBI), University of Agriculture, Faisalabad (UAF)
B- Bidding Documents	
ITB 5.1(h)	Not applicable
ITB 6.1	<p>Purchaser's address: Project Director (PBI), telephone, and facsimile numbers through</p> <p style="color: red;">Directorate of Procurement & Inventory Control (DPIC) University of Agriculture, Faisalabad Phone No. 041-9200898 Fax. 041-9200898</p> <p style="color: red;"><u>FOR TECHNICAL RESPONSE:</u></p> <ol style="list-style-type: none"> <li style="color: red;">1. Project Director (PBI) <li style="color: red;">2. Director (PBI) <li style="color: red;">3. Director (DPIC) <li style="color: red;">4. Director (P&D) or his Rep. <li style="color: red;">5. Treasurer Rep. A.O. (Accounts Dev.)
C-Preparation of Bid	
ITB 8.1	Language of the bid. "English"
ITB 11.2 (a & b)	Prices on FOR and FIS Plus as per 11.2 (a & b) respectively shall be mentioned separately
ITB 11.2 (c) ITB 11.3	Not applicable
ITB 13.3 (d)	<p>Qualification requirements.</p> <ol style="list-style-type: none"> 1. Company /Bidder Profile: <ol style="list-style-type: none"> a. Experience in the relevant field minimum 3 Years b. HR strength/Manpower with the Bidder c. Direct genuine source / relationship with the Principal d. Technical expertise with the bidder

	<p>e. Sound financial position of the bidder (cash available equal to 50% of the quoted value as per bank statement) or 5 time sales volume of quoted value as per Income tax returns of last financial year.</p> <p>f. Name of owner/proprietor</p> <p>g. Copy of CNIC</p> <p>h. Date of Establishment, Age of Firm</p> <p>i. Copy of NTN and Sales Tax Registration</p> <p>j. Copy of Professional Tax</p> <p>k. Affidavit (Submission of undertaking on legal valid and attested e-stamp paper that the firm not blacklisted by any of Provincial or Federal Government Department, Agency, Organization or autonomous body or private Sector Organization anywhere in Pakistan)</p>
ITB 15.1	Amount of bid security. 2% of the quoted value in shape of Call Deposit Receipt (CDR) in favour of Director (DPIC), UAF to be attached with Technical Bid.
ITB 16.1	Bid validity period. 90 Days
ITB 17.1	Bid: Financial and Technical Separately. Also a soft copy of Technical Bid Only
D-Submission of Bid	
ITB 18.2 (a)	Address for bid submission. Directorate of Procurement & Inventory Control, University of Agriculture, Faisalabad
ITB 18.2 (b)	Tender Notice No.117/2016
ITB 19.1	Deadline for bid submission.20.09.2016
E-Bid Evaluation	
ITB 25.1(a)	State Bank or a Commercial Bank to be read as State Bank of Pakistan and National Bank of Pakistan
ITB 25.2	The common base currency is PAK Rupee to be converted as per rate of the bank shown in ITB 25.1(a) of the bid data sheet on the date of opening of the Financial Bid .
ITB 26.3 (a)(i)	The SCC stipulates the payment schedule offered by the purchaser. If a bid deviates from the schedule then it will be considered as non-responsive.
ITB 26.3 (c)	The bidder will provide the cost of spare parts required to be replaced during whole life of the goods after the expiry of warranty period.
ITB 26.3 (e)	The bidder will provide :- i) Cost of consumables ii) Unit of energy consumption per hour iii) Life cycle of the goods
ITB 26.3 (f)	Performance and productivity of Articles. As per Technical Specification
ITB 26.3 (g)	As per specification.
ITB 27	As per ITB clause 10.2 prior to the award of procurement contract
ITB 33	Subject to PPRA Rule 2014/UAF Procurement Rule 2014, the bidder with the lowest evaluated bid, if not in conflict with any other law, shall be awarded the procurement contract within the original or extended bid validity period after 10 days of announcement of the evaluation report.

Section IV.

General Conditions of Contract

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General Conditions of Contract

1. Definitions

- 1.1 In this Contract, the following terms shall be interpreted as indicated:
- (a) “The Contract” means the agreement entered into between the Purchaser and the Supplier, as recorded in the Contract Form signed by the parties, or the supply order issued by the purchaser to the supplier, as the case may be, including all attachments and appendices thereto and all documents incorporated by reference therein.
 - (b) “The Contract Price” means the price payable to the Supplier under the Contract for the full and proper performance of its contractual obligations.
 - (c) “The Goods” means all of the equipment, machinery, and/or other materials which the Supplier is required to supply to the Purchaser under the Contract.
 - (d) “The Services” means those services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training, and other such obligations of the Supplier covered under the Contract.
 - (e) “GCC” means the General Conditions of Contract contained in this section.
 - (f) “SCC” means the Special Conditions of Contract.
 - (g) “The Purchaser” means the organization purchasing the Goods, as mentioned in Bid Data Sheet.
 - (h) “The Purchaser’s country” is **Pakistan**.
 - (i) “The Supplier” means the individual or firm supplying the Goods and Services under this Contract and **named in Supply Order**.
 - (j) “The University” means the **University of Agriculture, Faisalabad**.
 - (k) “The Project Site,” where applicable, means the place or places **named in Bid Data Sheet and technical specifications**
 - (l) “Day” means calendar day.

- 2. Application** 2.1 These General Conditions shall apply to the extent that they are not superseded by provisions of other parts of the Contract.
- 3. Country of Origin** 3.1 All Goods and Services supplied under the Contract shall have their origin in the countries as elaborated in the **Technical Specifications**.
- 3.2 For purposes of this Clause, “origin” means the place where the Goods were mined, grown, or produced, or from which the Services are supplied. Goods are produced when, through manufacturing, processing, or substantial and major assembly of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.
- 3.3 The origin of Goods and Services is distinct from the nationality of the Supplier.
- 4. Standards** 4.1 The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the authoritative standards appropriate to the Goods’ country of origin. Such standards shall be the latest issued by the concerned institution.
- 5. Use of Contract Documents and Information; Inspection and Audit by Purchaser** 5.1 The Supplier shall not, without the Purchaser’s prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Supplier in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.
- 5.2 The Supplier shall not, without the Purchaser’s prior written consent, make use of any document or information enumerated in GCC Clause 5.1 except for purposes of performing the Contract.
- 5.3 Any document, other than the Contract itself, enumerated in GCC Clause 5.1 shall remain the property of the Purchaser and shall be returned (all copies) to the Purchaser on completion of the Supplier’s performance under the Contract if so required by the Purchaser.
- 5.4 The Supplier shall permit the Purchaser to inspect the Supplier’s accounts and records relating to the performance of the Supplier and to have them audited by auditors appointed by the Purchaser, if so required by the Purchaser.

- 6. Patent Rights** 6.1 The Supplier shall indemnify the Purchaser against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Goods or any part thereof in the Purchaser's country.
- 7. Performance Security** 7.1 Within Seven (07) days from the issuance of acceptance letter from the Purchaser, the successful Bidder shall furnish the performance security in shape of CDR or Bank guarantee at the discretion of the Purchaser in the amount **specified in SCC**. In case the amount of bid security is equal or greater than the value of the goods to be supplied then the bidder shall not require furnishing the performance security separately, it will be retained or deducted from the bidder's claim on bidder's choice.
- 7.2 The proceeds of the performance security shall be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.
- 7.3 The performance security shall be denominated in the currency of the Contract, or in a freely convertible currency acceptable to the Purchaser and shall be in one of the following forms:
- (a) bank guarantee or CDR issued by a reputable bank located in the Purchaser's country or abroad, acceptable to the Purchaser, in the form provided in the bidding documents or another form acceptable to the Purchaser.
- 7.4 The performance security will be discharged by the Purchaser and returned to the Supplier not later than thirty (30) days following the date of completion of the Supplier's performance obligations under the Contract, including any warranty obligations, unless otherwise **specified in SCC**.
- 8. Inspections and Tests** 8.1 The Purchaser or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Contract specifications at no extra cost to the Purchaser. **SCC** and the Technical Specifications shall specify what inspections and tests the Purchaser requires and where they are to be conducted. The Purchaser shall notify the Supplier in writing, in a timely manner, of the identity of any representatives retained for these purposes.
- 8.2 The inspections and tests may be conducted on the premises of the Supplier or its subcontractor(s), at point of delivery, and/or at the Goods' final destination. If conducted on the premises of the Supplier or its subcontractor(s), all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no

charge to the Purchaser.

- 8.3 Should any inspected or tested Goods fail to conform to the Specifications, the Purchaser may reject the Goods, and the Supplier shall either replace the rejected Goods or make alterations necessary to meet specification requirements free of cost to the Purchaser.
- 8.4 The Purchaser's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival in the Purchaser's country shall in no way be limited or waived by reason of the Goods having previously been inspected, tested, and passed by the Purchaser or its representative prior to the Goods' shipment from the country of origin.
- 8.5 Nothing in GCC Clause 8 shall in any way release the Supplier from any warranty or other obligations under this Contract.

9. Packing

- 9.1 The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.
- 9.2 The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, including additional requirements, if any, specified in SCC, and in any subsequent instructions ordered by the Purchaser.

10. Delivery and Documents

- 10.1 Delivery of the Goods shall be made by the Supplier in accordance with the terms specified in the Schedule of Requirements. The details of shipping and/or other documents to be furnished by the Supplier are specified in SCC.
- 10.2 For purposes of the Contract, "CFR," "CPT", the terms used to describe the obligations of the parties shall have the meanings assigned to them by the current edition of *Incoterms* published by the International Chamber of Commerce, Paris.
- 10.3 Documents to be submitted by the Supplier are **specified in SCC**.

11. Insurance

- 11.1 The Goods supplied under the Contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery in the manner **specified in the SCC**.
- 11.2 Where delivery of the Goods is required by the Purchaser on a CFR or CPT basis, the Purchaser shall arrange and pay for cargo insurance, naming the supplier as beneficiary.

12. Transportation

- 12.1 Where the Supplier is required under Contract to deliver the Goods FOB, transport of the Goods, up to and including the point of putting the Goods on board the vessel at the specified port of loading, shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price. Where the Supplier is required under the Contract to deliver the Goods FCA, transport of the Goods and delivery into the custody of the carrier at the place named by the Purchaser or other agreed point shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price.
- 12.2 Where the Supplier is required under Contract to deliver the Goods CFR or CPT, transport of the Goods to the port of destination or such other named place of destination in the Purchaser's country, as shall be specified in the Contract, shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price.
- 12.3 Where the Supplier is required under the Contract to transport the Goods to a specified place of destination within the Purchaser's country, defined as the Project Site, transport to such place of destination in the Purchaser's country, including insurance and storage, as shall be specified in the Contract, shall be arranged by the Supplier, and related costs shall be included in the Contract Price.
- 12.4 Where the Supplier is required under Contract to deliver the Goods CFR or CPT, no restriction shall be placed on the choice of carrier. Where the Supplier is required under Contract (a) to deliver the Goods FOB or FCA, and (b) to arrange on behalf and at the expense of the Purchaser for international transportation on specified carriers or on national flag carriers of the Purchaser's country, the Supplier may arrange for such transportation on alternative carriers if the specified or national flag carriers are not available to transport the Goods within the period(s) specified in the Contract.

13. Incidental Services

13.1 The Supplier may be required to provide any or all of the following services, including additional services, if any, **specified in SCC**:

- (a) performance or supervision of on-site assembly and/or start-up of the supplied Goods;
- (b) furnishing of tools required for assembly and/or maintenance of the supplied Goods;
- (c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods;
- (d) performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and
- (e) training of the Purchaser's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied Goods.

13.2 Prices charged by the Supplier for incidental services, if not included in the Contract Price for the Goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services.

14. Spare Parts

14.1 As **specified in SCC**, the Supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:

- (a) such spare parts as the Purchaser may elect to purchase from the Supplier, provided that this election shall not relieve the Supplier of any warranty obligations under the Contract; and
- (b) in the event of termination of production of the spare parts:
 - (i) advance notification to the Purchaser of the pending termination, in sufficient time to permit the Purchaser to procure needed requirements; and
 - (ii) following such termination, furnishing at no cost to the Purchaser, the blueprints, drawings, and specifications of the spare parts, if requested.

15. Warranty

15.1 The Supplier warrants that the Goods supplied under the Contract are new, unused, of the most recent or current models, and that they incorporate all recent improvements in

design and materials unless provided otherwise in the Contract. The Supplier further warrants that all Goods supplied under this Contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by the Purchaser's specifications) or from any act or omission of the Supplier, that may develop under normal use of the supplied Goods in the conditions prevailing in the country of final destination.

15.2 This warranty shall remain valid for twelve (12) months after the Goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the Contract, or for eighteen (18) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless **specified otherwise in SCC.**

15.3 The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty.

15.4 Upon receipt of such notice, the Supplier shall, within the period specified in notice or in SCC and with all reasonable speed, repair or replace the defective Goods or parts thereof, without costs to the Purchaser.

15.5 If the Supplier, having been notified, fails to remedy the defect(s) within the period specified in the notice or in SCC, the Purchaser may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

16. Payment

16.1 The method and conditions of payment to be made to the Supplier under this Contract shall be **specified in SCC.**

16.2 The Supplier's request(s) for payment shall be made to the Purchaser in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and Services performed, and by documents submitted pursuant to GCC Clause 10, and upon fulfillment of other obligations stipulated in the Contract.

16.3 Payments shall be made promptly by the Purchaser, **but in no case later than thirty (30) days** after submission of an invoice or claim by the Supplier.

16.4 The currency or currencies in which payment is made to the Supplier under this Contract shall be **specified in SCC** subject to the following general principle: payment will be made in the currency or currencies in which the payment has been requested in the Supplier's bid.

16.5 All payments shall be made in the currency or currencies

specified in the SCC pursuant to GCC 16.4.

- 17. Prices** 17.1 Prices charged by the Supplier for Goods delivered and Services performed under the Contract shall not vary from the prices quoted by the Supplier in its bid, with the exception of any price adjustments **authorized in SCC** or in the Purchaser's request for bid validity extension, as the case may be.
- 18. Change Orders** 18.1 The Purchaser may at any time, by a written order given to the Supplier pursuant to GCC Clause 32, make changes within the general scope of the Contract in any one or more of the following:
- (a) drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
 - (b) the method of shipment or packing;
 - (c) the place of delivery; and/or
 - (d) the Services to be provided by the Supplier.
- 18.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within thirty (30) days from the date of the Supplier's receipt of the Purchaser's change order.
- 19. Contract Amendments** 19.1 Subject to GCC Clause 18, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.
- 20. Assignment** 20.1 The Supplier shall not assign, in whole or in part, its obligations to perform under this Contract, except with the Purchaser's prior written consent.
- 21. Subcontracts** 21.1 The Supplier shall notify the Purchaser in writing of all subcontracts awarded under this Contract if not already specified in the bid. Such notification, in the original bid or later, shall not relieve the Supplier from any liability or obligation under the Contract.
- 21.2 Subcontracts must comply with the provisions of GCC Clause 3.

- 22. Delays in the Supplier's Performance**
- 22.1 Delivery of the Goods and performance of Services shall be made by the Supplier in accordance with the time schedule prescribed by the Purchaser in the Schedule of Requirements.
- 22.2 If at any time during performance of the Contract, the Supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the Goods and performance of Services, the Supplier shall promptly notify the Purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may at its discretion extend the Supplier's time for performance, with or without liquidated damages, in which case the extension shall be ratified by the parties by amendment of Contract.
- 22.3 Except as provided under GCC Clause 25, a delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to the imposition of liquidated damages pursuant to GCC Clause 23, unless an extension of time is agreed upon pursuant to GCC Clause 22.2 without the application of liquidated damages.
- 23. Liquidated Damages**
- 23.1 Subject to GCC Clause 25, if the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in SCC of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the percentage **specified in SCC**. Once the maximum is reached, the Purchaser may consider termination of the Contract pursuant to GCC Clause 24.
- 24. Termination for Default**
- 24.1 The Purchaser, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Supplier, may terminate this Contract in whole or in part:
- (a) if the Supplier fails to deliver any or all of the Goods within the period(s) specified in the Contract, or within any extension thereof granted by the Purchaser pursuant to GCC Clause 22; or
 - (b) if the Supplier fails to perform any other obligation(s) under the Contract.
 - (c) if the Supplier, in the judgment of the Purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

For the purpose of this clause:

“corrupt practice” means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.

“fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Purchaser of the benefits of free and open competition.

24.2 In the event the Purchaser terminates the Contract in whole or in part, pursuant to GCC Clause 24.1, the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or Services similar to those undelivered, and the Supplier shall be liable to the Purchaser for any excess costs for such similar Goods or Services. However, the Supplier shall continue performance of the Contract to the extent not terminated.

25. Force Majeure

25.1 Notwithstanding the provisions of GCC Clauses 22, 23, and 24, the Supplier shall not be liable for forfeiture of its performance security, liquidated damages, or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

25.2 For purposes of this clause, “Force Majeure” means an event beyond the control of the Supplier and not involving the Supplier’s fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of the Purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.

25.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

26. Termination for Insolvency

26.1 The Purchaser may at any time terminate the Contract by giving written notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter

to the Purchaser.

**27. Termination
for
Convenience**

27.1 The Purchaser, by written notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.

27.2 The Goods that are complete and ready for shipment within thirty (30) days after the Supplier's receipt of notice of termination shall be accepted by the Purchaser at the Contract terms and prices. For the remaining Goods, the Purchaser may elect:

- (a) to have any portion completed and delivered at the Contract terms and prices; and/or
- (b) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and Services and for materials and parts previously procured by the Supplier.

**28. Settlement of
Disputes**

28.1 If any dispute or difference of any kind whatsoever shall arise between the Purchaser and the Supplier in connection with or arising out of the Contract, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.

28.2 If the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Purchaser or the Supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given.

28.2.1 Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the Goods under the Contract.

28.2.2 Arbitration proceedings shall be conducted in accordance with the rules of procedure **specified in the SCC.**

28.3 Notwithstanding any reference to arbitration herein,

- (a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise

agree; and

- (b) the Purchaser shall pay the Supplier any monies due the Supplier.

29. Limitation of Liability

29.1 Except in cases of criminal negligence or willful misconduct, and in the case of infringement pursuant to Clause 6,

- (a) the Supplier shall not be liable to the Purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Supplier to pay liquidated damages to the Purchaser and
- (b) the aggregate liability of the Supplier to the Purchaser, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.

30. Governing Language

30.1 The Contract shall be written in the language **specified in SCC**. Subject to GCC Clause 31, the version of the Contract written in the specified language shall govern its interpretation. All correspondence and other documents pertaining to the Contract which are exchanged by the parties shall be written in the same language.

31. Applicable Law

31.1 The Contract shall be interpreted in accordance with the laws of the Purchaser's country, unless otherwise **specified in SCC**.

32. Notices

32.1 Any notice given by one party to the other pursuant to this Contract shall be sent to the other party in writing or facsimile and confirmed in writing to the other party's address **specified in SCC**.

32.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

33. Taxes and Duties

33.1 A foreign Supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the Purchaser's country and purchaser's country as **specified in SCC**.

33.2 A local Supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted Goods to the Purchaser.

Section V.

Special Conditions of Contract

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SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions of Contract. The corresponding clause number of the GCC is indicated in parenthesis.

1. Performance Security (GCC Clause 7)

GCC 7.1—

- A. For goods offered from within Pakistan and abroad by the local agent by Pakistan: the successful Bidder shall furnish the performance security @ 10% of the value of Supply Order or Contract in shape of CDR in favour of Director (P&IC), UAF for main Campus, and of Principal or Projector Director as the case may be for sub campuses within Seven (07) days from the issuance of acceptance letter from the Purchaser. In case the amount of bid security is equal or greater than the value of the performance security, then the bidder shall not require to furnish the performance security separately.

- B. 2% CDR already received in lieu of earnest money in case of general type good(s) will be retained by the office for 3 month from the day of supply of the respective good(s) or fully consumed whichever is earlier.

GCC 7.3 a): Bank Guarantee is not allowed

2. Inspection and Tests (GCC Clause 8)

GCC 8.1- By the concerned purchaser in accordance with the specifications or samples or both as required.

3. Delivery and Documents (GCC Clause 10)

GCC 10.1&10.3:

- A. For goods offered from abroad by the local agent in Pakistan:
 - (i) Where the supplier shall is require under contract to deliver, install and commission the goods on FIS+ UAF basis, the supplier will ship the goods in favour of the Purchaser. The Purchaser will arrange clearance of the goods on the risk and expense of the supplier. All costs, expenses, charges, taxes, duties etc. whatsoever except customs duties incidental to delivery, installation and commission the goods from port of destination to UAF site shall be paid by the supplier. For clearance of the goods, the supplier shall provide copies of the following documents immediately after shipment of the goods:-
 - (a) Airway Bill / Bill of Lading as the case may be
 - (b) Commercial Invoice
 - (c) Packing List
 - (d) Certificate of Origin

GCC 10.2: Not applicable

4. **Insurance, Transportation and Incidental Charges etc.(GCC Clause 11, 12 & 13)**
 - i. The supplier shall require to deliver, install and commission the goods on Free in Store Plus (FIS+), (all domestic & abroad costs, expenses/charges, duties, taxes, whatsoever including insurance, transportation, incidental and clearing charges etc. except customs duties shall be paid by the supplier) UAF.
5. **Warranty (GCC Clause 15)**

GCC15.2&15.4: One year free of cost labour and material etc. at site from the date of commissioning of goods.

6. **Payment (GCC Clause 16)**

GCC-16.1, 16.2&16.4:

A. For goods offered from abroad by the local agent in Pakistan:

(i) Where the supplier is required under contract to deliver, install and commission the goods on Free in Store Plus (FIS+). The Purchaser shall pay in Pak Rupees equivalent to price of the FIS+ goods as per selling exchange rates of the State Bank of Pakistan/National Bank of Pakistan prevailing on the date of opening of financial bid after complete commissioning/acceptance of the goods and submission of the bill whichever is later (not later than thirty days).

7. **Prices (GCC Clause 17)**

GCC17.1: No Price adjustment is allowed.
8. **Change Orders (GCC Clause 18)**

Not applicable
9. **Liquidated Damages (GCC Clause 23)**

GCC 23.1—Applicable rate:

The liquidated damages, if imposed, will be recovered at the rate of upto 0.67% of the value of goods supplied/installed/commission late per day or a part of a period exceeding the original delivery period, subject to the provision that the total liquidated damages thus imposed will not exceed 10% of the total value of the goods delivered/installed/commission late.

10. **Settlement of Disputes (GCC Clause 28)**

The settlement of dispute will be settled in accordance with mechanism for redressal of grievances and settlement of dispute as specified below:-

Complaints of bidder/contractor shall be disposed/settled by a committee and arbitration prior to the entry into force and after into force of procurement contract respectively. Accordingly, grievances committee with powers and terms of reference and method of arbitration are as under:-

- A. **Grievances Committee:**

The committee comprises the following to address the complaints of the bidders prior to entry into force of the procurement contract:-

- i. The Treasurer (Email address: treasurer_uaf@yahoo.com) (Convener)
- ii. Project Director/Director PBI (Member)
- iii. Resident Auditor or the Technical Expert(s) not below the rank of Assistant Professor (Member)
- iv. The Director (DPIC) (Secretary)

Any bidder feeling aggrieved by any act of the procuring agency after the submission of his bid may lodge a written complaint concerning his grievances not later than 10 days after the announcement of the bid evaluation report under rule 37 of the UAF Procurement Rules 2014.

The committee shall address the complaints of bidders that may occur prior to the entry into force of the procurement contract. The committee shall investigate and decide upon the complaint within fifteen days of the receipt of the complaint. Mere fact of lodging of a complaint shall not warrant suspension of the procurement process.

Any bidder not satisfied with the decision of the committee may lodge an appeal in the relevant court of jurisdiction.

B. Arbitration:

After coming into force of the procurement contract, all matters of dispute or difference except regarding rejection of goods by the Inspector under GCC clause 8 (Standard Bidding Document) or cancellation of the contract by the Purchaser, under GCC Clause 24 and 27 (Standard Bidding Document) arising out of the agreement between the parties thereto, the settlement of which is not otherwise specially provided for in contract agreement, shall be referred to arbitration as under:-

(a) Foreign Currency Contracts (EXW/FOB/CFR/CPT, etc.) made directly with Foreign Principal / Manufacturer

i. The dispute shall be referred for adjudication to two arbitrators one to be nominated by each party, who before entering upon the reference shall appoint an umpire by mutual agreement, and if they do not agree, a judge of the Superior Court will be requested to appoint the umpire. The arbitration proceedings shall be held in Pakistan and under Pakistan Law.

ii. The venue of arbitration shall be the place from which the contract is issued or such other places as the Purchaser at his discretion may determine.

iii. Arbitration award so given will be firm and final.

(b) Indigenous (FOR) contracts

The settlement of dispute, if not otherwise especially provided for in the contract shall be referred for the decision of Vice Chancellor, University of Agriculture, Faisalabad. His decision shall be final and binding on both the parties. The work under the contract shall if reasonably possible continue, under the proceedings before the Vice Chancellor and no account of such proceeding unless they are subject of the dispute.

Note:

- The arbitration award shall be recorded in writing.

- EXW/FOB/CFR/CPT, etc., contracts made through local agents would be dealt under sub para-B (b) above.

(c) Prior Notice for arbitration:

If the supplier intends to go for arbitration, he shall have to give 30 days notice in writing informing the purchaser of his intention to refer to the points of differences or dispute of arbitration. He shall have to define clearly the point of difference and or dispute in his notice.

C. Court Jurisdiction

Only the Courts at Faisalabad shall have exclusive jurisdiction to adjudicate upon any “lis” brought by either of the parties in relation to the contract.’

11. Applicable Law (GCC Clause 31)

GCC 31.1—UAF Procurement Rules 2014 and Laws governing in Pakistan

12. Notices (GCC Clause 32)

GCC 32.1: The Supplier shall provide address for notice purposes:

13. Taxes and Duties (GCC Clause 33)

14. Stamp Act

In accordance with the Stamp Act 1899 amended from time to time, the contractor shall require to affix stamp duty @ 25 paisa per hundred rupees on the value of the contract.

Section VI.

Schedule of Requirements

Schedule of Requirements

Number **Description** **Quantity** **Delivery schedule:**
4 Weeks for FOR Supply
10 weeks for FIS+ Supply

Sr. #	Description	Estimated Cost
1.	Lab. Equipment	36.583 Million

Section VII.

Technical Specifications

TECHNICAL SPECIFICATIONS

The bidder shall quote the goods along with the serial number mentioned below against each and also provide soft copy in Excel Sheet without price as technical bid. The quoted goods shall have point to point commentary.

LIST OF EQUIPMENT FOR MATERIAL TESTING LAB

Sr. No.	Revised PC-I	Qty	Rate Per Unit
1.	<p>Digital Vernier caliper and micrometer screw gage (German Standard or equivalent from the same origin) 6 inch and 12 inch for digital Vernier caliper and 0-6 inch for digital micrometer screw gage Dual scale LED both in English and SI units Least count for Vernier caliper: 0.001" Accuracy for micrometer screw gage: 0.00005" Vernier scale: Hardened stainless steel LED display (should be water, oil and dust resistant) Should include operating/maintenance manual</p>	2	
2.	<p>Portable Syngas Monitoring System Can measure all the major constituents of the syngas and calculates the live CV value of syngas MEASUREMENT TECHNOLOGY • CO, CO₂, CH₄, C_nH_m; with dual beam NDIR detectors • O₂: industrial electrochemical cell • H₂: registered thermal conductivity detector MEASUREMENT RANGES • CO: 0-100% • CO₂: 0-50% • CH₄: 0-75% • C_nH_m: 0-10% • O₂: 0-50% • H₂: 0-75% CALCULATION • BTU index (gas calorific value) • High Heating Value or Low Heating Value (in MJ/m³ or kcal/m³) • N₂ OPERATING TEMP & PRESSURE • Tamb: 0-700°C • Pamb: 86 to 108 kPa • RH: 0-95% non-condensing</p>	1	

	<p>PERFORMANCE Parameters should</p> <ul style="list-style-type: none"> • Resolution: 0,01% • Accuracy: $\leq \pm 2\%$ FS • Repeatability: $\leq 2\%$ • Response time: ≤ 15 sec <p>DATA LOGGING</p> <ul style="list-style-type: none"> • Up to 1500 sets of data • Logging rate adjustable from 3 to 99 sec • Identify 10 different sites and up to 100 measuring points • Simultaneous indication of the 7 measures and units <p>POWER</p> <ul style="list-style-type: none"> • Power supply compatibility: External 220 VAC-50Hz • Internal with battery and charger; with 4h backup with pump in operation • Electrical connection: Plug with 1.5 m of cable <p>Casing: Aluminium casing</p> <p>Also contain heated probe with Filter Assembly with working temperature of 0 to 700oC and 10m Heated Line with Quick-Lock Connections, 1m Kanthal Sample Tube for temp up to 1400oC</p> <p>System should also include portable gas conditioning system with flow meter, digital regulation system, alarm.</p> <p>Syngas gas calibration kit,</p> <p>Equipment with similar or better specs will be considered</p> <p>Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories:</p> <p>Intel Core i7 systems with all accessories Processor 3.6GHz, RAM 4GB, wifi support, HDD 1TB, DVD Superdrive (DVD writer), windows and all other compatible standard accessories.</p> <p>Warranty with technical support</p> <p>Mention the details of comprehensive mechanism of installation and training</p> <p>Operating/Maintenance Manual</p>		
3.	<p>Analytical balance</p> <p>Range 520 g /1mg readability. Full Tare. Pan ϕ 140mm. Response time less than 3 S. LCD display With glass shield.220 Vac-50HZ power supply.</p> <p>Equipment with similar or better specs will be considered</p> <p>Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories:</p> <p>All compatible standard accessories.</p> <p>Warranty with technical support</p>	3	

	Operating/Maintenance Manual		
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EQUIPMENT FOR HEAT AND MASS TRANSFER LAB

Sr. No.	NAME OF EQUIPMENT / SPECIFICATION	Qty	Rate per unit
1	<p>Complete System for Converting Biomass to Syngas Downdraft gasifier equipped with all essential components to produce high quality syngas to produce electricity using generator. Continuous Power Rating: 20 kW on 50 Hz Biomass Consumption: 1.2 to 1.6 kg/kWh, depending on moisture , size and type of biomass Max. Continuous Operation: >8 hours Start Up Time: 10-20 min. Ambient Temperature: 5-40°C/40-100°F Humidity: 5-95% RH Flexible for feedstock like Soft biomass and pellets Engine Type: 20kW generator having spark ignition 4 stroke gas engine compatible with syngas and biogas. Auto Shutdown Charging System: System Voltage: 12 V DC Recommended Battery: 75Ah, Maker: Local manufactures only Options & Accessories: Complete data monitoring system including data logger for measurement of temperature, pressure, gas flow rate etc at different points of plant. Locally manufactured high pressure biomass briquetting machine with output capacity of 450-500 Kg/hour, biomass shredder with output capacity of 200-250 Kg/hour and all other compatible standard accessories. Warranty with technical support Installation at UAF site Operating/Maintenance Manual</p>	1	
2	<p>Hinged Tube Furnaces RS for horizontal or vertical Operation up to 1300 °C, Gas Atmosphere or Vacuum Heated Length: 1000 mm Tube length: 1350 mm Cascade controller with temperature measurement in the working tube and in the oven chamber behind the tube</p>	1	

	<p>Working tubes designed for process requirements Different gas supply packages for protective gas and vacuum operation 3-zone control for optimization of temperature distribution Burst protector for heating elements and/or as support surface for the load Stand for vertical operation 3-zone control for optimization of temperature distribution Burst protector for heating elements and/or as support for the load, Stand for vertical operation Gas collection (vacuum) tubes Along with compatible servo stabilizer and all necessary and compatible accessories Equipment with similar or better specs will be considered Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual</p>		
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EQUIPMENT FOR MICROBIOLOGY LAB.

Sr. No.	NAME OF EQUIPMENT / SPECIFICATION	Qty	Rate per unit
1.	<p>Gas chromatograph Four level, three ramp temperature programming to 450°C (Oven Maximum software controller) Five method set-up, generation, storage, and copy. Up to two simultaneous analog outputs for integrator or recorder, switch cable to either detector. Digital electronic pressure readout with capillary injections. Up to six solenoid valves for split vent and gas sampling valve control. Features: • Up to 32-programmable timed events. External computer communications allows full instrument • Control plus two simultaneous channels of raw data. Battery RAM storage of GC methods, instrument configuration, and automation programs. • Capillary column injector (front). • CH B (Back) capillary column Injector. • Operating Temperature: 50°C to 450 °C in 1°C increments • Flow Controller: Programmable Pneumatic Control PPC (Electronic). • Carrier gas is helium/ nitrogen • Accessories: As per manufacturer standard. • Thermal Conductivity Detector (TCD), (REAR) and FID Detector. Total chrom Work Station Software Kit & dot LINK Integral LINK. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin</p>	01	

	<p>Options & Accessories: All compatible standard accessories. Warranty with technical support. Mention the details of comprehensive mechanism of installation and training. Operating/Maintenance Manual.</p>		
2.	<p>Micropipette Micropipette Mechanical Pipette Autoclavable, Single-channel Adjustable Volume Range Volume 0.1-2.5µl pc 1 Volume 0.5-10µl pc 1 Volume 2-20µl pc 1 Volume 5-50µl pc 1 Volume 10-100µl pc 1 Volume 20-200µl pc 1 Volume 50-200µl pc 1 Volume 100-1000µl pc 1. Volume 200-1000µl pc 1 Volume 1000-5000µl pc 1. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Operating/Maintenance Manual.</p>	02 each	
3.	<p>Desktop refrigerated centrifuge Max. Rpm : 5,500 rpm Max rcf : 5,580 xg Max capacity : Approximately 480 ml 1.5 ml x 32 tubes Power : 220v 50hz Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support. Operating/Maintenance Manual</p>	01	

EQUIPMENT FOR BIO-ANALYTICAL CHEMISTRY LAB

Sr. No.	NAME OF EQUIPMENT / SPECIFICATION	Qty	Rate per
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			unit
1	<p>Lyophilizer/ Freeze dryer standard voltage 230 V, 50 Hz, air cooled, refrigerator 0.43 kW (1/3 HP), CFC and H-CFC-free refrigerant, vacuum pump, bench top unit, integrated support plate for direct mounting of a drying chamber or accessories, stainless steel worktop, ice condenser and ice condenser chamber with drain valve for defrosted water, ice capacity max. 2.5 kg, ice condenser performance max. 2 kg/24 h, ice condenser temperature approx. - 60°C, ice condenser chamber 3.5 litres, with hot gas defrosting, vertical lay-out, suitable for freeze drying in round flasks, wide neck filter bottles and/or on unheated shelves, also suitable as a cooling trap for the rotational-vacuum concentrator</p> <p>RVC, equipped with process controller LD plus (Lyo-Display-plus): Clearly arranged graphic LC-display showing the process data (ice condenser temperature, process time, section time and vacuum in combination with vacuum measuring sensor and intuitional menu navigation in English, conversion of temperature and vacuum according to the vapour pressure above ice, vacuum control possible in connection with pressure control valve)</p> <p>Vacuum pump with a suction capacity of 2.25 m³/h (37.5 l/min), 230 V, 50/60 Hz, incl. Small flange connections, suitable for freeze dryers of the ALPHA-Series, vacuum hose</p> <p>Vacuum hose incl. standard flange connections DN 16/25 ISO-KF for external connection of the vacuum pumps RZ-2, RC-5, MZ, 2C and MD 4C</p> <p>Base plate for freeze dryers ALPHA 1-2 for drying inside the acrylic chambers.</p> <p>3 shelves with rim Made of aluminium, diameter 200 mm, unheated, distances between the shelves are variable, for freeze dryers ALPHA 1-2, only in combination with base and acrylic chambers</p> <p>Acrylic chamber diameter 240 mm, height 285 mm, to accommodate shelves and sealing devices, with 8 connections for individually controlled rubber valves incl. Stoppers</p> <p>Rubber valve For connection of vessels with DIN-internal grinding NS 29/32 or distributor.</p> <p>8-Nos. Filter insert for rubber valve to avoid transportation of small dry parts to the Ice condenser chamber.</p> <p>Vacuum Sensor Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and</p>	1	

	training Operating/Maintenance Manual		
2	<p>Viscometer Temperature range: 15° - 100°C. Kinematic Viscosities:0.5-6,000 mm²/s without bath fluid, Power Supply and Waste Receiver ;with all units/accessories Operating Conditions: 15°-30°C, 10%-90% RH non-condensing, Installation Category II, Pollution degree 2 Fuse Rating: 115V & 100V Units: M 250V 8A, 1-1/4 x 1/4""; 230V Unit: M 250V 4A, 1-1/4 x 1/4" Compliance: CE Mark: EMC directive (89/336/EEC); Low voltage directive (73/23/EEC); HI-POT (1900 VDC, 60 sec.) Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	1	
3	<p>Water bath shaker Temperature range min. 5 °C above ambient up to +95 °C with additional boiling mode (+100 °C) Microprocessor PID-temperature controller with Integrated auto diagnostic system with fault indicator integrated digital timer from 1 min. to 100 hours Over temperature Protection Interior Stainless Steel Tank & Textured Stainless Steel Casing Fitted with cover Operated on 220volts, Capacity 10 Lit. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	1	
4	<p>Ultrasonicator/Cell disruptor Branson 450 Sonifier Analog Cell Disruptor or equivalent Equipment with similar or better specs may be considered All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	1	
5	<p>Hot Plate with Magnetic Stirrer Temperature range up to 550°C, Variable Speed Control upto 1200-1500 rpm</p>	3	

	<p>Heating Plate of ceramics Stirring capacity: 15 liter Power: 630 Watt, with PTFE follower, operated on 220 volts, Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>		
6	<p>Small scale biodiesel production unit from algae Minimum oil extraction tank volume 30 L, Minimum methanol/KOH solution tank volume= 30 L, Minimum finished product tank volume 60 L equipped with oil heating facility adjustable 20-100 °C Connecting pipes, valves and other accessories locally manufactured. All material should be resistant to organic solvents, all tanks should have transparent level indicator (glass strip) Maker: Local manufacturers only Options & Accessories: XDS Biodiesel Analyser from FOSS or equivalent (imported) and all other compatible standard accessories. Warranty with technical support. Stainless Steel ball mill of 30 L capacity with appropriate motor, adjustable rpm (30-100rpm) locally manufactured. Transparent glass/plastic jars of volume 50Lx20 with lid. Air pumps with tubing to purge air in water/algae medium simultaneously in 10 algal medium for algal growth. Installation under supervision of company engineers Operating/Maintenance Manual</p>	1	

**EQUIPMENT FOR ENERGY PHYSICS LAB (THERMAL ENERGY STORAGE SEGMENT)
PART – A**

Sr. No.	NAME OF EQUIPMENT/SPECIFICATION	Qty	Rate per unit
1	<p>Transient Plane Source (TPS) sensor. Radius=6.4mm with Kapton insulation and a cable. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	01	
2	<p>Pt-100 thermometer Temperature range= -40 to +400 °C. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin</p>	01	

	<p>from the same origin</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>		
3	<p>Hydraulic press with a set of dies. Maximum Load=20 tones, Pellet size= 1 inch (square), Radius= 30 mm. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	01	
4	<p>EC meter- Bench top EC range: 0 to 199.9μS/cm. Temperature range -10 to 120 °C. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	01	
5	<p>Chloride meter, Volume range; 50μl Measuring range: 5-999mmol/l Accuracy error; 0.4 mmol/l or 1% 100>c>10mmol/l, 1mmol/l 999>c>100mmol/l Power supply: 220V, 50/60 Hz. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	01	
6	<p>Vacuum pump Max. pumping speed at 50/60Hz =m³/h 0.7/0.85 Ultimate vacuum=mbar 100. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	02	
7	<p>Glass desiccators Diameter=6". Equipment with similar or better specs may be considered.</p>	04	

	<p>Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories: All compatible standard accessories.</p> <p>Warranty with technical support</p> <p>Operating/Maintenance Manual</p>		
8	<p>Micropipettes/ Gilson pipits/eqvt</p> <p>a) Measuring Range 1 to 10µl, Accuracy ±0.040µl, b) Measuring Range 10 to 100µl, Accuracy ±1.0 b) Measuring Range 100 to 1000µl, Accuracy ±1.5µl.</p> <p>Equipment with similar or better specs may be considered.</p> <p>Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories: All compatible standard accessories.</p> <p>Warranty with technical support</p> <p>Operating/Maintenance Manual</p>	02 each	
9	<p>Vortex mixer</p> <p>Electronic speed regulation 0 – 3000 rpm, Vibration orbit 4.5 mm,.</p> <p>Equipment with similar or better specs may be considered.</p> <p>Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories: All compatible standard accessories.</p> <p>Warranty with technical support</p> <p>Operating/Maintenance Manual</p>	03	

EQUIPMENT WITH JUSTIFICATION REQUIRED FOR ORGANIC PHOTOVOLTAIC SEGMENT (PART-B)

Sr.No	Specification	Qty.	Rate per Unit
1.	<p>Analytical Balance</p> <p>Digital Microprocessor Controlled, Capacity: 210 g, Readability: 0.1mg (0.0001g), Tare range: 210 gm, Repeatability: $\leq \pm 0.1$ mg, Linearity: $\leq \pm 0.3$ mg, Response time: 3 Second, Operating Temp: -10 to +40C, 10 – 80%rH, Draft Shield: All glass draught shield with 3 sliding doors, Equipment with similar or better specs may be considered.</p> <p>Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories: All compatible standard accessories.</p> <p>Warranty with technical support</p> <p>Operating/Maintenance Manual</p>	03	
2.	<p>Digital Heating baking plate</p> <p>Baking plate, temp max. 500°C</p>	01	

	<p>Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>		
3.	<p>Hot plates with magnetic stirrer Temperature is up to 340°C, Integrated temperature sensor PT 1000 for precise temperature control. Control accuracy is 0.2°C, Excellent heat control accuracy at the work Plate: ± 1 (<100°C) $\pm 1\%$ (>100°C), Electronic speed control, max speed is 1500rpm. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	04	
4.	<p>Overhead stirrer Stirrer for high velocity applications with low viscosity. Laboratory Stirrer with variable and constant speed range for media with viscosities up to 10.000 m Pas infinitely variable. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	01	
5.	<p>Heating mantle 500 mL, 1000 mL Heating mantle with temperature up to maximum 400 C° Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	2+3	
6.	<p>KGW Dewar vessel cylindrical Stainless steel, Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	03	
7.	<p>UV lamp Portable UV Lamp, 254/365nm Wavelength. Equipment with better specs may be considered Maker: US, Europe, Japan, or equivalent from the same origin</p>	03	

	Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual		
8.	<p>FTIR Spectral range: 500 – 7500 cm⁻¹ with Standard KBr Beam Splitter Spectral range: 6,000 – 500 cm⁻¹ with Zinc Selenide Optics Please select one Spectral resolution: 0.8 cm⁻¹ Wave number accuracy: 0.01 cm⁻¹ Signal-to-noise ratio: typically >50,000:1 (1 min measurement time, spectral resolution 4 cm⁻¹) resolution freely adjustable from 0.8 cm⁻¹ to 256 cm⁻¹ Wavenumber accuracy: <0.05 cm⁻¹ @ 2,000 cm⁻¹ Wavenumber precision: <0.0005 cm⁻¹ @ 2,000 cm⁻¹ (SD of 10 repeat measurements) Photometric accuracy: better than 0.1% T Temperature stability 100% line: <1% per °C Interferometer: Rock Solid TM, permanent aligned, high stability Optics: Sealed and desiccated, all mirrors gold coated Detector: High sensitivity DLATGS, room temperature A/D converter: True 24 bit dynamic range Validation: IVU internal validation unit, automated OQ/PQ test and protocols, automated test according to European Pharmacopoeia, Chapter 2.2.24 (optional) 21 CFR Part 11 compliance Interferometer: Rock-solid, gold mirrors, permanently aligned. Detector: High Sensitivity DLATGS Instrument qualification: Automated instrument test functionality Available measurement techniques: transmission, ATR, reflection Computer interface: Ethernet Operating system: Windows Spectrometer power: 100 – 240 VAC, 50 – 60 Hz, 20 WO/MENTOR+OPUS/Mentor Software Package With computer, laser printer Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual Calibrated reference cell Online UPS backup</p>	01	
9.	<p>Sonication apparatus Allows working from of 0.25 to 1 liter solution. Cooling /</p>	01	

	<p>heating. Power 150W 230V 50/60Hz, Heating/cooling group to control circuitry with double chamber or serpentine of the extractors as previously described. 6 liter tub with circulation pump. From +100 °C to – 25 °C with digital control Usage of 200W to – 20°C, 150W to 0 °C, 2000 W for other temperatures. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>		
10.	<p>Rotary evaporator with all accessories including chiller With variable vacuum control, chiller and automatic lift, Temperature of outlet chilled water: 5~20°C, Coolant R134a, Cooling capacity 500 W at 15°C, Tank volume 3 liter, pump capacity 2.5 l/min, 0.6 bar, Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	02	
11.	<p>Schlenk Line and Vacuum Manifolds 4-Port Vacuum Manifold, Double Bank, Air free /Inert Line, Schlenk, Complete, cold trap, oil trap etc. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	02	
12.	<p>KGW Dish shaped Dewar flask Stainless steel, volume 250, 500 ml. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	1+1	
13.	<p>Anti-Corrosion Spin Coater (8000 RPM & 6" wafer Max.) with Complete Accessories Case and spin disk made of Polypropylene (PP), Digital control box, Filter used to connect the pump and coater for preventing waste water from flowing into the pump. oil-less vacuum pump, Input Power: Default 220VAC, 50/60Hz, single phase, 1000W Max. Chamber diameter: 150 mm, 4 sets of PP anti-corrosive vacuum chucks with different sizes (Φ21mm、Φ38mm、Φ60mm、Φ100mm) Spin Speed</p>	01	

	<p>Digital control panel with two programmable segments of different spin times and speeds 500 - 8000 RPM adjustable spinning speed at each segment. Spin Coater: 25.2cm (Φ) x 41cm(H), Lid and Bowl Liner, Digital controller: Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>		
14.	<p>TLC Sheets Thin layer chromatography (TLC) Aluminum sheets 20 x 20 cm. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	5 packets	
15.	<p>Refrigerator 16CFT , Lowest Temperature -10 to 04 C. Shipment/ transportation Operating/Maintenance Manual. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	03	
16.	<p>Electrochemical station (Potentiostat with electrodes) Delivers up to 1.0 amp. Working electrode voltages up to 25 V vs. the reference electrode. The 4-electrode cable accommodates counter, working and reference electrodes, in addition to a ground cable. Manually controlled cell voltage. Current vs. time is acquired and displayed in real time at 10 points per second. Have two auto-current ranges: 0 – 100 mA and 0 – 1 amp. The electrochemical instrument is specifically designed for oxide layer preparation by high-voltage anodization. Complete analytical cell kit (Teflon Cap cover 5 holes, Double Jacket cell vial, Teflon ring, Cell collar with clamp for analytical cell, Double Purge Tube, Platinum Counter electrode, Double nut for cell stand, Telescopic cell stand, Bridge tube for 6mm diameter reference electrode, Calomel Reference Electrode. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support</p>	01	

	Operating/Maintenance Manual		
17.	<p>18"L Compact Three Zones Split Tube Furnace with optional Quartz Tube & Flange</p> <p>Double layer steel case with two cooling fans which ensure low surface temperature; Energy saving high purity fibrous alumina insulation;</p> <p>Two fibrous ceramic tube blocks, cooling fan in two ends for cooling flange and create larger temperature gradient. Heating elements: Fe-Cr-Al Alloy doped by Mo, Heating zone length three zones: 450 mm (18") in total Z1 - Z2 - Z3 : 152.4mm (6") + 152.4mm (6") + 152.4mm (6") +/-1°C Constant Temperature Zone: 260 mm length Max. Temperature gradient ~100 oC/cm at central 1200°C. Fused Quartz Tube: 60 O.D x 55 I.D x 1000 L (mm), 80 O.D x 72 I.D x 1000 L (mm), Heating temperature Max. Heating Temperature: 1200°C at flowing gas Continuous Heating Temperature: 1100°C at flowing gas Max. Heating temperature at Vacuum 1000°C Max. Heating Rate: 20°C/min, Temperature Controllers .Three MTE certified Temperature controller with 30 programmable segments Built in PID Auto-Tune function with overheating & broken thermocouple protection. Over temperature protection and alarm allows for operation without attendant. +/- 1 °C temperature accuracy. Three K type thermocouples (one for each zone). RS485 Communications Port. Vacuum Flange and Gauge: One pair of SS 304 vacuum flange with double high temperature silicone O-ring is Included ,Default flange with 1/4" Bard fittings, 1/4" tube feedthrough port (for 1/4" O.D thermocouple insert) and a KF25 vacuum port,One Vacuum/ pressure gauges. vacuum level: 10E-2 torr - 10E-5 torr.</p> <p>Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	01	
18.	<p>Dell Precision/ Any other Tower Workstation</p> <p>New or refurbished :Processor: Intel® Xeon® Processor E5690 and above series(6 Cores, 12 Threads, 12M Cache, 2.80 GHz) X 2</p> <p>Memory : 16GB DDR3 SDRAM at 1600MHz</p> <p>Hard Drive: 1 TB Serial ATA (7200 Rpm) Hard Drive</p> <p>Video Card : NVIDIA 256MB or Higher</p> <p>Power Supply: 1000W</p> <p>LCD: Dell 19"</p> <p>Keyboard : A4-Tech</p> <p>Mouse: A4-Tech</p> <p>Equipment with similar or better specs may be considered.</p>	14	

	<p>and all other compatible standard accessories. Warranty with technical support Operating/Maintenance Manual Online UPS back up16KVA with batteries.</p>		
19.	<p>Gaussian software gaussian09.e.01. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	01	

20.	<p>Vacuum pump Vacuum Pump Diaphragm oil-less, Max. Vacuum, 6L/min. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	02	
21.	<p>Fume hood Work Area 102x67x75cm, Base cabinet Height is 62cm, the exterior size include the cabinet height, Protection class 1, Protection type IP20, Air velocity (m/s) ≥ 0.5m/s, ≤ 60dB (A), Exhaust duct PVC, standard length: 4 meters, Pipe collar 290, Pipe strap 1pc, Fluorescent lamp 21Wx1, UV lamp, Centrifugal fan, speed adjustable. The fan inside the fume hood, two layer toughened glass, 5mm thickness: motor control, height adjustable, Water tap, Water cup, Air tap, Water proof socket: 2, exterior body: cold-roll steel sheets, coated with anti-bacteria powder, interior body: adopts high grade melamine board with good acid and alkali resistance function, accessories for installation in the lab should be included, nitrogen cylinder with each fume hood. Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	02	
22.	<p>Liquid nitrogen container Capacity:10.0 Liters Empty Weight:6.7Kg Neck Diameter:90mm Outer Diameter:303mm Height:545mm Static Evaporation Loss Mass:0.18L/d Static Holding Time:55days Canister Outer Diameter:70 mm Canister Height:120mm Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	01	
23.	<p>Nitrogen gas Cylinder Nitrogen gas cylinder with good quality material</p>	02	
24.	<p>Vacuum Oven Up to 400C, with vacuum pump.</p>	01	

Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual		
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EQUIPMENT FOR BIOGAS PRODUCTION AND MANAGEMENT LAB.

Sr. No.	NAME OF EQUIPMENT / SPECIFICATION	Qty	Rate Per Unit
1	<p>Automatic titration system With measurement range pH: pH0.00 - 14.00, Temp: 0 to 100.0 C, Conductivity: 7 ranges, 0.0 - 200.0 S/m (by range selection), % transmittance: 0.0 - 100.0%, Relative Humidity; 5-90% and Automatic 3 point calibration (pH 4.01, 6.86, 9.18). Display with titration curve, volume, pH (mV) and temperature simultaneously. 220-240V 50/60Hz 1ph, the pH endpoint titration system uses a motor-burette with an interchangeable 25 ml syringe to 0.01 ml accuracy.</p> <p>Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support. Operating/Maintenance Manual.</p>	01	
2	<p>Peristaltic pump (With digital speed system with 2 sprung rollers (silicon tubing) Speed: 1ml-100ml/h.</p> <p>Equipment with similar or better specs may be considered. Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support. Operating/Maintenance Manual.</p>	04	

EQUIPMENT FOR INSECT BIO-FUEL PRODUCTION LAB

Sr. No.	NAME OF EQUIPMENT / SPECIFICATION	Qty	Rate Per Unit
1	<p>Vertical Rotary Evaporator Speed 20-280 rpm with digital control. Movement by DC brushless motor. Water bath temperature. Glassware lifting by motor. Water bath temperature RT+ to 180°C with capacity 5 liters. Stoke 150mm. Microprocessor controlled with LED display. Electrical Power 220VAC-50Hz. complete with evaporating flask 500ml & 2000ml & receiving flask 500ml & 2000ml with compatible connector. Acid resistance acid vacuum pump with vacuum controller & circulating chiller. Equipment with similar or better specs will be considered Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	2	
2	<p>-86C (-123°F) Upright Ultra-Low Temperature Freezer Temperature range: -86C (-123°F) Model 923 or equivalent Front-to-back air circulation for cooler compress temperatus 230 Volts. Fully metallic heavy-gauge. Absorbance precision: 0.003. Ice crushing unit. 1 Phases Power 220VAC-50Hz. with compatible servo motor stabilizer. Bidders are also required to name the existing satisfied users in Pak for their Principal Equipment with similar or better specs will be considered Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>	1	
3	<p>Digital Incubator Digital Microprocessor controlled display. Single door with capacity 320 liter. All cabinets have stainless steel interiors fitted with adjustable 6 shelves. Inner toughened glass viewing door. CFC-free polyurethane insulation with very efficient thermal stability in all models. 12mm access ports. Temperature range +5 to 50°C. Accuracy & variation ±0. 5°C. Humidity 30-98% by ultrasonic system. Accuracy & variation ±3%. Power 220VAC-50Hz with compatible servo motor stabilizer Equipment with similar or better specs will be considered Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: Glass door refrigerators, Temperature (0C-4C), Shelves: 3-5, No</p>	1	

	<p>frost digital display of temperature, Capacity: 200 liters Frost glass door, Electrical: 230V, 50Hz and all other compatible standard accessories. Warranty with technical support Operating/Maintenance Manual</p>		
4	<p>Soxhlet Apparatus 3 places heat system with temperature controller. Range up to 250°C. Complete with clamp & glass assembly of 500 ml & 1000 ml. Electrical Power 220VAC-50Hz. Bidders are also required to name the existing satisfied users in Pak for their Principal Equipment with better specs may be considered Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories including heating mantel. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual</p>	2	
5	<p>Gel doc EZ system EZ Doc System: PC-controlled gel documentation system for acrylamide / agarose gels including Fluorescence & Colorimetric applications. Technical data of camera:</p> <ul style="list-style-type: none"> ▪ Scientific grade camera with max. Megapixel will be preferred. ▪ Zoom lens greyscales 8Bit / 24Bit colours ▪ USB 2.0 port to control software ▪ 3 filters slider with built in Ethidium Bromide filter. <p>Technical data of Transilluminator</p> <ul style="list-style-type: none"> ▪ 8 x 8W Medium wavelength lamp ▪ 20 x 20cm filter size ▪ with intensity switch & Auto off option when door is open <p>Technical data of dark hood:</p> <ul style="list-style-type: none"> ▪ Dimmable white top-light ▪ Rugged metal darkroom ▪ Automatic UV light cutoff when opening the door ▪ Preparative function enables observation of gels under UV light ▪ Control panel for white top-light & transilluminator <p>Image capturing & 1D analysis software package for lanes and band, create histograms for detailed visual analysis. Complete with Cori5 computer & B/W printer & compatible UP Power 220VAC-50Hz with compatible servo motor stabilizer. Equipment with better specs may be considered Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories.</p>	1	

	Warranty with technical support Operating/Maintenance Manual		
6	Microscope 70.408.836 M-300/34 Trinocular microscope with halogen lamp and Infinite Semi-plan Achromatic Objectives 4x, 10x, 40x, and 100x set 17.1 0.408.836*** Digital Camera with adapters set 1 Manufacturer / or Supplier: SCO-ENG / Germany or Equivalent Equipment with similar or better specs will be considered Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual	1	

EQUIPMENT FOR BIO-ENERGY CROPPING & RESIDUE MANAGEMENT LAB

Sr No.	NAME OF EQUIPMENT / SPECIFICATION	Quantity	Per Unit Rate
1	Bio-Reactor Simulator The AMPTS II is a valuable system for conducting anaerobic biodegradability, methane potential and specific methanogenic activity (SMA) tests, allowing for the standardization of measurement procedures, data interpretation and reports. This allows users to determine the true dynamic degradation profile of any substrate, but also to find out the optimum mix of substrates for co-digesting, screen proper pre-treatment methods, and evaluate the need for additives. Sample size: At least 12. Including compatible servo motor stabilizer and compatible online UPS. Equipment with similar or better specs may be considered Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual	01	

EQUIPMENT FOR TRANSGENIC PHYTOENZYME LAB

Sr No.	NAME OF EQUIPMENT / SPECIFICATION	Qty	Rate per unit
01	<p>NIR Analyzer Benchtop NIR Forage Analyzer is for Grasses, Hays, Legumes and Grain to measure Dry Matter, Protein, Crude Fiber, Ash, Sugar, NDF, ADF, ADL, Dry Matter Digestibility, and Other Parameters in 30 Seconds. Re-dispersive scanning monochromator with nominal bandwidth of 10 nm (FWHM). Tungsten halogen lamp light source with MTBF rating of 10,000 hours (User changeable). Data Interval 1.0 nm. Custom dual cooled, extended InGaAs detectors. Wavelength 950-1650 nm. Analyzer must complete with calibration package for dried grass, hay, legume and grain forages, both ensiled and fresh. A comprehensive list of constituents is predicted including instant access to a complete nutritional profile for all your forages. Complete built in computer. Including compatible servo motor stabilizer and compatible online UPS Equipment with better specs may be considered Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual</p>	01	
02	<p>Confocal Laser Scanning Microscope Confocal Laser Scanning Microscope with spectral and filter scan units for biological sample scanning and imaging. Bidders are also required to name the existing satisfied users in Pak for their Principal Equipment with similar or better specs will be considered Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support. Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual</p>	01	

EQUIPMENT FOR ELECTRICAL ENGINEERING LAB (PBI)

Sr. No	NAME OF EQUIPMENT / SPECIFICATION	Qty	Rate per Unit
1	<p>Power Supply Adjusted DC(30V,10A) and AC (110-240V) Model CPS-3010 300W OR EQUIVALENT Equipment with similar or better specs will be considered Maker: US, Europe, Japan, or equivalent from the same origin Warranty with technical support Operating/Maintenance Manual"</p>	10	
2	<p>DC Power supply(Variable) HY-3005N OR EQUIVALENT Output power : 200w Voltage: 0-30V Output Current: 0-5A Equipment with similar or better specs will be considered Maker: US, Europe, Japan, or equivalent from the same origin Warranty with technical support Operating/Maintenance Manual"</p>	10	
3	<p>Variable 3-phase Power supply Voltage:152-312 V Current: 0A-5A Power: 3-18KVA Equipment with similar or better specs will be considered Maker: US, Europe, Japan, or equivalent from the same origin . Warranty with technical support Operating/Maintenance Manual"</p>	2	
4	<p>Digital Multimeters Bench Type UNI-T 803 OR EQUIVALENT Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	5	
5	<p>Digital Power clamp meter MS-2201 OR EQUIVALENT Maker: US, Europe, Japan, or equivalent from the same origin Warranty with technical support Operating/Maintenance Manual"</p>	2	
6	<p>Wheatstone Bridge Trainer Pantech solutions Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	2	

7	<p>Kelvin Bridge Trainer Pantech solutions Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	2	
8	<p>Maxwell Bridge Trainer Pantech solutions Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	2	
9	<p>Watt Meter Bench Type "Bidders are also required to name the existing satisfied users in Pak for their Principal Maker: US, Europe, Japan, or equivalent from the same origin Warranty with technical support Operating/Maintenance Manual"</p>	2	
10	<p>Analog Multimeter Tekpower TP7310 OR EQUIVALENT AC/DC pointer type Analog Multimeter Equipment with similar or better specs will be considered Maker: US, Europe, Japan, or equivalent from the same origin Warranty with technical support Operating/Maintenance Manual"</p>	2	
11	<p>Digital Watt Meter Maker: US, Europe, Japan, or equivalent from the same origin Warranty with technical support Operating/Maintenance Manual"</p>	2	
12	<p>Power Factor Meter Bench Type "Bidders are also required to name the existing satisfied users in Pak for their Principal Maker: US, Europe, Japan, or equivalent from the same origin Warranty with technical support Operating/Maintenance Manual"</p>	2	
13	<p>Frequency Meter GY-561 OR EQUIVALENT 1MHz to 2.4GHz Equipment with similar or better specs will be considered Warranty with technical support Operating/Maintenance Manual"</p>	2	
14	<p>Phase Sequence Tester UNI-T UT261B OR EQUIVALENT "Bidders are also required to name the existing satisfied users in Pak for their</p>	2	

	Principal Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"		
15	Earth Resistance Tester/Meter MS2301 OR EQUIVALENT Measures low resistance upto 0.01Ω Equipment with similar or better specs will be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"	1	
16	Digital Tacho Meter DT-2234C OR EQUIVALENT Laser Tachometer Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"	2	
17	Inductance Capacitance Meter LC200A OR EQUIVALENT Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"	2	
18	Temperature Meter IR infrared digital thermometer Laser point gun 50-550 C OR EQUIVALENT Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"	2	
19	Galvanometer Pointer Type Ultra-sensitive Equipment with similar or better specs will	2	

	<p>be considered Maker: US, Europe, Japan, or equivalent from the same origin Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>		
20	<p>Energy Meter (Single Phase) Single Phase Power Meter Equipment with similar or better specs will be considered Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	2	
21	<p>Digital Logic Trainer IDL-800A OR EQUIVALENT Logic Trainer Lab Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	1	
22	<p>Microprocessor Trainer Elenko XK-300 8086 based OR EQUIVALENT Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	1	
23	<p>PLC Trainer FATEK Model: FBs-24 MC OR EQUIVALENT 14 pin input 10 pin output Equipment with similar or better specs will be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	2	
24	<p>PLC Applies Conveyor Belt Module Traffic Control Module Lift Control Module Water Level Module Temperature Control Module</p>	2	

	<p>"Bidders are also required to name the existing satisfied users in Pak for their Principal Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>		
25	<p>Temperature Control Trainer Model RT:542 OR EQUIVALENT actuators and control software(RT 560.50) Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	1	
26	<p>Flow Control Trainer Model: RT-522 OR EQUIVALENT Equipped with software(RT650.40) and interface module Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	1	
27	<p>Pressure Control Trainer Model: RT-532 OR EQUIVALENT Software (RT-650.50) Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	1	
28	<p>Level Control Trainer Model: RT-512 OR EQUIVALENT Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	1	
29	<p>Instrumentation & Transducer Trainer Model No: IT-5927 OR EQUIVALENT Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	1	

30	<p>High Frequency Digital Oscilloscope UTD-4202C,200 MHz, 2-Channel OR EQUIVALENT</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	5	
31	<p>Function Generators UTG-9010C OR EQUIVALENT</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	3	
32	<p>Digital Oscilloscope 5 MHz, 2-Channel</p> <p>Equipment with similar or better specs will be considered Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	5	
33	<p>Rheostat/Variable Resistor Wire-wound 1kΩ Range</p> <p>Equipment with similar or better specs will be considered Maker: US, Europe, Japan, or equivalent from the same origin Warranty with technical support Operating/Maintenance Manual"</p>	5	
34	<p>Single and 3-phase Transformer trainer Single Phase Input Voltage 230V 2A Model 2-CMV2E-1 OR EQUIVALENT</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	1	
35	<p>Panel Transformer Model CCM500/24 OR EQUIVALENT 24V output at 500VA</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	5	
36	<p>Advanced Electronics Trainer Model : OAT-343 OR EQUIVALENT</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	1	

37	<p>Basic Electricity & Electronics Trainer Model: EEC-471-2 OR EQUIVALENT Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	2	
38	<p>RLC Resonance Trainer Model : NV7009 OR EQUIVALENT NUIS Technologies All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	2	
39	<p>Digital Power Meter Model: PF9810/PF9811 (HARMONIC MODEL) OR EQUIVALENT Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	2	
40	<p>AC/DC machine Trainer 3 AC/DC Generators and 10 different Generators Resistive Load Model: DL-1017R OR EQUIVALENT Inductive Load Model: DL-1017L OR EQUIVALENT Capacitive Load DL-1017C OR EQUIVALENT Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	1	
41	<p>TRI-TEC Mobile Characteristics Analyser(PV Solar) TRI-KA and TRI-SEN OR EQUIVALENT Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual</p>	1	
42	<p>Analog to Digital Trainer Model: Elenco XK-700T OR EQUIVALENT Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories:</p>	2	

	All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual		
43	Breadboards BB400 Solder less Plug-in Breadboard OR EQUIVALENT Connecting wires Different kind of wires use to connect or complete the circuit (200 Meter) Maker: US, Europe, Japan, or equivalent from the same origin	100	
44	Resistors Laboratory use resistors multiple valued Maker: US, Europe, Japan, or equivalent from the same origin	500	
45	Capacitors 0.1uF-220uF Electrolytic capacitors Ceramic Mini capacitors Maker: US, Europe, Japan, or equivalent from the same origin	500	
46	Inductors Laboratory use inductors multiple valued Maker: US, Europe, Japan, or equivalent from the same origin	500	
47	Diodes/LED Laboratory use LED's/Diodes multiple power ratings Maker: US, Europe, Japan, or equivalent from the same origin	100	
48	SCR and TRIAC trainer Kitek solutions KMS-105 OR EQUIVALENT Connecting Leads/Probes Different kind of Leads use to connect or complete the circuit Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual	1	
49	Half wave, Full wave & Bridge rectifier trainer Kitek solutions KMS-301 OR EQUIVALENT Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support	1	

	Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual		
50	Phase Control Trainer(using DIAC,TRIAC & SCR) Kitek solutions KMS-803 OR EQUIVALENT Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual	1	
51	Speed control of DC motor using SCR Trainer Kitek solutions KMS-805 OR EQUIVALENT J/K Type thermocouple trainer Pantech solutions Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual	1	
52	3-phase Half controlled Thyristor Bridge converter Tesca technologies Code: 46558 OR EQUIVALENT Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual	1	
53	Power Transmission & Distribution Trainer Anshuman Tech Pvt Ltd Code: XPO-SPS-TLD OR EQUIVALENT Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual	1	
54	Distance Protection Relay Trainer Code: XPO-PRT-II-DIST OR EQUIVALENT Maker: US, Europe, Japan, or equivalent	1	

	<p>from the same origin</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual</p>		
55	<p>Under/Over Voltage Relay Trainer XPO-PRT-UOV OR EQUIVALENT Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual</p>	1	
56	<p>IDMT Over Current Relay Trainer XPO-PRT-OCR OR EQUIVALENT Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual</p>	1	
57	<p>Power Transmission Line Trainer XPO-PET-TL OR EQUIVALENT Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual</p>	1	
58	<p>Intel Core i7 systems with all accessories Processor 3.6GHz, RAM 4GB, wifi support, HDD 500 GB, DVD Superdrive, windows 8</p>	5	
59	<p>Projector with complete accessories Panasonic PT-VZ570E 6200 Lumens 5000:1 1024x768 pixels Remote control OR EQUIVALENT Equipment with similar or better specs will be considered Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support</p>	1	
60	<p>Software MATLAB 2010 Proteus Latest version</p>	1	

	ETAP Electronic workbench Latest Version		
61	Wind Lab Power Turbine Turbine Technologies OR EQUIVALENT Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual	1	
62	AKTAKOM ACM-2353 Professional True RMS 1000A AC Watt Clamp Meter Analysis for Single Phase and Balanced 3 phase system True RMS Value (Voltage and Current) Large LCD Display with Backlight USB interface 4 digits with dual display LCD MIN/MAX measurement True power / apparent power / power factor measurement Data Hold Auto Ranging Overflow Indication Manual Data Memory and Read (99 sets) NCV Detection 2.16" (55mm) Jaw opening OR EQUIVALENT All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual	1	
63	Associated Equipment 12V Digital Battery Tester with Thermo Printer - 12-1015 Good/Replace/Recharge-Retest Measured Voltage of the battery Internal Resistance Estimated remaining life Starter Test displays: Lowest voltage of battery during start OR EQUIVALENT Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual	1	
64	B & B Thermotechnik HYTEMODI2C Humidity sensor with analogue output and I²C bus interface Type HYTEMODI2C Specification Humidity sensor with analogue output and I ² C bus interface Operating voltage 6-12 Vdc Reading range 0-100 % RH Current consumption 3 mA Connection RJ11 Temperature range 20+60 °C Length 70 mm (Ø) 12 mm	1	

	<p>Equipment with similar or better specs will be considered</p> <p>Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Warranty with technical support</p> <p>Mention the details of comprehensive mechanism of installation and training</p> <p>Operating/Maintenance Manual</p>		
65	<p>Clamp Meter PCE-PCM 1</p> <p>Power measurement:</p> <p>Active power (kW) Apparent power (kVA)</p> <p>Reactive power (kVAR)</p> <p>Power factor (cos φ)</p> <p>Phase angle Active energy counter (kWh)</p> <p>Auto range selection</p> <p>Value memory</p> <p>Voltage (TRMS)</p> <p>Current (TRMS)</p> <p>Frequency</p> <p>Data logger of 99 values shown on the display</p> <p>Minimum / maximum values and Data Hold</p> <p>OR EQUIVALENT</p> <p>Equipment with similar or better specs will be considered</p> <p>Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Options & Accessories:</p> <p>All compatible standard accessories.</p> <p>Warranty with technical support</p> <p>Operating/Maintenance Manual"</p>	1	
66	<p>FLIR T1K / T1020</p> <p>FLIR T1K / T1020 infrared cameras are designed for thermography OR EQUIVALENT</p> <p>"</p> <p>Maker: US, Europe, Japan, or equivalent from the same origin</p> <p>Warranty with technical support</p> <p>Operating/Maintenance Manual"</p>	1	
67	<p>DigiMicro Lab5.0 Laboratory USB Digital Microscope With Monitor, 20x to 500x Magnification, 5.0 Megapixel</p> <p>Optical resolution 5.0 Megapixel</p> <p>Width 146 mm</p> <p>Pic resolution 2592 x 1944 pix</p> <p>Video resolution 640 x 480 pix</p> <p>OR EQUIVALENT</p> <p>Equipment with similar or better specs will be considered</p> <p>Options & Accessories:</p> <p>All compatible standard accessories.</p> <p>Warranty with technical support</p> <p>Operating/Maintenance Manual"</p>	1	
68	<p>Electronic Protractor</p> <p>ArcoMasterLaserliner 075.131A Reading range(s) 0 220</p>	1	

	<p>° Level accuracy 0.25 mm</p> <p>Technical data Display accuracy: 0.1 ° IP54 Water and dust protection Level accuracy 0.25 mm Reading range 0 220 °</p> <p>Power supply 2 x 1.5 V AA batteries type AA Length 600 mm OR EQUIVALENT Equipment with similar or better specs will be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>		
69	<p>Thermometer/ Hygrometer Outdoor temperature resolution 0.1 °C Equipment with similar or better specs will be considered Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
70	<p>Thermo Hygrometer Logger Extech RH520A Resolution: 0.1°C/ 1% RH Reading range humidity 10 95 % RH Humidity accuracy ± 3 % RH Temperature 28 to +60 °C Temperature accuracy ±1 °C OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
71	<p>Fluke 345 Mains analysis device, Mains analyzer Volt, amp, wave output form, watt OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
72	<p>Digital Multimeter, DMM, HT Instruments HT9022 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support</p>	1	

	Operating/Maintenance Manual"		
73	Solar meter, photovoltaic meter CAT IV 600V HT Instruments Solar 300 N OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"	1	
74	SOLAR IV Solar meter, photovoltaic meter HT Instruments, 1008680, SOLAR IV OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"	1	
75	Laser liner 081.202A Digital Spirit Level Illuminated LC digital numeric display with slope angle and battery state indicator Equipment with similar or better specs may be considered Options & Accessories: . Warranty with technical support Operating/Maintenance Manual"	1	
76	LOGITECH WIRELESS PRESENTER R700 SW R700 SW Transfer type Radio OR EQUIVALENT Equipment with similar or better specs may be considered . Warranty with technical support	1	
77	Tektronix THS3024-TK 4- Channel hand-held oscilloscope, Scope-Meter, hand-held Tektronix THS3024-TK 4- Channel hand-held oscilloscope, Scope-Meter, hand-held OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"	1	
78	Laser rangefinder TOOLCRAFT 70 m 1.5 mm Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"	1	
79	Professional Digital Pen Thermo Hygrometer TFA 30.5016	1	

	<p>Reading range humidity 20 95% OR EQUIVALENT "Equipment with similar or better specs may be considered . Warranty with technical support Operating/Maintenance Manual"</p>		
80	<p>Energy Measure Device VOLTCRAFT 4000 Pro D 9999 hrs Equipment with similar or better specs may be considered All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
81	<p>Digital Thermometer / Hygrometer TFA Professional OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
82	<p>Voltcraft BL20 TRH Digital Thermo Hygrometer Resolution: 0.1 Reading range humidity 0 100 % RH Humidity accuracy ± 3.5 % RH Temperature 20 to +60 °C Temperature accuracy ± 1 °C Equipment with similar or better specs may be considered Warranty with technical support Operating/Maintenance Manual"</p>	1	
83	<p>ENERGY LOGGER 4000 4320 hrs. VOLTCRAFT Effective power range 1.5 3500 W Effective current range 0.01 15 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
84	<p>Digital Pen Thermo Hygrometer Voltcraft HT100 Professional OR EQUIVALENT Equipment with similar or better specs may be considered . Warranty with technical support Operating/Maintenance Manual"</p>	1	
85	<p>Moisture Meter Voltcraft MF50 OR EQUIVALENT Equipment with similar or better specs may be considered Warranty with technical support</p>	1	

	Operating/Maintenance Manual"		
86	Contactless Multi Tester VOLTCRAFT MS400 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: Warranty with technical support Operating/Maintenance Manual"	1	
87	Anemometer VOLTCRAFT PL130 AN OR EQUIVALENT Equipment with similar or better specs may be considered . Warranty with technical support Operating/Maintenance Manual"	1	
88	Digital Power meter clamp type VOLTCRAFT VC732 (K) OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"	1	
89	Pocket Voltage Tester Volcraft MS100 OR EQUIVALENT Equipment with similar or better specs may be considered Warranty with technical support Operating/Maintenance Manual"	1	
90	Data Acquisition / Data Logger Switch Unit (With General Purpose Card) Model : 34970A OR EQUIVALENT Equipment with similar or better specs may be considered Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"	1	

91	<p>Data Acquisition / Data Logger Switch Unit (With LAN and USB Facility) Model : 34972A LXI OR EQUIVALENT Equipment with similar or better specs may be considered Maker: US, Europe, Japan, or equivalent from the same origin Warranty with technical support Operating/Maintenance Manual"</p>	1	
92	<p>Pyranometer Model: Kipp&Zonen SP Lite2 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
93	<p>Sun Tracker Model: KIPP & ZONEN SOLYS 2 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	1	
94	<p>KIPP & ZONEN METEON Data Logger for Pyranometer Model: KIPP & ZONEN METEON Data Logger OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
95	<p>DC Power Analyzer, Modular, 600 W, 4 Slots Keysight Technologies Model: N6705B OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	1	
96	<p>Wind Lab Power Turbine Turbine Technologies OR EQUIVALENT Equipment with similar or better specs may be considered Maker: US, Europe, Japan, or equivalent</p>	1	

	<p>from the same origin</p> <p>Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>		
97	<p>Digital luxmeter with illuminance measurement of LED sources HT-Instruments Model: HT309 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
98	<p>Infrared thermal camera HT-Instruments Model: THT70 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
99	<p>Professional Laser Meter HT-Instruments Model: iDM70 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
100	<p>Sound Level Meter HT-Instruments Model: HT157OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
101	<p>Innovative Multimeter HT-Instruments HT712 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	

102	<p>Digital thermometer HT Instruments Model: HT3320 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
103	<p>Pen voltage detector HT-Instruments Model: HT70 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
104	<p>Portable digital thermo-anemometer HT-Instruments Model: HT4000 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
105	<p>Power quality analyzer HT-Instruments Model: HT9022 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	1	
106	<p>Professional system for finding grounding cables and pipes HT-Instruments Model: HT5000 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
107	<p>SCISSORS HT-Instruments OR EQUIVALENT</p>	1	
108	<p>Power Quality and Energy Analyzer FLUKE Model: Fluke 435 Series OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support</p>	1	

	Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"		
109	True-rms Industrial Logging Multimeter with TrendCapture FLUKE Model: Fluke EUR 289/FVF/ Digital-Multimeter, DMM, 50 000 (320 x 240 Pixel) OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"	1	
110	Laser Distance Meter FLUKE Model: Fluke 424D OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"	1	
111	Portable Appliance Tester Fluke Model: Fluke 6500-2 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"	1	
112	Scope Meter® FLUKE Model: Fluke Scope Meter® 225C OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"	1	
113	Battery Analyzers FLUKE Model: Fluke 500 Series OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"	1	

114	<p>Power Quality and Energy Analyzer FLUKE SERIES II Model: Fluke 437 Series 400Hz OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
115	<p>Precision Multifunction Process Calibrator FLUKE Model: Fluke 726 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	1	
116	<p>High-Temperature Infrared Thermometer FLUKE Model: Fluke 572-2 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
117	<p>Garmin GPS Receiver Model: Aera® 796 OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
118	<p>Wireless Weather Station with UV & Solar Radiation Sensors Davis Instruments Model: Wireless Vantage Pro2™ Plus including UV & Solar Radiation Sensors OR EQUIVALENT Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	1	

119	<p>Soldering/De-soldering station supply unit digital 200 W, 255 W Weller WX Model: Weller WX Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
120	<p>Portable Data Storage and Data Recording Machine Intel core i7, 5th Generation Equipment with similar or better specs may be considered Maker: US, Europe, Japan, or equivalent from the same origin Options & Accessories: All compatible standard accessories. Warranty with technical support</p>	2	
121	<p>Wireless Data Copying Machine. Hp All-in-Ones HP LaserJet Pro MFP M225dw Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Operating/Maintenance Manual"</p>	1	
122	<p>Edison 5 DC/AC + Electronics with 3D parts and proto board Multimedia Virtual Lab for Exploring electronics and electricity Equipment with similar or better specs may be considered Options & Accessories: All compatible standard accessories. Warranty with technical support Mention the details of comprehensive mechanism of installation and training Operating/Maintenance Manual"</p>	1	

Section VIII.

Sample Forms

Sample Forms

1.	Bid Form and Price Schedules	98,99
2	Manufacturer's/Distributor's/Dealer's Certificate Form	100

1. Bid Form and Price Schedules

Date: _____
Tender No. _____

To:

Project Director,
Punjab Bio-Energy Institute (PBI)
University of Agriculture,
Faisalabad.

Gentlemen and/or Ladies:

Having examined the bidding documents including Tender No.117/2016, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply and deliver *[description of goods and services]*in conformity with the said bidding documents for the sum of *[total bid amount in words and figures]*or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this Bid. We understand that failure to furnish all information required by the bidding documents or to submit a bid not substantially responsive to the bidding documents in every respect will be at our risk and may result in the rejection of its bid.

If our bid is accepted, we undertake to provide a performance security in the form, in the amounts, and within the times specified in the bidding documents and to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements. Failure to which, the Purchaser reserve the right to take action as per provisions of the bidding documents.

We agree to abide by this Bid for the Bid Validity Period specified in Clause 16.1 of the Bid Data Sheet and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Commissions or gratuities, if any, paid or to be paid by us to agents relating to this Bid, and to contract execution if we are awarded the contract, are listed below:

Name and address of agent	Amount and Currency	Purpose of Commission or gratuity
_____	_____	_____
_____	_____	_____
_____	_____	_____
(if none, state "none")		

Until a formal Contract is prepared and executed, this Bid, together with your written acceptance thereof and your notification of award, shall constitute a binding Contract between us. We understand that you are not bound to accept the lowest or any bid you may receive.

We certify/confirm that we comply with all requirements as per ITB Clause 2 of the bidding documents.

Dated this _____ day of _____ 19_____.

[signature]

[in the capacity of]

Duly authorized to sign Bid for and on behalf of _____

Price Schedule for Goods Offered from within the Purchaser's Country

(ITB clause 11.2 (a & b))

11.2 (a): FOR

11.2 (b): FIS Plus

Name of Bidder _____ Tender Number ____ Page _ of ____.

1	2	3	4	5	6
Item	Description	Country of origin	Quantity	Price with out Sales Tax	Price With Sales Tax

Signature of Bidder _____

Note: In case of discrepancy between unit price and total, the unit price shall prevail.

Manufacturer's/Distributor's/Dealer's Certificate Form

[See Clause 13.3 (a) of the Instructions to Bidders.]

To: *[name of the Purchaser]*

WHEREAS *[name of the Manufacturer/Distributor/Dealer]* who are established and reputable Manufacturer/Distributor/Dealer of *[name and/or description of the goods]* having factories/Warehouse/trading house at *[address of factory]*

do hereby authorize *[name and address of Agent]* to submit a bid, and subsequently negotiate and sign the Contract with you against Tender No. *[reference of the Invitation to Bid]* for the above goods manufactured by us.

We hereby extend our full guarantee and warranty as per Clause 15 of the General Conditions of Contract for the goods offered for supply by the above firm against this Invitation for Bids.

[signature for and on behalf of Manufacturer]

Note: This letter of authority should be on the letterhead of the Manufacturer/Distributor/Dealer and should be signed by a person competent and having the power of attorney to bind the Manufacturer. It should be included by the Bidder in its bid.