



University of Agriculture, Faisalabad

Bidding Documents

Tender No.85/2021

SPECIAL INSTRUCTIONS

- No cutting, erasing is allowed in the Tender bid.
- Bid offered strictly in accordance with the bid document will only be accepted.
- Only typed bid will be accepted
- Call Deposit Receipt (CDR) will be preferred. However, Bank Guarantee may also be accepted in case of performance security. CDR including other instruments will be deposited in the University relevant account and in that eventuality, the release of the requisite amount would be made in shape of crossed cheque after deductions of necessary taxes and bank charges

**THIS IS FOR STRICT COMPLIANCE, FAILING WHICH THE
RESPECTIVE BID SHALL STAND CANCELLED**

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Section I.

Invitation for Bids



UNIVERSITY OF AGRICULTURE, FAISALABAD
(TENDER NOTICE No.85/2021)

Sealed tenders are invited from Income Tax and Sales Tax registered firms on the basis of Single Stage (two envelop procedure) for **Purchase of Equipment** under project titled “**Establishment of National Center in Big Data & Cloud Computing (NCBC-PAAL)**” for the Department of Computer Sciences at University of Agriculture, Faisalabad.

Date of Receiving and Opening	07.09.2021	Receiving Time	10:30 a.m.
		Opening Time	11:00 a.m.
		Bid Security	2% of the
			Estimated Cost
		Tender Fee	Rs.500/- *
			(Free, if Downloading)
* Link for free Downloading: http://uaf.edu.pk/directorates/dpiv/dpiv_tenders.html			

1. The bidding documents are available in the office of the Treasurer (**Tender Cell**) and the same may be obtained subject to payment of the cost of the printing and provision of the document (tender Fee) as mentioned above to be deposited in the University Income Account (No.11-9/NBP, UAF Branch).
2. **All the interested bidders will submit the bids in the Tender Cell, 1st Floor Admin. Block Treasurer's Office, University of Agriculture, Faisalabad (UAF) as per schedule mentioned above.**

DIRECTOR (DPIC)
(For & On behalf of the Committee)
Phone#041-9200898, 9200161 Extn.3505
E.Mail: dpic@uaf.edu.pk
store_officer@uaf.edu.pk

Section II.

Instructions to Bidders

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Instructions to Bidders

A. Introduction

- | | |
|---------------------------------------|--|
| 1. Source of Funds | University of Agriculture, Faisalabad. |
| 2. Eligible Bidders | <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

- 5. Content of Bidding Documents**

5.1 The goods required, bidding procedures, and contract terms are prescribed in the bidding documents. In addition to the Invitation for Bids, the bidding documents include:

 - (a) Instructions to Bidders (ITB)
 - (b) Bid Data Sheet
 - (c) General Conditions of Contract (GCC)
 - (d) Special Conditions of Contract (SCC)
 - (e) Schedule of Requirements
 - (f) Technical Specifications
 - (g) Bid Form and Price Schedules
 - (h) Manufacturer’s Authorization Form
 - (i) Integrity pact.
 - (j) Mechanism of Blacklisting and Deregistration

5.2 The Bidder is expected to examine all instructions, forms, terms, and specifications in the bidding documents. Failure to furnish all information required by the bidding documents or to submit a bid not substantially responsive to the bidding documents in every respect will be at the Bidder’s risk and may result in the rejection of its bid.
- 6. Clarification of Bidding Documents**

6.1 A prospective Bidder requiring any clarification of the bidding documents may notify the Purchaser in writing at the Purchaser’s address indicated in the **Bid Data Sheet**. The Purchaser will respond in writing to any request for clarification of the bidding documents which it receives prior to the deadline for the submission of bids prescribed in ITB Clause 19.1. Written copies of the Purchaser’s response (including an explanation of the query but without identifying the source of inquiry) will be sent to all prospective bidders that have received the bidding documents.
- 7. Amendment of Bidding Documents**

7.1 At any time prior to the deadline for submission of bids, the Purchaser, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, may modify the bidding documents by amendment.

7.2 All prospective bidders that have received the bidding documents will be notified of the amendment in writing and will be binding on them.

7.3 In order to allow prospective bidders reasonable time in which to take the amendment into account in preparing their bids, the Purchaser, at its discretion, may extend the deadline for the submission of bids.

C. Preparation of Bids

8. Language of Bid

8.1 The bid prepared by the Bidder, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser shall be written in English. Supporting documents and printed literature furnished by the Bidder may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified above, in which case, for purposes of interpretation of the Bid, the translation shall govern.
9. Documents Constituting the Bid

9.1 The bid prepared by the Bidder shall comprise the following components:

(a) a Bid Form and a Price Schedule completed in accordance with ITB Clauses 10, 11, and 12;

(b) documentary evidence established in accordance with ITB Clause 13 that the Bidder is eligible to bid and is qualified to perform the contract if its bid is accepted;

(c) documentary evidence established in accordance with ITB Clause 14 that the goods and ancillary services to be supplied by the Bidder are eligible goods and services and conform to the bidding documents; and

(d) bid security furnished in accordance with ITB Clause 15.
10. Bid Form

10.1 The Bidder shall complete the Bid Form and the appropriate Price Schedule furnished in the bidding documents, indicating the goods to be supplied, a brief description of the goods, their country of origin, quantity, and prices.

10.2 Bidders tendering for engineering goods produced in Pakistan shall be accorded a price preference in rupees up to a specific percentage (in proportion to the value addition) of the lowest quoted landed cost of an item of foreign origin with similar specifications as mentioned in the tenders:

(1) Provided that-

(a) The saving in foreign exchange is not less than the amount of price preference: and

(b) It is ensured that in each case of such preference, the total import requirements for producing the supplies tendered for locally manufactured items has been duly indicated by the bidders.

(2) Price preference shall be allowed as under:-

(a) Having minimum of twenty percent value addition through indigenous manufacturing price preference shall fifteen percent;

(b) Having over twenty percent and up to thirty percent value addition through indigenous manufacturing, price preference shall be twenty percent, and

(c) Having over thirty percent value addition through indigenous manufacturing, price preference shall be twenty five percent.

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

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

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

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

11. Bid Prices

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

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

- a). for goods offered from within Pakistan;

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

- b) for goods offered from abroad by the LOCAL AGENT:

the price shall be quoted Cost and Freight (CFR), Carriage Paid to (Duty Paid) (CPT) Karachi seaport or Lahore/Faisalabad airport Pakistan, as the case may be. The bidder shall also add all cost expenses, charges, duties and taxes etc. whatsoever expect customs, 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 except transit and means of transport through/of Israel. The LC at sight, as on Usance basis and Advance Payment will be governed as per following:-

i. LC AT SIGHT

The bidder shall provide Performa Invoice of principal on CPT/CFR basis as per supply order along with Insurance / Cover Note and CDR **within fortnight** in favor of Director (DPIC) as security equal to 100% amount of the goods to initiate the LC at sight.

ii. LC ON USANCE BASIS

In case the bidder, is unable to provide CDR in favor of Director (DPIC) as security equal to 100% amount of the goods to be imported, may chose this option and shall provide Performa Invoice of principal on CPT/CFR basis as per supply order along with Insurance / Cover Note **within fortnight** to initiate the LC on usance basis (minimum usance period 60 days from the date of Airway Bill **OR** 90 days from the date of Bill of Lading).

iii. ADVANCE PAYMENT

The bidder shall provide Performa Invoice of principal on CPT/CFR basis as per supply order along with Insurance / Cover Note and CDR **within fortnight** in favor of Director (DPIC) as

security equal to 100% amount of the goods to be imported to proceed for advance payment to the exporter. However, this option will be had where the value of the goods to be imported is up to US \$ 10,000 or varied in accordance with the instructions of the State Bank of Pakistan and Pakistan Customs issued from time to time and remittance will also be made accordingly.

iv. OPEN ACCOUNT

In case the bidder has not opted for import through LC (at sight or Usance basis or advance payment) may opt this option and shall provide Performa Invoice of principal on CPT/CFR basis as per supply order **within fortnight**. However, remittance will be made maximum up to six months from the date of filing of Goods Declaration (GD) form or otherwise as per Foreign Exchange Manual of State Bank of Pakistan and Pakistan Customs or instruction issued in this regard from time to time.

v. CONTRACT / COLLECTION

In case the bidder has not opted the options referred to “i to iv” above and may opt for this option. The bidder shall provide Performa Invoice of principal on CPT/CFR basis as per supply order **within fortnight**. The minimum period for remittance will be 60 days from the date of Airway Bill **OR** 90 days from the date of Bill of Lading. However, remittance will be made as per Foreign Exchange Manual of State Bank of Pakistan and Pakistan Customs or instruction issued in this regard from time to time.

vi. INCIDENTAL CHARGES FOR IMPORT OF GOODS:

All charges (Inside/outside Pakistan) like insurance, LC/bank and clearance of consignment from port/custom authorities will be borne by the bidder.

vii. RELEASE OF CDR

In case of LC at sight and advance payment to exporter, the CDR equal to 100% amount of the shipment as security will be released by Director (DPIC) after receiving of satisfactory inspection/installation/commissioning report from convener tender committee concerned.

viii. INITIATION OF REMITTANCE TO THE EXPORTER

In case of LC on usance basis, import on Open Account and Contract / Collection basis, the Director (DPIC) will initiate remittance through the concern bank to the exporter after receiving the satisfactory inspection/installation/commissioning report from the purchaser or the convener tender committee as the case may be.

DELIVERY PERIOD

After receiving the transmitted LC (at sight OR Usance Basis) OR swift acknowledgment against advance payment / proof of advance payment OR supply order on “Open Account” or “Contract / Collection” basis, the local supplier is responsible to provide complete set of shipping documents [i.e. Airway Bill/Seaway Bill/Bill of Lading, Commercial Invoice, Packing List, Country of Origin Certificate and any other document(s) related to shipment (if required) along with detail of bidder’s clearing agent for issuance of authority letter for clearance of consignment from port / custom authorities] ***within 6 weeks from the date of opening of LC (at sight or usance basis), advance payment and date of supply order for import of goods on “Open Account” or “Contract / Collection” basis. Moreover, after clearance of consignment by bidder from port / custom authorities, will deliver the consignment to the purchaser along with complete set of post shipment documents***

within 05 days from the date of Authority Letter. After expiry of the requisite period, firm will require to apply for extension in delivery period. However, after due scrutiny the Committee may extend the delivery period with liquidated damages as per applicable rate if the delay is on part of the bidder or without liquidated damages if the delay is on the part of the procuring agency or due to “force majeure”.

NOTE:

In case of late submission of Proforma Invoice, shipping documents and delivery of goods, difference of exchange rate on higher side as well as liquidated damages shall be recovered out of belongings of the bidders @ 0.67% of the value of the goods up to maximum 10% of the value of goods.

- 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 Estimated Cost or in the amount specified otherwise in the **Bid Data Sheet**.
- 15.2 The bid security is required to protect the Purchaser against the risk of Bidder’s conduct which would warrant the security’s

forfeiture, pursuant to ITB Clause 15.7.

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

(a) Call deposit receipt (CDR).

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

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

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

15.7 The bid security may be forfeited:

(a) if a Bidder:

- (i) withdraws its bid during the period of bid validity specified by the Bidder on the Bid Form, or
- (ii) does not accept the correction of errors pursuant to ITB Clause 24.2; or

(b) in the case of a successful Bidder, if the Bidder fails:

- (i) to sign the contract in accordance with ITB Clause 34; or
- (ii) to furnish performance security in accordance with ITB Clause 35.

**16. Period of
Validity of
Bids**

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

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

**17. Format and
Signing of
Bid**

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

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

- 17.3 Any interlineations, erasures, or overwriting shall be valid only if they are initialed by the person or persons signing the bid.
- 17.4 The Bidder shall furnish information as described in the Form of Bid on commissions or gratuities, if any, paid or to be paid to agents relating to this Bid, and to contract execution if the Bidder is awarded the contract.

D. Submission of Bids

18. Sealing and 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-qualification

- 29.1 In the absence of prequalification, the Purchaser will determine 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 | <p>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 by.</p> <p>33.2 The notification of award will constitute the formation of the Contract.</p> <p>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.</p> <p>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.</p> |
| 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 | <p>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 any bank instrument as desired in Page # 1 of Bidding Document. In case the amount of bid security is equal or greater than the value of the goods to be supplied then the bidder shall not require furnishing the performance security separately and the bid security will be retained to meet the requirement of performance security.</p> <p>35.2 Failure of the successful Bidder to comply with the requirement of 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.</p> |
| 36. Corrupt or Fraudulent Practices | <p>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;</p> <p>(a) the terms set forth below as follows:</p> <p>(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</p> <p>(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</p> |

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
Deregistration 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.
B- Bidding Documents	
ITB 5.1(h)	Not applicable
ITB 6.1	<p>Purchaser's address: Dr. Saqib Ali, Assistant Professor, Rep. of PI (NCBC-PAAL), Department of Computer Sciences through</p> <p style="color: red;">Directorate of Procurement & Inventory Control (DPIC) University of Agriculture, Faisalabad Phone No. 041-9200898</p> <p style="color: red;"><u>FOR TECHNICAL RESPONSE:</u></p> <p>1. Dr. Saqib Ali, Assistant Professor, Rep. of PI (NCBC-PAAL), Department of Computer Sciences (Precision Agriculture) (Cell # 0300-1750077) (saqibutm@gmail.com) 2. Dr. Muhammad Atif, Co-PI (Agri. Bioinformatics), NCBC-PAAL 3. Dr. M. Asif Kamran, Co-PI (Data Science) NCBC-PAAL 4. Dr. Abid Sarwar, Lecturer, Department of Irrigation & Drainage</p>
C-Preparation of Bid	
ITB 8.1	Language of the bid. “English”
ITB 11.2	Prices on F.O.R. basis is required
ITB 11.2 (c) ITB 11.3	Not applicable
ITB 13.3 (d)	<p>Qualification requirements attached with Technical Bid:-</p> <p>1. Company /Bidder Profile:</p> <ol style="list-style-type: none"> Experience 2 Years from NTN Registration Name of owner/proprietor Copy of CNIC Date of Establishment, Age of Firm Copy of NTN and Sales Tax Registration Copy of Professional Tax Affidavit (Submission of undertaking on legal valid stamp paper (valuing Rs.100/-) that the firm not blacklisted by any of Provincial or Federal Government

	Department, Agency, Organization or autonomous body or private Sector Organization anywhere in Pakistan h. Copy of last Income tax returns to be attached i. Authorized distributor/dealership certificate issued from manufacturer to be attached with the bid
ITB 15.1	<u>Amount of bid security.</u> 2% of the Estimated Cost in shape of Call Deposit Receipt (CDR) in favour of Director (DPIC), UAF to be attached with the technical Bid. However, if attached with financial bid, please mention CDR No., Date and Bank Name
ITB 16.1	Bid validity period. 90 Days
ITB 17.1	Bid: Single Stage (two envelop procedure)
D-Submission of Bid	
ITB 18.2 (a)	Address for bid submission. Tender Cell, Treasurer's Office, University of Agriculture, Faisalabad
ITB 18.2 (b)	Tender Notice No.85/2021
ITB 19.1	Deadline for bid submission: 07.09.2021
E-Bid Evaluation	
ITB 25.1(a)	State Bank or a Commercial Bank to be read as State Bank of Pakistan and National Bank of Pakistan
ITB 25.2	The common base currency is PAK Rupee to be converted as per rate of the bank shown in ITB 25.1(a) of the bid data sheet on the date of opening of the financial bid.
ITB 26.3 (a)(i)	The SCC stipulates the payment schedule offered by the purchaser. If a bid deviates from the schedule then it will be considered as non-responsive.
ITB 26.3 (c)	The bidder will provide the cost of spare parts required to be replaced during whole life of the goods after the expiry of warranty period.
ITB 26.3 (e)	The bidder will provide :- i) Cost of consumables N/A ii) Unit of energy consumption per hour N/A iii) Life cycle of the goods N/A
ITB 26.3 (f)	Performance and productivity of Articles. As per Technical Specification
ITB 26.3 (g)	As per specification.
ITB 27	As per ITB clause 10.2 prior to the award of procurement contract
ITB 33	Subject to PPRA Rule 2014/UAF Procurement Rule 2014, the bidder with the lowest evaluated bid, if not in conflict with any other law, shall be awarded the procurement contract within the original or extended bid validity period after 10 days of announcement of the evaluation report.

Section IV.

General Conditions of Contract

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General Conditions of Contract

1. Definitions

1.1 In this Contract, the following terms shall be interpreted as indicated:

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

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

- 6. Patent Rights** 6.1 The Supplier shall indemnify the Purchaser against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Goods or any part thereof in the Purchaser's country.
- 7. Performance Security** 7.1 Within Seven (07) days from the issuance of acceptance letter from the Purchaser, the successful Bidder shall furnish the performance security in shape of CDR 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) 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 Director (DPIC) 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 Director (DPIC) 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% for the warranty period of one year of the value of Supply Order or Contract in shape of CDR or any bank instrument except bank guarantee in favour of Director (DPIC), UAF within Seven (07) days from the issuance of acceptance and 10% performance security letters from the Purchaser for permanent equipment. In case the amount of bid security is equal or greater than the value of the performance security, then the bidder shall not require to furnish the performance security separately.

- B. 2% CDR or any bank instrument except bank guarantee in favour of Director (DPIC) already received in lieu of earnest money in case of general type/consumable good(s) will be retained by the office for 3 month from the day of supply of the respective good(s) or fully consumed whichever is earlier.

2. **Inspection and Tests (GCC Clause 8)**

GCC 8.1- By the incumbent mentioned sr. # 1 to 4 in committee notification No.Acs. Dev./4150736304/463-71 dated 04.08.2021 in accordance with the specifications or samples or both as required.

3. The representative of the firm(s) shall present the Authority Letter from the respective firm in the tender opening meetings with them, failing which he will not allowed to sit in the said meeting

4. **Warranty (GCC Clause 15)**

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

5. **Bid Prices (11.2 ITB)**

- 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) **If the firm quoted the rates on CFR/CPT basis, the firm is bound to quote the FOR prices also**

- c) **for goods offered from abroad by the LOCAL AGENT:**

the price shall be quoted Cost and Freight (CFR), Carriage Paid to (Duty Paid) (CPT) Karachi seaport or Lahore/Faisalabad airport Pakistan, as the case may be. The bidder shall also add all cost expenses, charges, duties and taxes etc. whatsoever expect customs, 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 except transit and means of transport through/of Israel. The LC at sight, as on Usance basis and Advance Payment will be governed as per following: -

i. LC AT SIGHT

The bidder shall provide Performa Invoice of principal on CPT/CFR basis as per supply order along with Insurance / Cover Note and CDR **within fortnight** in favor of Director (DPIC) as security equal to 100% amount of the goods to initiate the LC at sight.

ii. LC ON USANCE BASIS

In case the bidder, is unable to provide CDR in favor of Director (DPIC) as security equal to 100% amount of the goods to be imported, may chose this option and shall provide Performa Invoice of principal on CPT/CFR basis as per supply order along with Insurance / Cover Note **within fortnight** to initiate the LC on usance basis (minimum usance period 60 days from the date of Airway Bill **OR** 90 days from the date of Bill of Lading).

iii. ADVANCE PAYMENT

The bidder shall provide Performa Invoice of principal on CPT/CFR basis as per supply order along with Insurance / Cover Note and CDR **within fortnight** in favor of Director (DPIC) as security equal to 100% amount of the goods to be imported to proceed for advance payment to the exporter. However, this option will be had where the value of the goods to be imported is up to US \$ 10,000 or varied in accordance with the instructions of the State Bank of Pakistan and Pakistan Customs issued from time to time and remittance will also be made accordingly.

iv. OPEN ACCOUNT

In case the bidder has not opted for import through LC (at sight or Usance basis or advance payment) may opt this option and shall provide Performa Invoice of principal on CPT/CFR basis as per supply order **within fortnight**. However, remittance will be made maximum up to six months from the date of filing of Goods Declaration (GD) form or otherwise as per Foreign Exchange Manual of State Bank of Pakistan and Pakistan Customs or instruction issued in this regard from time to time.

v. CONTRACT / COLLECTION

In case the bidder has not opted the options referred to “i to iv” above and may opt for this option. The bidder shall provide Performa Invoice of principal on CPT/CFR basis as per supply order **within fortnight**. The minimum period for remittance will be 60 days from the date of Airway Bill **OR** 90 days from the date of Bill of Lading. However, remittance will be made as per Foreign Exchange Manual of State Bank of Pakistan and Pakistan Customs or instruction issued in this regard from time to time.

vi. INCIDENTAL CHARGES FOR IMPORT OF GOODS:

All charges (Inside/outside Pakistan) like insurance, LC/bank and clearance of consignment from port/custom authorities will be borne by the bidder.

vii. RELEASE OF CDR

In case of LC at sight and advance payment to exporter, the CDR equal to 100% amount of the shipment as security will be released by Director (DPIC) after receiving of satisfactory inspection/installation/ commissioning report from convener tender committee concerned.

viii. INITIATION OF REMITTANCE TO THE EXPORTER

In case of LC on usance basis, import on Open Account and Contract / Collection basis, the Director (DPIC) will initiate remittance through the concern bank to the exporter after receiving the satisfactory inspection/installation/commissioning report from the purchaser or the convener tender committee as the case may be.

DELIVERY PERIOD

After receiving the transmitted LC (at sight OR Usance Basis) OR swift acknowledgment against advance payment / proof of advance payment OR supply order on “Open Account” or “Contract / Collection” basis, the local supplier is responsible to provide complete set of shipping documents [i.e. Airway Bill/Seaway Bill/Bill of Lading, Commercial Invoice, Packing List, Country of Origin Certificate and any other document(s) related to shipment (if required) along with detail of bidder’s clearing agent for issuance of authority letter for clearance of consignment from port / custom authorities] ***within 6 weeks from the date of opening of LC (at sight or***

usage basis), advance payment and date of supply order for import of goods on “Open Account” or “Contract / Collection” basis. Moreover, after clearance of consignment by bidder from port / custom authorities, will deliver the consignment to the purchaser along with complete set of post shipment documents within 05 days from the date of Authority Letter. After expiry of the requisite period, firm will require to apply for extension in delivery period. However, after due scrutiny the Committee may extend the delivery period with liquidated damages as per applicable rate if the delay is on part of the bidder or without liquidated damages if the delay is on the part of the procuring agency or due to “force majeure”.

NOTE:
In case of late submission of Proforma Invoice, shipping documents and delivery of goods, difference of exchange rate on higher side as well as liquidated damages shall be recovered out of belongings of the bidders @ 0.67% of the value of the goods up to maximum 10% of the value of goods.

6. **Payment (GCC Clause 16)**
7. **Prices (GCC Clause 17)**
GCC17.1: The successful bidder(s) shall provide the price reasonability certificate to the effect that the rates quoted are reasonable in accordance with the market. If it is found at any stage, the quoted rates are higher than the market ones or the item(s) have been provided to any other Institute/Department etc at less rates than the quoted ones. The firm undertakes to refund the difference amount to the purchaser on demand.
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	(Convener)
ii.	Dr. Saqib Ali, Assistant Professor, Rep. of PI (NCBC-PAAL) Department of Computer Sciences (Precision Agriculture)	(Member)
iii.	Resident Auditor or the Technical Expert(s) not below the rank of Assistant Professor	(Member)
iv.	The Director (DPIC)	(Secretary)

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

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

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

B. Arbitration:

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

(a) Foreign Currency Contracts (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.
- CFR/CPT, etc., contracts made through local agents would be dealt under sub para-B (b) above.

(c) Prior Notice for arbitration:

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

C. Court Jurisdiction

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

11. Applicable Law (GCC Clause 31)

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

12. Notices (GCC Clause 32)

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

13. Taxes and Duties (GCC Clause 33)

14. Stamp Act

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

Section VI.

Schedule of Requirements

Schedule of Requirements

Number

Description

Quantity

Delivery schedule:
Supply within 90 days

Eddy Covariance Flux Tower			
Sr. No	Equipment Name	Quantity	Estimated Cost (Million PKR)
1	Eddy Covariance Flux Tower	1	16
Total			16

Modelling Simulation Lab (Workstations/Laptops/UPS/LED/Printers)			
Sr. No	Equipment Name	Quantity	Estimated Cost (Million PKR)
2	Tower Data Science Workstation	1	6.3
3	Workstations	3	3.75
4	Desktop	6	3
5	Laptop-1	1	0.4
6	Laptop-2	One each	1.2
7	Laptop-3	3	1.3
8	Laptop-4	2	0.5
9	UPS 4.5kWatts / 5.0kVA	2	1.0
10	UPS	10	0.4
11	Networking Equipment	1	0.05
12	Cabling	10	0.04
13	Printer	1	0.5
14	SMART LCD	1	0.5
15	Security Camera	2	0.02
16	3D Printer	1	0.54
Total			19.5

Sr. No	Equipment Name	Quantity	Estimated Cost (Million PKR)
17	Fixed Wing UAV with fully Compatible/Mountable Multispectral and Thermal Sensors	1	6.6
18	UAS Copters	2	0.6
19	Multispectral and Thermal Sensor Kit including Drone	1	3.5
20	Lidar	1	1.5
21	Multispectral Sensor	1	2.0
22	Commercial UAV/UAS for Agriculture	1	2.5
23	Multispectral Sensor (Handheld)	1	0.5
24	Thermal Sensor (Handheld)	1	0.8
Total			18

Sr. No	Equipment Name	Quantity	Estimated Cost (Million PKR)
25	Microclimate Sensors-1	3	1.5
26	Microclimate Sensors-2	1	1.5
Total			3.0

Sr. No	Equipment Name	Quantity	Estimated Cost (Million PKR)
27	Soil Moisture Sensor	6	0.37
28	Plant Canopy Analyzer	1	1.63
Total			2.0

Programmable Data loggers			
Sr. No	Equipment Name	Quantity	Estimated Cost (Million PKR)
29	Data logger-1	2	1.8
30	Data logger-2	2	1.2
Total			3.0

GNSS based Auto Steering Control			
Sr. No	Equipment Name	Quantity	Estimated Cost (Million PKR)
31	GNSS based Auto Steering Control	1	2.0
Total			2.0

Smart Tractor & Proximal Sensing Platform			
Sr. No	Equipment Name	Quantity	Estimated Cost (Million PKR)
32	Smart Tractor & Proximal Sensing Platform	1	4.3
Total			4.3

N Analyzer			
Sr. No	Equipment Name	Quantity	Estimated Cost (Million PKR)
33	N Analyzer	1	6
Total			6.0

Sr. No	Equipment Name	Quantity	Estimated Cost (Million PKR)
34	4-Channel Digital Oscilloscope	1	0.7
35	Multiple output linear DC power supply	1	
36	Adjustable Power supply 30v, 10A	1	
37	Function Generator	1	
38	Handheld AC/DC Multimeter	1	
39	Raspberry Pi 4 8GB with official cases	2	
40	Arduino Uno	5	
41	Arduino Mega including protection case	5	
42	Monitior, Keyborad and Mouse	1	
43	Jetson Nano	2	
44	Jetson Xavier NX	1	
45	75pcs Multi-functional Impact Drill Set	1	
46	Cordless Lithium-Ion Impact Drill		
47	Benchtop Digital Multimeter		
48	Logic Analyzer		
Total			0.7

Lot : Electronic Lab-2				
Sr. No	Equipment Name	Specifications Note: All items required one year warrenty except consumable.	Quantity	Estimated Cost (Million PKR)
49	Basic Electronic Components		Mentioned with each item	0.3
50	Heat Insulation Silicone Large Soldering & Repairing Mat		1	
51	BIOS		1	
52	Soldering Magnifier 3 in1		1	
53	Pliers		1	
54	Precision Screwdrivers Set		1	
55	PCB Electric Drill Grinder Machine Kit		1	
56	60 Drawer Plastic Component Storage Tools Box		3	
57	400 Gram Soldering Wire		3	
58	Digital Hot Air Gun Soldering Iron SMD Rework Station		1	
59	ESP32 Development Board		5	
60	Digital Vernier Caliper		1	
61	Digital Clamp Meter		1	
62	Smart SMD Tester Auto Range/Scanning 6000 counts		1	
63	Digital Microscope 500x		1	
64	Digital Microscope 1600x		1	
65	Table Lamp		2	
66	Needle file set		1	

67	Precision File set		1	
68	Drill Bits Set		1	
69	Tweezer		1	
70	ESD-15 Tweezer		1	
71	AVR Programmer		1	
72	USB Universal Programmer EPROM FLASH AVR		1	
73	PIC Programmer		1	
74	Repairing Tool Set		1	
75	Tool Box		3	
76	Wire Stripper			
77	Needle Nose Plier Set		1	
78	Socket and Tool Set		1	
79	Combination Spanner		1	
80	Glue Gun		1	
81	Brush Set 175mm		3	
82	Safety goggles		3	
Total				0.3

Note

The bidder shall quote the cost of extended warrantee period more than one year as optional upto two years separately each year. Tender shall be awarded on lowest evaluated cost basis with one-year warrantee. If option is accepted than the bidder shall be bound to honor the acceptance and performance, security shall be withheld till extended warrantee period.

Section VII.

Technical Specifications

TECHNICAL SPECIFICATIONS

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

Eddy Covariance Flux Tower				
Sr. No	Equipment Name	Specifications	Quantity	Estimated Cost (Million PKR)
1	Eddy Covariance Flux Tower	Integrated CO2 and H2O Open-Path Gas Analyzer and 3-D Sonic Anemometer or Equivalent. The product is fully integrates the open-path analyzer and sonic anemometer. Designed specifically for eddy-covariance carbon and water flux measurements, the patented design is easier to install and use than separate sensors and provides increased measurement accuracy. The simultaneously measures absolute carbon dioxide and water vapor, air temperature, barometric pressure, three-dimensional wind speed, and sonic air temperature. Benefits and Features New conformal coating helps protect sonic transducers in corrosive environments, Combined support structure causes less flow distortion than two separate sensors, Truly colocated gas analyzer and sonic anemometer measurements avoid flux loss due to sensor separation, Synchronized gas analyzer and sonic anemometer measurements avoid the need to correct for time lag, Low power consumption; suitable for solar power applications, Measurements are temperature compensated without active heat control, Low noise, Maximum output rate of 60 Hz with 20 Hz bandwidth, Angled windows shed water and are tolerant to window contamination, Field rugged, Field serviceable , Factory calibrated over wide range of CO2, H2O, pressure, and temperature in all combinations encountered in practice, Extensive set of diagnostic parameters, Fully compatible with Campbell Scientific dataloggers; field setup, configuration, and field zero and span can be accomplished directly from the datalogger, Sonic temperature determined from three acoustic paths; corrected for crosswind effects, Innovative signal processing and transducer wicks considerably improve performance of the anemometer during precipitation events. Detailed Description: The equipment has the following outputs: Ux (m/s), Uy (m/s), Uz (m/s), Sonic Temperature (°C), Sonic Diagnostic CO2 Density (mg/m3), H2O Density (g/m3), Gas Analyzer Diagnostic, Ambient Temperature (°C), Atmospheric Pressure (kPa), CO2 Signal Strength, H2O Signal Strength, Source Temperature (°C). Operating Temperature Range - 30° to +50°C Calibrated Pressure Range 70 to 106 kPa, Input Voltage Range 10 to 16 Vdc, Power 5 W (steady state and power up) at 25°C, Measurement Rate 60 Hz, Output Bandwidth 5, 10, 12.5, or 20 Hz (user-programmable), Output Options SDM, RS-485, USB, analog (CO2 and H2O only) Auxiliary Inputs Air temperature and pressure, Warranty 3 years of operation, Cable Length 3 m (10 ft) from tower to EC100, Gas Analyzer Path Length 15.37 cm (6.05 in.) A temperature of 20°C and pressure of 101.325 kPa was used to convert mass density to concentration. Gas Analyzer - CO2 Performance. A temperature of 20°C and pressure of 101.325 kPa was used to convert mass density to concentration. Accuracy, Assumes the following: the gas analyzer was properly zero and spanned using the appropriate standards; CO2 span concentration was 400 ppm; H2O span dewpoint was at 12°C (16.7 ppt); zero/span temperature was 25°C; zero/span pressure was 84 kPa; subsequent measurements made at or near the span concentration; temperature is not more than ±6°C from the zero/span temperature; and ambient temperature is within the gas analyzer operating temperature range. 1% (standard deviation of calibration residuals). Precision RMS	1	16

		(maximum) 0.2 mg/m3 (0.15 µmol/mol) Nominal conditions for precision verification test: 25°C, 86 kPa, 400 µmol/mol CO2, 12°C dewpoint, and 20 Hz bandwidth, Calibrated Range 0 to 1,000 µmol/mol (0 to 3,000 µmol/mol available upon request.), Zero Drift with Temperature (maximum) ±0.55 mg/m3/°C (±0.3 µmol/mol/°C) Gain Drift with Temperature (maximum) ±0.1% of reading/°C Cross Sensitivity (maximum) ±1.1 x 10-4 mol CO2/mol H2O Gas Analyzer - H2O Performance A temperature of 20°C and pressure of 101.325 kPa was used to convert mass density to concentration. Accuracy Assumes the following: the gas analyzer was properly zero and spanned using the appropriate standards; CO2 span concentration was 400 ppm; H2O span dewpoint was at 12°C (16.7 ppt); zero/span temperature was 25°C; zero/span pressure was 84 kPa; subsequent measurements made at or near the span concentration; temperature is not more than ±6°C from the zero/span temperature; and ambient temperature is within the gas analyzer operating temperature range. 2% (standard deviation of calibration residuals) Precision RMS (maximum) 0.004 g/m3 (0.006 mmol/mol) Nominal conditions for precision verification test: 25°C, 86 kPa, 400 µmol/mol CO2, 12°C dewpoint, and 20 Hz bandwidth. Calibrated Range 0 to 72 mmol/mol (38°C dewpoint) Zero Drift with Temperature (maximum) ±0.037 g/m3/°C (±0.05 mmol/mol/°C) Gain Drift with Temperature (maximum) ±0.3% of reading/°C Cross Sensitivity (maximum) ±0.1 mol H2O/mol CO2. Sonic Anemometer – Accuracy The accuracy specification for the sonic anemometer is for wind speeds < 30 m s-1 and wind angles between ±170°. Offset Error < ±8.0 cm s-1 (for ux, uy) < ±4.0 cm s-1 (for uz) ±0.7° while horizontal wind at 1 m s-1 (for wind direction). Gain Error < ±2% of reading (for wind vector within ±5° of horizontal), < ±3% of reading (for wind vector within ±10° of horizontal) < ±6% of reading (for wind vector within ±20° of horizontal), Measurement Precision RMS 1 mm s 1 (for ux, uy), 0.5 mm s-1 (for uz), 0.025°C (for sonic temperature), 0.6° (for wind direction) Speed of Sound Determined from 3 acoustic paths (corrected for crosswind effects). Rain Innovative signal processing and transducer wicks considerably improve performance of the anemometer during precipitation events. Basic Barometer (option -BB) Total Accuracy ±3.7 kPa at -30°C, falling linearly to ±1.5 kPa at 0°C (-30° to 0°C) ±1.5 kPa (0° to 50°C). Measurement Rate 10 Hz Enhanced Barometer (option -EB) Total Accuracy ±0.15 kPa (-30° to +50°C) Measurement Rate 1 Hz Ambient Temperature Total Accuracy ±0.15°C (-30° to +50°C). Including complete software support, site preparation, installation, and demonsatration within one month of delivery. Warrenty – One Year. Authorized Dealer/Distribution Certificate from the manufacture is required.		
Total				16

Modelling Simulation Lab (Workstations/Laptops/UPS/LED/Printers)				
Sr. No	Equipment Name	Specifications	Quantit y	Estimat ed Cost (Millio n PKR)
2	Tower Data Science Workstation	Intel Xeon Gold/AMD Ryzen (2.7GHz, 4.0GHz Turbo, 28C or more, 10.4GT/s 2UPI, 38.5MB Cache, HT (205W)) or Higher, Dual A6000, 48GB, 4DP (7920T), Tower Chassis (BC_PCIe) C, 256GB 8x32GB DDR4 2933MHz RDIMM ECC, Dual Processor Air Heatpipe, vPro Technology Enabled, MegaRAID NVMe PCIe SSD Front PCIe FlexBay, MegaRAID 9460-16i 12Gb/s PCIe RAID controller (4GB cache) with 1-2 Front FlexBay NVMe PCIe Drives, Hard Drive M.2 2TB PCIe NVMe Class 40 Solid State Drive, 2nd Hard Drive M.2 2TB PCIe NVMe Class 40 Solid State Drive, Premier Multi-Device Wireless Keyboard and Mouse - KM7321W, Network Cards 10GbE NIC, Dual Port, Copper, Wireless Dual Band Wireless AC 8265 (802.11ac) 2x2 + Bluetooth module, Teradici Remote Access Solutions, 38 Curved Monitor. Windows 10/Ubuntu Linux 20.4. Complete installation and one year complete product warranty. Authorized Dealer/Distribution Certificate	1	6.3

		from the manufacture is required.		
3	Workstations	11th Gen Intel Core i9/AMD Ryzen or higher, Windows 10 Pro English Videocard RTX 3090 24GB GDDR6, Memory, 128GB Dual Channel DDR4 XMP at 3400MHz, Harddrive 2TB M.2 PCIe NVMe SSD (Boot) + 2TB 7200RPM SATA 6Gb/s (Storage), 27 Curved Monitor, , 610M, Wireless Gaming Mouse and keyboard. Also one year complete product warranty. Authorized Dealer/Distribution Certificate from the manufacture is required.	3	3.75
4	Desktop	10th Generation Intel/AMD Core i7 , 16GB ,1x16GB, DDR4 non ECC memory, 1TB PCIe NVMe Solid State Drive, 3.5 inch 1TB 7200rpm Hard Disk Drive, Wired Keyboard, USB Mouse, High Definition FHD 27 inch monitio,Windows 10 Professional (64-bit) English. Complete installation and one year complete product warranty. Authorized Dealer/Distribution Certificate from the manufacture is required.	6	3
5	Laptop-1	2.4 GHz 8-core 9th-generation Intel Core i9 processor or higher, Turbo Boost up to 4.8GHz, 32GB 2666MHz DDR4 memory, AMD Radeon Pro 5500M with 4GB of GDDR6 memory, 1TB SSD storage, 16-inch Retina display with True Tone, Four Thunderbolt 3 ports, Touch Bar and Touch ID, Backlit Magic Keyboard - US English, including travel bag and one year warrenty. Authorized Dealer/Distribution Certificate from the manufacture is required.	1	0.4
6	Laptop-2	<div>1. M1 chip with 8-core CPU, 8-core GPU, and 16-core Neural Engine, 16 GB unified memory, 512GB SSD storage, MAC Book Air with Retina display with True Tone, Magic Keyboard, Touch ID, Force Touch trackpad, Two Thunderbolt / USB 4 ports including travel bag and one year warrenty. Authorized Dealer/Distribution Certificate from the manufacture is required.</div> <div>2. 2.4 GHz 8-core 9th-generation Intel Core i9 processor or higher, Turbo Boost up to 4.8GHz, 16GB 2666MHz DDR4 memory, AMD Radeon Pro 5500M with 4GB of GDDR6 memory, 1TB SSD storage, 16-inch Retina display with True Tone, Four Thunderbolt 3 ports, Touch Bar and Touch ID, Backlit Magic Keyboard - US English, including travel bag and one year warrenty. Authorized Dealer/Distribution Certificate from the manufacture is required.</div>	One each	1.2
7	Laptop-3	11th Generation Intel Core i7/AMD or higher, Cache, 4 Core, up to 4.90 GHz, 16 GB LPDDR4 512 GB, M.2 2280, PCIe NVMe Gen3 x4, SSD 13.4-inch UHD+ (3840 x 2400), 60 Hz, anti-reflective, touch, InfinityEdge, 90% DCI-P3 typical, 500 nits, wide-viewing angle including travel bag and one year warrenty. Windows 10 Professional. Complete installation. Authorized Dealer/Distribution Certificate from the manufacture is required. Authorized Dealer/Distribution Certificate from the manufacture is required.	3	1.3
8	Laptop-4	10th Generation Intel Core i7/AMD or higher, 16GB DDR4, 512GB M.2 2280 PCIe Gen3x4 SSD, MX450 2GB GDDR5, 15.6" FHD Display including travel bag and one year warrenty. Windows 10 Professional. Complete installation. Authorized Dealer/Distribution Certificate from the manufacture is required.	2	0.5
9	UPS 4.5kWatts / 5.0kVA	Smart-UPS RT 5000VA 230V with SURT007, AP9610, and Long Life Batteries, Original not refurbished, Max Configurable Power (Watts) 3.5kWatts / 5.0kVA Output Voltage Note Configurable for 220 or 230V nominal output voltage, Efficiency at Full Load 92.0 %, Output Voltage Distortion Less than 3 % Output Frequency (sync to mains) 50/60 Hz +/- 3 Hz user adjustable +/- 0.1 Hz Sync to mains. Other Output Voltages 220 V, 240 V, Load Crest Factor 3 : 1, Topology Double conversion online, Waveform type Sine wave, Bypass Internal bypass (automatic and manual), Input frequency 50/60 Hz +/- 3 Hz Auto-sensing, Input voltage range for main operations 100 - 280 Adjustable, 160 - 280V, Efficiency at Full Load 92.0 %, Other Input Voltages 220 V, 240 V, Batteries & Runtime, Battery type Lead-acid battery Included Battery Modules 2, Typical recharge time 2.5hour(s), Expected Battery Life (years) 3 - 5, Battery Charge Power (Watts) 341 Watts, Extendable Run Time 1, Extended Run Options Smart-UPS-RT-5000VA-230V-with-SURT007-AP9610-and-Long-Life-Batteries, Communications &	2	1.0

		Management, Interface Port(s) DB-9 RS-232, Input contact closure, SmartSlot, Pre-Installed SmartSlot Cards AP9610, Control panel - LED status display with load and battery bargraphs and on line : on battery : replace battery overload and bypass indicators. One year UPS warranty and One year batteries replacement warranty. Complete installation. Authorized Dealer/Distribution Certificate from the manufacture is required.		
10	UPS	UPS 1000VA AVR 230V Universal Outlet, Max Configurable Power (Watts) 600 Watts / 1.0kVA Output Frequency (sync to mains) 50/60 Hz +/- 1 Hz Unsynchronised Topology Line interactive Waveform type Stepped approximation to a sinewave Transfer Time 6 ms typical : 10 ms maximum, Input frequency 50/60 Hz +/- 5 Hz Auto-sensing Input voltage range for main operations 170 - 280V, Number of Power Cords 1, Battery type Lead-acid battery, Typical recharge time 8hour(s) Nominal Battery Voltage 12 V Expected Battery Life (years) 3 – 5, Communications & Management Control panel LED Status display with on line : on battery Audible Alarm Alarm when on battery : distinctive low battery alarm : overload continuous tone alarm, Maximum Height 93MM, 9.25CM Maximum Width 161MM, 16.05CM Maximum Depth 305MM, 30.5CM, RoHS Compliant. One year UPS warranty and one battery replacement warranty. Complete installation. Authorized Dealer/Distribution Certificate from the manufacture is required.	10	0.4
11	Networking Equipment	MIMO Gigabit Wi-Fi Router,Wi-Fi speeds up to 5.3 Gbps Next-Gen AC Wi-Fi, MU-MIMO technology, 8 Gigabit ports, 8 external antennas for expanded range, 802.11b, 802.11a/g, 802.11n, 802.11ac. Authorized Dealer/Distribution Certificate from the manufacture is required. Complete installation and one year warrenty.	1	0.05
12	Cabling	Power Strip or Socket Output: 16 A 230 V – 50/60 Hz, Max 3680 W, Strip Dimensions: 268 x 50 x 38 mm, Length of cable: 1.4m, Net Weight 433 g (incl. cable), Total Output – 5VDC Max. 3.1A, Single Output – 5VDC Max, 2.1A, Package Contents: Power Strip Unit, User Manual	10	0.04
13	Printer	LaserJet Enterprise All-in-One Monochrome Laser Printer, Duplex, Print, copy, scan Print speed letter: Up to 40 ppm (black), Print Resolution: 1200 x 1200 dpi, Maximum Print Size: 12.3 x 18.5". Complete installation and one year warrenty. Authorized Dealer/Distribution Certificate from the manufacture is required.	1	0.5
14	SMART LCD	70 inch or higher Crystal UHD 4K Smart TV, Crystal Display, Crystal Processor 4K, 3-side Boundless, Buletooth,4K Resolution, Game Enhancer, HDR, Clean cable solution, Smart hub & one remote Function ,Google Assistant,Works with Amazon Alex ,Screen Size 70", Resolution 3840 x 2160, Contrast Mega Contrast, Contrast Enhancer, Dolby Digital Plus, Sound Output (RMS)20 W, Bluetooth Audio, Speaker Type2 CH, Operating System Tize, Web Browser, SmartThings App Support, Gallery,WiFi Direct, Sound Mirroring, Mobile to TV - Mirroring, DLNA, Digital Broadcasting DVB-T2CS2, Ethernet (LAN), Wireless LAN Built-in (WiFi5), Slim look, BT HID Built-in, Power Consumption(Max) 230 W including remote and one year product warranty. Complete installation. Authorized Dealer/Distribution Certificate from the manufacture is required.	1	0.5
15	Security Camera	360 Home Security Camera 2K Pro, 3 million pixels, 360° panorama, Full colour in low-light, AI human detection, F1.4 large aperture and 6P lens for an excellent image capturing experience, Enhanced infrared night vision for clear images even in low-light, Dual-microphone noise reduction for clearer two-way voice calling, 360° pan-tilt-zoom panorama for all-round monitoring with no blind spots. One year product warranty. Complete installation.	2	0.02
16	3D Printer	Print Technology - Fused Deposition Modeling, Build Volume 29.5 L X 19.5 W X 16.5 H CM [11.6 X 7.6 X 6.5 IN] 9,492 Cubic Centimeters [573 Cubic Inches], Layer Resolution 100 microns [0.0039 IN], Material Diameter 1.75 mm [0.069 in], Material Compatibility - Large Spool, Small Spool Tough Material - Large Spool Additional materials such as bronzefill, copperfill, and woodfill Extruder Compatibility Smart Extruder+ Tough Smart Extruder+ Experimental Extruder	1	0.54

		Nozzle Diameter 0.4 MM [0.015 IN], Print File Type MAKERBOT and others, Temperature Ambient Operating Temperature 15--32°C [60--90°F], Storage Temperature 0--38°C [32--100°F], Mechanical Construction PC ABS with Powder-Coated Steel Reinforcement, Aluminum Casting and Extrusions for Motion Components\ Build Surface Grip Surface Build Plate Leveling Factory Leveled Stepper Motors 1.8° step angle with 1/16 micro-stepping XY Positioning Precision 11 Microns [0.0004 IN], Z Positioning Precision 2.5 Microns [0.0001 IN] including one year product warranty and installation. One extra Extruder. Authorized Dealer/Distribution Certificate from the manufacture is required.		
Total				19.5

UAV fixed wing, Thermal Sensor with radiometric calibration function, Multispectral sensors, UAS Copters, LIDAR sensor				
Sr. No	Equipment Name	Specifications	Quantity	Estimated Cost (Million PKR)
17	Fixed Wing UAV with fully Compatible/ Mountable Multispectral and Thermal Sensors	Fixed wing Electric motor (Low-noise, brushless), Radio link range (3 km nominal / up to 8 km) Detachable wings, Ground Sampling Distance (GSD) at 120 m (2.5 cm / pixel), Flight Duration (> 30 Mins), Cruise speed (40-110 km/h), Wind resistance (Up to 46 km/h or 12.8 m/s or 28.6 mph), Maximum coverage at 120 m (500 ha or ~1250 ac), Post-processed kinematic (Yes), Real-Time Kinematic (Yes), Radio Tracker and Transmitter - For locating lost aircraft in rough terrain or dense vegetation. The fixed wing UAV MUST be compatible with the following 2 sensors (Cameras) a. High resolution RGB and Multispectral Camera Parrot Sequoia or equivalent (Multispectral bands / Green 550 nm, Red 660 nm, Red edge 735 nm, Near infrared 790 nm) b. Thermal radiometric infrared (FLIR or equivalent) and RGB. One extra Propeller Kits, One extra Endurance Batteries, including all accessories and software support. Flying License/Training for two Person to Fly Fixed Wing UAV. Also full Software Support and one year warranty.Including realtime flight view and planning gadget with following specs. XDR Liquid Retina display 11-inch (diagonal) 2388-by-1668-pixel resolution at 264 pixels per inch (ppi), M1 chip, ProMotion technology, Wide colour display (P3), True Tone display, 128 GB storage, Fingerprint-resistant oleophobic coating, Fully laminated display, pro cameras, the LiDAR Scanner, and the Ultra Wide front camera, Antireflective coating, 1.8 per cent reflectivity, 600 nits brightness, Nano-SIM support, rugged protection case. One year warranty. Assembly, installation, and demonstarion within one month of delivery. Authorized Dealer/Distribution Certificate from the manufacture is required.	1	6.6
18	UAS Copters	Max Ascent Speed S-mode: 6 m/s, P-mode: 5 m/s, Max Descent Speed S-mode: 4 m/s, P-mode: 3 m/s, Max Speed S-mode: 45 mph (72 kph), A-mode: 36 mph (58 kph), P-mode: 31 mph (50 kph), Max Tilt Angle S-mode: 42° A-mode: 35° P-mode: 25° Max Angular Speed S-mode: 250°/s A-mode: 150°/s, Max Service Ceiling Above Sea Level 19685 ft (6000 m), Max Wind Speed Resistance 10 m/s, Max Flight Time Approx. 30 minutes, Satellite Positioning Systems GPS/GLONASS, Gimbal Stabilization 3-axis (pitch, roll, yaw) Controllable Range Pitch: - 90° to +30° Max Controllable Angular Speed Pitch: 90°/s Angular Vibration Range ±0.02° Vision System Forward Vision System Backward Vision System Downward Vision System Obstacle Sensory Range 2-98 ft (0.7-30 m) Infrared Sensing System Obstacle Sensory Range 0.6-23 feet (0.2-7 m), Intelligent Flight Battery and full Software Support and one year warrenty. One set of extra batteries, two sets of extra propalers for each item and full Software Support. One year warranty. Assembly, installation, and demonstarion within one month of delivery. Authorized Dealer/Distribution Certificate from the manufacture is required.	2	0.6
19	Multispectral and Thermal Sensor Kit including Drone	Multispectral and Thermal Sensor Kit including UAV, 3-in-1 solution for unparalleled sensing in a compact package. Ready to integrate with SkyPort compatible drone Matrice 300/M600 Pro. Simultaneous capture of five discrete spectral bands and thermal images. Enhanced image resolution on multispectral images enabling high resolution applications. High capacity USB storage. DLS 2 with embedded GPS for easier integration, enhanced light calibration. Sensor Specifications DLS1, DLS2, Wi-Fi Adapter, Dimensions 8.2 cm x 6.7 cm x 6.75 cm (3.2 in x 2.6 in x 2.7 in), External Power 4.9 - 25.2 V Power Input 5.5/7.0/10W (standby, average, peak) Spectral Bands Blue, green, red, red edge, near infrared (NIR), Wavelength (nm) Blue (475 nm center, 32 nm	1	3.5

		bandwidth), green (560 nm center, 27 nm bandwidth), red (668 nm center, 14 nm bandwidth), red edge (717 nm center, 12 nm bandwidth), near-IR (842 nm center, 57 nm bandwidth) RGB Color Output High-resolution, global shutter, aligned with all bands Thermal LWIR thermal infrared 8-14um. Radiometrically calibrated Sensor Resolution 2064 x 1544 (3.2 MP per EO band) at 120m (400ft) AGL 81cm per pixel (thermal) at 120m Ground Sample Distance (GSD): 5.28 cm per pixel (per EO band) at 120 m (~400 ft) AGL 81 cm per pixel (thermal) at 120 m Capture Rate 1 capture per second (all bands), 12-bit RAW Interfaces Aircraft: Trigger input, top of frame out, 1 PPS out. 3.3V isolated IO 2x USB 3.0 SuperSpeed ports for WiFi or Ethernet and USB 3.0 Storage Field of View 50.2° x 38.4° (multispectral) 57° x 44° (thermal) Focal Length 7.84mm (multispectral) 1.77 mm (thermal) Storage USB 3.0 compatible storage devices. The sensor kit comes with: Multispectral and Thermal Sensor Kit, SkyPort adapter, lens cover, external storage device (USB 3.0) - 128 GB, calibrated reflectance panel, new DLS 2 light sensor with integrated GPS, cables, compass, hard carrying case, and DLS2 mast kit including Quick Mount Kit for M600 pro and Quick Mount Kit for M300 including full Software Support and one year warranty. Assembly, installation, and demonstrarion within one month of delivery. Authorized Dealer/Distribution Certificate from the manufacture is required.		
20	Lidar	Lightweight Surround Lidar Sensor with 100 m range with compact form factor, Lightest performance-optimized sensor, roven, Class 1 eye-safe 905 nm technolog, Top-of-the-line field-of-view, Best-in-class accuracy and calibrated intensity, Best-in-class power & temperature range, Sensor-to-sensor interference mitigation feature, Patented Surround View Technology, full 360-degree environmental view to deliver accurate real-time 3D data with compact, lightweight sensor delivers the ideal resolution and performance for UAV/drone and mobile applications. Complete mounting kit including Gimbal for Matrice Pro 600. All accessories. Full Software support and one year warranty. Assembly, installation, and demonstrarion within one month of delivery. Authorized Dealer/Distribution Certificate from the manufacture is required.	1	1.5
21	Multispectral Sensor	Multispectral Sensor with Dual cameras. 10 bands and unlimited indices with SkyPort Kit, Dimensions 8.7cm x 5.9cm x 4.54cm (3.4in x 2.3in x 1.8in), External Power 4.2 V DC - 15.8 V DC 4 W nominal, 8 W peak, Spectral Bands Blue, green, red, red edge, near-IR (global shutter, narrowband), Wavelength (nm) Blue (475 nm center, 32 nm bandwidth), green (560 nm center, 27 nm bandwidth), red (668 nm center, 14 nm bandwidth), red edge (717 nm center, 12 nm bandwidth), near-IR (842 nm center, 57 nm bandwidth) RGB Color Output Global shutter, aligned with all bands Ground Sample Distance (GSD) 8 cm per pixel (per band) at 120 m (~400 ft) AGL Capture Rate 1 capture per second (all bands), 12-bit RAW Interfaces Serial, 10/100/1000 ethernet, removable Wi-Fi, external trigger, GPS, SDHC Field of View 47.20° HFOV Triggering Options Timermode, overlap mode, external trigger mode (PWM, GPIO, serial, and Ethernet options), manual capture mode Hard-Sided Carrying Case, Wire Harnesses, Mounting screws, Lens cover, Compas including Quick Mount Kit including Gimbal for M600 pro. Full Software support and one year full product warranty. Assembly, installation, and demonstrarion within one month of delivery. Authorized Dealer/Distribution Certificate from the manufacture is required.	1	2.0
22	Commercial UAV/UAS for Agriculture	Commerical Precision Ag Drone with dimension 1668 mm × 1518 mm × 727 mm with propellers, frame arms and GPS mount unfolded (including landing gear) 437 mm × 402 mm × 553 mm with propellers, frame arms and GPS mount folded (excluding landing gear), 525 mm × 480 mm × 640 mm Weight (with six TB47S batteries) 9.5 kg, Weight (with six TB48S batteries) 10 kg, Max Takeoff Weight Recommended 15.5 kg, Hovering Accuracy (P-GPS Vertical: ±0.5 m, Horizontal: ±1.5 m, Max Angular Velocity, Pitch: 300°/s, Yaw: 150°/s, Max Pitch Angle 25°, Max Wind Resistance 8 m/s, Max Ascent Speed 5 m/s, Max Descent Speed 3 m/s Max Speed 40 mph / 65 kph (no wind), Hovering Time* (with six TB47S batteries) No payload: 32 min, 6 kg payload: 16 min, Hovering Time* (with six TB48S batteries), No payload: 38 min, 5.5 kg payload: 18 min Supported DJI Gimbals Ronin-MX; Zenmuse Z30, Zenmuse X5/X5R, Zenmuse X3, Zenmuse XT; Zenmuse Z15 Series HD Gimbal: Z15-A7, Z15-BMPCC, Z15-5D III, Z15-GH4 Flight Control System A3 Pro, Propulsion System, Motor model: DJI 6010, Propeller model: DJI 2170R, Charger (Model: MC6S600), Voltage Output 26.1 V, Rated Power 600 W, Single Battery Port Output Power 100 W, Optional Battery (Model: TB48S), Capacity 5700 mAh Voltage 22.8 V, Battery Type LiPo 6S, Energy 129.96 Wh, Net Weight 680 g, Max Charging	1	2.5

		Power 180 W, Remote Controller Operating Frequency 920.6 MHz to 928 MHz (Japan); 5.725 GHz to 5.825 GHz; 2.400 GHz to 2.483 GHz, Max Transmission Distance FCC Compliant: 3.1 mi (5 km), CE Compliant: 2.2 mi (3.5 km) (Unobstructed, free of interference), Transmitter Power (EIRP) 10 dBm @ 900M, 13 dBm @ 5.8G, 20 dBm @ 2.4G, Video Output Port HDMI, SDI, USB, Operating Temperature 14°F to 104° F (-10° to 40° C), Battery 6000 mAh LiPo 2S,, Standard Battery (Model: TB47S), Capacit 4500 mAh Voltage 22.2 V, Battery Type LiPo 6S, Energy 99.9 Wh, NetWeigh 595 g, Operating Temperature 14° F to 104° F , Max Charging Power 180 W, Gimbal with complete mounting kit to support RedEdge-MX Sensor, Velodyne Puck (LITE), and Altum Sensor Kit including all accessories. Built-in FPV Camera with 2-Axis Stabilization, Compatible with Zenmuse Gimbal Cameras Rugged Body with IP43 Dust and Water Resistance, Advanced Obstacle Detection and Avoidance, Maximum Flight Time of 38 minutes Maximum Payload Capacity of 4.41lbs, Operation Range of 4.35miles. Full Softeare support with all accesserioes and rugged field travel box. One set of extra batteries and two sets of extra propalers. Full Software support and one year warranty. Also Including realtime flight view and planning gadget with following specs. XDR Liquid Retina display 11-inch (diagonal) 2388-by-1668-pixel resolution at 264 pixels per inch (ppi), M1 chip, ProMotion technology, Wide colour display (P3), True Tone display, 128 GB storage, Fingerprint-resistant oleophobic coating, Fully laminated display, pro cameras, the LiDAR Scanner, and the Ultra Wide front camera, Antireflective coating, 1.8 per cent reflectivity, 600 nits brightness, Nano-SIM support, rugged protection case. Full Software Support and one year warranty. Assembly, installation, and demonstarion within one month of delivery. Authorized Dealer/Distribution Certificate from the manufacture is required.		
23	Multispectral Sensor (Handheld)	Handheld Multispectral Sensor - GreenSeeker Handheld Crop Sensor or Equivalent . The sensor enables to emit brief bursts of red and infrared light and then measures the amount of each type of light that is reflected back from the plant, The sensor continues to sample the scanned area as long as the trigger remains engaged, The sensor displays the measured value in terms of an NDVI reading (ranging from 0.00 to 0.99) on its LCD display scree, The strength of the detected light is a direct indicator of the health of the crop; the higher the reading, the healthier the plant, High-quality optical sensor to instantly measure plant vigor, Easy-to-read display, even in sunlight, Simple pull-type trigger and comfortable hand grip, Micro USB charging port. Full Software Support and one year warranty. Assembly, installation, and demonstarion within one month of delivery. Authorized Dealer/Distribution Certificate from the manufacture is required.	1	0.5
24	Thermal Sensor (Handheld)	Camera size (L x W x H) 244 × 95 × 140 mm (9.6 × 3.7 × 5.5 in), Camera weight incl battery 0.575 kg (1.27 lb.), Display 3.0 in. 320 × 240 color LCD, Multi Spectral Dynamic Imaging (MSX) IR image enhanced with visible camera detail, Color Palettes Black & white, iron, and rainbow Connections & Communications AC Operation AC adapter, 90–260 VAC input, 5 VDC output to camera WiFi Standard: 802.11 b/g/n Frequency range: 2400–2480 MHz 5150–5260 MHz Max. output power: 15 dBm, Environmental missivity table/correction Emissivity table of predefined materials/variable from 0.1 to 1.0 Encapsulation/Drop IP 54 (IEC 60529)/2m (6.6 ft.) Radio Spectrum Standard: 802.11 b/g/n Frequency range: 2400–2480 MHz 5150–5260 MHz Max. output power: 15 dBm Environmental Humidity (Operating and Storage) IEC 60068-2-30/24 h 95% relative humidity Environmental & Approvals EMC WEEE 2012/19/EC, RoHs 2011/65/EC C-Tick EN 61000-6-3 EN 61000-6-2 FCC 47 CFR Part 15 Class B Imaging & Optical Digital Camera Resolution/FOV 640 × 480/55° × 43° f-number 1.5 Image Adjustment Automatic adjust/lock image Image Modes Thermal MSX, Thermal, Picture-in-Picture, Thermal blending, Digital camera. Accuracy ±2°C (±3.6°F) or ±2% of reading, for ambient temperature 10°C to 35°C (50°F to 95°F) and object temperature above 0°C (32°F) Detector Type Uncooled microbolometer Field of view (FOV) 45° × 34° IR Resolution 320 × 240 pixels, Multi Spectral Dynamic Imaging (MSX) IR image enhanced with visible camera detail Object Temperature Range –20°C to 550°C (-4°F to 1022°F) in two ranges Packaging Size 385 × 165 × 315 mm (15.2 × 6.5 × 12.4 in) Thermal Sensitivity/NETD <0.05°C (0.09°F) / <50 mK. Full Software Support and one year warranty. Assembly, installation, and demonstarion within one month of delivery. Authorized Dealer/Distribution Certificate from the manufacture is required.	1	0.8
Total				18

Climate Sensors				
Sr. No	Equipment Name	Specifications	Quantity	Estimated Cost (Million PKR)
25	Microclimate Sensors-1	Smart weather station, all-in-one solution for onsite microclimate measurements, with the following specifications. Solar radiation, Range: 0 to 1750 W/m2 Resolution: 1 W/m2 Accuracy: ± 5% of measurement typical Precipitation Range: 0 to 400 mm/h Resolution: 0.017 mm Accuracy: ± 5% of measurement from 0 to 50 mm/h Vapor Pressure Range 0 to 47 kPa Resolution 0.01 kPa Accuracy Varies with temperature and humidity, ±0.2 kPa typical below 40 °C Relative Humidity Range 0 to 100% RH (0.00-1.00) Resolution 0.1% RH Accuracy Varies with temperature and humidity, ±3% RH typical Air temperature Range: -50 to 60 °C Resolution: 0.1 °C Accuracy: ± 0.6 °C Humidity sensor temperature Range: -40 to 50 °C Resolution: 0.1 °C Accuracy: ± 1.0 °C Barometric pressure Range: 50 to 110 kPa Resolution: 0.01 kPa Accuracy: ± 0.1 kPa from -10 to 50 °C, ± 0.5 kPa from -40 to 60 °C Horizontal wind speed Range: 0 to 30 m/s Resolution: 0.01 m/s Accuracy: the greater of 0.3 m/s or 3% of measurement Wind gust Range: 0 to 30 m/s Resolution: 0.01 m/s Accuracy: the greater of 0.3 m/s or 3% of measurement Wind direction Range: 0° to 359° Resolution: 1° Accuracy: ± 5° Tilt Range: -90° to +90° Resolution: 0.1° Accuracy: ± 1° Lightning strike count Range: 0 to 65,535 strikes Resolution: 1 strike Accuracy: variable with distance, >25% detection at <10km typical Lightning average distance Range: 0 to 40 km Resolution: 3 km Accuracy: variable Communication Specifications Output SDI-12 communication Data logger compatibility METER ZL6 and EM60 data loggers or any data acquisition systems capable of switched 3.6- to 15.0-VDC excitation and SDI-12 communication Physical Characteristics Dimensions Diameter: 10 cm (3.9 in) Height: 28 cm (11.0 in), includes rain gauge filter Operating temperature range Minimum -50 °C Maximum: 60 °C Barometric pressure and relative humidity sensors operate accurately at a minimum of -40 °C Cable length 5 m (standard) 3.5-mm stereo plug connector or stripped and tinned wires Electrical and Timing Characteristics Supply voltage (VCC to GND) Minimum: 3.6 VDC continuous Maximum: 15.0 VDC continuous Weather station to meet digital logic levels specified by SDI-12, it must be excited at 3.9 VDC or greater. Digital input voltage, Minimum: 2.8 V Typical: 3.0 V Maximum: 5.5 V Digital input voltage (logic low), Minimum: -0.3 V Typical: 0.0 V Maximum: 0.8 V Digital output voltage (logic high), Typical 3.6 V Weather station to meet digital logic levels specified by SDI-12, it must be excited at 3.9 VDC or greater. Power line slew rate Minimum: 1.0 V/ms Current drain (during measurement) Minimum: 0.2 mA Typical: 8.0 mA Maximum: 33.0 mA Current drain (while asleep) Minimum: 0.2 mA Typical 0.3 mA Maximum: 0.4 mA Power up time (SDI ready) aRx! Commands Typical: 10 s Power up time (SDI ready)—other commands Typical: 800 ms Measurement duration Typical: 110 ms Maximum: 3,000 ms Compliance Manufactured under ISO 9001:2015 EM ISO/IEC 17050:2010 (CE Mark) Pyranometer spectral response Spectral response estimate of Apogee silicon-cell pyranometers. Spectral response was estimated by multiplying the spectral response of the photodiode, diffuser, and adhesive. Spectral response measurements of diffuser and adhesive were made with a spectrometer, and spectral response data for the photodiode were obtained from the manufacturer. Accessories Bird Spike Kit. One year warranty. Assembly, installation, and demonstration within one month of delivery. Authorized Dealer/Distribution Certificate from the manufacture is required.	3	1.5
26	Microclimate Sensors-2	Weighable Lysimeter with tipping counter, soil moisture sensors and tension sensors, Size Ø = 30 cm / Length = 30 cm, Ø = 30 cm / Length = 60 cm, Ø = 30 cm / Length = 90 cm Ø = 80 cm / Length = 30 cm, Ø = 80 cm / Length = 60 cm, Ø = 80 cm / Length = 90 cm, Optionally available as suction plate with membrane, Planar Control, Available as just suction or bidirectional control, Integrated in lysimeter station, Measurement Principle: Tipping counter, Measurement Range: 0 to 1 L/min for 30cm Ø 0 to 5 L/min for 80cm Ø, Seepage Reservoir: 17 L, Sampling: Manually with external pump, external automated sampling optionally available, Measurement Range, Weight: 0 to 100 kg, Soil Moisture: 0 to 60% volumetric (0 to 100% with limited accuracy), Temperature: -40 to +80°C, Tension: 0 to 200 kPa, Measurement Profiles, Two for 30cm lysimeter length, Three for 60cm/90cm lysimeter length, Two sensors on each level, Control Station/Data Logger, Control, Climate Sensors and Lower Boundary System, Power Supply, Rechargeable battery and solar panel, Remote Data Transmission— in combination with SVADSS data base solutions are available. The main advantage of the lysimeter is the availability of a bugger	1	1.5

		surface area. measuring range soilmoisture 0-60 %vol, resolution soil moisture± 1% vol, accuracy soil moisture ± 3 % vol, measuring range temperature -40to+80°C resolution temperature ±0.1 °C, accuracy temperature ±0.2 °C, volume of tipping tray 4 ml, adjustable, Polyamid 0,11 Polycarbonat flow max. 1l/min max. 5l/min, Fullrange Tensiometer number max. 3 measuring range -100...1500 kPa (pF 4.2), accuracy 1%, operating temperature +1...+39°C (soil temperature), pH-measuring range pH 2...pH 10 dimensions Ø 25mm; length 150 mm. Full software support and one year warrenty. Assembly, installation, and demonstarion within one month of delivery. Authorized Dealer/Distribution Certificate from the manufacture is required.		
Total				3.0

Soil Moisture Sensors				
Sr. No	Equipment Name	Specifications	Quant itiy	Estimated Cost (Million PKR)
27	Soil Moisture Sensor	Advanced soil moisture sensor with >1000 mL volume of influence Electrical conductivity sensor plus Thermistor embedded, Robust, epoxy body for tough field conditions, Minimizes salinity and textural effects by using 70 MHz frequency capacitance technology, Steel needles cut through the soil for better soil-sensor contact, Easy to-read voltage output for various data loggers, Ferrite core eliminates cable noise, Measurement Specifications Volumetric water content Range: Mineral soil calibration: 0.00–0.62 m3/m3 Soilless media calibration: 0.0–1.0 m3/m3 Apparent dielectric permittivity (εa): 1 (air) to 80 (water) Resolution: 0.001 m3/m3 Accuracy: Generic calibration: ±0.03 m3/m3 (±3.00% VWC) typical in mineral soils that have solution EC <8 dS/m Medium specific calibration: ±0.01–0.02 m3/m3 (±1–2% VWC) in any porous medium Apparent dielectric permittivity (εa): 1–40 (soil range) , ±1 εa (unitless) 40–80, 15% of measurement Dielectric measurement frequency 70 MHz Temperature Range: –40 to 60 °C Resolution: 0.1 °C Accuracy: ±1 °C Bulk electrical conductivity (ECb) Range: 0–10 dS/m (bulk) Resolution: 0.001 dS/m Accuracy: ±5% of measurement Output DDI serial or SDI-12 communications protocol Data logger compatibility Any data acquisition system capable of 4.0- to 15-VDC power and serial or SDI-12 communication Physical Specifications Dimensions Length: 9.4 cm (3.70 in) Width: 2.4 cm (0.95 in) Height: 7.5 cm (2.95 in) Probe length 5.5 cm (2.17 in) Operating temperature range Minimum: –40 °C Typical: NA Maximum: 60 °C NOTE: Sensors may be used at higher temperatures under certain conditions; Contact Customer Support for assistance Cable length 50 m Connector types 3.5-mm stereo plug connector or stripped and tinned wires Stereo plug connector diameter 3.50 mm Conductor gauge 22 AWG/24 AWG drain wire Electrical and Timing Characteristics Supply voltage (VCC) to GND Minimum: 4.0 VDC Typical: NA Maximum: 15.0 VDC Digital input voltage (logic high) Minimum: 2.8 V Typical: 3.6 V Maximum: 3.9 V Digital input voltage (logic low) Minimum: –0.3 V Typical: 0.0 V Maximum: 0.8 V Digital output voltage (logic high) Minimum NA Typical 3.6 V Maximum NA Power line slew rate Minimum: 1.0 V/ms Typical: NA Maximum: NA Current drain (during 25-ms measurement) Minimum: 3.0 mA Typical: 3.6 mA Maximum: 16.0 mA Current drain (while asleep) Minimum: NA Typical: 0.03 mA Maximum: NA Operating temperature range Minimum: –40 °C Typical: NA Maximum: +60 °C NOTE: Sensors may be used at higher temperatures under certain conditions; Contact Customer Support for assistance. Power up time (DDI serial) Minimum: 80 ms Typical: NA Maximum: 100 ms Power up time (SDI-12) Minimum: NA Typical: 245 ms Maximum: NA Power up time (SDI-12, DDI disabled) Minimum: 145 ms Typical: 155 ms Maximum: 165 ms Measurement duration Minimum: 25 ms Typical: NA Maximum: 150 ms. Full software support and one year warrenty. Assembly, installation, and demonstarion within one month of delivery. Authorized Dealer/Distribution Certificate from the manufacture is required.	6	0.37
28	Plant Canopy Analyzer	Plant Canopy Analyzer with following specifications Range: 0 to 2,500 µmol/(m2s) Resolution: 1 µmol/(m2s) External PAR sensor Range: 0 to 4,000 µmol/(m2s) (full sunlight ~2,000 µmol/[m2s]) Resolution: 1 µmol/(m2s) Accuracy: ±5% Unattended logging interval Between 1 and 60 min (user selectable) Physical Specifications Controller dimensions Length: 15.80 cm (6.20 in) Width: 9.50 cm (3.75 in) Height: 3.30 cm (1.30 in) Weight: 0.55 kg (1.21 lb) with batteries Probe dimensions Length: 86.5 cm (34.06 in) Width: 19.0 mm (0.75 in) Height: 9.5 mm (0.38 in) External sensor dimensions Diameter: 24.0 mm (0.94 in), Height: 27.0 mm (1.06 in) Probe sensors Number: 80 Type: Photosynthetically active radiation sensor External sensor Number: 1 Type: Apogee SQ110 photosynthetically active radiation sensor Operating temperature range Minimum: 0 °C Maximum: 50	1	1.63

		°C Operating relative humidity range, Minimum: 0% Maximum: 100% Power 4 AA batteries, included, Data storage 1 MB flash memory External PAR sensor Locking 5-pin sealed circular connector on 5-m cable Computer interface Locking 5-pin sealed circular connector to RS-232 cable or equivalent system with same specifications. Full software support and one year warrenty. Assembly, installation, and demonstarion within one month of delivery. Authorized Dealer/Distribution Certificate from the manufacture is required.		
Total				2.0

Programmable Data loggers				
Sr. No	Equipment Name	Specifications	Quantity	Estimated Cost (Million PKR)
29	Data logger-1	Advance data logger with Ethernet Port - Operating Temperature Range - 40° to +70°C (standard), -55° to +85°C (extended), Analog Inputs 16 single-ended or 8 differential (individually configured), Pulse Counters: 10 (P1 to P2 and C1 to C8), Voltage Excitation Terminals: 4 (VX1 to VX4), Communications Ports: Ethernet, USB CS I/O, RS-232, CPI, RS-485, Data Storage Ports: microSD, Switched 12 Volt: 2 terminals, Digital I/O: 8 terminals (C1 to C8) configurable for digital input and output. Includes status high/low, pulse width modulation, external interrupt, edge timing, switch closure pulse counting, high-frequency pulse counting, UART, RS-232, RS-485, SDM, SDI-12, I2C, and SPI function. Terminals are configurable in pairs for 5 V or 3.3 V logic for some functions. Input Limits: ±5 V Analog Voltage Accuracy: ±(0.04% of measurement + offset) at 0° to 40°C ±(0.06% of measurement + offset) at -40° to +70°C±(0.08% of measurement + offset) at -55° to +85°C (extended temperature range) ADC: 24-bit Power Requirements: 10 to 18 Vdc Real-Time Clock Accuracy: ±3 min. per year (Optional GPS correction to 10 µs) Internet Protocols: Ethernet, PPP, CS I/O IP, RNDIS, ICMP/Ping, Auto-IP(APIPA), IPv4, IPv6, UDP, TCP, TLS, DNS, DHCP, SLAAC, SNMPv3, NTP, Telnet, HTTP(S), FTP(S), SMTP/TLS, POP3/TLS Communication Protocols: PakBus, Modbus, DNP3, SDI-12, TCP, UDP, and others Warranty : 3 years (against defects in materials and workmanship) Battery-backed SRAM for CPU Usage & Final Storage: 4 MB Data Storage 4 MB SRAM + 72 MB flash Storage expansion of up to 8 GB with removable microSD flash memory card. Idle Current Drain, Average < 1 mA (@ 12 Vdc) Active Current Drain, Average 1 mA (1 Hz scan @ 12 Vdc) 55 mA (20 Hz scan @ 12 Vdc) Software Compatibility: DEVCONFIG Version 2.16 or higher Konect GDS LNLINUX Version 4.5 or higher LoggerLink Version 1.6 or higher LOGGERNET Version 4.5 or higher PC200W Version 4.5 or higher PC400 Version 4.5 or higher RTDAQ Version 1.3 or higher Short Cut Version 4.0 or higher. Full software support. One year warrenty. Assembly, installation, and demonstarion within one month of delivery. Authorized Dealer/Distribution Certificate from the manufacture is required.	2	1.8
30	Data logger-2	Cloud Based Datalogger with 3G/4G support with sensor logging interval is 5 min to 12 h (average or accumulation of 1-min sensor reading), Logger reporting interval: Hourly with additional charges for more frequent reporting. Hourly with the ability to enable more frequent reporting Timekeeping Synchronize with Cloud: Synchronize automatically and on-demand; GPS, cellular, or Utility software Communication Specifications Computer communication Standard USB cable, USB A to micro-USB B Internet downloads SSL/TLS encrypted Cellular communication 3G Specifications: UMTS 3G 5-band cellular module with 2G fallback. 4G LTE-M and NB-IoT cellular, Bluetooth 5.2 supporting Bluetooth Low Energy protocol GPS communicationType: Integrated 56-channel GPS/QZSS receiver Update: Daily (automatic) and on-demand (manual) Accuracy: ±3 m, with good sky view Physical Specifications Dimensions Length: 14.9 cm (5.9 in) Width: 6.3 cm (2.5 in) Height: 25.0 cm (9.9 in) Enclosure material Weather-, impact-, and UV-resistant polymer Enclosure rating IP56, NEMA 3R Enclosure access Hinged door with latches and eyelets for lock or zip tie Sensor input ports 6 (supports analog, digital, or pulse sensors) Sensor port type 3.5-mm stereo plug connector Memory type Nonvolatile flash, full data retention with loss of power Data storage 8 MB (40,000 to 80,000+ records depending on configuration) Battery capacity 6 AA alkaline batteries 6 AA NiMH or alkaline batteries Battery life Alkaline: 3–12 months depending on configuration NiMH: 3+ years with unobstructed view of sun. Charging through solar energy harvesting or USB Operating temperature range Minimum: –40 °C Maximum: +60 °C. Assembly, installation, and demonstarion within one month of delivery. One year warranty and full software support. Authorized Dealer/Distribution Certificate from the manufacture is required.	2	1.2

Total				3.0
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GNSS based Auto Steering Control																																														
Sr. No	Equipment Name	Specifications	Quantity	Estimated Cost (Million PKR)																																										
31	GNSS based Auto Steering Control	Auto-Steering system that gives high-performance auto steering on non-steer-ready vehicles, including tractors, sprayers, swathers and combines. It provides an accuracy up to 2.5cm and can be widely used in planning, spraying, harvesting. The auto steering for non-steer ready vehicles is based upon the latest technology i.e. GNSS based Steering Control via EMS Motor, instead of Hydraulic Valves and Pipes. This technology requires less maintenance/spares requirements and easy to install and calibrate. The system doesn't require tractor auto electrician or mechanic for installation & maintenance. Following is the set of equipment which is required to implement the Auto Steering. Including Tractor equivalent to 85HP 4wd fitted with auto steering system equivalent to Trimble Autopilot Motor Drive System or Equivalent of the following specifications.	1	2.0																																										
		<table><tr><th>Sr. No.</th><th>Component Name</th></tr><tr><td>1</td><td>T90 Tablet (10" LCD Display) with built-in control box and integrated GNSS receiver & Radio along with cable harness</td></tr><tr><td>2</td><td>EMS1 Motor Steering Wheel</td></tr><tr><td>3</td><td>Wheel Connecting Cables</td></tr><tr><td>4</td><td>Motor for Wheel (Steering Wheel and motor will eliminate the need of hydraulics related accessories, tubes, high pressure filters, valves, T-Junctions, etc.)</td></tr><tr><td>5</td><td>Power Cable for Tractor and Base Station</td></tr><tr><td>6</td><td>Rocker Switch connecting wires</td></tr><tr><td>7</td><td>Radio Antenna with connectors</td></tr><tr><td>8</td><td>GNSS Antenna with mounting</td></tr><tr><td>9</td><td>GNSS Antenna Cables</td></tr><tr><td>10</td><td>Power Module</td></tr><tr><td>11</td><td>Power backup 50 Amp dry battery with charger system</td></tr><tr><td>12</td><td>Fixed Bracket & Mounting for Tablet/Control box</td></tr><tr><td>13</td><td>Rocker switch fixed bracket</td></tr><tr><td>14</td><td>Angle sensor with all mounting accessories and wires etc.</td></tr><tr><td>15</td><td>Base Station – Complete Set</td></tr><tr><td>16</td><td>Data link antenna with cable</td></tr><tr><td>17</td><td>External power cables</td></tr><tr><td>18</td><td>Power generator 1.0 kVA (self start, gasoline powered, with charger stabilizer)</td></tr><tr><td>19</td><td>Aluminum Tripod Stand</td></tr><tr><td>20</td><td>English version System Software for T90 Tablet</td></tr></table>			Sr. No.	Component Name	1	T90 Tablet (10" LCD Display) with built-in control box and integrated GNSS receiver & Radio along with cable harness	2	EMS1 Motor Steering Wheel	3	Wheel Connecting Cables	4	Motor for Wheel (Steering Wheel and motor will eliminate the need of hydraulics related accessories, tubes, high pressure filters, valves, T-Junctions, etc.)	5	Power Cable for Tractor and Base Station	6	Rocker Switch connecting wires	7	Radio Antenna with connectors	8	GNSS Antenna with mounting	9	GNSS Antenna Cables	10	Power Module	11	Power backup 50 Amp dry battery with charger system	12	Fixed Bracket & Mounting for Tablet/Control box	13	Rocker switch fixed bracket	14	Angle sensor with all mounting accessories and wires etc.	15	Base Station – Complete Set	16	Data link antenna with cable	17	External power cables	18	Power generator 1.0 kVA (self start, gasoline powered, with charger stabilizer)	19	Aluminum Tripod Stand	20	English version System Software for T90 Tablet
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Note: Assembly, installation, and demonstarion within one month of delivery. One year warrenty. Authorized Dealer/Distribution Certificate from the manufacture is required.																																														
Total				2.0																																										

Smart Tractor & Proximal Sensing Platform				
Sr. No	Equipment Name	Specifications	Quantity	Estimated Cost (Million PKR)
32	Smart Tractor & Proximal Sensing Platform	Smart Tractor 3-cylinder, EFI petrol engine 43 kW (54 hp) Speed: 72 km/h, 4-Wheel Drive Fully Independent Suspension Power Steering Towing Capacity: 907 kg Cargo Capacity: 454 kg (Deluxe (Polypropylene Side Panels and Tailgate; Steel Floor and Load Guard), Cargo space dimensions, cm (1143 × 1320 × 304.8) Tyres: 27 × 11– R14 Maxxis Big Horn Radials, Heating and Air Conditioning (HVAC) Retractable aluminum mast platform, that can be fitted onto the cargo box of Smart Tractor with more than 70% cargo space still	1	4.3

		remaining after the platform fit. Motor operated height adjustment of the platform. Assembly, installation, and demonstarion within one month of delivery. One year warrenty. Authorized Dealer/Distribution Certificate from the manufacture is required.		
Total				4.3

N Analyzer				
Sr . No	Equipment Name	Specifications	Quantity	Estimated Cost (Million PKR)
33	N Analyzer	N Analyzer Unit with Maximum relative humidity of 80% Measuring range of 0.1 to 200mg N, Electrical Requirements 220 to 240 V, 50/60 Hz, 2200 w, Includes Splash protector, titration set, power cable, operation manual, sample tube (300mL), storage tanks (10L), hose for chemical feed (6m), hose for cooling water feed (1.5m), hose for cooling water drain (1.8m), pair of glass tongs, Height (Metric) 660 mm, Model Width (Metric) 405 mm Depth (Metric) 400 mm Weight (Metric) 22 kg, Temperature (Metric) Range 5°C to 40°C, Sample Tube Set Capacity 300mL For Use With (Equipment) Product Type Sample Tube Set, For Use With (Application) Sample Volumes up to 200mL in Volume or 5g in Weight Material Glass, Digestion Unit Mains voltage 220-240 V/110-120 220 - 240 V Frequency 50 Hz / 60 Hz 50 Hz / 60 Hz, Power consumption 1100 W 2200 W, Current consumption 5 A 10 A. Further, it has customizable analysis methods for multi-purpose use, Modular concept to adapt to changing needs, Modern instrument software enabling convenient routine use, Connection to various external titrators for semi-automated processing, Storage of results on the instrument (titrant consumption), Data export on USB printer for documentation purposes, No unauthorized use due to password protection, Acid-resistant pump for additional steam distillation applications, Wide selection of titrators for colorimetric or potentiometric procedures, Reduction of steam power for gentle distillation. Warranty one year. Assembly, installation, and demonstarion within one month of delivery. One year warrenty. Authorized Dealer/Distribution Certificate from the manufacture is required.	1	6
Total				6.0

Electronic Lab-1				
Sr . No	Equipment Name	Specifications	Quantity	Estimated Cost (Million PKR)
34	4-Channel Digital Oscilloscope	Sample Rate up to 1GS/s,Channels 2/4,.Bandwidth 100MHz, 160MHz, 200MHz,.Memory Depth 32Mpts(Standard).,Waveform Capture Rate up to 30,000wfms/s., With 256 level intensity grading display, Up to 65,000 frames for Waveform Record , Replay, Support serial bus trigger and decoding..9.8 inches, TFT LCD, WVGA(800 x 480),Interface: USB Host, USB Device, LAN, VGA, AUX OUT, 10MHz input/output, Time Base Scale(2 ns/div 至 50 s/div), Input Coupling(1MΩ± 1%) (13 pF± 3 pF), trigger(Edge, Alternate, Runt, Super picture, Nth Edge, Delay, Duration, SetupHold, Pulse Width.), Auto Measurement(Peak-Peak Value, Amplitude, Maximum, Minimum, Top Value, Bottom Value, Mean, Average, Root Mean Square Value, Overshoot, Preshoot, Frequency, Cycle, Rise Time, Fall Time, Positive Pulse, Negative Pulse, Positive Duty Ratio, Negative Duty Ratio, Delay 1->2, and Delay 2->1). GW Instek/B&K Precision/Rigol Technologies/Keysight Technologies/UNI-T. Installation, and demonstarion within one month of delivery. One year warrenty. Authorized Dealer/Distribution Certificate from the manufacture is required.	1	0.7
35	Multiple output linear DC power supply	Channels 3, O/P current 3A, O/P voltage 30 V, O/P current resolution 10mA, O/P Voltage resolution, Freq measurment Range (5-150Mhz),2, 3 and 4 Independent Isolated Output, Tracking Operation and Auto Series/Parallel Operation 4*3 LED Display, linear and multi-channel, protection Against reverse polarity and anti-overload, power supply od 110/120/220230,+10%,50/60 Hz, 0.01% Load and Line Regulation. GW Instek/B&K Precision/Rigol Technologies/Keysight Technologies/UNI-T. Installation, and demonstarion within one month of delivery. One year warrenty. Authorized Dealer/Distribution Certificate from the manufacture is required.	1	
36	Adjustable Power supply 30v, 10A	Adjustable 30v and 10Amps, black lit LED display, CC and Cvmode, built-in Thermo-Senor, short circuit protection, limited current protection, voltage overload Protection (Eventek/ Rigol / Siglent). Installation, and demonstarion within one month of delivery. One year warrenty. Authorized	1	

		Dealer/Distribution Certificate from the manufacture is required.		
37	Function Generator	Channels 2, Sample Rate 125MS/s, Output Frequency 25MHz, Frequency Resolution 1uHz, Vertical Resolution 14 bits, Max. Arb. Memory Depth 8 kpts ,Waveforms Sine, Square, Ramp, Triangle, Pulse, Noise, DC, Arb, Output Amplitude Range 1mVpp~10Vpp(50Ω), 2mVpp~20Vpp(High Z), Modulation Types AM, FM, PM, ASK, FSK, PWM, Sweep, Burst, Interfaces USB Device, USB Host, Frequency Meter, Power 100~240 VAC, 45-440Hz ,Display 4.3 inches 64K Color TFT LCD (480x272), Standard Accessories BNC Cable, Power Cord, USB Cable, PC Software CD. GW Instek/B&K Precision/Rigol Technologies/Keysight Technologies/Uni-t. Installation, and demonstarion within one month of delivery. One year warrenty. Authorized Dealer/Distribution Certificate from the manufacture is required.	1	
38	Handheld AC/DC Multimeter	DC Voltage (200mV/2V/20V/200V/1000V ±(0.5%1)), DC Current (2mA/20mA /200mA /20A ±(0.8%+1)), AC Voltage (V) (2V/20V/200V/750V ±(0.8%+3)), AC Current (A) (20mA/200mA/20A ±(1%+3), Resistance (200Ω/2kΩ/20kΩ/200kΩ/2MΩ/20MΩ/200MΩ ±(0.8%+1)), Capacitance (F) (2nF/20nF/200nF/2?F/20?F ±(4%+3)), Frequency (Hz) (2kHz/20kHz ±(1.5%+5)), Temperature (°C)(-20°C~ 1000°C ±(1%+3)) , Transistor measurement , diode measurment. GW Instek/B&K Precision/Rigol Technologies / Keysight Technologies/UNI-T. Installation, and demonstarion within one month of delivery. One year warrenty. Authorized Dealer/Distribution Certificate from the manufacture is required.	1	
39	Raspberry Pi 4 8GB with official cases	Broadcom BCM2711, Quad core Cortex-A72 (ARM v8) 64-bit SoC @ 1.5GHz, 8GB LPDDR4-3200 SDRAM (depending on model), 2.4 GHz and 5.0 GHz IEEE 802.11ac wireless, Bluetooth 5.0, BLE, Gigabit Ethernet,2 USB 3.0 ports; 2 USB 2.0 ports, Raspberry Pi standard 40 pin GPIO header (fully backwards compatible with previous boards), 2 × micro-HDMI ports (up to 4kp60 supported), 2-lane MIPI DSI display port, 2-lane MIPI CSI camera port, 4-pole stereo audio and composite video port, H.265 (4kp60 decode), H264 (1080p60 decode, 1080p30 encode), OpenGL ES 3.1, Vulkan 1.0 Micro-SD card slot for loading operating system and data storage,5V DC via USB-C connector (minimum 3A*), 5V DC via GPIO header (minimum 3A*),Power over Ethernet (PoE) enabled (requires separate PoE HAT), Operating temperature: 0 – 50 degrees C ambient including 64 GB Class 10 Micro SD Card. Installation, and demonstarion within one month of delivery. Insatalltion and one year warrenty.	2	
40	Arduino Uno	Microcontroller 8 bit AVR family microcontroller,removeable IC, Operating Voltage 5v, Recommended Input Voltage 7-12V, Input Voltage Limits 6-20V, Analog Input Pins 6 (A0 – A5), Digital I/O Pins 14 (Out of which 6 provide PWM output), DC Current on I/O Pins 40 mA , Flash Memory 32 KB (0.5 KB is used for Bootloader), SRAM 2 KB, EEPROM 1 KB, Frequency (Clock Speed) 16 MHz. Insatalltion and one year warrenty.	5	
41	Arduino Mega including protection case	Microcontroller ATmega2560, Operating Voltage 5V, Input Voltage 7-12V (recommended), Input Voltage (limit) 6-20V, Digital I/O Pins 54 (of which 15 provide PWM output), Analog Input Pins 16, DC Current per I/O Pin 20 mA, Flash Memory 256 KB of which 8 KB used by bootloader, SRAM 8 KB, EEPROM 4KB, Clock Speed 16 MHz, LED_BUILTIN 13. Insatalltion and one year warrenty.	5	
42	Monitor, Keyborad and Mouse	24" FHD Monitor With Super Slim Design - AMD Freesync, Game Mode, Eye Saver Mode, Extra-wide viewing angle for the perfect view from anywhere 1920 x 1080 60 Hz Response Time 4 (GTG), CARBON Backlit Mechanical Gaming Keyboard, Romer-G Tactile mechanical switch, Precision key lighting, Aircraft-grade aluminum alloy, USB passthrough. Hyperion Fury Ultra-Fast FPS Gaming Mouse, Delta Zero™technology, Fusion Engine, 8 Programmable buttons, On-the-fly DPI switching, 32-bit Arm processor. One year warrenty.	1	
43	Jetson Nano	GPU 128-core Maxwell, CPU Quad-core ARM A57 @ 1.43 GHz, Memory 4 GB 64-bit LPDDR4 25.6 GB/s, Storage microSD (not included), Video Encode 4K @ 30 4x 1080p @ 30 9x 720p @ 30 (H.264/H.265), Video Decode 4K @ 60 2x 4K @ 30 8x 1080p @ 30 18x 720p @ 30 (H.264/H.265), Camera 2x MIPI CSI-2 DPHY lanes, Connectivity Gigabit Ethernet, M.2 Key E, Display HDMI and display port, USB 4x USB 3.0, USB 2.0 Micro-B, Others GPIO, I²C, I²S, SPI, UART, Mechanical 69 mm x 45 mm, 260-pin edge connector. Insatalltion and one year warrenty.	2	
44	Jetson Xavier NX	GPU NVIDIA Volta architecture with 384 NVIDIA CUDA® cores and 48 Tensor cores, CPU 6-core NVIDIA Carmel ARM@v8.2 64-bit CPU 6 MB L2 + 4 MB L3 DL Accelerator 2x NVDLA Engines Vision Accelerator 7-Way VLIW Vision Processor Memory 8 GB 128-bit LPDDR4x @ 51.2GB/s Storage microSD (not included) Video Encode 2x 4K @ 30 6x 1080p @ 60 14x 1080p @ 30 (H.265/H.264) Video Decode 2x 4K @ 60 4x 4K @ 30 12x 1080p @ 60 32x 1080p @ 30 (H.265) 2x 4K @ 30 6x 1080p @ 60 16x 1080p @ 30 (H.264) Camera 2x MIPI CSI-2 DPHY lanes Connectivity Gigabit Ethernet, M.2 Key E (WiFi/BT included), M.2 Key M (NVMe)	1	

		Display HDMI and display port USB 4x USB 3.1, USB 2.0 Micro-B Others GPIO, I2C, I2S, SPI, UART Mechanical 103 mm x 90.5 mm x 34.66 mm. Insatalltion and one year warrenty.		
45	75pcs Multi-functional Impact Drill Set	1Pc Mini Hacksaw:300mm, 1Pc Test Pencil:145m, 2Pcs Screwdriver:(Slotted) 6X100mm, PH2X100mm, 1Pc Bit Holder:6X100mm, 4Pcs HSS Drill:4,5,6,8mm, 4Pcs Masonry Drill:5,6,8,10mm, 4Pcs Wood Drill:4,5,6,8m, 1Pc Knife:18mm, 10Pcs Knife Blade :18mm,4Pcs 1/4" Sockets:8,9,10,11mm,1Pc 1/4" Bit Adaptor, 1Pc PVC Insulating Tape:10m,7Pcs Hex Key:1.5,2,2.5,3,4,5,6mm, 1Pc Impact Drill: 230V/550W 0-3000rpm,1Pc Impact Drill Handle,1Pc Impact Drill Key,1pc Blow Case 1Pc 1/4" Dr.Bit Holder:61mm,1Pc Torpedo Level:210mm,1Pc Working Accesories Box,1Pc Adjustable Wrench: 200mm,1Pc Digital Multimeter,22Pcs Bits Set,1Pc Combination Plier:175mm,1Pc Water Pump Plier: 250mm,1Pc Claw Hammer:8OZ,1Pc Measuring Tape:3m*19mm. Harden/Stanley. One year warrenty. Authorized Dealer/Distribution Certificate from the manufacture is required.	1	
46	Cordless Lithium-Ion Impact Drill	Voltage:20V, No-load speed:0-400/0-1500/min, Max.impact rate:22500/min, Max.torque: 45NM, Chuck capacity:0.85-10mm Torque settings:18+1+1, Voltage:20V, No-load speed:0-400/0-1500/min, Max.impact rate:22500/min, Max.torque:45NM,Chuck capacity:0.85-10mm, Torque settings:18+1+1. One year warrenty. Authorized Dealer/Distribution Certificate from the manufacture is required.		
47	Benchtop Digital Multimeter	200mV/2V/20V/200V/1000V, 2V/20V/200V/750V, 200µA/2mA/20mA/200mA/20A, 2mA /20mA /200mA/20A, frequency 200Hz~10MHz, duty cycle 5%~99%,USB Device interface, display EBTN LCD.		
48	Logic Analyzer	No of Channels: 16, Possible Sample rates: 100M,80M,50M,32M, 25MHz. 16MHz, 12MHz, 8MHz, 4MHz, 2MHz, 1MHz, 500KHz, supports Win7 (32&64), 2K,XP, VISTA, Linux(32&64), and mac os,3CH@100M MAX Sample Rate, 6CH@50M MAX Sample Rate, 9CH@32M MAX Sample Rate, 16CH@16M MAX Sample Rate. One year warrenty. Authorized Dealer/Distribution Certificate from the manufacture is required.		
Total				0.7

Lot : Electronic Lab-2				
Sr . No	Equipment Name	Specifications Note: All items required one year warrenty except consumable.	Quanti ty	Estimated Cost (Million PKR)
49	Basic Electronic Components	5 pcs Bread board (400 points), 5pcs Bread board (830 points),4 pcs soilderless Bread board (1660 points) 50 pcs each fuses (as per multimeterfuse rating, 200mA,500mA,400mA and 10 A), connect wires ,jumper wires (male to female, female to female, male to male), 30 pcs each capacitors (1.0pf, 10pf, 47pf, 100pf, 1000pf ,0.01uf, 0.1uf, 1.0uf, 10uf, 22uf, 4.7uf , 100uf, 1000uf), 30 pcs each inductor (standard values), 50 pcs each resistors (standard values), 20 pcs LDRs, 7 6 pcs 16*4 LCD dispalys, 6 pcs DHT22 sensors, 5 pcs HC-SR04 ultrasonic sensors, 50 pcs Leds, 30 pcs push buttons, 20 pcs proximity switches.	Mentioned with each item	0.3
50	Heat Insulation Silicone Large Soldering & Repairing Mat	Size 17.79"*16.69"*0.23", resistance to high temperature of 932`F, builtin scale ruler of (0-36cm), 124 screw positions, 3 part box, thicknes 5mm.	1	
51	BIOS	Flashing EEPROM ICs, BIOS RT809F Serial ISP Programmer RT809 With 3 Adapters BIOS RT809F Serial ISP Programmer RT809 With 3 Adapters	1	
52	Soldering Magnifier 3 in1	Three magnifying lense (2.5*90mm, 7.5*34mm, 10*34mm), 5 pcs of leds in flexible metal tube, adjustable that can be used as desk lamp,with adjustable support clamps and aligator clips,with welding holder.	1	
53	Pliers	Automatic Insulated Cable Wire Stripper Remover Cutter. The self-adjusting insulated cable wire stripper mechanism according to wire size for wire stripping without damaging the conductor.	1	
54	Precision Screwdrivers Set	25 in 1 Precision Screwdrivers Set. Stanely, Klein, Bondhus Felo Ergonic, Licota.	1	
55	PCB Electric Drill Grinder Machine Kit	Volatge 12v, no load speed 12000rpm, electric drill is suitable for both aluminium plate, thin copper, board, plastic board, chipboard, printed circuit board(PCB), epoxy board, and can be used for drilling in polishing, cutting need components, polishing, etc., it is the most ideal production operations use tools.	1	
56	60 Drawer Plastic Component Storage Tools Box	60 drawer, material reinforce PP, thick plastic.	3	

57	400 Gram Soldering Wire	Diameter 0.8mm , flux 2% , rosin core solder (60/40).	3	
58	Digital Hot Air Gun Soldering Iron SMD Rework Station	Digital Hot Air Gun Soldering Iron SMD Rework Station with 3 in 1 Multifunction Desoldering station	1	
59	ESP32 Development Board	Integrated 520 KB SRAM, Hybrid Wi-Fi & Bluetooth, High level of integration, 4 MB Flash, On-board PCB antenna, 18 Analog-to-Digital Converter (ADC) channels,10 Capacitive sensing GPIOs, 3 UART interfaces, 3 SPI interfaces, 2 I2C interfaces,16 PWM output channels, 2 Digital-to-Analog Converters (DAC), 2 I2S interfaces.	5	
60	Digital Vernier Caliper	Range 0-200mm. Mitutoyo, INGCO, MOOCK, Stanely, Klein, Bondhus Felo Ergonic, Licota.	1	
61	Digital Clamp Meter	Auto ranging, Diode, Continuity buzzer,True RMS, Relative mode ,Data hold ,Full icon display, Sleep mode, Low battery display, Input impedance for DC Voltage: 10 Mohm,M ax. display 3999 (35.6 x 18mm),DC Voltage: 400mV / 4V / 40V / 400V / 600V , best accuracy: +/- (0.8%+1), Frequency: 10Hz - 1MHz - best accuracy: +/- (0.1%+3), Duty cycle: 0.1% ~ 99.9%.	1	
62	Smart SMD Tester Auto Range/Scanning 6000 counts	Display 6000 counts, Auto & Manual Ranging Auto Power Off, Data Hold, Low Battery Display, Auto Scanning, Power Supply : 1x3V CR2450 Battery(not included), Product Size: 186mmx35mmx23.6mm/7.3"x1.38"x0.93", Product Weight : 90g/0.2lb, Certification : CE /ETL /RoHS, Included User's manual	1	
63	Digital Microscope 500x	Main Control Chip: DSP, Magnification: 1X-500X, Snapshot/Video Capture: Built-in , Light Source: 8pcs White LEDs , Static Resolution: 640 x 480,Pixels: 0.3MP (Interpolation: 2.0MP), Focus Range: 0-40mm, Compatible OS: Win XP/VISTA, Win 7 32/64bit, Win 8 Connection: USB Interface, Power Supply: USB (DC 5V) , Frame Rate: 30f/s Under 600 LUX Brightness, Illumination Range: 0-30000 LUX.	1	
64	Digital Microscope 1600x	Image: 2M Pixel, Video Capture Resolution: 640x480, Focus Range: Manual Focus from 0~40mm, Frame Rate: Max. 30f/s, Magnification Range: 0-1600X, Adjustable illumination: 8 built-in LED diodes, PC Interface: USB3.0, USB2.0 & USB1.1, Operation System: WIN XP/VISTA/8/10 Mac OS	1	
65	Table Lamp	20 SMD, color temp 6000-6500K, magnetic mouting base,on/off switch	2	
66	Needle file set	GCR 15# axletree steel, length of 140mm, 140mm 6Pcs needle file set	1	
67	Precision File set	Single-cut, Mini Files	1	
68	Drill Bits Set	15pcs, Total size (1,2,2.5,3,3.5,4,4.5,5,5.5,6,7,8,9,10,12mm)	1	
69	Tweezer	Made of high-tech material, accurately trimmed, anti-slip lines JAKEMY, Stanely, Klein, Bondhus Felo Ergonic, Licota.	1	
70	ESD-15 Tweezer	Made by the high quality stainless steel, Anti-static, Anti-magnetic and anti-acid, planted with anti-static material	1	
71	AVR Programmer	Works with multiplatform, linx, Mac OSX and Windows, programing speed 5Kbytes/Sec, SCK option, Serial interface to target.	1	
72	USB Universal Programmer EPROM FLASH AVR	40 pins over-voltage protection, Lots of supported chips, serial, parallel and so on, Can test 74/54 CMOS4000 series integrated circuit, Support AVR SCM mass production of encrypt chip by using inner RC Calibration.	1	
73	PIC Programmer	40 pin DIP programming block,on board ICSP interface, support most of the Pic readout, encryption and other fuction	1	
74	Reparing Tool Set	Socket size 39 pcs, adjustable wrench 22 pcs. Harden, Stanley, Klein, Bondhus Felo Ergonic, Licota, Black & Decker	1	
75	Tool Box	Size 19 inch	3	
76	Wire Stripper	Harden, Stanley, Licota , Black & Decker..		
77	Needle Nose Plier Set	8"/ 200mm high leverage combination pliers 7"/180 mm high leverage diagonal cutting pliers 6"/160 mm high leverage long nose pliers, Cr-V, black finish and polish TPR two color handle. Harden , Stanley Klein, Bondhus Felo Ergonic, Licota, Black & Decker.	1	
78	Socket and Tool Set	143 pcs socket and tool set. Licota/Harden/Stanley or Equivalent.	1	
79	Combination Spanner	23Pcs Combination Spanner Set Size 6 - 32mm. Harden, Stanley/ Black & Decker, Licota.	1	
80	Glue Gun	30 Watt. Stanely/Titan/Anyiyon/Bosch/MAC Allister.	1	
81	Brush Set 175mm	Brush Set 175mm , Nylone brush,steel brush and brass brush	3	

82	Safety goggles	Integrated encircling type design gives flank protection	3	
Total				0.3

Section VIII.

Sample Forms

Sample Forms

1.	Bid Form and Price Schedules	71,72
2.	Manufacturer’s/Distrbutor's/Dealer's Certificate Form	73

1. Bid Form and Price Schedules

Date: _____
Tender No. _____

To:

Dr. Saqib Ali,
Assistant Professor, Rep. of PI (NCBC-PAAL),
Department of Computer Sciences (Precision Agriculture)
University of Agriculture,
Faisalabad.

Gentlemen and/or Ladies:

Having examined the bidding documents including Tender No. 85/2021, 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 _____ 20____.

[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

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

1	2	3	4	5
Item	Description	Country of origin	Quantity	Price including all Taxes

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.