



University of Agriculture, Faisalabad

Bidding Documents

Tender No.12/2015

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Section I.

Invitation for Bids



UNIVERSITY OF AGRICULTURE, FAISALABAD (TENDER NOTICE No.12/2015)

Sealed tenders are invited from Income Tax/Sales Tax Registered Firms on the basis of Single Stage (two envelop procedure) for supply/installation/commissioning of Laboratory Equipment for teaching departments of the University, University of Agriculture, Faisalabad.

Tender No.12/2015

Date of Receiving and Opening	23.02.2015	Receiving Time	10:30 a.m.
		Opening Time	11:00 a.m.
		Bid Security	2% of the quoted Value
		Tender Fee	Rs.500/-

Bidding documents can be obtained from the Directorate of procurement & Inventory Control on deposit of tender fee into the Account No.11-9/NBP "University Income Account" UAF Branch. The Tender documents can also be down loaded from www.uaf.edu.pk (Directorate of Procurement & Inventory Control). In that case, please attach CDR/bank draft of the tender fee (Non Refundable) in favour of Director (P&IC). For Cities other than Faisalabad add Rs.200/- in the Tender Fee amount.

DIRECTOR (P&IC)

(For & On behalf of the Committee)

Phone#041-9200898, 9200161 Extn.2208

E.Mail: store_officer@uaf.edu.pk

Section II.

Instructions to Bidders

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Instructions to Bidders

A. Introduction

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|---------------------------------------|--|
| 1. Source of Funds | University of Agriculture, Faisalabad. |
| 2. Eligible Bidders | <p>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</p> <p>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.</p> <p>2.3 Only Government owned enterprises may participate, only if they are legally allowed.</p> <p>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.</p> |
| 3. Eligible Goods and Services | <p>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.</p> <p>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.</p> <p>3.3 The origin of goods and services is distinct from the nationality of the Bidder.</p> |
| 4. Cost of Bidding | <p>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.</p> |

B. The Bidding Documents

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|--|--|
| 5. Content of Bidding Documents | <p>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:</p> <ul style="list-style-type: none">(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 <p>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.</p> |
| 6. Clarification of Bidding Documents | <p>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.</p> |
| 7. Amendment of Bidding Documents | <p>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.</p> <p>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.</p> <p>7.3 In order to allow prospective bidders reasonable time in which to take the amendment into account in preparing their bids, the</p> |

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 Establishing Bidder's Eligibility and Qualification**
- 13.1 Pursuant to ITB Clause 9, the Bidder shall furnish, as part of its 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 and the number of copies of the bid indicated in the **Bid Data Sheet**, clearly marking each "ORIGINAL BID" and "COPY OF BID," as appropriate. In the event of any discrepancy between them, the original shall govern.
- 17.2 The original and the copy or copies of the 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 interlineation, 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 Marking of Bids

18.1 The Bidder shall seal the Technical and Financial Bid in 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, it will be retained or deducted from the bidder's claim on bidder's choice.
- 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:-

- (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.
ITB2.3	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: Dean, Faculty of Sciences, University of Agriculture, Faisalabad (UAF)
B- Bidding Documents	
ITB 5.1(h)	Not applicable
ITB 6.1	<p>Purchaser's address: Dean, Faculty of Sciences, UAF, telephone, and facsimile numbers through</p> <p style="color: red;">Directorate of Procurement & Inventory Control (P&IC) 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"> 1. Dean, Faculty of Sciences 2. Dean, Faculty of Agri. Engg. & Tech 3. Dean, Faculty of Veterinary Sciences 4. Dean, Faculty of Social Sciences 5. Dean, Faculty of Agriculture 6. Dean, Faculty of Animal Husbandry 7. Dean, Faculty of Food, Nutrition and Home Sciences 8. Principal, Sub Campus, Toba Tek Singh 9. Director (P&IC)
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

	<ul style="list-style-type: none"> b. HR strength/Manpower with the Bidder c. Direct or indirect genuine source / relationship with the Principal d. Technical expertise with the bidder 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.
ITB 15.1	Amount of bid security. 2% of the quoted value in shape of Call Deposit Receipt (CDR) in favour of Director (P&IC), 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. 12/2015
ITB 19.1	Deadline for bid submission. 23.02.2015
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 :- <ul style="list-style-type: none"> 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 | <p>3.1 All Goods and Services supplied under the Contract shall have their origin in the countries as elaborated in the Technical Specifications.</p> <p>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.</p> <p>3.3 The origin of Goods and Services is distinct from the nationality of the Supplier.</p> |
| 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 | <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> |

- 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 parentheses.

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.

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 be required 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 be required 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)**

GCC 15.2&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 upto0.67% 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 redresal 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 (E.mial address: treasurer_uaf@yahoo.com) (Convener)
- ii. Prof. Dr. Muhammad Javed, Dean, Faculty of Sciences (Member)
- iii. Resident Auditor or the Technical Expert(s) not (Member)
below the rank of Assistant Professor
- iv. The Director/Deputy Treasurer (DPIC)* (Secretary)
- Note: * If the Director (DPIC) is not posted

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)

Section VI.

Schedule of Requirements

Schedule of Requirements

Number	Description	Quantity	Delivery schedule (shipment) in weeks/months from 6-8 Weeks ¹
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TEACHING AID EQUIPMENT

Section “A”

Sr.#	Item	Specification
1.	pH meter	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100°C. HANNA OR Equivalent
2.	EC/TDS meter	Portable Measuring Range: 0.00 – 500 µS/cm HANNA OR Equivalent
3.	Dissolved Oxygen Meter	Range of dissolved oxygen measurement: 0-50mg/L, Temperature: 5.0 - 55°C, Temperature Compensation HANNA OR Equivalent
4.	Soil Sampling Kit	<ul style="list-style-type: none">• Complete set made of USA• AMS Basic Soil Sampling Kit with all accessories Sampler Set for hard Soil along with Soil Sampling Kit Core Samplers Deep Soil Sampling system Lord Soil Sampler
5.	Water bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity:10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz WITEG OR Equivalent
6.	Scrubber for digestion hood	Behrosog suction system (Heavy Duty Scrubber) precipitator plus safety back up stage ensure environment free of acid vapours. The Centrifugal suction washer in the compact process suction system extracts aggressive acid vapours during the digestion and upstream series connected two stage precipitator washes out and separate the noxious contents, complete set Behr
7.	Hot Plate with Magnetic Stirrer	Temperature Range: Ambient to 280°C, Speed Range: 100 to 1000 rpm, Heating Rate: 6K/min, Motor Type: DC, Stirring Capacity: upto 1000 mL, Plate Diameter: 5.3", Voltage: 110V, 60Hz, 515W HEIDOLPH OR Equivalent
8.	Global Positioning System (GPS)	<ul style="list-style-type: none">• 3 axis electronic compasses• 4 inch color touch screen• Preloaded Pak maps• 5MP Camera• Barometric altimeter
9.	Nitrogen Generator	<ul style="list-style-type: none">• Technical Parameter• N2 Flow: 0--500ml/min; Pressure: 0--0.4MPa• N2 purity: 99.99%,PSA technology

10.	Chloride Meter	Sample size 500 uL, Readout range 10 – 999 mg/L and 2-165 mg % salt, accuracy \pm 3mg/Liter at the 200 mg/L Level, reproducibility 1% with built in Data Interface, complete unit with Acid Buffer 500 ml, 200 mg standard 100 ml, 3 anodes set electrodes, 2 marked beakers, electrode cleaning polish stirrer and operational manual, operated on 220 Volts, Model 926MKII Sherwood (Corning) OR equivalent
11.	Chlorophyll Meter (SPAD)	Optical density difference at 2 wavelengths, 2 mm \times 3 mm Measurement area, 1.2 mm maximum Subject thickness, 12 mm Subject insertion depth, 2 LED elements Light source, 1 SPD silicon photodiode Receptor, Operating temperature/humidity range: 0 to 50°C; Relative humidity of 85% or less (at 35°C).
12.	Analytical Balance	Max. Weight: 210g, Readability: 0.001g OHAUS OR Equivalent
13.	Digital EC Meter	Portable Measuring Range: 0.00 – 500 μ S/cm HANNA OR Equivalent
14.	Micropipettes Set	Single-channel adjustable micropipette set including following measurement ranges: 1. 0.2 ul- 2 ul 2. 2 - 20 ul 3. 20-200 ul 4. 200-1000 ul GILSON OR Equivalent
15.	Digital Vernier Caliper	4-20mA, 0-10V process input digital panel meters Most have a 24V excitation output voltage which you can use to power a 2 wire or 3 wire input loop.
16.	Flame Photometer	Range: 0.2 ppm for Na and K, 0.25 ppm for Li, 15 ppm for Ca, 30 ppm for Ba. Reproducibility: 1 % CV for 20 consecutive samples, Reading time: 20 seconds Interference: Less than 5 % Sample input: 2-6 ml/ minute Electric supply: 220 Volts Air Compressor: moisture and oil free Fuel: Natural gas / LPG Operating Environment: 15-35 °C JENWAY OR Equivalent
17.	Mini Horizontal Electrophoresis with Power Supply	Cell size: (W x L x H) 9.2 x 25.5 x 5.6 cm Gel tray sizes (W x L) 7 x 7 cm and 7 x 10 cm. Sample throughput: 8-30 in number Buffer base volume: approximately 250-70 mL BIO-RAD OR Equivalent
18.	Moisture Testing Probe	Handy Moisture Meter. - Grinding Facility to make sample uniform - Auto. Calibration. - No thickness Chart. - Single volume cup - 2 * 16 line Alpha numeric LCD display
19.	Digital Camera for epifluorescence microscope	Captures 5.0MP (2580X1944) high resolution fluorescence microscopy images Includes advanced editing, processing measuring software Supports high quality print imaging in BMP, TIFF, JPG and other formats Compatible with Windows 2000/XP/Vista/7 Compatible with Twain, DirectShow, Amcap, Minisee other third-party software AMSCOPE MD800 C OR Equivalent

20.	pH Meter	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100°C. HANNA OR Equivalent
21.	Seed Germinator	Temperature control range: 5°C to +50°C (light off) +10°C to +50°C (light on) Effective Capacity: 294 litres Internal Dimensions: 520 x 490 x 1135 (mm) Shelves: 4 Air circulation: Forced air circulation Compressor: Hermetic type Temperature Accuracy: ±0.3°C Temperature control: Microprocessor PID and Refrigeration capacity control Lighting range (Adjustable): 0 lx to 20,000 lx Fluorescent lamp 40W x 15, 6 increments (0, 1, 2, 3, 4, 5) Humidity: Ultrasonic humidifier PID control Humidity control range: 60 to 90%RH (+15°C to +45°C and light off) 55 to 85%RH (+15°C to +45°C and light on) Alarms and safety: Temperature alarm, High and low temperature limit, Humidity alarm Complete unit operated on 220 Volts
22.	Digital Top Loading Balance	Max. Weight: 2200g, Readability: 0.01g SHIMADZU OR Equivalent
23.	Mini Vortex Mixer	Speed: up to 3200rpm With both a cup head and 3-inch head with cover TALBSYS OR Equivalent
24.	Water Still	Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0, Resistivity: 0.25 - 0.3 mOhm ^{-cm} IRMECO OR Equivalent
25.	Electrical Conductivity Meter	Portable Measuring Range: 0.00 – 500 $\mu\text{S/cm}$ HANNA OR Equivalent
26.	Mini Grinder	Funel Volume: 300ml, Sieves: 0.2 to 6mm mesh size Grinding attachment: Covertible (Hammed attachment, Cutting attachment) Motor: Wear free three phase motor, Gearless direct drive, Drive Power: 1000W, Speed range: 50 to 6000rpm Sound Level: 70 dB(A) for 6000rpm Complete With device cable, hamme attachment, sieve 2.0mm Tool set, wooden frame with 12 collection tubes. Model PX-MFC 90D, Kinametica OR Equivalent
27.	Sclerometer	11 mm Tip: 0.5 to 25 lb (0.2 to 11 kg) 8 mm Tip: 0.8 to 48 lb (0.4 to 22 kg) Resolution: 0.01 to 22 lb (10 kg); otherwise 0.1Accuracy: ± 1% + 0.1Units: kg, lb, N, Power: Four AAA batteries. Environment: 32°F to 113°F (0 to 45°C); 0 to 90% RHD dimensions: 8.0" x 2.4" x 1.3"Weight: 230 g
28.	Dial Calipers	Range mm:0-200L: 286mma:50mmb: 24mmc: 19.5mmd: 16mm
29.	Micropipette Set	Single-channel adjustable micropipette set including following measurement ranges: 1. 0.2 ul- 2 ul 2. 2 - 20 ul 3. 20-200 ul 4. 200-1000 ul GILSON OR Equivalent
30.	Top Loading Electronic Balance	Electronic Balance digital Top Loading High Resolution type Metal base structure, over load protection, fast response time, Various unit conversions and various functions available as standard Capacity 12kg, Readability 1gm, Pan Size 170x130mm, battery operated as well as operated on 220 volts, SHIMADZUOR Equivalent

31.	Water Bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity:10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz WITEG/Equivalent
32.	Horizontal Gel Electrophoresis with Power Supply	Cell size: (W x L x H) 9.2 x 25.5 x 5.6 cm Gel tray sizes (W x L) 7 x 7 cm and 7 x 10 cm. Sample throughput: 8-30 in number Buffer base volume: approximately 250-70 mL BIO-RAD OR Equivalent
33.	Analytical Balance	Max. Weight: 210g, Readability: 0.001g OHAUS OR Equivalent
34.	Hot Plate with Magnetic Stirrer	Temperature Range: Ambient to 280°C, Speed Range: 100 to 1000 rpm, Heating Rate: 6K/min, Motor Type: DC, Stirring Capacity: upto 1000 mL, Plate Diameter: 5.3", Voltage: 110V, 60Hz, 515W HEIDOLPH OR Equivalent
35.	Analytical Balance	Max. Weight: 210g, Readability: 0.001g OHAUS OR Equivalent
36.	Phosphine Meter	OPERATING TEMPERATURE RANGE: -20°C to 50C (-4F to 122F) Drop resistant case stands up in the harshest environments Portable with long lasting battery of 170h backup Four month of data logging capacity Unit design to detect five gasses Measuring range: 0 to 1ppm, resolution: 0.01%
37.	Grain Moisture Meter	Capacity 110g, Repeatability (Std Dev) (g) 0.2% (3g sample) 0.05% (10g sample), Readability 0.05% / 0.005g, Sample Size 3g to 20g typical, 0.5g min. RS-232, 1 - 99 minutes, 30-second increments to 60 minutes, Heating Technology Halogen, Temperature Range 50°C to 160°C in 5° increments, Custom backlit LCD, Displays % moisture or % solids or weight (g), temperature, time
38.	Humidifier	Humidification performance 400 g/h, Suitable for rooms up to 60m2 / 150m3, Maximum water capacity 6.5 liters, < 25 dB(A), Big LCD-display, Output regulator button, Cleaning display, Transparent water tank (water level clearly visible), Powerful and exchangeable demineralization cartridge, When operated with pre-heating to 80°C
39.	Hotplate with Stirrer:	Temperature Range: Ambient to 280°C, Speed Range: 100 to 1000 rpm, Heating Rate: 6K/min, Motor Type: DC, Stirring Capacity: upto 1000 mL, Plate Diameter: 5.3", Voltage: 110V, 60Hz, 515W HEIDOLPH OR Equivalent
40.	Mini Vortex Mixer	Speed: up to 3200rpm With both a cup head and 3-inch head with cover TALBSYS OR Equivalent
41.	Binocular Microscope:	Inclined Binocular body, 360° rotatable head, Eyepieces-Highest quality 10 X eyepiece, Objectives-Parfocal, 4x, 10x, 40x and 100x (oil immersion) LABOMED OR Equivalent
42.	Vertical mini gel electrophoresis with compatible power supply	Capacity: 1-4 gel at a time. Total buffer volume for 2-4 gel: 800- 1000 mL Application: Native and SDS-PAGE Dimension of the system: 12 x 16 x 18 cm. Voltage: ~220 volts BIO-RAD OR Equivalent
43.	Visible Spectrophotometer:	Range: 320 to 1000nm, Tungsten source lamp, Wavelength accuracy: ± 2nm Ccil OR Equivalent
44.	pH Meter:	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100°C. HANNA OR Equivalent

45.	Micropipette set	Single-channel adjustable micropipette set including following measurement ranges: 1. 0.2 ul- 2 ul 2. 2 - 20 ul 3. 20-200 ul 4. 200-1000 ul GILSON OR Equivalent
46.	Digital pH/Temperature/MV Meter	Range pH : 0 to 14.00 pH Temp: øC 0 to 100.0 øC mV : -1999 to 1999 mV ATC pH: 0 to 14.00 pH Resolution pH: 0.01 pH Temp: øC 0.1 øC mV: 1 mV ATC pH: 0.01 pH HANNA OR Equivalent
47.	Clamp Meter (Voltage, Current, Frequency)	FC Wireless AC Current Clamp Module Fluke a3000
48.	Soil Temperature Probe	Thermistor Description: Micro-BetaCHIP Probe 10K3MCD1, 0.5 mm (0.018 in.) diameter, 10 kohms at 25°C Measurement Range: -40° to +70°C Thermistor Survival Temperature Range: -50° to +100°C Overmolded Joint and Cable Survival Temperature: -50° to +70°C Maximum Water Submersion Depth: 45.7 m (150 ft) or 434 kPa (63 psi) Interchangeability Error -40°C: ±0.6°C tolerance 0°C: ±0.38°C tolerance 25°C: ±0.1°C tolerance 50°C: ±0.3°C tolerance 70°C: ±0.4°C tolerance Model: 109SS-L OR Equivalent
49.	Conductivity Meter	Portable Measuring Range: 0.00 – 500 µS/cm HANNA OR Equivalent
50.	Dissolved Oxygen Meter	Portable, Range of dissolved oxygen measurement: 0-50mg/L of, Temperature: 5.0 - 55°C, Temperature Compensation HANNA OR Equivalent
51.	GPS	Oregon® 650t OR Equivalent
52.	Pyranometer (SP-Lite) respond time < 1s	Spectral range: 400 to 1100 nm Sensitivity: 60 to 100 µV/W/m² Response time SP Lite2 (95%): < 500 ns Directional error: < 10 W/m² Temperature response: < -0.15 %/°C Operational temperature range: -40 °C to +80 °C Maximum solar irradiance: 2000 W/m² Field of view: 180 °
53.	Thermocouple (K-Type) with connectors (100 meter)	Type K Temperature Range: –454 to 2,300F (–270 to 1260C) Extension wire: 32 to 392F (0 to 200C) Standard: +/- 2.2C or +/- .75% Special Limits of Error: +/- 1.1C or 0.4%
54.	Thermo-Hygrometer Monitor	Sensor type: NTC Sampling rate: 18 s Battery life: 8736 h Testo 608-H1 OR Equivalent

55.	Anemometer	Length: 160 mm Height: 30 mm Width: 63 mm Weight: 321 g VOLTCRAFT PL-130 AN OR Equivalent
56.	Infrared laser thermometer (Range 0-1000°C)	Accuracy: ± 1 % Optics: 12/1 Emissivity: adjustable from 0.1 to 1.0 Temperature resolution: 0.1 °C Height: 156 mm Width: 43 mm Weight: 180 g Pick-up time: < 150 ms Temperature: -50 to +650 °C Power supply: 9 V battery pack
57.	2-channel oscilloscope, Digital Storage oscilloscope, Bandwidth 100 MHz	Channel type: 2 Bandwidth: 100 MHz Sampling rate: 1 GS/s Memory depth: 1 Mpts (CH1 or CH2) Screen size: (1 x H) 10 x 8 cm (320 x 234 Pixel) Time base: 2 ns/DIV - 50 s/DIV Slew rate: 3.5 ns Vertical deflection: 2 mV/DIV - 10 V/DIV Accuracy: ±3 % Input impedance: 1 MΩ 15 pF Triggering: Edge, Pulse, Slope, Video, Alternate Input coupling: DC AC GND Input voltage: 300 V (DC + peak AC) Power supply: 230 Vac Type: DS1102E Display: TFT 65 536, TEE colours Rigol DS1102E OR Equivalent
58.	USB Digital Microscope 500X	<ul style="list-style-type: none">• Image Sensor Up to 2M Pixel• Lens 2M Pixel• Focus Range 0mm ~ 250mm• Snap Shot Software and Hardware• Light Source White Light LED x8 PCS• Digital Zoom 4X• Magnification Ratio 5 X ~ 500X• Power Supply DC 5V from USB port• Interface USB 2.0 LABOMED, IRMECO OR Equivalent
59.	Digital Lab Scale Weighing Balance	10g x 0.001g with External Calibration SHIMADZU OR Equivalent
60.	Humidifier	Humidification Capacity: 2500-4000 cc
61.	Cotton Moisture Meter	Moisture Range: 4-16% Lint Cotton, 6-20% Seed Cotton Two Separate Scales for Lint Cotton and Seed Cotton
62.	Wrapping Reel (Electronic)	Number of yarn skeins: 5 Rotary Speed: 200RPM Reel circumference: 1.5yard/turn
63.	Yarn Twist Tester Electronic	Twist/Untwist Principle Adjustable Length of Sample: 1-500 mm Twist Range: 1-10,000 twist/meter Max. Length of contracting twist: 20 mm Max. Length of untwisting: 60 mm Pretension: 0.5 – 150 cN
64.	Centrifuge machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL

65.	Mini vortex mixer	Speed: up to 3200rpm With both a cup head and 3-inch head with cover TALBSYS OR Equivalent
66.	Dissolved Oxygen Meter	Portable, Range of dissolved oxygen measurement: 0-50mg/L of, Temperature: 5.0 - 55°C, Temperature Compensation HANNA OR Equivalent
67.	Incubator (Small)	Textured stainless casing W x H x D = 585 x 944 x 514 mm Fully insulated stainless steel door with 2 point locking (compression door lock Inner glass door Rear zinc plated steel Interior – max. loading of chamber 120 kg Temperature range: Min 5°C above ambient up to + 80°C Voltage / Power Rating: 230V(+/-10%) 50/60 Hz approx. 1.2 W Memmert, Precision incubator Model IN75 OR Equivalent
68.	Water Level Meter	Water level indicator with PVC rounded cable, four-conductors, with kevlar core and external protection sheath – Available Cable length: at least 150m – Cable diameter: 4.7mm – Graduation at 1 cm intervals (directly printed on the cable itself and protected by external anti-scratching transparent polyurethane) – Probe diameter: 10 mm – Probe material: stainless steel – Water level indication by both acoustic signal (buzzer) and LED – Sensibility adjustment through external potentiometer – Cable reel in antishock PVC, with brake, probe support, painted iron frame – Power supply through 9V battery (externally replaceable) – Bottom indicator available on request
69.	Manifold gauge	(double) (up to 500 Psi) Digital Refrigeration Manifold and Refrigerant Leak Detector
70.	Tachometer digital (Contact)	Acceleration 656ft/s ² , 200m/s ² , 20.39g (peak) Uses a laser for greater distance non-contact measurements up to 4.9ft (1.5m)
71.	Multi Meter with Temperature	Digital AC/DC Auto/Manual Range Digital Multimeter Mastech MS8268 OR Equivalent
72.	Pocket Screw Driver Kit Specifications	1. High Quality 2. Perfect For Hobby 3. Certification Approval 4. Model#:SU0298.
73.	Infrared thermometer	Measures in Celsius or Fahrenheit (Range: -50°C to +380°C /-58 °F to +716°F). Auto Shut-off & Low Battery
74.	Digital Anemometer	Digital Vane Anemometer. wind meter 1,LCD Display 2,Wind Speed Unit Selectable 3,Certificaiton: CE, FCC, ROHS
75.	Lathe Tool Grinder	Model: Nesco Brand: 6000 OR Equivalent
76.	Tool kit	(small & master tool kit)
77.	Bushel apparatus	Cup capacity: 1 lit.
78.	Grain hardness tester	Grain hardness tester AGW-type grain hardness tester is used specially for testing of the hardness of grains (wheat, rice, etc.

79.	Safety Glasses/Goggles/Gloves	Safety devices
80.	Pitch meter	Skyc Digital Pitch Gauge Model: SK-500009-01 OR Equivalent
81.	Dynamometer	Water brake power absorber with Teflon water seals, high speed bearings, stainless trunnion and backing plate and aluminum bronze rotor - low inertia design for precise control, 15,000 RPM, 1,500 hp (1,119 kW)
82.	Portable welding plant	1.Suitable for welding aluminum and aluminum alloy 2.Toshiba Mosfet 3.CE,CCC approval 4.Could work with foot pedal
83.	Digital grain moisture meter	Meaning:Pin Type Specifications:Wood Up to 150 Species Measuring Range: 0~80 % Accuracy:+/-(0.5%n+0.5)
84.	Digital Anemometer	
85.	Digital hygrometer	Portable Digital Thermometer Hygrometer LCD display of industrial grade Wide measuring range high measurement accuracy
86.	Pyranometer	Spectral range: 400 to 1100 nm Sensitivity: 60 to 100 $\mu\text{V/W/m}^2$ Response time SP Lite2 (95%): < 500 ns Directional error (up to 80° with 1000 W/m ² beam): < 10 W/m ² Temperature response: < -0.15 %/°C
87.	Wireless Presenter	Logitech, Model r800 OR Equivalent
88.	Motorized Air Pump	Motor:2.5 HP, tank:300 Ibs and air gauge
89.	Digital microscope camera	Captures 5.0MP (2580X1944) high resolution fluorescence microscopy images Advanced editing, processing measuring software High quality print imaging in BMP, TIFF, JPG and other formats Compatible with Windows 2000/XP/Vista/7 Compatible with Twain, DirectShow, Amcap, Minisee other third-party software AMSCOPE MD800 C OR Equivalent
90.	Compound Microscope	Inclined Binocular body, 360° rotatable head, Eyepieces-Highest quality 10 X eyepiece, Objectives-Parfocal, 4x, 10x, 40x and 100x (oil immersion) IRMECO, LABOMED or Equivalent
91.	Stereomicroscope	Trinocular Head, Zoom Objective: 0.8 x -5x, Zoom Ratio: 6.3:1, Working Distance: 115mm, IRMECO OR Equivalent
92.	Micropipette Set	Single-channel adjustable micropipette set including following measurement ranges: 5. 0.2 ul- 2 ul 6. 2 - 20 ul 7. 20-200 ul 8. 200-1000 ul GILSON OR Equivalent
93.	Centrifuge Machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
94.	McMaster Chamber	Grid size: 1 cm x 1 cm, Volume under grid: 0.15 ml, Color of grid: Engraved, Material Acrylic, Slide dimensions: 2.5 cm x 7.5 cm, Grid Color: Standard Opaque or Green, 2-chamber, with opaque grid, acrylic, Chalex Corporation USA OR Equivalent

95.	Micrometer	<p>A Scale formed on a glass disc approximately 15 mm in diameter insect on a metal microscope slide 75 mm x 25 mm x 1 mm. the scale is 1.0 mm long subdivided to 0.01 mm and numbered every tenth line from 0 to 100.</p> <p>Ocular micrometer compatible with all types of research microscopes.</p> <p>National Physical Laboratory, Teddington Middlesex, or Equivalent</p>
96.	Microscope with Camera	<p>Light source: 12 V 100 W halogen bulb (pre-centred)</p> <p>Stage: Scanning stage with ultrasonic: Stage stroke: X: 76 mm x Y: 52 mm, maximum stage movement speed: 30mm/s</p> <p>Plain stage: 232 mm (X) × 240 mm (Y) stage size, stage insert plate exchangeable (ø110 mm)</p> <p>Working distance condenser W.D. 27 mm, NA 0.55, Motorised aperture and polarizer.</p> <p>Fluorescence illuminator: L-shaped fluorescence illuminator with fly-eye lens; Straight design with field iris diaphragm</p> <p>Fluorescence light source: 130 W Halogen light guide illumination; 100 W Hg apo lamp housing and transformer; 100 W Hg lamp housing and transformer; 75 W Xenon lamp housing and transformer.</p> <p>C-mount adapter and bayonet mount adapter.</p> <p>Olympus or equivalent</p> <p>Microscope Digital Camera</p> <p>Camera: Color / Monochrome 2CCD camera Pixel shifting (only for color CCD); Cooling system: Peltier device.</p> <p>Imaging Sensor: 2/3 inch 1.45 mega pixels color CCD, RGB colors on chip filter; 2/3 inch 1.45 mega pixels monochrome CCD.</p> <p>Sensitivity: ISO200/400/800/1600 equivalent</p> <p>Live frame rate: 1360 x 1024 (1x1): 15 fps; 680 x 512 (1x1): 15 fps; 680 x 510 (2x2): 29 fps; 340 x 250 (4x4): 57 fps</p> <p>A/D: 14 bit (Number of effective bit: 12 bits@16 bit mode image)</p>
97.	Water Still	<p>Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0, Resistivity: 0.25 - 0.3 mOhm^{-cm}</p> <p>IRMECO OR Equivalent</p>
98.	Deionizer	<p>Pressure flow rate: 30L/hour, Maximum Inlet Pressure: 0.7 Bars, Maximum Temperature: 35 °C, Purity: 1 MΩ-cm</p> <p>Thermo Scientific™, Bantam™ Deionizer, USA OR Equivalent</p>
99.	Baermann's Apparatus	<p>MEKU Baermann Funnel Station</p> <p>Includes 5 acrylic glass funnels with sieves, filters and test glasses, manual working cycle.</p> <p>Station: 5; Strainer diameter: Ø140/150mm, Höhe 40mm; Mesh width: 1mm; Dimensions: B = 900mm, T = 320mm, H = 530mm; Weight: about 25 kg</p> <ul style="list-style-type: none">- 5 funnels made of acrylic glas with VA end connector and silicon hose drain spouts- 5 inlet washing strainers made of stainless steel with 1mm mesh width- Base frame made of PVC with sealing valve bridge <p>Accessories:</p> <ul style="list-style-type: none">- 5 test tubes Ø15mm- 1 drain hose NW 20- Round filter paper Ø135mm, Quality 60g/m² <p>MEKU or equivalent</p>

100.	Ten Head Teaching Microscope	<p>Multi-observer Microscope BX53</p> <p>Optical system: UIS2 optical system</p> <p>Focus: Coaxial coarse and fine focus with stage up and down mechanism; Focus stroke 25 mm; Coarse stroke 15 mm/rotation; Fine stroke 100 µm/rotation; Graduation on fine focus 1 µm</p> <p>Illuminator: Built-in Koehler illumination for transmitted light; Light intensity LED indicator, Built-in filters (LBD-IF, ND6, ND25) 12 V, 100 W halogen bulb</p> <p>Observation tube: Widefield tilting, telescopic and lifting binocular, inclined -3°-27°; Widefield tilting trinocular, inclined 5°-35°; Widefield trinocular, inclined 30°; Widefield erect image trinocular, inclined 30°; Widefield tilting binocular, inclined 5°-35°; Widefield ergo binocular, inclined 0°-25°; Widefield binocular, inclined 30°; Super widefield trinocular, inclined 24°; Super widefield erect image trinocular, inclined 24°.</p> <p>Stage: Ceramic-coated coaxial stage with left/right hand low drive control.</p> <p>Condenser: Swing out achromatic condenser (N.A. 0.9), for 1.25x-100x (swing-out: 1.25x-4x); Achromatic aplanatic condenser; Phase contrast, darkfield condenser; Universal condenser; Low magnification condenser; Ultra low magnification condenser; Darkfield dry condenser; Darkfield oil condenser; Motorized universal condenser.</p> <p>Fluorescence illuminator: Manual reflected fluorescence, 8-position mirror turret unit, encoded with tool-free exchange of filter cubes</p> <p>Fluorescence light source: 100 W Hg apo lamp housing and transformer; 100 W Hg lamp housing and transformer; 75 W Xe lamp housing and transformer; Fibre coupled metal-halide light sources; Fibre coupled LED light source</p> <p>Controller: Optional: Control box for semi-motorised setups.</p> <p>Olympus Or equivalent</p>
101.	Pipette Set	<p>Single-channel adjustable micropipette set including following measurement ranges:</p> <ol style="list-style-type: none"> 1. 0.2 ul- 2 ul 2. 2 - 20 ul 3. 20-200 ul 4. 200-1000 ul <p>GILSON OR Equivalent</p>
102.	Triple beam balance	Ohaus Model720-SO, America
103.	Binocular Microscope	<p>Inclined Binocular body, 360° rotatable head, Eyepieces-Highest quality 10 X eyepiece, Objectives-Parfocal, 4x, 10x, 40x and 100x (oil immersion)</p> <p>Irmeco or Equivalent</p>
104.	Water Bath	<p>Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity: 10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz</p> <p>WITEG OR Equivalent</p>
105.	Centrifuge Machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
106.	Top loading balance	<p>Max. Weight: 2200g, Readability: 0.01g</p> <p>SHIMADZU OR Equivalent</p>
107.	Furnace (small)	TPS™ Model 55342 Pakistan OR Equivalent
108.	Mechanical Stirrer	<p>Stirring volume for water up to 25 Lit.,</p> <p>Speed range 50 – 2000rpm</p> <p>Viscosity: up to 25,000 mPa*s</p> <p>maximum shaft diameter, 8.5mm</p> <p>complete with propeller and stand, operated on 220 Volts</p> <p>HEIDOLPH OR Equivalent</p>

109.	Water still	Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0, Resistivity: 0.25 - 0.3 mOhm ^{cm} IRMECO OR Equivalent
110.	Micrometer	IHS,USA OR Equivalent
111.	Water Deionizer	Pressure flow rate: 30L/hour, Maximum Inlet Pressure: 0.7 Bars, Maximum Temperature: 35 °C, Purity: 1 MΩ-cm Thermo Scientific™, Bantam™ Deionizer, USA OR Equivalent
112.	Aspirator	Impact® 326/326 M ,America OR Equivalent
113.	Binocular Microscope	Inclined Binocular body, 360° rotatable head, Eyepieces- Highest quality 10 X eyepiece, Objectives-Parfocal, 4x, 10x, 40x and 100x (oil immersion) LABOMED OR Equivalent
114.	Ten Headed Teaching Microscope	OPTIKA B-1000; Product Code: OPB1000-10.OPTIKA OR Equivalent_camera attachment for microscopic photography
115.	Trinocular Microscope	Inclined trinocular body, 360° rotatable head, Eyepieces- Highest quality 10 X eyepiece, Objectives-Parfocal, 4x, 10x, 40x and 100x (oil immersion) LABOMED OR Equivalent
116.	Rotary Microtome	Manual Precision Laboratory Cutting Tool with disposal blade holder and 100 blades DUPONT SORVALL OR Equivalent
117.	Digital Microscope	Leica DVM2500 / Nikon Eclipse Ni-E motorized microscope system OR Equivalent
118.	Water Bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity:10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz WITEG OR Equivalent
119.	Micropipette	Single-channel adjustable micropipette set including following measurement ranges: 1. 0.2 ul- 2 ul 2. 2 - 20 ul 3. 20-200 ul 4. 200-1000 ul GILSON OR Equivalent
120.	Multi-channel (8 channels) Micropipette	Autoclave-able with variable volume (1-10μl; 10-100μl; 20-200μl)
121.	Multi-channel (12 channels) Micropipette	Autoclave-able with variable volume (1-10μl; 10-100μl; 20-200μl)
122.	Veterinary Patient Monitor	CM 8000,-VET CONTEC, China OR Equivalent
123.	Milk Somatic Cell Counter	Nucleo Counter SCC-100,Italy Option: Delavel Somatic Cell counter
124.	Veterinary Endoscope-laparoscope	YKD-9006,IKEDA,China OR Equivalent
125.	Oxygen Concentrator	Longfei,LFY-1-5A, China OR Equivalent
126.	Veterinary Laser Surgery Unit	CL-20, knife, Sunny, China OR Equivalent
127.	Fiber Optic Ophthalmoscope	GSR-12, GaoDIn, China OR Equivalent
128.	Fiber optic Oscope	MEI 5003,China OR Equivalent
129.	Research Micro-scope	(with Digital Camera) Olympus Japan
130.	McMaster Counting Chamber	Grid size: 1 cm x 1 cm, Volume under grid: 0.15 ml, Color of grid: Engraved, Material Acrylic, Slide dimensions: 2.5 cm x 7.5 cm, Grid Color: Standard Opaque or Green, 2-chamber, with opaque grid, acrylic,

		Chalex Corporation USA OR Equivalent
131.	Computer- Assisted Semen Analysis (CASA) System with standard accessories.	Jiangsu Jia Hua Electronic Instrument Co., Ltd, CHINA OR Equivalent
132.	Linear- array Ultrasound probe for Trans-rectal use in large animals	0.5 MHz/38 mm
133.	Linear-array Ultrasound probe for Trans-rectal use in small animals	Dogs & Cats; 7.5 MHz/38mm
134.	Linear-array Ultrasound probe for Trans-rectal use in sheep and goats	7.5 MHz/64 mm
135.	Muffle Furnace	Small Benchtop; 100 to 1100°C; Single set point; 0.04 cu. ft.; 120V 50/60Hz, 8.8A, 1060w THOMAS SCIENTIFIC OR Equivalent
136.	Water Bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity:10, VAC/Frequency: 110/220V, 60/50 Hz WITEG OR Equivalent
137.	Lab Oven	Temperature range: 50°C to 200°C and accuracy: ±2°C., Capacity: up to 6 Cubic Feet, Pressure Range: 479 psi and up, External Configuration: Front Load
138.	Hot plate with magnetic stirrer	Temperature Range: Ambient to 280°C, Speed Range: 100 to 1000 rpm, Heating Rate: 6K/min, Motor Type: DC, Stirring Capacity: upto 1000 mL, Plate Diameter: 5.3", Voltage: 110V, 60Hz, 515W HEIDOLPH OR Equivalent
139.	Gerber Machine	For the determination of fat contents of milk, 12 tubes, Gerber Germany OR Equivalent
140.	Test Tube Shaker	For mixing the samples VM10 Korea, OR Equivalent
141.	Top loading Balance	Range: 0.1g – 6kg Yamato Japan OR Equivalent
142.	pH Meter	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100°C. HANNA OR Equivalent
143.	Vacuum Desiccators	Weight: 46.0 lbs, Weight metric: 21.0 kg, Dimensions: 17" w x 13.5" d x 15.38" h, Dimensions metric: 43 x 34 x 39 cm, Application: Drying and storage
144.	Debeaker	Equipment used for debeaking of chicks to avoid cannibalism in chicks Lyon Incorporation USA OR Equivalent
145.	Debeaker blades	Blades are used to cut the beak of the chicks by the debeaker machine Lyon Incorporation USA OR Equivalent
146.	Multimeter	Four in one meter (light, velocity, relative humidity, temperature) Model : LM-8000
147.	Static pressure meter	Capacity 100 kPa
148.	Instant temperature meter	Ragne -05 to + 150 °C The equipment required for measuring temperature
149.	Top loading balance	Capacity : 5, 10, 50 kg Salter Company OR Equivalent
150.	Automatic Syringe	Single shot , Capacity : 1.0 ml Socorex OR Equivalent
151.	Automatic Syringe	Double shot , Capacity : 1.0 ml Socorex OR Equivalent

152.	Postmortem / dissection table	6 x 4 feet For postmortem of birds for diagnoses and disease prevention
153.	Compound Microscope	Inclined Binocular body, 360° rotatable head, Eyepieces- Highest quality 10 X eyepiece, Objectives-Parfocal, 4x, 10x, 40x and 100x (oil immersion) IRMECO, LABOMED or Equivalent
154.	Centrifuge Machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
155.	pH Meter	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100°C. HANNA OR Equivalent
156.	Clinometer	Clinometer PM-5/360PC, Percent and Degrees SUUNTO OR Equivalent
157.	Tree Diameter Caliper	
158.	Rotary Microtome	Manual Precision Laboratory Cutting Tool with disposal blade holder and 100 blades DUPONT SORVALL OR Equivalent
159.	pH meter	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100oC. HANNA OR Equivalent
160.	Mini Vortex mixer	Speed: up to 3200rpm With both a cup head and 3-inch head with cover TALBSYS OR Equivalent
161.	Centrifuge Machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
162.	Water bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity:10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz WITEG OR Equivalent
163.	Hot Air Oven	Temperature range: 50°C to 200°C and accuracy: ±2°C., Capacity: up to 6 Cubic Feet, Pressure Range: 479 psi and up, External Configuration: Front Load MAMMERT OR Equivalent
164.	Water Still	Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0, Resistivity: 0.25 - 0.3 mOhm ^{-cm} IRMECO OR Equivalent
165.	Hot Plate with Magnetic Stirrer	Temperature Range: Ambient to 280°C, Speed Range: 100 to 1000 rpm, Heating Rate: 6K/min, Motor Type: DC, Stirring Capacity: upto 1000 mL, Plate Diameter: 5.3", Voltage: 110V, 60Hz, 515W HEIDOLPH OR Equivalent
166.	Water Bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity:10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz WITEG OR Equivalent
167.	pH Meter	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100oC. HANNA OR Equivalent
168.	Water Still	Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0, Resistivity: 0.25 - 0.3 mOhm ^{-cm} IRMECO OR Equivalent
169.	Top Loading Balance	Max. Weight: 2200g, Readability: 0.01g SHIMADZU/Equivalent
170.	Hot Plate with Magnetic Stirrer	Temperature Range: Ambient to 280°C, Speed Range: 100 to 1000 rpm, Heating Rate: 6K/min, Motor Type: DC, Stirring Capacity: upto 1000 mL, Plate Diameter: 5.3", Voltage: 110V, 60Hz, 515W HEIDOLPH OR Equivalent

171.	Vacuum Pump with Filtration Assembly	Horse Power: 1/8 HP Max Vacuum: 25" Hg Max Pressure: 80 psi Type: Piston, oil-free Max Flow Rate: 20 LPM (0.7 CFM) Noise: 50 dB STERLITECH OR Equivalent
172.	Overhead Mechanical Stirrer	Stirring volume for water up to 25 Lit., Speed range 50 – 2000rpm Viscosity: up to 25,000 mPa*s maximum shaft diameter, 8.5mm complete with propeller and stand, operated on 220 Volts HEIDOLPH OR Equivalent
173.	Centrifuge Machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
174.	Hot Air Oven	Temperature range: 50°C to 200°C and accuracy: $\pm 2^\circ\text{C}$., Capacity: up to 6 Cubic Feet, Pressure Range: 479 psi and up, External Configuration: Front Load MAMMERT OR Equivalent
175.	Muffle Furnace (Small)	Small Benchtop; 100 to 1100°C; Single set point; 0.04 cu. ft.; 120V 50/60Hz, 8.8A, 1060w THOMAS SCIENTIFIC OR Equivalent
176.	Conductivity/TDS Meter	Portable Measuring Range: 0.00 – 500 $\mu\text{S}/\text{cm}$ HANNA OR Equivalent
177.	Rotary Evaporator	Rotary Evaporator 0.25-2L, 0-120rpm, 0-99°C, Digital Display Manual Lifting HYDRION SCIENTIFIC OR equivalent
178.	Digital Polarimeter	Automatic with multiple wavelengths, measurement range: - 259 to +259°, Angle of Rotation 0.001° International Sugar Scale 0.001°Z, Repeatability $\pm 0.003^\circ$ Angle of Rotation and $\pm 0.009^\circ\text{Z}$
179.	Flame Photometer	Range: 0.2 ppm for Na and K, 0.25 ppm for Li, 15 ppm for Ca, 30 ppm for Ba. Reproducibility: 1 % CV for 20 consecutive samples, Reading time: 20 seconds Interference: Less than 5 % Sample input: 2-6 ml/ minute Electric supply: 220 Volts Air Compressor: moisture and oil free Fuel: Natural gas / LPG Operating Environment: 15-35 °C JENWAY OR Equivalent
180.	Micropipette Set	Single-channel adjustable micropipette set including following measurement ranges: 9. 0.2 ul- 2 ul 10. 2 - 20 ul 11. 20-200 ul 12. 200-1000 ul GILSON OR Equivalent
181.	Orbital Shaker	Compact, orbital/linear shakers with ideal shaking motion, for a maximum shaking weight of 3kg speed range of 0-200 rpm THE LAB DEPOT OR Equivalent
182.	TP-Link Switch Hub	24 port, D-Link OR Equivalent
183.	Wireless LAN card	100Mbps, 802.11 a/b/g internal D-Link OR Equivalent

184.	Digital logic design trainer	Fixed DC output : $\pm 5V$, 1A,300mA, Variable DC output : 0V ~ $\pm 15V$, 500mA , Frequency ranges : 1 Hz ~ 100kHz, Eight bits data switches, Two digits of segment LED display,8 bits LED display, Two pulse switch Model- (ETS-7000A) (K&H MFG. CO., LTD.) or equivalent
185.	Digital Oscilloscope	200 MHz, 100 MHz, 70 MHz, 50 MHz bandwidth models,2- and 4-channel models, Up to 2 GS/s sample rate on all channels Model-(TDS2000) (Tektronix)or equivalent
186.	Function generator	Frequency Range : 0.2Hz ~ 2MHz, Waveform : Sine, Triangle, Square, TTL Pulse, Model-(GFG-8020H) (GW Instek) or equivalent
187.	Tool kits	Wire Cutters/Strippers, Shear cutters, safe tweezers, Needle nose pliers, High quality precision screwdriver set etc.
188.	Digital Multimeters	DC Voltage: 200mV/2V/20V/200V/1000V +/- (0.5%+1), AC Voltage: 200mV/2V/20V/200V/750V +/- (0.8%+3), DC Current: 2mA/20mA/200mA/20A +/- (0.8%+1), AC Current: 20mA/200mA/20A +/- (1%+3), Resistance: 200ohm/2kohm/20kohm/200kohm/2Mohm/20Mohm/200Mohm +/- (0.8%+1), Capacitance: 2nF/20nF/200nF/2F/20F +/- (4%+3), Temperature: -40'C1000'C +/- (1%+3), Model-(UNI-T UT53) (Uni-Trend Technology Limited) or equivalent
189.	Bread boards	grid contacts 1/10 inch-square, 75-900 connection points arranged in column of 10 separated by a center median, rated at 5V at 1A.
190.	Gas flow meters for hydrogen, argon and ethylene	Matheson model 7642T w/610 (tube size 610A with glass float) or equivalent Acrylic Flowmeter, 50 mm Scale, 0.04-0.5 LPM, Cole Parmer product # RK-32457-40 or equivalent 150 mm, variable area, tube # 4, 0.234-4.64 slpm air, 200 psig, glass tube, glass floats, aluminum end blocks, viton seals, high resolution valve, 1/8 inch fpt inlet, 1/8 inch fpt outlet, ProStarflow meter (Praxair product # PRS-FM-150) or equivalent
191.	DC power supplies	DC output: 0 – 20 V, 0 – 5 A, Output power: 100 W, Model-(U33020) (3B Scientific) or equivalent
192.	Muffle furnace	Small Benchtop; 100 to 1100°C; Single set point; 0.04 cu. ft.; 120V 50/60Hz, 8.8A, 1060w THOMAS SCIENTIFIC OR Equivalent
193.	Magnetic flux meter	Range: 0-2 Tesla, accuracy: +/- 3%, Can be used with all magnetization techniques including permanent magnets, AC magnets, current cables, current probes
194.	Water bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity:10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz WITEG OR Equivalent
195.	Michelson interferometer with micrometer and all accessories	Base with built-in micrometer, Adjustable Mirror, Movable Mirror, Beam Splitter, Compensator Plate, Component Holder, Viewing Screen, Lens18 mm Focal Length, Diffuser, Fitted Storage Case
196.	Teflon lined stainless steel autoclave	Volume: 200mL, Operation pressure: 3MPa, Operation temperature: 220°C.
197.	Lux meter	2000/20000/200000 Lux (3 ranges), 200/2000/20000FC, Resolution:1 LuX/0.01Fc, Accuracy : 10,000 Iux) \pm 5 % rdg \pm 10 dgts (> 10 , 000 Iux), sensor (Exclusive photo diode & color correction filter, spectrum designed to meet C. I. E.), availability of zero adjustment option

198.	Laser diodes	<ul style="list-style-type: none"> wavelengths 635 nm, power 10mW (Model Hitachi HL 6320G Thorlabs or equivalent) wavelength 670 nm, power 7mW (Model Sanyo DL3149-057 Thorlabs or equivalent) wavelength 780 nm, power 10mW (Model Thorlabs L780P010 Thorlabs or equivalent) wavelength 830 nm, power 40mW (Model Sanyo DL5032-001 Thorlabs or equivalent) wavelength 980 nm, power 100mW (Model Thorlabs L980P100 Thorlabs or equivalent)
199.	Conductivity meter	Portable Measuring Range: 0.00 – 500 μ S/cm HANNA OR Equivalent
200.	pH meter	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100oC. HANNA OR Equivalent
201.	Pyranometer	Spectral range 285nm-3000nm, operating temp -40°C-80°C
202.	He-Ne Laser 17 mW	Polarization: 500:1, L = 26.00", 1/e ² beam diameter 0.98 mm, beam divergence 0.82 mrad, longitudinal mode spacing 252 MHz.
203.	Keithley Source meter	20W power instrument that sources and measures voltage from $\pm 5\mu$ V (source) and $\pm 1\mu$ V (measure) to ± 1100 V and current from ± 10 pA to ± 1 A(Keithley 2410 or equivalent)
204.	Stereomicroscope	Trinocular Head, Zoom Objective: 0.8 x -5x, Zoom Ratio: 6.3:1, Working Distance: 115mm, IRMECO OR Equivalent
205.	Centrifuge Machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
206.	Horizontal mini gel electrophoresis with compatible power supply	Cell size: (W x L x H) 9.2 x 25.5 x 5.6 cm Gel tray sizes (W x L) 7 x 7 cm and 7 x 10 cm. Sample throughput: 8-30 in number Buffer base volume: approximately 250-70 MI
207.	Vertical mini gel electrophoresis with compatible power supply	Capacity: 1-4 gel at a time. Total buffer volume for 2-4 gel: 800- 1000 mL Dimension of the system: 12 x 16 x 18 cm. Voltage: ~220 volts BIO-RAD OR Equivalent
208.	Micropipettes sets	Single-channel adjustable micropipette set including following measurement ranges: <ol style="list-style-type: none"> 0.2 ul- 2 ul 2 - 20 ul 20-200 ul 200-1000 ul GILSON OR Equivalent

209.	PCR Thermal Cycler	<p>Block materials: 2 x independent 48 well blocks: modular nickel plated anodized aluminum blocks with 4 peltier heat modules and 2 thermistor sensors per block.</p> <p>Traceability: NIST traceable temperature calibration</p> <p>Blocks available: 2 x 48 well gradient block for 48 x 0.2 ml) tubes or strips (8x6 format)</p> <p>Temperature range: 4C-99C</p> <p>Temperature control: Calculated mode with plate and tube control algorithms.</p> <p>Block accuracy: $\pm 0.4^{\circ}\text{C}$ (20-99C), Block homogeneity: $\pm 0.4^{\circ}\text{C}$</p> <p>Vol. range: 2-150ul, Ramp rate: Up to 3 $^{\circ}\text{C/s}$</p> <p>Gradient temp range: 30-80C, Max/min gradient span: 30C/4C</p> <p>Sample-overshoot: $<1^{\circ}\text{C}$, Sensor temp.: $\pm 0.1^{\circ}\text{C}$</p> <p>Regulation accuracy, Lid temp. 112C</p> <p>Lid Pressure: Spring loaded</p> <p>Screen type: 8.4 inch TFT color VGA touch-screen (Stylus supplied). Suitable for ball-pen or finger use)</p> <p>Data input: Touch-screen, external keyboard and mouse (USB) (Optional)</p> <p>Temp. Display: Real-time graphical display of actual block temp. Communication: 1xUSB</p> <p>Program storage: Circa 1000 (internal memory)</p> <p>Electronic power: 220v, 50Hz</p> <p>Maximum power: 425 watts, Regulatory: CE compliant</p> <p>G-STORM OR Equivalent</p>
210.	Flame Photometer	<p>Range: 0.2 ppm for Na and K, 0.25 ppm for Li, 15 ppm for Ca, 30 ppm for Ba.</p> <p>Reproducibility: 1 % CV for 20 consecutive samples,</p> <p>Reading time: 20 seconds</p> <p>Interference: Less than 5 %</p> <p>Sample input: 2-6 ml/ minute</p> <p>Electric supply: 220 Volts</p> <p>Air Compressor: moisture and oil free</p> <p>Fuel: Natural gas / LPG</p> <p>Operating Environment: 15-35 $^{\circ}\text{C}$</p> <p>JENWAY OR Equivalent</p>
211.	UV-Vis Spectrophotometer	<p>Range: 190 - 1100 n. m.</p> <p>Spectral band width: 1 n. m.</p> <p>Wavelength display: 0.1 n. m. Increments</p> <p>Repeatability: ± 0.1 n. m.</p> <p>Accuracy: ± 0.002-0.006 abs</p> <p>Ccil OR Equivalent</p>
212.	Water Still	<p>Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0, Resistivity: 0.25 - 0.3 $\text{mOhm}^{-\text{cm}}$</p> <p>IRMECO OR Equivalent</p>
213.	Top Loading Balance	<p>Max. Weight: 2200g, Readability: 0.01g</p> <p>SHIMADZU OR Equivalent</p>
214.	pH meter	<p>Portable</p> <p>Range: 0.00 – 14.00 units, Temperature: 0 - 100$^{\circ}\text{C}$.</p> <p>HANNA OR Equivalent</p>
215.	Hot air oven	<p>Temperature range: 50$^{\circ}\text{C}$ to 200$^{\circ}\text{C}$ and accuracy: $\pm 2^{\circ}\text{C}$.,</p> <p>Capacity: up to 6 Cubic Feet, Pressure Range: 479 psi and up,</p> <p>External Configuration: Front Load</p>
216.	Muffle furnace	<p>Small Benchtop; 100 to 1100$^{\circ}\text{C}$; Single set point; 0.04 cu. ft.;</p> <p>120V 50/60Hz, 8.8A, 1060w</p> <p>THOMAS SCIENTIFIC OR Equivalent</p>

217.	Micropipette sets	Single-channel adjustable micropipette set including following measurement ranges: 1. 0.2 ul- 2 ul 2. 2 - 20 ul 3. 20-200 ul 4. 200-1000 ul GILSON OR Equivalent
218.	Glass plates & comb	For mini protean 3, Biorad System, spacer plates and glass plates sets, Comb for gel thickness (0.75,1.0, & 1.5 mm) as 5, 9, 10 and 15 wells formats
219.	Butyrometer	Borosilicate glass material having expansion 3.3×10^{-7} / oc, 0.5% accuracy, 11mL capacity
220.	Heavy duty blender	38,000 rpm speed, 100V~220V, 1.85L Capacity, polycarbonate Container
221.	Industrial grinder for cereals	220V, 3.0KW, 45~75 kg/Hr capacity
222.	Air compressor	Max working pressure (10 barr), 1.18 L/sec air flow, noiseless
223.	Hand refractometer set	0-100% brix measurement range,0.1 % brix accuracy, 0.1 % brix scale division, optical glass Prism material, stainless steel sample dish
224.	Vacuum pump	15milli torr pressure, 1725 rpm speed
225.	Water bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity:10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz WITEG/Equivalent
226.	Colorimeter	400 to 700nm wavelength, 0.01Abs & 0.1 to 1% concentration resolution, Tungsten filament lamp light source, 0.1cal detectability limit, 2-1000cal energy measurement range, 5sample/sec, borosilicate cuvette
227.	Rotary evaporator	Rotary Evaporator 0.25-2L,0-120rpm,0-99°C,Digital Display Manual Lifting HYDRION SCIENTIFIC OR equivalent
228.	Ripening chamber for fruits	Cold-roll steel sheets, Stainless Steel 304 material, 220 V, temperature & gas (ethylene) controlled
229.	Orbital shaker	75-250 rpm speed, 28 - 99.9°C temperature range, 0.01°C Temperature resolution, digital display, Microprocessor control, branded
230.	Hot plate with magnetic stirrer	Temperature Range: Ambient to 280°C, Speed Range: 100 to 1000 rpm, Heating Rate: 6K/min, Motor Type: DC, Stirring Capacity: upto 1000 mL, Plate Diameter: 5.3", Voltage: 110V, 60Hz, 515W HEIDOLPH OR Equivalent
231.	Centrifuge machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
232.	Colony counter	110/240 V power requirement, resolution of smallest detectable colony better than 0.3 mm diameter on 90mm plates, can measure up to 500 colonies per second, digital display
233.	Hot plate with heating element set	125 x125" size, non metallic Ceramic Surface, with 6 flasks capacity, Temperature Range: 30 to 400 °C, Indicator light required
234.	Hydro distillation apparatus	Valotile separation. Complete assembly. Operated at 220v.
235.	Mini Vortex Mixer	Speed: up to 3200rpm With both a cup head and 3-inch head with cover TALBSYS/Equivalent
236.	Penetrating temperature sticks	Temp range 50-350°C±1°C accuracy, LCD display, with battery
237.	Water activity meter	0.03-1.00 range, read time <5 min, resolution 0.0001, accuracy ±0.013, digital display, microprocessor control

238.	Hemoglobin meter	5-25mg/dL range, portable, auto calibration, LED display, 1 ml sample volume, Tungsten Lamp, battery
239.	Weighing scales (Digital)	Range: 1g-125kg, microprocessor control, LED display
240.	Water Still	Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0, Resistivity: 0.25 - 0.3 mOhm ^{-cm} IRMECO OR Equivalent
241.	Collar Microphone	Local, Frequency response: 50 - 15000Hz, 3.5mm 3-pole jack
242.	Micropipette Set	Single-channel adjustable micropipette set including following measurement ranges: 1. 0.2 ul- 2 ul 2. 2 - 20 ul 3. 20-200 ul 4. 200-1000 ul GILSON OR Equivalent
243.	Water Still	Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0, Resistivity: 0.25 - 0.3 mOhm ^{-cm} IRMECO OR Equivalent
244.	Water Deionizer	Pressure flow rate: 30L/hour, Maximum Inlet Pressure: 0.7 Bars, Maximum Temperature: 35 °C, Purity: 1 MΩ-cm
245.	Autoclave Vertical	Capacity 25 Lit interior chamber ALP OR Equivalent
246.	Hot Air Oven	Temperature range: 50°C to 200°C and accuracy: $\pm 2^\circ\text{C}$., Capacity: up to 6 Cubic Feet, Pressure Range: 479 psi and up, External Configuration: Front Load
247.	Binocular Microscope	Inclined Binocular body, 360° rotatable head, Eyepieces- Highest quality 10 X eyepiece, Objectives-Parfocal, 4x, 10x, 40x and 100x (oil immersion) LABOMED OR Equivalent
248.	Water Bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity: 10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz WITEG/Equivalent
249.	Centrifuge Machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
250.	Hot Plate with Magnetic Stirrer	Temperature Range: Ambient to 280°C, Speed Range: 100 to 1000 rpm, Heating Rate: 6K/min, Motor Type: DC, Stirring Capacity: upto 1000 mL, Plate Diameter: 5.3", Voltage: 110V, 60Hz, 515W HEIDOLPH OR Equivalent
251.	Mini vortex Mixer	Speed: up to 3200rpm With both a cup head and 3-inch head with cover TALBSYS/Equivalent
252.	Cordless Microphone Collar	Cordless Collar MIC Transmitter Cordless Microphone with Receiver
253.	Hot plate	6 plate unit local made 220 volt, 750 watt/each heater size 30"*9"*7" Pakistan
254.	BMD Ultrasound machine	Sonost 3000, South Korea OR Equivalent
255.	Martindale Abrasian	Model no. TSE A012 Usage: Abrasion Tester Brand name: TST Instrument , China OR Equivalent
256.	Pick counter	Model No: DW512A, Brand name: FY1 Power: electronics Digital Pick Counter Hong Kong OR Equivalent
257.	View logic box color shade matching box	Model No: HTL002 Textile Testing Instrument, Trade Mark: Tony, China OR Equivalent
258.	Washing Machine Colour Fastness to washing	Model no. TSA 008, Range Textile Material, Trade Mark: TST, China OR Equivalent

259.	Crease recovery tester.	Model No: TF 110A, China OR Equivalent
260.	Top loading balance	Mettler Toledo CR 4.1 KG X 0.1g-1ea Switzerland OR Equivalent
261.	SSIS-Performance Screening Guide	Pre-school 14051 USA OR Equivalent
262.	SSIS-Performance Screening Guide	Elementry 14053 USA OR Equivalent
263.	Potters Wheel	Manual Steel Body Pakistan
264.	Flame Photometer	Range: 0.2 ppm for Na and K, 0.25 ppm for Li, 15 ppm for Ca, 30 ppm for Ba. Reproducibility: 1 % CV for 20 consecutive samples, Reading time: 20 seconds Interference: Less than 5 % Sample input: 2-6 ml/ minute Electric supply: 220 Volts Air Compressor: moisture and oil free Fuel: Natural gas / LPG Operating Environment: 15-35 °C JENWAY OR Equivalent
265.	Stereomicroscope	Trinocular Head, Zoom Objective: 0.8 x -5x, Zoom Ratio: 6.3:1, Working Distance: 115mm, IRMECO OR Equivalent
266.	Rotary Evaporator	Rotary Evaporator 0.25-2L,0-120rpm,0-99°C,Digital Display Manual Lifting HYDRION SCIENTIFIC OR equivalent
267.	Analytical balance	Max. Weight: 2200g, Readability: 0.01g SHIMADZU OR Equivalent
268.	Hot Plate	Automatic reversal, Speed up to 1200 rpm, Stirring capacity of 15 Liter, Maximum temperature of 370 °C, Operated on 220 V
269.	pH Meter	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100°C. HANNA OR Equivalent
270.	Mini vortex Mixer	Speed: up to 3200rpm With both a cup head and 3-inch head with cover TALBSYS/Equivalent
271.	Gel Electrophoresis systems with Power Supply	Cell size: (W x L x H) 9.2 x 25.5 x 5.6 cm Gel tray sizes (W x L) 7 x 7 cm and 7 x 10 cm. Sample throughput: 8-30 in number Buffer base volume: approximately 250-70 MI
272.	Centrifuge Machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
273.	Micropipette set	Single-channel adjustable micropipette set including following measurement ranges: 1. 0.2 ul- 2 ul 2. 2 - 20 ul 3. 20-200 ul 4. 200-1000 ul GILSON OR Equivalent
274.	Water Still	Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0, Resistivity: 0.25 - 0.3 mOhm ^{-cm} IRMECO OR Equivalent
275.	Culture Cabinet	Exhaust air should be double-filtered through high-quality HEPA filters with typical efficiency of >99.999% for 0.1 to 0.3 micron particles. Exclusive dual exhaust filters providing >100,000 times better protection. Antimicrobial surface on all painted surfaces with minimum contamination. STREAMLINE, Singapore OR Equivalent
276.	Long-wave Handheld UV lamp	UV lamp of 300-400nm wavelength radiations

277.	Hot air oven	Temperature range: 50°C to 200°C and accuracy: ±2°C., Capacity: up to 6 Cubic Feet, Pressure Range: 479 psi and up, External Configuration: Front Load
278.	Microtome blades	Lipshaw Microtome knife blade, Germany 770-180 120mm

279.	Microtitration plate washer	HydroSpeed™ OR Equivalent Tecan
280.	Staining stand	Wheaton® Staining Dishes, Ted Pella OR Equivalent
281.	Air velocity meter	Handheld environmental meter (Omega) HHEM-SD1 series OR Equivalent
282.	Hygrometer	Meade TM005X-M Wireless Indoor/Outdoor Thermo Hygrometer by Meade OR Equivalent
283.	Egg Candler	Hi-Intensity Egg Candler, 120V-AC 50/60 HZ Catalog #: 950-076 OR Equivalent
284.	Weighing balance	Single and dual-interval checkout scales Ariva-s OR Equivalent
285.	Thermostablizer	Tokihit 4-50C OR Equivalent
286.	Electric fumigation gun	RPF/10/SP OR Equivalent

Section “B”

TEACHING AID EQUIPMENT

Sr. #	Item	Specifications	Qty.
1	Refrigerator (Local)	16 Cubic Feet HAIER OR Equivalent	6 Nos.
2	Multimedia Projector with Screen	LCD Panels: 0.75”x3 Bright ERA ICD Brightness: 3800 Lumens Resolution: WXGA upto UXGA (1600x1200) Aspect Ratio: 16:10 Contrast Ratio: 3700:1 (Full white/full black) Lamp Life: 10000H Eco Mode Throw Ratio: 1.10:1 to 1.79:1 Keystone correction: Max. vertical: ±20 Screen Size: 30” to 300” Filter Cleaning Cycle: Max 7000 Hours LAN: RJ-45 10BASE-T/100BASE-TX Interface, HDMI, USB A Type (Controlling the projector) USB B Type for PC Less presentation USB Viewer Plug & Play: Movie, Photo, Office File Remote Control Speaker: 16Wx1, Weight: 4.1kg/9 ib 1 oz Celing Mount Kit (2 Ft Height) Hashmo H2O Carrying Case with installation <u>Optional</u> - Wall Mount Motorizes Screen 8x10 ft - Tripod Screen with Stand 8x10 ft - VGA Cable 15Meter - HDMI Cable 15 Meter - Audio Video Cable 15 Meter - Power Cable 5M	23 Nos.
3	Multimedia Projector with screen	Power consumption (operating), Brightness 3,000 ANSI, Contrast17,000 : 1 Resolution : 800x600 (SVGA), with remote control	1 No.
4	Sound system with accessories	Amplifier TOA 2120 (3 Channel/Phone Output) Speaker TOA BS 1030 Color Mike SGDR (China) Mike for dice, Universal Gooseneck Base of Mike Wire of Speaker 23/76 (2 Core) along with complete Installation	6 Nos.
5	Laserjet printer	3 in 1 HP OR Equivalent	7 Nos.
6	Digital camera	Mega Pixel: 16.2, Optical Zoom: 8X, Digital Zoom: 32X SONY OR Equivalent	1 No.
7	Video Camera (small)	Canon Legria Camcorder HF R47 OR Equivalent	1 No.

Section VII.

Technical Specifications

TECHNICAL SPECIFICATIONS

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

TEACHING AID EQUIPMENT

Section “A”

Sr.#	Item	Specification
10.	pH meter	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100°C. HANNA OR Equivalent
11.	EC/TDS meter	Portable Measuring Range: 0.00 – 500 µS/cm HANNA OR Equivalent
12.	Dissolved Oxygen Meter	Range of dissolved oxygen measurement: 0-50mg/L, Temperature: 5.0 - 55°C, Temperature Compensation HANNA OR Equivalent
13.	Soil Sampling Kit	<ul style="list-style-type: none">• Complete set made of USA• AMS Basic Soil Sampling Kit with all accessories Sampler Set for hard Soil along with Soil Sampling Kit Core Samplers Deep Soil Sampling system Lord Soil Sampler
14.	Water bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity:10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz WITEG OR Equivalent
15.	Scrubber for digestion hood	Behrosog suction system (Heavy Duty Scrubber) precipitator plus safety back up stage ensure environment free of acid vapours. The Centrifugal suction washer in the compact process suction system extracts aggressive acid vapours during the digestion and upstream series connected two stage precipitator washes out and separate the noxious contents, complete set Behr
16.	Hot Plate with Magnetic Stirrer	Temperature Range: Ambient to 280°C, Speed Range: 100 to 1000 rpm, Heating Rate: 6K/min, Motor Type: DC, Stirring Capacity: upto 1000 mL, Plate Diameter: 5.3", Voltage: 110V, 60Hz, 515W HEIDOLPH OR Equivalent
17.	Global Positioning System (GPS)	<ul style="list-style-type: none">• 3 axis electronic compasses• 4 inch color touch screen• Preloaded Pak maps• 5MP Camera• Barometric altimeter
18.	Nitrogen Generator	<ul style="list-style-type: none">• Technical Parameter• N2 Flow: 0--500ml/min; Pressure: 0--0.4MPa• N2 purity: 99.99%,PSA technology

10.	Chloride Meter	Sample size 500 uL, Readout range 10 – 999 mg/L and 2-165 mg % salt, accuracy \pm 3mg/Liter at the 200 mg/L Level, reproducibility 1% with built in Data Interface, complete unit with Acid Buffer 500 ml, 200 mg standard 100 ml, 3 anodes set electrodes, 2 marked beakers, electrode cleaning polish stirrer and operational manual, operated on 220 Volts, Model 926MKII Sherwood (Corning) OR equivalent
11.	Chlorophyll Meter (SPAD)	Optical density difference at 2 wavelengths, 2 mm \times 3 mm Measurement area, 1.2 mm maximum Subject thickness, 12 mm Subject insertion depth, 2 LED elements Light source, 1 SPD silicon photodiode Receptor, Operating temperature/humidity range: 0 to 50°C; Relative humidity of 85% or less (at 35°C).
12.	Analytical Balance	Max. Weight: 210g, Readability: 0.001g OHAUS OR Equivalent
13.	Digital EC Meter	Portable Measuring Range: 0.00 – 500 μ S/cm HANNA OR Equivalent
14.	Micropipettes Set	Single-channel adjustable micropipette set including following measurement ranges: 13. 0.2 ul- 2 ul 14. 2 - 20 ul 15. 20-200 ul 16. 200-1000 ul GILSON OR Equivalent
15.	Digital Vernier Caliper	4-20mA, 0-10V process input digital panel meters Most have a 24V excitation output voltage which you can use to power a 2 wire or 3 wire input loop.
16.	Flame Photometer	Range: 0.2 ppm for Na and K, 0.25 ppm for Li, 15 ppm for Ca, 30 ppm for Ba. Reproducibility: 1 % CV for 20 consecutive samples, Reading time: 20 seconds Interference: Less than 5 % Sample input: 2-6 ml/ minute Electric supply: 220 Volts Air Compressor: moisture and oil free Fuel: Natural gas / LPG Operating Environment: 15-35 °C JENWAY OR Equivalent
17.	Mini Horizontal Electrophoresis with Power Supply	Cell size: (W x L x H) 9.2 x 25.5 x 5.6 cm Gel tray sizes (W x L) 7 x 7 cm and 7 x 10 cm. Sample throughput: 8-30 in number Buffer base volume: approximately 250-70 mL BIO-RAD OR Equivalent
18.	Moisture Testing Probe	Handy Moisture Meter. - Grinding Facility to make sample uniform - Auto. Calibration. - No thickness Chart. - Single volume cup - 2 * 16 line Alpha numeric LCD display
19.	Digital Camera for epifluorescence microscope	Captures 5.0MP (2580X1944) high resolution fluorescence microscopy images Includes advanced editing, processing measuring software Supports high quality print imaging in BMP, TIFF, JPG and other formats Compatible with Windows 2000/XP/Vista/7 Compatible with Twain, DirectShow, Amcap, Minisee other third-party software AMSCOPE MD800 C OR Equivalent

20.	pH Meter	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100°C. HANNA OR Equivalent
21.	Seed Germinator	Temperature control range: 5°C to +50°C (light off) +10°C to +50°C (light on) Effective Capacity: 294 litres Internal Dimensions: 520 x 490 x 1135 (mm) Shelves: 4 Air circulation: Forced air circulation Compressor: Hermetic type Temperature Accuracy: ±0.3°C Temperature control: Microprocessor PID and Refrigeration capacity control Lighting range (Adjustable): 0 lx to 20,000 lx Fluorescent lamp 40W x 15, 6 increments (0, 1, 2, 3, 4, 5) Humidity: Ultrasonic humidifier PID control Humidity control range: 60 to 90%RH (+15°C to +45°C and light off) 55 to 85%RH (+15°C to +45°C and light on) Alarms and safety: Temperature alarm, High and low temperature limit, Humidity alarm Complete unit operated on 220 Volts
22.	Digital Top Loading Balance	Max. Weight: 2200g, Readability: 0.01g SHIMADZU OR Equivalent
23.	Mini Vortex Mixer	Speed: up to 3200rpm With both a cup head and 3-inch head with cover TALBSYS OR Equivalent
24.	Water Still	Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0, Resistivity: 0.25 - 0.3 mOhm ^{-cm} IRMECO OR Equivalent
25.	Electrical Conductivity Meter	Portable Measuring Range: 0.00 – 500 $\mu\text{S/cm}$ HANNA OR Equivalent
26.	Mini Grinder	Funel Volume: 300ml, Sieves: 0.2 to 6mm mesh size Grinding attachment: Covertible (Hammed attachment, Cutting attachment) Motor: Wear free three phase motor, Gearless direct drive, Drive Power: 1000W, Speed range: 50 to 6000rpm Sound Level: 70 dB(A) for 6000rpm Complete With device cable, hamme attachment, sieve 2.0mm Tool set, wooden frame with 12 collection tubes. Model PX-MFC 90D, Kinametica OR Equivalent
27.	Sclerometer	11 mm Tip: 0.5 to 25 lb (0.2 to 11 kg) 8 mm Tip: 0.8 to 48 lb (0.4 to 22 kg) Resolution: 0.01 to 22 lb (10 kg); otherwise 0.1Accuracy: ± 1% + 0.1Units: kg, lb, N, Power: Four AAA batteries. Environment: 32°F to 113°F (0 to 45°C); 0 to 90% RHD dimensions: 8.0" x 2.4" x 1.3"Weight: 230 g
28.	Dial Calipers	Range mm:0-200L: 286mma:50mmb: 24mmc: 19.5mmd: 16mm
29.	Micropipette Set	Single-channel adjustable micropipette set including following measurement ranges: 5. 0.2 ul- 2 ul 6. 2 - 20 ul 7. 20-200 ul 8. 200-1000 ul GILSON OR Equivalent
30.	Top Loading Electronic Balance	Electronic Balance digital Top Loading High Resolution type Metal base structure, over load protection, fast response time, Various unit conversions and various functions available as standard Capacity 12kg, Readability 1gm, Pan Size 170x130mm, battery operated as well as operated on 220 volts, SHIMADZUOR Equivalent

31.	Water Bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity:10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz WITEG/Equivalent
32.	Horizontal Gel Electrophoresis with Power Supply	Cell size: (W x L x H) 9.2 x 25.5 x 5.6 cm Gel tray sizes (W x L) 7 x 7 cm and 7 x 10 cm. Sample throughput: 8-30 in number Buffer base volume: approximately 250-70 mL BIO-RAD OR Equivalent
33.	Analytical Balance	Max. Weight: 210g, Readability: 0.001g OHAUS OR Equivalent
34.	Hot Plate with Magnetic Stirrer	Temperature Range: Ambient to 280°C, Speed Range: 100 to 1000 rpm, Heating Rate: 6K/min, Motor Type: DC, Stirring Capacity: upto 1000 mL, Plate Diameter: 5.3", Voltage: 110V, 60Hz, 515W HEIDOLPH OR Equivalent
35.	Analytical Balance	Max. Weight: 210g, Readability: 0.001g OHAUS OR Equivalent
36.	Phosphine Meter	OPERATING TEMPERATURE RANGE: -20°C to 50C (-4F to 122F) Drop resistant case stands up in the harshest environments Portable with long lasting battery of 170h backup Four month of data logging capacity Unit design to detect five gasses Measuring range: 0 to 1ppm, resolution: 0.01%
37.	Grain Moisture Meter	Capacity 110g, Repeatability (Std Dev) (g) 0.2% (3g sample) 0.05% (10g sample), Readability 0.05% / 0.005g, Sample Size 3g to 20g typical, 0.5g min. RS-232, 1 - 99 minutes, 30-second increments to 60 minutes, Heating Technology Halogen, Temperature Range 50°C to 160°C in 5° increments, Custom backlit LCD, Displays % moisture or % solids or weight (g), temperature, time
38.	Humidifier	Humidification performance 400 g/h, Suitable for rooms up to 60m2 / 150m3, Maximum water capacity 6.5 liters, < 25 dB(A), Big LCD-display, Output regulator button, Cleaning display, Transparent water tank (water level clearly visible), Powerful and exchangeable demineralization cartridge, When operated with pre-heating to 80°C
39.	Hotplate with Stirrer:	Temperature Range: Ambient to 280°C, Speed Range: 100 to 1000 rpm, Heating Rate: 6K/min, Motor Type: DC, Stirring Capacity: upto 1000 mL, Plate Diameter: 5.3", Voltage: 110V, 60Hz, 515W HEIDOLPH OR Equivalent
40.	Mini Vortex Mixer	Speed: up to 3200rpm With both a cup head and 3-inch head with cover TALBSYS OR Equivalent
41.	Binocular Microscope:	Inclined Binocular body, 360° rotatable head, Eyepieces-Highest quality 10 X eyepiece, Objectives-Parfocal, 4x, 10x, 40x and 100x (oil immersion) LABOMED OR Equivalent
42.	Vertical mini gel electrophoresis with compatible power supply	Capacity: 1-4 gel at a time. Total buffer volume for 2-4 gel: 800- 1000 mL Application: Native and SDS-PAGE Dimension of the system: 12 x 16 x 18 cm. Voltage: ~220 volts BIO-RAD OR Equivalent
43.	Visible Spectrophotometer:	Range: 320 to 1000nm, Tungsten source lamp, Wavelength accuracy: ± 2nm Ccil OR Equivalent
44.	pH Meter:	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100°C. HANNA OR Equivalent

45.	Micropipette set	Single-channel adjustable micropipette set including following measurement ranges: 5. 0.2 ul- 2 ul 6. 2 - 20 ul 7. 20-200 ul 8. 200-1000 ul GILSON OR Equivalent
46.	Digital pH/Temperature/MV Meter	Range pH : 0 to 14.00 pH Temp: øC 0 to 100.0 øC mV : -1999 to 1999 mV ATC pH: 0 to 14.00 pH Resolution pH: 0.01 pH Temp: øC 0.1 øC mV: 1 mV ATC pH: 0.01 pH HANNA OR Equivalent
47.	Clamp Meter (Voltage, Current, Frequency)	FC Wireless AC Current Clamp Module Fluke a3000
48.	Soil Temperature Probe	Thermistor Description: Micro-BetaCHIP Probe 10K3MCD1, 0.5 mm (0.018 in.) diameter, 10 kohms at 25°C Measurement Range: -40° to +70°C Thermistor Survival Temperature Range: -50° to +100°C Overmolded Joint and Cable Survival Temperature: -50° to +70°C Maximum Water Submersion Depth: 45.7 m (150 ft) or 434 kPa (63 psi) Interchangeability Error -40°C: ±0.6°C tolerance 0°C: ±0.38°C tolerance 25°C: ±0.1°C tolerance 50°C: ±0.3°C tolerance 70°C: ±0.4°C tolerance Model: 109SS-L OR Equivalent
49.	Conductivity Meter	Portable Measuring Range: 0.00 – 500 µS/cm HANNA OR Equivalent
50.	Dissolved Oxygen Meter	Portable, Range of dissolved oxygen measurement: 0-50mg/L of, Temperature: 5.0 - 55°C, Temperature Compensation HANNA OR Equivalent
51.	GPS	Oregon® 650t OR Equivalent
52.	Pyranometer (SP-Lite) respond time < 1s	Spectral range: 400 to 1100 nm Sensitivity: 60 to 100 µV/W/m² Response time SP Lite2 (95%): < 500 ns Directional error: < 10 W/m² Temperature response: < -0.15 %/°C Operational temperature range: -40 °C to +80 °C Maximum solar irradiance: 2000 W/m² Field of view: 180 °
53.	Thermocouple (K-Type) with connectors (100 meter)	Type K Temperature Range: –454 to 2,300F (–270 to 1260C) Extension wire: 32 to 392F (0 to 200C) Standard: +/- 2.2C or +/- .75% Special Limits of Error: +/- 1.1C or 0.4%
54.	Thermo-Hygrometer Monitor	Sensor type: NTC Sampling rate: 18 s Battery life: 8736 h Testo 608-H1 OR Equivalent

55.	Anemometer	Length: 160 mm Height: 30 mm Width: 63 mm Weight: 321 g VOLTCRAFT PL-130 AN OR Equivalent
56.	Infrared laser thermometer (Range 0-1000°C)	Accuracy: ± 1 % Optics: 12/1 Emissivity: adjustable from 0.1 to 1.0 Temperature resolution: 0.1 °C Height: 156 mm Width: 43 mm Weight: 180 g Pick-up time: < 150 ms Temperature: -50 to +650 °C Power supply: 9 V battery pack
57.	2-channel oscilloscope, Digital Storage oscilloscope, Bandwidth 100 MHz	Channel type: 2 Bandwidth: 100 MHz Sampling rate: 1 GS/s Memory depth: 1 Mpts (CH1 or CH2) Screen size: (1 x H) 10 x 8 cm (320 x 234 Pixel) Time base: 2 ns/DIV - 50 s/DIV Slew rate: 3.5 ns Vertical deflection: 2 mV/DIV - 10 V/DIV Accuracy: ±3 % Input impedance: 1 MΩ 15 pF Triggering: Edge, Pulse, Slope, Video, Alternate Input coupling: DC AC GND Input voltage: 300 V (DC + peak AC) Power supply: 230 Vac Type: DS1102E Display: TFT 65 536, TEE colours Rigol DS1102E OR Equivalent
58.	USB Digital Microscope 500X	<ul style="list-style-type: none">• Image Sensor Up to 2M Pixel• Lens 2M Pixel• Focus Range 0mm ~ 250mm• Snap Shot Software and Hardware• Light Source White Light LED x8 PCS• Digital Zoom 4X• Magnification Ratio 5 X ~ 500X• Power Supply DC 5V from USB port• Interface USB 2.0 LABOMED, IRMECO OR Equivalent
59.	Digital Lab Scale Weighing Balance	10g x 0.001g with External Calibration SHIMADZU OR Equivalent
60.	Humidifier	Humidification Capacity: 2500-4000 cc
61.	Cotton Moisture Meter	Moisture Range: 4-16% Lint Cotton, 6-20% Seed Cotton Two Separate Scales for Lint Cotton and Seed Cotton
62.	Wrapping Reel (Electronic)	Number of yarn skeins: 5 Rotary Speed: 200RPM Reel circumference: 1.5yard/turn
63.	Yarn Twist Tester Electronic	Twist/Untwist Principle Adjustable Length of Sample: 1-500 mm Twist Range: 1-10,000 twist/meter Max. Length of contracting twist: 20 mm Max. Length of untwisting: 60 mm Pretension: 0.5 – 150 cN
64.	Centrifuge machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL

65.	Mini vortex mixer	Speed: up to 3200rpm With both a cup head and 3-inch head with cover TALBSYS OR Equivalent
66.	Dissolved Oxygen Meter	Portable, Range of dissolved oxygen measurement: 0-50mg/L of, Temperature: 5.0 - 55°C, Temperature Compensation HANNA OR Equivalent
67.	Incubator (Small)	Textured stainless casing W x H x D = 585 x 944 x 514 mm Fully insulated stainless steel door with 2 point locking (compression door lock Inner glass door Rear zinc plated steel Interior – max. loading of chamber 120 kg Temperature range: Min 5°C above ambient up to + 80°C Voltage / Power Rating: 230V(+/-10%) 50/60 Hz approx. 1.2 W Memmert, Precision incubator Model IN75 OR Equivalent
68.	Water Level Meter	Water level indicator with PVC rounded cable, four-conductors, with kevlar core and external protection sheath – Available Cable length: at least 150m – Cable diameter: 4.7mm – Graduation at 1 cm intervals (directly printed on the cable itself and protected by external anti-scratching transparent polihuretane) – Probe diameter: 10 mm – Probe material: stainless steel – Water level indication by both acoustic signal (buzzer) and LED – Sensibility adjustment through external potentiometer – Cable reel in antishock PVC, with brake, probe support, painted iron frame – Power supply through 9V battery (externally replaceable) – Bottom indicator available on request
69.	Manifold gauge	(double) (up to 500 Psi) Digital Refrigeration Manifold and Refrigerant Leak Detector
70.	Tachometer digital (Contact)	Acceleration 656ft/s ² , 200m/s ² , 20.39g (peak) Uses a laser for greater distance non-contact measurements up to 4.9ft (1.5m)
71.	Multi Meter with Temperature	Digital AC/DC Auto/Manual Range Digital Multimeter Mastech MS8268 OR Equivalent
72.	Pocket Screw Driver Kit Specifications	1. High Quality 2. Perfect For Hobby 3. Certification Approval 4. Model#:SU0298.
73.	Infrared thermometer	Measures in Celsius or Fahrenheit (Range: -50°C to +380°C /-58 °F to +716°F). Auto Shut-off & Low Battery
74.	Digital Anemometer	Digital Vane Anemometer. wind meter 1,LCD Display 2,Wind Speed Unit Selectable 3,Certificaiton: CE, FCC, ROHS
75.	Lathe Tool Grinder	Model: Nesco Brand: 6000 OR Equivalent
76.	Tool kit	(small & master tool kit)
77.	Bushel apparatus	Cup capacity: 1 lit.
78.	Grain hardness tester	Grain hardness tester AGW-type grain hardness tester is used specially for testing of the hardness of grains (wheat, rice, etc.

79.	Safety Glasses/Goggles/Gloves	Safety devices
80.	Pitch meter	Skyc Digital Pitch Gauge Model: SK-500009-01 OR Equivalent
81.	Dynamometer	Water brake power absorber with Teflon water seals, high speed bearings, stainless trunnion and backing plate and aluminum bronze rotor - low inertia design for precise control, 15,000 RPM, 1,500 hp (1,119 kW)
82.	Portable welding plant	1.Suitable for welding aluminum and aluminum alloy 2.Toshiba Mosfet 3.CE,CCC approval 4.Could work with foot pedal
83.	Digital grain moisture meter	Meaning:Pin Type Specifications:Wood Up to 150 Species Measuring Range: 0~80 % Accuracy:+/-(0.5%n+0.5)
84.	Digital Anemometer	
85.	Digital hygrometer	Portable Digital Thermometer Hygrometer LCD display of industrial grade Wide measuring range high measurement accuracy
86.	Pyranometer	Spectral range: 400 to 1100 nm Sensitivity: 60 to 100 $\mu\text{V}/\text{W}/\text{m}^2$ Response time SP Lite2 (95%): < 500 ns Directional error (up to 80° with 1000 W/m^2 beam): < 10 W/m^2 Temperature response: < -0.15 %/°C
87.	Wireless Presenter	Logitech, Model r800 OR Equivalent
88.	Motorized Air Pump	Motor:2.5 HP, tank:300 lbs and air gauge
89.	Digital microscope camera	Captures 5.0MP (2580X1944) high resolution fluorescence microscopy images Advanced editing, processing measuring software High quality print imaging in BMP, TIFF, JPG and other formats Compatible with Windows 2000/XP/Vista/7 Compatible with Twain, DirectShow, Amcap, Minisee other third-party software AMSCOPE MD800 C OR Equivalent
90.	Compound Microscope	Inclined Binocular body, 360° rotatable head, Eyepieces-Highest quality 10 X eyepiece, Objectives-Parfocal, 4x, 10x, 40x and 100x (oil immersion) IRMECO, LABOMED or Equivalent
91.	Stereomicroscope	Trinocular Head, Zoom Objective: 0.8 x -5x, Zoom Ratio: 6.3:1, Working Distance: 115mm, IRMECO OR Equivalent
92.	Micropipette Set	Single-channel adjustable micropipette set including following measurement ranges: 17. 0.2 ul- 2 ul 18. 2 - 20 ul 19. 20-200 ul 20. 200-1000 ul GILSON OR Equivalent
93.	Centrifuge Machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
94.	McMaster Chamber	Grid size: 1 cm x 1 cm, Volume under grid: 0.15 ml, Color of grid: Engraved, Material Acrylic, Slide dimensions: 2.5 cm x 7.5 cm, Grid Color: Standard Opaque or Green, 2-chamber, with opaque grid, acrylic, Chalex Corporation USA OR Equivalent

95.	Micrometer	<p>A Scale formed on a glass disc approximately 15 mm in diameter insect on a metal microscope slide 75 mm x 25 mm x 1 mm. the scale is 1.0 mm long subdivided to 0.01 mm and numbered every tenth line from 0 to 100.</p> <p>Ocular micrometer compatible with all types of research microscopes.</p> <p>National Physical Laboratory, Teddington Middlesex, or Equivalent</p>
96.	Microscope with Camera	<p>Light source: 12 V 100 W halogen bulb (pre-centred)</p> <p>Stage: Scanning stage with ultrasonic: Stage stroke: X: 76 mm x Y: 52 mm, maximum stage movement speed: 30mm/s</p> <p>Plain stage: 232 mm (X) × 240 mm (Y) stage size, stage insert plate exchangeable (ø110 mm)</p> <p>Working distance condenser W.D. 27 mm, NA 0.55, Motorised aperture and polarizer.</p> <p>Fluorescence illuminator: L-shaped fluorescence illuminator with fly-eye lens; Straight design with field iris diaphragm</p> <p>Fluorescence light source: 130 W Halogen light guide illumination; 100 W Hg apo lamp housing and transformer; 100 W Hg lamp housing and transformer; 75 W Xenon lamp housing and transformer.</p> <p>C-mount adapter and bayonet mount adapter.</p> <p>Olympus or equivalent</p> <p>Microscope Digital Camera</p> <p>Camera: Color / Monochrome 2CCD camera Pixel shifting (only for color CCD); Cooling system: Peltier device.</p> <p>Imaging Sensor: 2/3 inch 1.45 mega pixels color CCD, RGB colors on chip filter; 2/3 inch 1.45 mega pixels monochrome CCD.</p> <p>Sensitivity: ISO200/400/800/1600 equivalent</p> <p>Live frame rate: 1360 x 1024 (1x1): 15 fps; 680 x 512 (1x1): 15 fps; 680 x 510 (2x2): 29 fps; 340 x 250 (4x4): 57 fps</p> <p>A/D: 14 bit (Number of effective bit: 12 bits@16 bit mode image)</p>
97.	Water Still	<p>Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0, Resistivity: 0.25 - 0.3 mOhm^{cm}</p> <p>IRMECO OR Equivalent</p>
98.	Deionizer	<p>Pressure flow rate: 30L/hour, Maximum Inlet Pressure: 0.7 Bars, Maximum Temperature: 35 °C, Purity: 1 MΩ-cm</p> <p>Thermo Scientific™, Bantam™ Deionizer, USA OR Equivalent</p>
99.	Baermann's Apparatus	<p>MEKU Baermann Funnel Station</p> <p>Includes 5 acrylic glass funnels with sieves, filters and test glasses, manual working cycle.</p> <p>Station: 5; Strainer diameter: Ø140/150mm, Höhe 40mm; Mesh width: 1mm; Dimensions: B = 900mm, T = 320mm, H = 530mm; Weight: about 25 kg</p> <ul style="list-style-type: none"> - 5 funnels made of acrylic glas with VA end connector and silicon hose drain spouts - 5 inlet washing strainers made of stainless steel with 1mm mesh width - Base frame made of PVC with sealing valve bridge <p>Accessories:</p> <ul style="list-style-type: none"> - 5 test tubes Ø15mm - 1 drain hose NW 20 - Round filter paper Ø135mm, Quality 60g/m² <p>MEKU or equivalent</p>

100.	Ten Head Teaching Microscope	<p>Multi-observer Microscope BX53</p> <p>Optical system: UIS2 optical system</p> <p>Focus: Coaxial coarse and fine focus with stage up and down mechanism; Focus stroke 25 mm; Coarse stroke 15 mm/rotation; Fine stroke 100 µm/rotation; Graduation on fine focus 1 µm</p> <p>Illuminator: Built-in Koehler illumination for transmitted light; Light intensity LED indicator, Built-in filters (LBD-IF, ND6, ND25) 12 V, 100 W halogen bulb</p> <p>Observation tube: Widefield tilting, telescopic and lifting binocular, inclined -3°-27°; Widefield tilting trinocular, inclined 5°-35°; Widefield trinocular, inclined 30°; Widefield erect image trinocular, inclined 30°; Widefield tilting binocular, inclined 5°-35°; Widefield ergo binocular, inclined 0°-25°; Widefield binocular, inclined 30°; Super widefield trinocular, inclined 24°; Super widefield erect image trinocular, inclined 24°.</p> <p>Stage: Ceramic-coated coaxial stage with left/right hand low drive control.</p> <p>Condenser: Swing out achromatic condenser (N.A. 0.9), for 1.25x-100x (swing-out: 1.25x-4x); Achromatic aplanatic condenser; Phase contrast, darkfield condenser; Universal condenser; Low magnification condenser; Ultra low magnification condenser; Darkfield dry condenser; Darkfield oil condenser; Motorized universal condenser.</p> <p>Fluorescence illuminator: Manual reflected fluorescence, 8-position mirror turret unit, encoded with tool-free exchange of filter cubes</p> <p>Fluorescence light source: 100 W Hg apo lamp housing and transformer; 100 W Hg lamp housing and transformer; 75 W Xe lamp housing and transformer; Fibre coupled metal-halide light sources; Fibre coupled LED light source</p> <p>Controller: Optional: Control box for semi-motorised setups.</p> <p>Olympus Or equivalent</p>
101.	Pipette Set	<p>Single-channel adjustable micropipette set including following measurement ranges:</p> <ol style="list-style-type: none"> 5. 0.2 ul- 2 ul 6. 2 - 20 ul 7. 20-200 ul 8. 200-1000 ul <p>GILSON OR Equivalent</p>
102.	Triple beam balance	Ohaus Model720-SO, America
103.	Binocular Microscope	<p>Inclined Binocular body, 360° rotatable head, Eyepieces-Highest quality 10 X eyepiece, Objectives-Parfocal, 4x, 10x, 40x and 100x (oil immersion)</p> <p>Irmeco or Equivalent</p>
104.	Water Bath	<p>Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity: 10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz</p> <p>WITEG OR Equivalent</p>
105.	Centrifuge Machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
106.	Top loading balance	<p>Max. Weight: 2200g, Readability: 0.01g</p> <p>SHIMADZU OR Equivalent</p>
107.	Furnace (small)	TPS™ Model 55342 Pakistan OR Equivalent
108.	Mechanical Stirrer	<p>Stirring volume for water up to 25 Lit.,</p> <p>Speed range 50 – 2000rpm</p> <p>Viscosity: up to 25,000 mPa*s</p> <p>maximum shaft diameter, 8.5mm</p> <p>complete with propeller and stand, operated on 220 Volts</p> <p>HEIDOLPH OR Equivalent</p>

109.	Water still	Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0, Resistivity: 0.25 - 0.3 mOhm ^{cm} IRMECO OR Equivalent
110.	Micrometer	IHS,USA OR Equivalent
111.	Water Deionizer	Pressure flow rate: 30L/hour, Maximum Inlet Pressure: 0.7 Bars, Maximum Temperature: 35 °C, Purity: 1 MΩ-cm Thermo Scientific™, Bantam™ Deionizer, USA OR Equivalent
112.	Aspirator	Impact® 326/326 M ,America OR Equivalent
113.	Binocular Microscope	Inclined Binocular body, 360° rotatable head, Eyepieces-Highest quality 10 X eyepiece, Objectives-Parfocal, 4x, 10x, 40x and 100x (oil immersion) LABOMED OR Equivalent
114.	Ten Headed Teaching Microscope	OPTIKA B-1000; Product Code: OPB1000-10.OPTIKA OR Equivalent_camera attachment for microscopic photography
115.	Trinocular Microscope	Inclined trinocular body, 360° rotatable head, Eyepieces-Highest quality 10 X eyepiece, Objectives-Parfocal, 4x, 10x, 40x and 100x (oil immersion) LABOMED OR Equivalent
116.	Rotary Microtome	Manual Precision Laboratory Cutting Tool with disposal blade holder and 100 blades DUPONT SORVALL OR Equivalent
117.	Digital Microscope	Leica DVM2500 / Nikon Eclipse Ni-E motorized microscope system OR Equivalent
118.	Water Bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity:10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz WITEG OR Equivalent
119.	Micropipette	Single-channel adjustable micropipette set including following measurement ranges: 5. 0.2 ul- 2 ul 6. 2 - 20 ul 7. 20-200 ul 8. 200-1000 ul GILSON OR Equivalent
120.	Multi-channel (8 channels) Micropipette	Autoclave-able with variable volume (1-10μl; 10-100μl; 20-200μl)
121.	Multi-channel (12 channels) Micropipette	Autoclave-able with variable volume (1-10μl; 10-100μl; 20-200μl)
122.	Veterinary Patient Monitor	CM 8000,-VET CONTEC, China OR Equivalent
123.	Milk Somatic Cell Counter	Nucleo Counter SCC-100,Italy Option: Delavel Somatic Cell counter
124.	Veterinary Endoscope-laparoscope	YKD-9006,IKEDA,China OR Equivalent
125.	Oxygen Concentrator	Longfei,LFY-1-5A, China OR Equivalent
126.	Veterinary Laser Surgery Unit	CL-20, knife, Sunny, China OR Equivalent
127.	Fiber Optic Ophthalmoscope	GSR-12, GaoDIn, China OR Equivalent
128.	Fiber optic Otoscope	MEI 5003,China OR Equivalent
129.	Research Micro-scope	(with Digital Camera) Olympus Japan
130.	McMaster Counting Chamber	Grid size: 1 cm x 1 cm, Volume under grid: 0.15 ml, Color of grid: Engraved, Material Acrylic, Slide dimensions: 2.5 cm x 7.5 cm, Grid Color: Standard Opaque or Green, 2-chamber, with opaque grid, acrylic,

		Chalex Corporation USA OR Equivalent
131.	Computer- Assisted Semen Analysis (CASA) System with standard accessories.	Jiangsu Jia Hua Electronic Instrument Co., Ltd, CHINA OR Equivalent
132.	Linear- array Ultrasound probe for Trans-rectal use in large animals	0.5 MHz/38 mm
133.	Linear-array Ultrasound probe for Trans-rectal use in small animals	Dogs & Cats; 7.5 MHz/38mm
134.	Linear-array Ultrasound probe for Trans-rectal use in sheep and goats	7.5 MHz/64 mm
135.	Muffle Furnace	Small Benchtop; 100 to 1100°C; Single set point; 0.04 cu. ft.; 120V 50/60Hz, 8.8A, 1060w THOMAS SCIENTIFIC OR Equivalent
136.	Water Bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity:10, VAC/Frequency: 110/220V, 60/50 Hz WITEG OR Equivalent
137.	Lab Oven	Temperature range: 50°C to 200°C and accuracy: ±2°C., Capacity: up to 6 Cubic Feet, Pressure Range: 479 psi and up, External Configuration: Front Load
138.	Hot plate with magnetic stirrer	Temperature Range: Ambient to 280°C, Speed Range: 100 to 1000 rpm, Heating Rate: 6K/min, Motor Type: DC, Stirring Capacity: upto 1000 mL, Plate Diameter: 5.3", Voltage: 110V, 60Hz, 515W HEIDOLPH OR Equivalent
139.	Gerber Machine	For the determination of fat contents of milk, 12 tubes, Gerber Germany OR Equivalent
140.	Test Tube Shaker	For mixing the samples VM10 Korea, OR Equivalent
141.	Top loading Balance	Range: 0.1g – 6kg Yamato Japan OR Equivalent
142.	pH Meter	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100°C. HANNA OR Equivalent
143.	Vacuum Desiccators	Weight: 46.0 lbs, Weight metric: 21.0 kg, Dimensions: 17" w x 13.5" d x 15.38" h, Dimensions metric: 43 x 34 x 39 cm, Application: Drying and storage
144.	Debeaker	Equipment used for debeaking of chicks to avoid cannibalism in chicks Lyon Incorporation USA OR Equivalent
145.	Debeaker blades	Blades are used to cut the beak of the chicks by the debeaker machine Lyon Incorporation USA OR Equivalent
146.	Multimeter	Four in one meter (light, velocity, relative humidity, temperature) Model : LM-8000
147.	Static pressure meter	Capacity 100 kPa
148.	Instant temperature meter	Ragne -05 to + 150 °C The equipment required for measuring temperature
149.	Top loading balance	Capacity : 5, 10, 50 kg Salter Company OR Equivalent
150.	Automatic Syringe	Single shot , Capacity : 1.0 ml Socorex OR Equivalent
151.	Automatic Syringe	Double shot , Capacity : 1.0 ml Socorex OR Equivalent

152.	Postmortem / dissection table	6 x 4 feet For postmortem of birds for diagnoses and disease prevention
153.	Compound Microscope	Inclined Binocular body, 360° rotatable head, Eyepieces- Highest quality 10 X eyepiece, Objectives-Parfocal, 4x, 10x, 40x and 100x (oil immersion) IRMECO, LABOMED or Equivalent
154.	Centrifuge Machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
155.	pH Meter	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100°C. HANNA OR Equivalent
156.	Clinometer	Clinometer PM-5/360PC, Percent and Degrees SUUNTO OR Equivalent
157.	Tree Diameter Caliper	
158.	Rotary Microtome	Manual Precision Laboratory Cutting Tool with disposal blade holder and 100 blades DUPONT SORVALL OR Equivalent
159.	pH meter	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100oC. HANNA OR Equivalent
160.	Mini Vortex mixer	Speed: up to 3200rpm With both a cup head and 3-inch head with cover TALBSYS OR Equivalent
161.	Centrifuge Machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
162.	Water bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity:10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz WITEG OR Equivalent
163.	Hot Air Oven	Temperature range: 50°C to 200°C and accuracy: ±2°C., Capacity: up to 6 Cubic Feet, Pressure Range: 479 psi and up, External Configuration: Front Load MAMMERT OR Equivalent
164.	Water Still	Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0, Resistivity: 0.25 - 0.3 mOhm ^{-cm} IRMECO OR Equivalent
165.	Hot Plate with Magnetic Stirrer	Temperature Range: Ambient to 280°C, Speed Range: 100 to 1000 rpm, Heating Rate: 6K/min, Motor Type: DC, Stirring Capacity: upto 1000 mL, Plate Diameter: 5.3", Voltage: 110V, 60Hz, 515W HEIDOLPH OR Equivalent
166.	Water Bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity:10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz WITEG OR Equivalent
167.	pH Meter	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100oC. HANNA OR Equivalent
168.	Water Still	Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0, Resistivity: 0.25 - 0.3 mOhm ^{-cm} IRMECO OR Equivalent
169.	Top Loading Balance	Max. Weight: 2200g, Readability: 0.01g SHIMADZU/Equivalent
170.	Hot Plate with Magnetic Stirrer	Temperature Range: Ambient to 280°C, Speed Range: 100 to 1000 rpm, Heating Rate: 6K/min, Motor Type: DC, Stirring Capacity: upto 1000 mL, Plate Diameter: 5.3", Voltage: 110V, 60Hz, 515W HEIDOLPH OR Equivalent

171.	Vacuum Pump with Filtration Assembly	Horse Power: 1/8 HP Max Vacuum: 25" Hg Max Pressure: 80 psi Type: Piston, oil-free Max Flow Rate: 20 LPM (0.7 CFM) Noise: 50 dB STERLITECH OR Equivalent
172.	Overhead Mechanical Stirrer	Stirring volume for water up to 25 Lit., Speed range 50 – 2000rpm Viscosity: up to 25,000 mPa*s maximum shaft diameter, 8.5mm complete with propeller and stand, operated on 220 Volts HEIDOLPH OR Equivalent
173.	Centrifuge Machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
174.	Hot Air Oven	Temperature range: 50°C to 200°C and accuracy: $\pm 2^\circ\text{C}$., Capacity: up to 6 Cubic Feet, Pressure Range: 479 psi and up, External Configuration: Front Load MAMMERT OR Equivalent
175.	Muffle Furnace (Small)	Small Benchtop; 100 to 1100°C; Single set point; 0.04 cu. ft.; 120V 50/60Hz, 8.8A, 1060w THOMAS SCIENTIFIC OR Equivalent
176.	Conductivity/TDS Meter	Portable Measuring Range: 0.00 – 500 $\mu\text{S}/\text{cm}$ HANNA OR Equivalent
177.	Rotary Evaporator	Rotary Evaporator 0.25-2L, 0-120rpm, 0-99°C, Digital Display Manual Lifting HYDRION SCIENTIFIC OR equivalent
178.	Digital Polarimeter	Automatic with multiple wavelengths, measurement range: - 259 to +259°, Angle of Rotation 0.001° International Sugar Scale 0.001°Z, Repeatability $\pm 0.003^\circ$ Angle of Rotation and $\pm 0.009^\circ\text{Z}$
179.	Flame Photometer	Range: 0.2 ppm for Na and K, 0.25 ppm for Li, 15 ppm for Ca, 30 ppm for Ba. Reproducibility: 1 % CV for 20 consecutive samples, Reading time: 20 seconds Interference: Less than 5 % Sample input: 2-6 ml/ minute Electric supply: 220 Volts Air Compressor: moisture and oil free Fuel: Natural gas / LPG Operating Environment: 15-35 °C JENWAY OR Equivalent
180.	Micropipette Set	Single-channel adjustable micropipette set including following measurement ranges: 21. 0.2 ul- 2 ul 22. 2 - 20 ul 23. 20-200 ul 24. 200-1000 ul GILSON OR Equivalent
181.	Orbital Shaker	Compact, orbital/linear shakers with ideal shaking motion, for a maximum shaking weight of 3kg speed range of 0-200 rpm THE LAB DEPOT OR Equivalent
182.	TP-Link Switch Hub	24 port, D-Link OR Equivalent
183.	Wireless LAN card	100Mbps, 802.11 a/b/g internal D-Link OR Equivalent

184.	Digital logic design trainer	Fixed DC output : $\pm 5V$, 1A,300mA, Variable DC output : 0V ~ $\pm 15V$, 500mA , Frequency ranges : 1 Hz ~ 100kHz, Eight bits data switches, Two digits of segment LED display,8 bits LED display, Two pulse switch Model- (ETS-7000A) (K&H MFG. CO., LTD.) or equivalent
185.	Digital Oscilloscope	200 MHz, 100 MHz, 70 MHz, 50 MHz bandwidth models,2- and 4-channel models, Up to 2 GS/s sample rate on all channels Model-(TDS2000) (Tektronix)or equivalent
186.	Function generator	Frequency Range : 0.2Hz ~ 2MHz, Waveform : Sine, Triangle, Square, TTL Pulse, Model-(GFG-8020H) (GW Instek) or equivalent
187.	Tool kits	Wire Cutters/Strippers, Shear cutters, safe tweezers, Needle nose pliers, High quality precision screwdriver set etc.
188.	Digital Multimeters	DC Voltage: 200mV/2V/20V/200V/1000V +/- (0.5%+1), AC Voltage: 200mV/2V/20V/200V/750V +/- (0.8%+3), DC Current: 2mA/20mA/200mA/20A +/- (0.8%+1), AC Current: 20mA/200mA/20A +/- (1%+3), Resistance: 200ohm/2kohm/20kohm/200kohm/2Mohm/20Mohm/200Mohm +/- (0.8%+1), Capacitance: 2nF/20nF/200nF/2F/20F +/- (4%+3), Temperature: -40'C1000'C +/- (1%+3), Model-(UNI-T UT53) (Uni-Trend Technology Limited) or equivalent
189.	Bread boards	grid contacts 1/10 inch-square, 75-900 connection points arranged in column of 10 separated by a center median, rated at 5V at 1A.
190.	Gas flow meters for hydrogen, argon and ethylene	Matheson model 7642T w/610 (tube size 610A with glass float) or equivalent Acrylic Flowmeter, 50 mm Scale, 0.04-0.5 LPM, Cole Parmer product # RK-32457-40 or equivalent 150 mm, variable area, tube # 4, 0.234-4.64 slpm air, 200 psig, glass tube, glass floats, aluminum end blocks, viton seals, high resolution valve, 1/8 inch fpt inlet, 1/8 inch fpt outlet, ProStarflow meter (Praxair product # PRS-FM-150) or equivalent
191.	DC power supplies	DC output: 0 – 20 V, 0 – 5 A, Output power: 100 W, Model-(U33020) (3B Scientific) or equivalent
192.	Muffle furnace	Small Benchtop; 100 to 1100°C; Single set point; 0.04 cu. ft.; 120V 50/60Hz, 8.8A, 1060w THOMAS SCIENTIFIC OR Equivalent
193.	Magnetic flux meter	Range: 0-2 Tesla, accuracy: +/- 3%, Can be used with all magnetization techniques including permanent magnets, AC magnets, current cables, current probes
194.	Water bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity:10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz WITEG OR Equivalent
195.	Michelson interferometer with micrometer and all accessories	Base with built-in micrometer, Adjustable Mirror, Movable Mirror, Beam Splitter, Compensator Plate, Component Holder, Viewing Screen, Lens18 mm Focal Length, Diffuser, Fitted Storage Case
196.	Teflon lined stainless steel autoclave	Volume: 200mL, Operation pressure: 3MPa, Operation temperature: 220°C.
197.	Lux meter	2000/20000/200000 Lux (3 ranges), 200/2000/20000FC, Resolution:1 LuX/0.01Fc, Accuracy : $\pm 4\%$ rdg ± 10 dgts (< 10,000 Iux) $\pm 5\%$ rdg ± 10 dgts (> 10 , 000 Iux), sensor (Exclusive photo diode & color correction filter, spectrum designed to meet C. I. E.), availability of zero adjustment option

198.	Laser diodes	<ul style="list-style-type: none"> wavelengths 635 nm, power 10mW (Model Hitachi HL 6320G Thorlabs or equivalent) wavelength 670 nm, power 7mW (Model Sanyo DL3149-057 Thorlabs or equivalent) wavelength 780 nm, power 10mW (Model Thorlabs L780P010 Thorlabs or equivalent) wavelength 830 nm, power 40mW (Model Sanyo DL5032-001 Thorlabs or equivalent) wavelength 980 nm, power 100mW (Model Thorlabs L980P100 Thorlabs or equivalent)
199.	Conductivity meter	Portable Measuring Range: 0.00 – 500 μ S/cm HANNA OR Equivalent
200.	pH meter	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100oC. HANNA OR Equivalent
201.	Pyranometer	Spectral range 285nm-3000nm, operating temp -40°C-80°C
202.	He-Ne Laser 17 mW	Polarization: 500:1, L = 26.00", 1/e ² beam diameter 0.98 mm, beam divergence 0.82 mrad, longitudinal mode spacing 252 MHz.
203.	Keithley Source meter	20W power instrument that sources and measures voltage from $\pm 5\mu$ V (source) and $\pm 1\mu$ V (measure) to ± 1100 V and current from ± 10 pA to ± 1 A(Keithley 2410 or equivalent)
204.	Stereomicroscope	Trinocular Head, Zoom Objective: 0.8 x -5x, Zoom Ratio: 6.3:1, Working Distance: 115mm, IRMECO OR Equivalent
205.	Centrifuge Machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
206.	Horizontal mini gel electrophoresis with compatible power supply	Cell size: (W x L x H) 9.2 x 25.5 x 5.6 cm Gel tray sizes (W x L) 7 x 7 cm and 7 x 10 cm. Sample throughput: 8-30 in number Buffer base volume: approximately 250-70 MI
207.	Vertical mini gel electrophoresis with compatible power supply	Capacity: 1-4 gel at a time. Total buffer volume for 2-4 gel: 800- 1000 mL Dimension of the system: 12 x 16 x 18 cm. Voltage: ~220 volts BIO-RAD OR Equivalent
208.	Micropipettes sets	Single-channel adjustable micropipette set including following measurement ranges: <ol style="list-style-type: none"> 0.2 ul- 2 ul 2 - 20 ul 20-200 ul 200-1000 ul GILSON OR Equivalent

209.	PCR Thermal Cycler	<p>Block materials: 2 x independent 48 well blocks: modular nickel plated anodized aluminum blocks with 4 peltier heat modules and 2 thermistor sensors per block.</p> <p>Traceability: NIST traceable temperature calibration</p> <p>Blocks available: 2 x 48 well gradient block for 48 x 0.2 ml) tubes or strips (8x6 format)</p> <p>Temperature range: 4C-99C</p> <p>Temperature control: Calculated mode with plate and tube control algorithms.</p> <p>Block accuracy: $\pm 0.4^{\circ}\text{C}$ (20-99C), Block homogeneity: $\pm 0.4^{\circ}\text{C}$</p> <p>Vol. range: 2-150ul, Ramp rate: Up to 3 $^{\circ}\text{C/s}$</p> <p>Gradient temp range: 30-80C, Max/min gradient span: 30C/4C</p> <p>Sample-overshoot: $<1^{\circ}\text{C}$, Sensor temp.: $\pm 0.1^{\circ}\text{C}$</p> <p>Regulation accuracy, Lid temp. 112C</p> <p>Lid Pressure: Spring loaded</p> <p>Screen type: 8.4 inch TFT color VGA touch-screen (Stylus supplied). Suitable for ball-pen or finger use)</p> <p>Data input: Touch-screen, external keyboard and mouse (USB) (Optional)</p> <p>Temp. Display: Real-time graphical display of actual block temp.</p> <p>Communication: 1xUSB</p> <p>Program storage: Circa 1000 (internal memory)</p> <p>Electronic power: 220v, 50Hz</p> <p>Maximum power: 425 watts, Regulatory: CE compliant</p> <p>G-STORM OR Equivalent</p>
210.	Flame Photometer	<p>Range: 0.2 ppm for Na and K, 0.25 ppm for Li, 15 ppm for Ca, 30 ppm for Ba.</p> <p>Reproducibility: 1 % CV for 20 consecutive samples,</p> <p>Reading time: 20 seconds</p> <p>Interference: Less than 5 %</p> <p>Sample input: 2-6 ml/ minute</p> <p>Electric supply: 220 Volts</p> <p>Air Compressor: moisture and oil free</p> <p>Fuel: Natural gas / LPG</p> <p>Operating Environment: 15-35 $^{\circ}\text{C}$</p> <p>JENWAY OR Equivalent</p>
211.	UV-Vis Spectrophotometer	<p>Range: 190 - 1100 n. m.</p> <p>Spectral band width: 1 n. m.</p> <p>Wavelength display: 0.1 n. m. Increments</p> <p>Repeatability: ± 0.1 n. m.</p> <p>Accuracy: ± 0.002-0.006 abs</p> <p>Ccil OR Equivalent</p>
212.	Water Still	<p>Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour</p> <p>single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0,</p> <p>Resistivity: 0.25 - 0.3 mOhm^{-cm}</p> <p>IRMECO OR Equivalent</p>
213.	Top Loading Balance	<p>Max. Weight: 2200g, Readability: 0.01g</p> <p>SHIMADZU OR Equivalent</p>
214.	pH meter	<p>Portable</p> <p>Range: 0.00 – 14.00 units, Temperature: 0 - 100$^{\circ}\text{C}$.</p> <p>HANNA OR Equivalent</p>
215.	Hot air oven	<p>Temperature range: 50$^{\circ}\text{C}$ to 200$^{\circ}\text{C}$ and accuracy: $\pm 2^{\circ}\text{C}$.,</p> <p>Capacity: up to 6 Cubic Feet, Pressure Range: 479 psi and up,</p> <p>External Configuration: Front Load</p>
216.	Muffle furnace	<p>Small Benchtop; 100 to 1100$^{\circ}\text{C}$; Single set point; 0.04 cu. ft.;</p> <p>120V 50/60Hz, 8.8A, 1060w</p> <p>THOMAS SCIENTIFIC OR Equivalent</p>

217.	Micropipette sets	Single-channel adjustable micropipette set including following measurement ranges: 5. 0.2 ul- 2 ul 6. 2 - 20 ul 7. 20-200 ul 8. 200-1000 ul GILSON OR Equivalent
218.	Glass plates & comb	For mini protean 3, Biorad System, spacer plates and glass plates sets, Comb for gel thickness (0.75,1.0, & 1.5 mm) as 5, 9, 10 and 15 wells formats
219.	Butyrometer	Borosilicate glass material having expansion 3.3×10^{-7} / oc, 0.5% accuracy, 11mL capacity
220.	Heavy duty blender	38,000 rpm speed, 100V~220V, 1.85L Capacity, polycarbonate Container
221.	Industrial grinder for cereals	220V, 3.0KW, 45~75 kg/Hr capacity
222.	Air compressor	Max working pressure (10 barr), 1.18 L/sec air flow, noiseless
223.	Hand refractometer set	0-100% brix measurement range,0.1 % brix accuracy, 0.1 % brix scale division, optical glass Prism material, stainless steel sample dish
224.	Vacuum pump	15milli torr pressure, 1725 rpm speed
225.	Water bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity:10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz WITEG/Equivalent
226.	Colorimeter	400 to 700nm wavelength, 0.01Abs & 0.1 to 1% concentration resolution, Tungsten filament lamp light source, 0.1cal detectability limit, 2-1000cal energy measurement range, 5sample/sec, borosilicate cuvette
227.	Rotary evaporator	Rotary Evaporator 0.25-2L,0-120rpm,0-99°C,Digital Display Manual Lifting HYDRION SCIENTIFIC OR equivalent
228.	Ripening chamber for fruits	Cold-roll steel sheets, Stainless Steel 304 material, 220 V, temperature & gas (ethylene) controlled
229.	Orbital shaker	75-250 rpm speed, 28 - 99.9°C temperature range, 0.01°C Temperature resolution, digital display, Microprocessor control, branded
230.	Hot plate with magnetic stirrer	Temperature Range: Ambient to 280°C, Speed Range: 100 to 1000 rpm, Heating Rate: 6K/min, Motor Type: DC, Stirring Capacity: upto 1000 mL, Plate Diameter: 5.3", Voltage: 110V, 60Hz, 515W HEIDOLPH OR Equivalent
231.	Centrifuge machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
232.	Colony counter	110/240 V power requirement, resolution of smallest detectable colony better than 0.3 mm diameter on 90mm plates, can measure up to 500 colonies per second, digital display
233.	Hot plate with heating element set	125 x125" size, non metallic Ceramic Surface, with 6 flasks capacity, Temperature Range: 30 to 400 °C, Indicator light required
234.	Hydro distillation apparatus	Valotile separation. Complete assembly. Operated at 220v.
235.	Mini Vortex Mixer	Speed: up to 3200rpm With both a cup head and 3-inch head with cover TALBSYS/Equivalent
236.	Penetrating temperature sticks	Temp range 50-350°C±1°C accuracy, LCD display, with battery
237.	Water activity meter	0.03-1.00 range, read time <5 min, resolution 0.0001, accuracy ±0.013, digital display, microprocessor control

238.	Hemoglobin meter	5-25mg/dL range, portable, auto calibration, LED display, 1 ml sample volume, Tungsten Lamp, battery
239.	Weighing scales (Digital)	Range: 1g-125kg, microprocessor control, LED display
240.	Water Still	Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0, Resistivity: 0.25 - 0.3 mOhm ^{-cm} IRMECO OR Equivalent
241.	Collar Microphone	Local, Frequency response: 50 - 15000Hz, 3.5mm 3-pole jack
242.	Micropipette Set	Single-channel adjustable micropipette set including following measurement ranges: 5. 0.2 ul- 2 ul 6. 2 - 20 ul 7. 20-200 ul 8. 200-1000 ul GILSON OR Equivalent
243.	Water Still	Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0, Resistivity: 0.25 - 0.3 mOhm ^{-cm} IRMECO OR Equivalent
244.	Water Deionizer	Pressure flow rate: 30L/hour, Maximum Inlet Pressure: 0.7 Bars, Maximum Temperature: 35 °C, Purity: 1 MΩ-cm
245.	Autoclave Vertical	Capacity 25 Lit interior chamber ALP OR Equivalent
246.	Hot Air Oven	Temperature range: 50°C to 200°C and accuracy: $\pm 2^\circ\text{C}$., Capacity: up to 6 Cubic Feet, Pressure Range: 479 psi and up, External Configuration: Front Load
247.	Binocular Microscope	Inclined Binocular body, 360° rotatable head, Eyepieces- Highest quality 10 X eyepiece, Objectives-Parfocal, 4x, 10x, 40x and 100x (oil immersion) LABOMED OR Equivalent
248.	Water Bath	Ambient to 100°C, Accuracy: +0.050C, Sensor: PT-100 Ohm, Capacity: 10-20 Lit, VAC/Frequency: 110/220V, 60/50 Hz WITEG/Equivalent
249.	Centrifuge Machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
250.	Hot Plate with Magnetic Stirrer	Temperature Range: Ambient to 280°C, Speed Range: 100 to 1000 rpm, Heating Rate: 6K/min, Motor Type: DC, Stirring Capacity: upto 1000 mL, Plate Diameter: 5.3", Voltage: 110V, 60Hz, 515W HEIDOLPH OR Equivalent
251.	Mini vortex Mixer	Speed: up to 3200rpm With both a cup head and 3-inch head with cover TALBSYS/Equivalent
252.	Cordless Microphone Collar	Cordless Collar MIC Transmitter Cordless Microphone with Receiver
253.	Hot plate	6 plate unit local made 220 volt, 750 watt/each heater size 30"*9"*7" Pakistan
254.	BMD Ultrasound machine	Sonost 3000, South Korea OR Equivalent
255.	Martindale Abrasian	Model no. TSE A012 Usage: Abrasion Tester Brand name: TST Instrument , China OR Equivalent
256.	Pick counter	Model No: DW512A, Brand name: FY1 Power: electronics Digital Pick Counter Hong Kong OR Equivalent
257.	View logic box color shade matching box	Model No: HTL002 Textile Testing Instrument, Trade Mark: Tony, China OR Equivalent
258.	Washing Machine Colour Fastness to washing	Model no. TSA 008, Range Textile Material, Trade Mark: TST, China OR Equivalent

259.	Crease recovery tester.	Model No: TF 110A, China OR Equivalent
260.	Top loading balance	Mettler Toledo CR 4.1 KG X 0.1g-1ea Switzerland OR Equivalent
261.	SSIS-Performance Screening Guide	Pre-school 14051 USA OR Equivalent
262.	SSIS-Performance Screening Guide	Elementry 14053 USA OR Equivalent
263.	Potters Wheel	Manual Steel Body Pakistan
264.	Flame Photometer	Range: 0.2 ppm for Na and K, 0.25 ppm for Li, 15 ppm for Ca, 30 ppm for Ba. Reproducibility: 1 % CV for 20 consecutive samples, Reading time: 20 seconds Interference: Less than 5 % Sample input: 2-6 ml/ minute Electric supply: 220 Volts Air Compressor: moisture and oil free Fuel: Natural gas / LPG Operating Environment: 15-35 °C JENWAY OR Equivalent
265.	Stereomicroscope	Trinocular Head, Zoom Objective: 0.8 x -5x, Zoom Ratio: 6.3:1, Working Distance: 115mm, IRMECO OR Equivalent
266.	Rotary Evaporator	Rotary Evaporator 0.25-2L,0-120rpm,0-99°C,Digital Display Manual Lifting HYDRION SCIENTIFIC OR equivalent
267.	Analytical balance	Max. Weight: 2200g, Readability: 0.01g SHIMADZU OR Equivalent
268.	Hot Plate	Automatic reversal, Speed up to 1200 rpm, Stirring capacity of 15 Liter, Maximum temperature of 370 °C, Operated on 220 V
269.	pH Meter	Portable Range: 0.00 – 14.00 units, Temperature: 0 - 100°C. HANNA OR Equivalent
270.	Mini vortex Mixer	Speed: up to 3200rpm With both a cup head and 3-inch head with cover TALBSYS/Equivalent
271.	Gel Electrophoresis systems with Power Supply	Cell size: (W x L x H) 9.2 x 25.5 x 5.6 cm Gel tray sizes (W x L) 7 x 7 cm and 7 x 10 cm. Sample throughput: 8-30 in number Buffer base volume: approximately 250-70 MI
272.	Centrifuge Machine	Variable speed up to 5000 rpm, Capacity: 8-12 x 15mL
273.	Micropipette set	Single-channel adjustable micropipette set including following measurement ranges: 5. 0.2 ul- 2 ul 6. 2 - 20 ul 7. 20-200 ul 8. 200-1000 ul GILSON OR Equivalent
274.	Water Still	Glass Water Stills with Silica Heater, Output 3-4 Liter/Hour single distilled, pH: 5.0 - 6.5, Conductivity: μScm^{-1} 3.0 - 4.0, Resistivity: 0.25 - 0.3 mOhm ^{-cm} IRMECO OR Equivalent
275.	Culture Cabinet	Exhaust air should be double-filtered through high-quality HEPA filters with typical efficiency of >99.999% for 0.1 to 0.3 micron particles. Exclusive dual exhaust filters providing >100,000 times better protection. Antimicrobial surface on all painted surfaces with minimum contamination. STREAMLINE, Singapore OR Equivalent
276.	Long-wave Handheld UV lamp	UV lamp of 300-400nm wavelength radiations

277.	Hot air oven	Temperature range: 50°C to 200°C and accuracy: ±2°C., Capacity: up to 6 Cubic Feet, Pressure Range: 479 psi and up, External Configuration: Front Load
278.	Microtome blades	Lipshaw Microtome knife blade, Germany 770-180 120mm

279.	Microtitration plate washer	HydroSpeed™ OR Equivalent Tecan
280.	Staining stand	Wheaton® Staining Dishes, Ted Pella OR Equivalent
281.	Air velocity meter	Handheld environmental meter (Omega) HHEM-SD1 series OR Equivalent
282.	Hygrometer	Meade TM005X-M Wireless Indoor/Outdoor Thermo Hygrometer by Meade OR Equivalent
283.	Egg Candler	Hi-Intensity Egg Candler, 120V-AC 50/60 HZ Catalog #: 950-076 OR Equivalent
284.	Weighing balance	Single and dual-interval checkout scales Ariva-s OR Equivalent
285.	Thermostablizer	Tokihit 4-50C OR Equivalent
286.	Electric fumigation gun	RPF/10/SP OR Equivalent

Section “B”

TEACHING AID EQUIPMENT

Sr. #	Item	Specifications	Qty.
1	Refrigerator (Local)	16 Cubic Feet HAIER OR Equivalent	6 Nos.
2	Multimedia Projector with Screen	LCD Panels: 0.75”x3 Bright ERA ICD Brightness: 3800 Lumens Resolution: WXGA upto UXGA (1600x1200) Aspect Ratio: 16:10 Contrast Ratio: 3700:1 (Full white/full black) Lamp Life: 10000H Eco Mode Throw Ratio: 1.10:1 to 1.79:1 Keystone correction: Max. vertical: ±20 Screen Size: 30” to 300” Filter Cleaning Cycle: Max 7000 Hours LAN: RJ-45 10BASE-T/100BASE-TX Interface, HDMI, USB A Type (Controlling the projector) USB B Type for PC Less presentation USB Viewer Plug & Play: Movie, Photo, Office File Remote Control Speaker: 16Wx1, Weight: 4.1kg/9 ib 1 oz Celing Mount Kit (2 Ft Height) Hashmo H2O Carrying Case with installation Optional - Wall Mount Motorizes Screen 8x10 ft - Tripod Screen with Stand 8x10 ft - VGA Cable 15Meter - HDMI Cable 15 Meter - Audio Video Cable 15 Meter - Power Cable 5M	23 Nos.
3	Multimedia Projector with screen	Power consumption (operating), Brightness 3,000 ANSI, Contrast17,000 : 1 Resolution : 800x600 (SVGA), with remote control	1 No.
4	Sound system with accessories	Amplifier TOA 2120 (3 Channel/Phone Output) Speaker TOA BS 1030 Color Mike SGDR (China) Mike for dice, Universal Gooseneck Base of Mike Wire of Speaker 23/76 (2 Core) along with complete Installation	6 Nos.
5	Laserjet printer	3 in 1 HP OR Equivalent	7 Nos.
6	Digital camera	Mega Pixel: 16.2, Optical Zoom: 8X, Digital Zoom: 32X SONY OR Equivalent	1 No.
7	Video Camera (small)	Canon Legria Camcorder HF R47 OR Equivalent	1 No.

Section VIII.

Sample Forms

Sample Forms

1.	Bid Form and Price Schedules	99,100
2	Manufacturer’s/Distrbutor's/Dealer's Certificate Form	101

1. Bid Form and Price Schedules

Date: _____
Tender No. _____

To:

Prof. Dr. Muhammad Javed,
Dean/Convener,
University of Agriculture,
Faisalabad.

Gentlemen and/or Ladies:

Having examined the bidding documents including Tender No.12/2015, 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.