TENDER DOCUMENT FOR

Purchase, Installation & Calibration of Lab Equipments

UOH-HEC Development Project SDPTI@UOH/P-ADV#3/2021

The
University of Haripur
Restoring Hope; Building Community

TENDER DOCUMENT FOR PURCHASE, SUPPLY & INSTALLATION OF LAB EQUIPMENTS

Bids [Technical] shall be opened on Oct 7, 2021 at 11:30 A.M whereas financial bid will be opened on Oct 22, 2021in the Committee Room of Vice Chancellor Secretariat, The University of Haripur, Off-Hattar Road, Haripur

Name of Firm/Contractor/Company (Block Letter) _____

_____

Address (Block Letter): _____

_____

_____

Telephone No:

Fax No:

E-mail:

Signature &Seal

Stationary Charges of Rs. 5000/-(Non-Refundable) vide Demand Drat/Pay Order No:_____date_____

Earnest Money of (Refundable) vide CDR Order No:_____ Date_____

Date of Bid Submission:

INVITATION TO BID

Subject: **Tender Notice UOH-HEC Development Project SDPTI@UOH/P-ADV#3/2021**

The University of Haripur (UOH) invites sealed bids/quotations/proposals **for the Purchase & Installation and Calibration of Scientific Lab Equipment's** from reputed firms/companies (Local/Non Local, Registered with FBR) for its **PSDP funded project titled "Development and Strengthening of Physical and Technological Infrastructure at the University of Haripur".** The subject tender shall be processed in accordance with Public Procurement Rules-2004 [36-b (i-ix)] of PPRA.

TERMS & CONDITIONS:

1. The detailed specifications along with terms & conditions have been set forth in Tender Document, which is available in the **Project Office, Directorate of Planning & Development** The University of Haripur. The subject document shall be obtained on payment of Rs.5, 000/- Non-Refundable (as Stationery Charges) in the form of Bank Draft/Pay order in favor of **Treasurer-UOH**.
2. The tender documents are also uploaded on the UOH website (www.uoh.edu.pk) and PPRA website. In case of document downloaded from website, pay order/demand draft of Rs.5, 000/ should be prepared and submitted in favor of Treasurer-UOH. Stationary charges will be attached with technical bid. ***No bid shall be accepted*** without Stationery Charges.
3. The Bid Security @ 2% **(refundable)** of total bid price shall be submitted in the form of **Call Deposit Receipt (CDR)** in favor of Treasurer-UOH. Bid security ***shall*** be attached with financial bid.
4. The bidding documents completed in all respect should reach **Project Office, Directorate of Planning & Development** latest by **Oct 7, 2021**at **11:00 am**. Technical Bids will be opened on same date at 11:30 am in the Hennry Donunt Hall-UOH whereas Financial Bids will be opened on **Oct 22, 2021 at 11:30 am**, /after completion of Technical Evaluation.
5. Bid must be submitted through Courier/Postal Service. **No Bid will be received by hand and receipt after due date & time.** The University reserves the right to accept or reject any or all bids. Errors and omissions, if any, shall be subject to rectification by the University.

Project Coordinator, UOH-HEC Development Project
The University of Haripur, Off Hattar Road, Haripur-KP
Office Ph # 0995-615226 **Cell #** 0333-5765466
E-mail: zaheer.hasrat@uoh.edu.pk

TENDER FOR LAB EQUIPMENTS PURCHASE, INSTALLATION & CALIBERATION

Tender No	UOH-HEC Development Project SDPTI@UOH/P-ADV#3/2021
Bidding Procedure	Open Competitive Bidding (Single Stage Two Envelop) as per Public Procurement Rules-2004 [36-b (i-ix)] of PPRA
Stationery Charges	Rs.5, 000/- in form of DD/Pay Order in Favor of Treasurer, The University of Haripur. In case of Tender Document is downloaded from University of Haripur website (www.uoh.edu.pk) it should be submitted along with Pay Order/Demand Draft of Rs. 5,000/-. (To be attached with technical proposal). **No bid will be accepted without tender document fee.**
Earnest Money	Earnest money at a rate of 2% (refundable) of total bid price shall be submitted from the account of firm/bidder/contractors who submits the bid. (Will be attached with Financial bid) in the form of Call Deposit Receipt in favor of Treasurer, The University of Haripur).
Submission	Bids shall be submitted (technical & financial) latest by Oct 7, 2021 at 11:00 A.M in Project Office, Directorate of P&D through currier/postal service. By hand submission shall not be accepted.
Opening	Technical Bids shall be opened on Oct 7, 2021at 11:30 A.M whereas Financial on Oct 22, 2021in the Hennry Donunt Hall, The University of Haripur

Note: Tender notice is also available on the University of Haripur website (www.uoh.edu.pk) as well as on PPRA's/KPPRA website (www.ppra.org.pk).

BASIC ELIGIBILITY CRITERIA

Bidders/Firms/Company must fulfill the following basic eligibility criteria without which their bids shall not processed.

Table No.1 Basic Eligibility Criteria

S.No	Description	Remarks
1	Valid Company/Firm Registration Certificate (under the laws of Pakistan)	Mandatory
2	Valid National Tax Number (NTN) Income Tax Registration (having FBR active status on the date of proposal submission)	Mandatory
3	Valid General Sales Tax Registration (having FBR active status on the date of proposal submission)	Mandatory
4	Submission of undertaking on legal valid and attested stamp paper mentioning 1. The firm is not blacklisted by any of Provincial or Federal Government Department, Agency, Organization or autonomous body or Private Sector Organization anywhere in Pakistan. 2. All documents attached to this bidding documents are genuine and if found forged of fake, the firm/company shall be liable to disqualification and subsequent forfeiture of CDR. 3. The firm/company has not provided the equipment less than the quoted price in any other Govt/Public Sector Organization. In full compliance of the execution schedule and delivery period mentioned in tender documents.	Mandatory
5.	Similar Projects of last 3 Years and Current in hand	Mandatory
6.	Bank Statement of Past 03 Years	Mandatory
7	Timeline for delivery (maximum 07 weeks after issuance of Purchase Order) Minimum will be preferred)	Mandatory
8	Submission of bid security at a rate of 2% in the shape of CDR in the name of Treasurer, The University of Haripur	Mandatory
9	Cost of quoted prices in PKR inclusive of all kinds of applicable taxes, duties and delivery charges.	Mandatory

Note: Documents regarding “Basic Eligibility Criteria” should be enclosed with the Bids. Bids of only eligible firms shall be considered for further consideration. Incomplete documents shall not be entertained.

Table No.2 Bid Technical Evaluation Criteria

EVALUATION CRITERIA (Total Marks = 70)						
SECTION-A (Total Marks = 50)						
Parameter	**Sub-Parameter**	**Supporting Documents**		**Marks**		**Remarks**
				Total	**Obtained**	
A-1: Compliance to Specifications	90-100% compliance with End User's specifications	Literature of the product , brochure, model, website address etc.		31-40		
	80-89% compliance with End User's specifications subject to Main Function is NOT Affected	=		16-30		
	Below 80% compliance	=		1 to 15		
A-2: Special Feature (s)	Special Feature (s) NOT mentioned by the End User's, provided by the firm which enhances the feature and function (s) of the product (s)	Documentary evidence of the special feature (s)		0 to 10		
	Sub Total(A)= (A1+A2)			**50**		
SECTION-B (Total Marks=20)						
B-Operating capabilities (Please tick either yes or NO)	B-1:Free Testing, Commissioning & Calibration of equipment	Yes	No	0-10		
	B:2Warranty Period/After sale services	Yes	No	0-5		
	B:3 Post warranty maintenances services including provision of spare parts	Yes	No	0-5		Warranty period of 1 years is Mandatory
	Sub Total (B)=B1+B2+B3			**20**		
	Sub Total (A+B)			**70**		

Overall Bid Scoring Method

1. Technical Bids: 70 Points
   - Weightage Technical: 70 Points
2. Financial Bids: 30 Points
   - Weightage Financial Bid: 30 Points

Total Points (100) = Technical (70) + Financial (30)

Securing highest points (Technical + Financial) will be considered as lowest bid.

SECTION-1 GENERAL INSTRUCTIONS TO BIDDERS (GITB)

Bidders should read these conditions carefully and comply strictly while sending their tenders. If the bidder finds any discrepancy, error, or omission in the tender documents he may intimate it to the **Convener, Scientific Equipment Review Committee/Procurement Committee/Project Coordinator** in writing two days before the closing date for Tender.

The **Procurement Committee** reserves the right to accept or reject any or all quotations/tenders/bids without giving any reason. The decision of the **Procurement Committee for Purchase** will be final and shall not be challenged in in any court of law.

1. Introduction

1.1. **Name and Address of Procuring Agency (PA):** The University of Haripur, Office of the Project Coordinator, Directorate of Planning & Development (P&D), Off Hattar Road, District Haripur-Khyber Pakhtunkhwa

1.2. **Eligible Bidders:** General sales tax registered. National tax number registered. Bidders shall not be under a declaration of ineligibility for corrupt and fraudulent practices issued by the Government of Pakistan (all mandatory requirements given in eligible firm table on page 5).

1.3. **Cost of Bidding:** The Bidder shall bear all costs associated with the preparation and submission of its bid, and the procuring agency will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

2. Content of Bidding Document:

2.1. 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. General Instructions to Bidders (GITB)

b. Bid Data Sheet (BDS)

c. Schedule of Requirements

d. Technical Specifications

e. Bid Forms and Price Schedules

f. Contract Form

2.2. 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.

3. Clarification of Bidding Documents:

A prospective Bidder requiring any clarification of the bidding documents may notify the PA in writing at its address. The PA will response in writing to any request for clarification of the bidding documents which it receives no later than five (05) days prior to the deadline for the submission of bids prescribed in the Bid Data Sheet. Written copies of the PA'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 directly from the PA.

4. Preparation of Bids and Bidding Procedure

4.1. Language of Bid: The bid prepared by the Bidder, as well as all correspondences and documents relating to the bid exchange by the Bidder and the PA shall be written in English language.

4.2. Documents Comprising the Bid: The bid prepared by the Bidder shall comprise the following components:

a. Mandatory documents given in the eligibility criteria without which bid shall not be processed

b. Technical Bid Form with stationary charges in the form demand draft or pay order **sealed in separate envelop marked as technical proposal**

c. Financial Bid Form including specifications of all items and a Price Schedule as well as bid security in the form of CDR **sealed in separate envelop and marked as financial proposal**.

d. **Bidding Procedure:** Single Stage Two Envelop Bidding Procedure shall be followed.

5. General Instructions to Bidders (GITB)

5.1. All bids should reach the PA within due date and time as specified in the advertisement through registered post.

5.2. The submission of bids by hand is not acceptable. Bidders are bound to submit complete form issued by The University of Haripur with stamp and signature on each page.

5.3. Tenders must be enclosed in a properly sealed envelope. Both technical and financial proposals shall sealed in separate envelops and properly marked. Any cutting/ correction in bid will make the bid/quotation/offer invalid.

5.4. Tenders forms shall be filled in ink or typed. No tender filled through pencil shall be considered.

5.5. Rates shall be written both in words and figures. There should not be errors and / or over-writings. Corrections if any should be made clearly and initiated with dates.

5.6. In case of quoting alternate prices, separate tender documents shall be purchased.

5.7. The bidder shall mention validity of offer, terms of payment, guarantee/warranty period and schedule of delivery.

5.8. The evaluation will be based on the comparison of specification/model/ makes and expiry. University of Haripur reserves the right to choose the specification/ models/ makes at its own discretion.

5.9. Bidder, interested in bidding for one or more items separately, is allowed to do so. However, University of Haripur reserves the right to award tender for accepting the bid for each item or bid of the whole items and can also change the quantity or specification of the purchases

5.10. Supply order/ contract will be issued subject to the availability of funds as well as subject to Transfer from Funding agency.

5.11. The contractor shall notify forth in written form to The University of Haripur with any change in the constitution of the firm, etc. and such change shall not relieve any former member of the firm, etc., from any liability under the contract.

5.12. The University of Haripur reserves the right to accept any tender not necessarily the lowest, reject any tender without assigning any reasons and accept tender for all or anyone or more of the articles for which bidder has been given or distribute items of stores to more than one firm/ supplier.

5.13. The contractor, in respect of the contract, shall accept no new partner/ partners in the firm unless he / they agree to abide by all its terms, conditions and deposits with the University of Haripur a written agreement to this affect. The contractor's receipt for acknowledgement or that of any partners subsequently accepted as above shall bind all of them.

5.14. The contractor shall not assign or sub-let his contract or any substantial part thereof to any other agency.

5.15. The tender shall remove the rejected articles within 15 days of intimation of rejection, after which University of Haripur shall not be responsible for any loss, shortage or damage and shall have the right to dispose of such articles as it thinks fit, at the tenderers risk and on his account.

6. BID Price and Validity

6.1. The Bidder shall indicate price of his offer, list of items with specifications, standard accessories, make and origin, the unit price and total bid prices of the goods in Pak Rupees (PKR).

6.2. Prices of the optional accessories should be quoted separately. Rates quoted should be F.O.R and C & F, (Pak Rupees) University of Haripur, Haripur.

6.3. All kind of taxes levied by the government shall be paid by the bidder and must be included in the quoted prices. University of Haripur is exempted from the whole of customs duties under to the Ministry of finance, economic affairs statistics and revenue rules.

6.4. Sales Tax and Income Tax will be deducted at source from the supplier's bill as per government rules. GST will be refunded subject to the provision of Sale Tax invoice.

6.5. The Bid will remain valid and open for acceptance for a period of 120 days from the specified date of opening or closing of financial year on the case may be.

7. Earnest Money or Bid Security

7.1. The bid must be accompanied with a call deposit receipt (CDR) of 2% of the total quoted prices with their offer in favor of "Treasurer-The University of Haripur" (refundable).

7.2. The earnest money shall be denominated in Pakistani rupees and shall be in the form of call deposit receipt issued by Pakistani bank or branch of a foreign bank, operating in Pakistan,

7.3. Unsuccessful bidders' bid security 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 PA

7.4. The successful Bidder's bid security will be discharged upon the Bidder's successful supply of Goods duly acceptable to the PA

7.5. The earnest money may be forfeited in the following cases:

7.5.1. When bidder withdraws or modifies the offer, after opening of tender but before acceptance of tender

7.5.2. When bidder does not execute the agreement if any, prescribed within the specified time.

7.5.3. **When the bidder submitted fake or forged documents, company authorization or misinterpretation of facts or other acts comes under the category of fraudulent practices defined in Clause-14 sub-clause14**.2

8. Format and Signing of BIDS

8.1. The Bidder shall prepare an original and the number of copies of the bid indicated in clearly marking each "ORIGNAL BID" and "COPY OF BID" as appropriate. In the event of any discrepancy between them, the original shall govern.

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

8.3. Any interlineations, erasures, or overwriting shall not be valid even if they are initialed by the person or persons signing the bid. The bid should be duly binded and each page signed/stamped by authorized person.

9. Submission of Bids

9.1. Sealing and Marking of Bids:

The Bidder shall seal the original and each copy of the bid in separate envelopes, duly marking the envelopes as "ORIGNAL" and "COPY." The envelopes shall then be sealed in an outer envelope. The outer envelope should be clearly marked with Tender No and Tender title given on the title of this Document.

9.1.1. The inner and outer envelopes shall:

(a) Be addressed to the PA at the address given in advertisement; and

(b) Bear the name indicated in the advertisement, the invitation for Bids title and number indicated, and a statement: "DO NOT OPEN BEFORE," to be completed with the time and the date specified.

9.1.2. 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".

9.1.3. If the outer envelope is not sealed and marked as required the PA will assume no responsibility for the bid's misplacement or premature opening.

9.2. Deadline for Submission of Bids

9.2.1. Bids must be received by the PA at the address specified in the Bid Data Sheet no later than the time and date specified in the Bid Data Sheet

9.2.2. The PA may, at its discretion, extend this deadline for the submission of bids by amending the bidding documents, in which case all rights and obligations of the PA and bidders previously subject to the deadline will thereafter be subject to the deadline as extended

9.2.3. **Late Submission:** Any bid received by the PA after the deadline for submission of bids prescribed by the PA will be rejected and returned unopened to the Bidder.

10. Opening, Clarification and Evaluation of Bids

10.1. Opening of Bids by PA

10.1.1. The PA 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/attendance sheet evidencing their attendance

10.1.2. 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 PA, 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.

10.1.3. Bids that are not opened and read out at bid opening shall not be considered further for evaluation, irrespective of the circumstances. Withdrawn bids will be returned unopened to the bidder.

10.2. **Clarification of Bids:** During evaluation of the bids, the PA 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

10.3. Preliminary Examination:

10.3.1. The PA 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.

10.3.2. Arithmetical errors will be rectified on the following basis.

10.3.2.1. 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.

10.3.2.2. If the Supplier does not accept the correction of the errors, its bid will be rejected, and its bid security may be forfeited.

10.3.2.3. If there is a discrepancy between words and figures, the amount in words will prevail.

10.3.3. The PA 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.

10.3.4. Prior to the detailed evaluation, the PA 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 reservation to critical provisions, such as those concerning Bid Security and Taxes and Duties will be deemed to be a material deviation. The PA's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.

10.3.5. If a bid is not substantially responsive, it will be rejected by the PA and may not subsequently be made responsive by the Bidder by correction of the nonconformity.

10.4. Evaluation and Comparison of Bids

10.4.1. The PA will evaluate and compare the bids which have been determined to be substantially responsive.

10.4.2. The PA's evaluation of a bid, further elaborated under Bid Data Sheet, will be on delivered duty paid (DDP) price inclusive of prevailing duties, taxes and transportation charges, and it will exclude any allowance for price adjustment during the period of execution of the contract, if provided in the bid.

10.4.3. 70% weightage will be given to technical evaluation while 30% weightage to financial evaluation.

10.5. Contacting PA

10.5.1. No Bidder shall contact the PA on any matter relating to its bid, from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the PA, it should do so in writing.

10.5.2. Any effort by a Bidder to influence the PA in its decisions on bid evaluation, bid comparison, or contract award may result in the rejection of the Bidder's bid

10.5.3. Counseling or canvassing staff or elected representatives by any Bidder will become liable to disqualification.

11. Conforming Tender

11.1. A conforming tender is defined as follows:

11.1.1. It is submitted on time.

11.1.2. It is lodged at the nominated place.

11.1.3. All required forms are completed.

11.1.4. Documents are properly signed.

11.1.5. It complies with the tender conditions.

11.1.6. There are no commercial and contractual qualifications to the tender.

11.1.7. A non-conforming tender is one, which does not satisfy the above requirements and it may be rejected.

12. Award of Contract

12.1. Qualification

12.1.1. In the absence of prequalification, the PA 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.

12.1.2. The determination will take into account the Bidder's compliance with the qualification criteria defined in the bidding document.

12.1.3. The PA 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

12.2. PA's Right to Increase or Decrease Quantities at the time of Award

12.2.1. The PA reserves the right at the time of contract award to increase or decrease, by the percentage indicated in the Bid Data Sheet, the quantity of goods and services originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions.

12.3. PA's Right to Accept any Bid and to Reject any or All Bids

12.3.1. The PA reserves the right to accept or reject any 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. The PA will inform the affected Bidder or bidders of the grounds for the PA's action, if so requested by, the PA shall not be required to justify the grounds.

12.3.2. The PA can disqualify any successful bidder at any time prior to award of contract, if he was found indulged in Corrupt or Fraudulent practices being defined in PPR-2004 and KPPRA

12.4. Notification of Award

12.4.1. Prior to the expiration of the period of bid validity and subject to GITB the PA will notify the successful Bidder in writing by registered letter or by cable, to be confirmed in writing by registered letter, that its bid has been accepted.

12.4.2. The notification of award under GITB will constitute the formation of the Contract.

12.4.3. The PA shall announce the results of bid evaluation in the form of a report giving justification for acceptance or rejection of bids at least ten days prior to the award of contract.

12.5. Signing of Contract

12.5.1. At the same time as the PA notifies the successful Bidder that its bid has been accepted, the PA will send the Bidder the Contract form provided in the bidding documents, incorporation all agreements between the parties.

12.5.2. Within seven (07) days of receipt of the Contract Form, the successful Bidder shall sign and date the contract and return it to the PA.

12.6. Performance Security

12.6.1. While processing payment of successful vendor, 10% of the total bid price of purchase order shall be kept as security by the PA for the entire warranty

period of the said equipment's.

12.6.2. Upon successful completion of the warranty period performance security shall refunded back to the vendor. Upon deduction of performance security from vendor's invoice, CDR shall be returned to vendor.

13. Mode of Payment

13.1. Payment shall be made in the form of cross cheque following inspection of equipment's supplied in accordance with the stated specifications.

13.2. No advance payment will be made. Payments will be made subject to the clearance of account and audit cells.

14. Disqualification of Tender

14.1. The bidder shall observe all relevant statutory and legal requirements when complete the tender. Any Tender engaged in corrupt or fraudulent practices shall be disqualified from tendering and their CDR shall be forfeited.

14.2. **Corrupt or Fraudulent Practices**

14.2.1. The PA observes the highest standard of ethics during the procurement and execution of such contracts. In pursuance of its policy, the PA: (a) defines, for the purposes of this provision, the terms set forth below as follows:

14.2.2. "corrupt and fraudulent practices" includes the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official or the supplier or contractor in the procurement process or in contract execution to the detriment of the procuring agencies; or misrepresentation of facts in order to influence a procurement process or the execution of a contract, collusive practices among bidders (prior to or after bid submission) designed to establish bid prices at artificial, non-competitive levels and to deprive the procuring agencies of the benefits of free and open competition and any request for, or solicitation of anything of value by any public official in the course of the exercise of his duty

14.2.3. Similarly of a firm submit fake or forged documents regarding dealership, distributorship, financial documents or all such documents that he claims to be correct. In such case he will disqualified and his CDR shall be forfeited.

14.2.4. The PA will;

14.2.4.1. 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;

14.2.4.2. Declare a firm ineligible, either indefinitely or for a stated period of time, if it at any time determines that the firm has engaged in corrupt and fraudulent practices in competing for, or in executing, a PPRA financed contract.

14.2.4.3. Declare a firm ineligible if the firm is blacklisted by any government and non-government organization. And a certificate to this effect by bidder must be attached with the bid.

15. Delay in Assignment

In case of extension in the delivery period, the recovery shall be made on the basis of following percentages of value of goods stores / work completion which the bidder has failed to supply / complete the work.

13.1. Conditions with Percentage

a. Delay up to one fourth period of the prescribed delivery period. **2.5 %**

b. Delay exceeding one fourth but not exceeding half of the prescribed period.

5.0 %

c. Delay exceeding half but not exceeding three fourth of the prescribed period. **7.5 %**

d. Delay exceeding three fourth of the prescribed period. **10.0 %**

The following specific data for the goods to be procured shall complement, supplement, or amend the provisions in the general instructions to Bidders (GITB): Section I. Whenever there is a conflict, the provisions herein shall prevail over those in GITB.

A-The Bidding Document		
GITB-4.1	Language of the Bid	English
B-Preparation of Bid		
Basic Eligibility Criteria	The price quoted shall be:	In Pak Rupees (PKR) inclusive of all applicable taxes & transportation charges
	The price shall be:	Fixed and must include the Income and General Sales Taxes (GST), KPRA taxes and other taxes and duties, where applicable as per law. If there is no mention of taxes, the offered / quoted price(s) will be considered as inclusive of all prevailing taxes / duties.
	Qualification requirement	1. The bidder must comply with the specifications of items provided in the tender document. 2. Documentary evidence to this effect must be provided with the bid, which includes copy of contract / purchase order, etc. 3. The bidder must submit National Tax No., Sales Tax. No. Certificates, as well as Certificate of Incorporation / registration of the firm. 4. The bidder must submit with the bid documents the delivery plan, particularly the completion time for subject procurement. 5. Bid must be submitted in accordance with Evaluation Criteria as mentioned in Schedule of Requirements. 6. Bid will be evaluated in accordance with Evaluation Criteria as mentioned in Schedule of Requirements. 7. The bidder shall submit proper documentary evidence for financial soundness of the firm. 8. The bidder shall not be under a declaration of ineligibility for corrupt and fraudulent practices and should not be black listed by any Government/Non-government Organization. An affidavit duly attested by notary public shall be attached with the bidding document in this regard
GITB-7.1	Amount and Form of Bid Security	1. 2% of the total quoted bid price in the form of CDR 2. The tenders found deficient of the amount as bid security compared to total bid price will not be considered. 3. The Bid security should be in the form of CDR in Favor Treasurer-The University of Haripur 4. No personal cheques will be acceptable at any cost. 5. The previous bid security if any will not be considered or carried forward.
GITB-12.6	Performance Security	10% of the total bid price of successful bidder shall be retained as performance security by the PA a period of warranty of the product and will be released after completion of warranty period

GITB-6.5	Bid validity period.	Bid should remain valid for 120 days from the closing date.
GITB-9.1	Number of copies	One original and One additional Copy.
C-Submission		
GITB-1.1	Address for Bid Submission	The University of Haripur, Office of the Project Coordinator, Directorate of Planning & Development (P&D), Off Hattar Road, District Haripur-Khyber Pakhtunkhwa, Phone No: 0995-615226
GITB-9.2	Deadline for Bid Submission	Oct 7, 2021
D-Opening of Bid		
Tender Invitation	Bid Opening	Technical Bids will be opened on same date at 1130 hours in the Hennry Donunt Hall-UOH, whereas Financial Bids will be opened on Oct 7, 2021**at 1130 hours** after completion of Technical Evaluation.

3.1. Schedule of Requirements

3.2. Technical Specifications

3.3. Standards Forms

3.1. Schedule of Requirements

A-Technical Evaluation

1. Evaluation Purpose

1.1. All bids will be evaluated for technical soundness

2. Eligible Criteria

2.1. Eligibility evaluations are given on the Table 1 & 2.

2.2. All bids will be evaluated as per the given Evaluation Sheets.

2.3. All the information shall be strictly submitted in accordance with the above formats / forms. Technical Evaluation of Company/Firms will be done on the basis of information/data given on these forms/formats. Company brochures, etc. could be forwarded as supplementary but will not be entertained in lieu of the prescribed formats and no data will be extracted from such pre-printed documents

2.4. It is mandatory to acquire minimum 70% Marks in technical evaluation for bid financial consideration. Low evaluated marked companies will be disqualified.

2.5. All certificates should be filled in properly.

3.2. Technical Specification

Technical Specification are given in technical proposal form

3.3. Standard Forms

3.3.1. Bid Form/ Cover Letter

3.3.2. Technical Proposal Form

3.3.3. Financial Proposal Form (Price Schedule)

3.3.4. Contract Form

3.3.5. Form of Integrity Pact

3.3.6. Form of Tender Security

3.3.7. Form of Performance Security

3.3.8. Form of Contract Agreement

3.3.9. Undertaking

3.3.1. Bid Form/ Cover Letter

Date: _____

No: _____

To
The Project Coordinator
UOH-HEC Development Project, Directorate of P&D
The University of Haripur

Subject: **Submission of Tender Documents in Response to Your Advertisement.**

Dear Sir,

1. Having examined the bidding documents, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply and deliver the goods in conformity with the said bidding documents.
2. We undertake, if our Bid is accepted, to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements.
3. If our Bid is accepted, we hereby agree that our Bid Security as being provided herewith this "Bid Form", will remain with the PA according to Clause GITB-7.1 of Instructions to Bidders.
4. We also agree to abide by this Bid for a period of 120 days from the date fixed for Bid opening under Clause GITB-6.5 of the Instructions to Bidders, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
5. Until 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.

Dated this _____ day of _____ 20_____

_____ _____

[Signature] [In the capacity of]

Duly authorized to sign Bid for and on behalf of _____

3.3.2. Technical Proposal (TP) Forms

Following forms shall be attached with Technical Proposal

TP Form-3.3.2.1. Mandatory Requirements		
Name of Firm		
Authorized Person Name and Signature		
Sr. No	**Particular Description**	**Attached as Annexure**
1	Valid Company/Firm Registration Certificate (under the laws of Pakistan)	**1.1.**
2	Valid Income Tax Registration (NTN) (having FBR active status on the date of proposal submission)	**1.2**
3	Valid General Sales Tax Registration (having FBR active status on the date of proposal submission)	**1.3**
4	Submission of undertaking on legal valid and attested stamp paper mentioning 4. The firm is not blacklisted by any of Provincial or Federal Government Department, Agency, Organization or autonomous body or Private Sector Organization anywhere in Pakistan. 5. All documents attached to this bidding documents are genuine and if found forged of fake, the firm/company shall be liable to disqualification and subsequent forfeiture of CDR. 6. The firm/company has not provided the equipment less than the quoted price in any other Govt/Public Sector Organization. In full compliance of the execution schedule and delivery period mentioned in tender documents.	**1.4**
5	Similar Projects of last 3 Years and Current in hand	**1.5**
6	Bank Statement of Past 03 Years	**1.6**
7	Stationary Charges of Rs.5000/-	**1.7**

Technical Proposal Form-3.3.2.2.

Annexure-1 Department of Microbiology						
S. No	**Name of Equipment (s)**	**Client Specifications**	**Qty**	**Vendor's Specification**	**Brand Name & Model**	**Brand Make (country origin)**
1.	Shaking Water Bath	Digital precise shaking water bath, Reciprocating motion with universal spring rack, Capacity 18 liter, Digital fuzzy contrl, Temperature range & accuracy +5ºC to 100ºC±0.1ºC, SENRO PT100	1			
2.	Refrigerated Centrifuge Machine	Speed: 500-15,000 Rpm (1 Rpm steps) Rcf Max: 22,000 G, Temp. Variable -9°C to +40°C with stand by cooling, Emergency lid release, Lid Spring Strut, Lid lock detection, Imbalance detection, Over speed sensor, Motor overheat sensor, Swing out Rotor, With adaptor 1.5ml, 15ml, 50ml, & 100ml	1			
3.	Ice Machine	Automatic ice flaker, Fully automated controller, Slide away access door high grade Stainless steel 304 exterior, ice storage bin 25kg, Ice making capacity 85 kg / 24 hrs Power 80W,Refrigerant R134a Cooling type Air cooling, Water supply Tap water, Voltage 220 V; 50 Hz, Dimensions 400 x 510 x 845mm.	1			
4.	Colony Counter	Digital Colony Counter, Four digital displays 4, Magnification 2~3 X, Petri dish diameter 60 mm, 90-150 mm adjustable Memory 100 Average Yes, Zero reset Yes Count back Yes, Illumination LED (adjustable) Pressure sensitivity Adjustable, Applications, Total bacteria counting, Total coliform counting	1			
5.	Chemical Storage Cupboard	All-steel construction *1.0mm cold rolled steel board, *With adjustable shelves, *Epoxy coating with high temperature treatment, *304 stainless steel handle	5			

Annexure-1 Department of Microbiology						
S. No	**Name of Equipment (s)**	**Client Specifications**	**Qty**	**Vendor's Specification**	**Brand Name & Model**	**Brand Make (country origin)**
6.	Autoclave machine	Digital Fuzzy-control Autoclaves, Standard -type, Steam Sterilizer, Electronic Door Lock Sys, Capacity 60 Liter Temp. Range & Accuracy Ambient 5 C to 132 C, 0.5 C at 121 C, Pressure & Gauge 1.2 Kgf/cm2 at 121 C/ 2.0 Kgf/cm2 at 132 C, 0~3Kgf/ cm2 Sterilization Mode Solid- or Liquid-mode Heating, Power/Consumption 3 kW, Timer & Alarm 60 min, Error Status & Timer-end Display Digital LCD Display with Back-light Function, Basket 2ea of Stainless steel wire Basket are included, Packing Size 840x610xh1252mm	1			
7.	Rotary evaporator	Digital Rotary Evaporator, Condenser Type Vertical-type or Diagonal-type Bottle Capacity Evaporating: Included 2×Evaporating Flasks : 1×0.5Lit & 1×1Lit, Available 100-/250-ml, 2Lit Evaporating Flask(Optional) Receiving: Included 1ea 1 Lit Flask Rotary Speed 10 ~ 180 rpm Evaporating Capability 20 ml/min, Bath Capacity 6.5 Lit / Φ254×130 mm Temp. Range 0℃~ 100℃, Chiller/Digital Precise Refrigerated/Heating Bath Circulator, Temp. Range & Accuracy — 25℃~ +150℃, ±0.1℃, Max Flow Rate :25Lit./min, Bath Volume 8 Lit. Recirculating Water Aspirator, PP Water Tank, Safety Check Valve 80Lit/min, 0.0098MP, Capacity 15 Lit Max. Vacuum Degree 0.098 MPa Flow 80 Lit./min, Single Tap Air Sucking Amount 10 Lit./min, 2A Material of Water Tank PP	1			

Annexure-1 Department of Microbiology						
S. No	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specification	Brand Name & Model	Brand Make (country origin)
8.	Inverted Microscope	Inverted Trinocular Fluorescence Microscope, Eyepieces Wide Field eyepieces WF 10x/22mm paired with eye guards, Viewing Body Siedentopf Tinocular, 30° inclined, 360° rotatable, Objectives LW series infinity corrected Fluorescence Plan achromatic objectives, antifungal 4x,10x,20x, Fixed plain stage 160mm x 240mm, Fluorescence Illumination Kit, B-Excitation Block, G-Excitation Block, Bulb Housing, Operating Environment, Digital camera 6.0 MP Color CMOS, resolution Dynamic 1920x1080 pixels, Static 3264x1836 pixels ,Pixel size 2.7µm x 2.7µm A/D conversion 24 Bit RGB, Pixel clock 48 MHz Dynamic range 65 dB	1			
9.	Anaerobic jars	Advance system with 250ml, 500ml, 1000ml jars and automated	2			
10.	Growth Chamber for fungal growth	Growth Chamber, Capacity 432 Lit Temperature Range & Variation 10℃ ~ 60℃, ±1℃ at 20℃,Fluctuation ± 0.5℃ at 10℃, ± 0.5℃ at 25℃ (0% light intensity),Humidity Range & Variation 30% ~ 95% RH, ±3% at 60℃ Fluctuation ±1% Humidifier Evaporation by Fan with Heater Illumination, Range 0 to 12,000 Lux, Lamp FPL 55W×14,Bank 3 Side Walls,Temp. & Humidity Sensor Temp. PT100,Heating Power Temperature 1.5 kW for Humidity 1.5 kW Compressor 1/2HP	1			
11.	Vertical Incubator	Inner Capacity 170 L Door left/right On site Decontamination 120℃ Dry,Display7" LCD touch screen, Date Tracking 240 hours continuous, Internal Dimension (mm) 547W x 479D x 647H, with CO2 supply, Control	2			

Annexure-1 Department of Microbiology						
S. No	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specification	Brand Name & Model	Brand Make (country origin)
		system Microprocessor PID Sensor N.D.I.R. Control range 0-20% Control accuracy ±0.1, Temperature Control system Microprocessor PID Range Amb. +5-50°C Accuracy ±0.2°C Uniformity ±0.3°C,				
12.	Class II safety cabinet (A2)	Polypropylene Bio Safety Cabinet 6 mm tempered glass side walls,304 stainless steel work surface and spill tray, Two H14 HEPA filters, Advanced EC fan with 304 stainless steel housing Workspace (W x D x H) 840 x 665x 550 mm Test Standard: CE / ISO-9001, 08/EN12469 Downflow Velocity 0.45 m/s, 90 FPm, Inflow velocity 0.5 m/s, 100 fpm, Cleanliness level Class 100/ISO 5 Noise Level <52dB, Material Welded white polypropylene structure with stainless still 304 worktop	1			
13.	PCR thermal cycler	Gradient Thermal Cycler , Sample Capacity 96x0.2ml Peltier Quantity 6 Block Material Aluminum Alloy Temperature Range (°C) 0-100°C Heating Rate (°C/sec) 4 Cooling Rate (°C/sec) 3 Hot-lid Temperature (°C) 30-110°C Gradient Range (°C) 1-30°C, Display Screen 8 inch, 800×600 Pixels, TFT, TOUCH, Programs Saving 10000 files + (USB Flash), PC Control Software: Yes	1			
14.	Nano drop	Spectrophotometer Micro volume Upgradable Flourometer Minimum Sample Size 0.5 µL, Pathlength 0.5 mm (auto ranging to 0.03 mm) Light Source Pulsed Xenon flash lamp Wavelength Range 190-840 nm, Wavelength	1			

Annexure-1 Department of Microbiology						
S. No	**Name of Equipment (s)**	**Client Specifications**	**Qty**	**Vendor's Specification**	**Brand Name & Model**	**Brand Make (country origin)**
		Accuracy 1 nm, Spectral Resolution 1.5 nm (FWHM at Hg 253.7 nm) Measurement Time <4 seconds, On board Controller (No PC required) Operating System Custom Android™ OS CPU TI OMAP ARM Processor Display 1280 X 800 high definition color display Touch screen with swipe and pinch motion glove compatible Internal Storage 8GB flash drive Connectivity 3 USB ports for printer, barcode reader and USB drive Networking Ethernet and Wi-Fi,				
15.	Multi-channel pipettes	8 channelled Micropipette Adjustable Fully Autoclavable Smart and reliable volume adjustment 2-20ul, 20-200ul	1			
16.	Gel Documentation system/Trans illuminator	Gel Documentation System Compact image System,10.0 megapixel digital camera ,High resolution 8" TFT screen, Digital control panel ,Compact chamber and lightweight Built-in UV transilluminator Safety door switch Multi power source Camera 5 x optical Pixels 10.0 megapixels Filters +3 Close up filter and EtBr or SYBR Green filter(optional) Storage Media memory card, Computer Interface USB 2.0 Hi-speed Darkroom UV Transilluminator Wavelength 254 / 312 / 365nm Filter Size 210 x 210mm Light source 8W x 6 tubes Including Software	1			
17	Water Deionizer System	Capacity: Output 60 litre per hour. **Output**: Pure water Type II (analytical grade) according ASTM D1193 **Input**: Tap water **Production**: 1 l/min **Purification process**	1			

Annexure-1 Department of Microbiology						
S. No	**Name of Equipment (s)**	**Client Specifications**	**Qty**	**Vendor's Specification**	**Brand Name & Model**	**Brand Make (country origin)**
		control: By microprocessor **Installation requirements:** 120/220V AC + water supply (≤ 3 m. distance / ≥ 2 bar pressure) **Measures and weight:** 48 x 25 x 45 cm (LxWxH) 12 kg Equipped with Kit of Cartridges				

Annexure-2: Department of Food Science & Technology

S. No	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
1.	Weighing Balance	Maximum capacity: 250g Readability: 0.0001g Repeatability (S.D.): 0.0002g Pan size: 90mm Ø Typical stabilisation time: 3 Sec Overall dimensions (wxdxh): 8.7 x 12.2 x 12.7" / 221 x 310 x 323mm	2			
2.	Sonication bath	Capacity (Liters): 10L Tank size inner (mm): 290 x 240 x h150 Heat temp ^{0}C: Ambient to 90^{0}C Timer (min.): 0 ~ 99 Drain valve: 1/2"NPT HF-peak out (W): 200W Power: 590W	1			
3.	TLC Visualizer	Width: 480 mm, depth: 537 mm, height: 596 mm Net weight: 17.0 kg; 2 x UV tube short wavelength (254 nm) - direct light 2 x UV tube long wavelength (366 nm) - direct light 2 x white light tube - direct light 2 x white light tube - transmitted light	1			
4.	Chromatogram Immersion Device	Uniform vertical speed, freely selectable between 30 mm/s and 50 mm/s. Immersion time selectable between 1 and 8 seconds and indefinitely. To accommodate 10 cm and 20 cm plate height., Battery operated, independent of power supply.	1			
5.	Refrigerator	minus 20 temperature	2			
6.	TLC Plate Heater	The temperature selectable between 25 and 200 °C. The 20 x 20 cm heating surface	1			
7.	TLC developing chamber	One for 20x20 TLC plate; two for 10x10 TLC	3			

Annexure-3: Department of Agronomy

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
1	Water Distillation Apparatus	Capacity: Output 60 litre per hour. **Output**: Pure water Type II (analytical grade) according ASTM D1193 **Input**: Tap water **Production**: 1 l/min **Purification process control:** By microprocessor **Installation requirements:** 120/220V AC + water supply (≤ 3 m. distance / ≥ 2 bar pressure) **Measures and weight:** 48 x 25 x 45 cm (LxWxH) 12 kg Equipped with Kit of Cartridges	1			
2	Shaking Water Bath	Capacity: 18 Lit. Max.Q'ty of Erlenmeyer Flask: 250 ml x6 ea 500 ml x4 ea 1000 ml x1 ea Temp. Range & Accuracy: Room Temp. +5^{0}C to 100^{0}C, ± 0.1^{0}C Temp. Resolution: 0.1^{0}C Display, 0.1^{0}C-Control Temp. Uniformity & Probe: ±0.5^{0}C , PT100 Heating Power: 1.4 kW Shaking Speed & Resolution: 20 ~ 250 rpm, 1rpm - Display/1rpm – Control Shaking Stroke (mm):15, 20, 30 Available (20 as factory Default) Timer & Alarm: 99hr 59min (Delay & Continuous run), Error status & Timer-end Display: Digital LCD with Back-Light Function Controller: Digital Fuzzy Controller with Jog-Shuttle Switch (Turn+Push) Safety Circuit: Over-Temp./-Current protection, Sensor Error Detection	1			
3	Osmometer	**Sample Volume**: 10µl nomial. Other accessory sample volumes: 2 µl using AC -063, 20 µl using ac-064 sample holder, and approximately 60 µl using AC-065 SAMPLE HOLDER. **Measurement Range:** Typically 20 to 3200 mmol/kg (up to 3600mmol/kg with extended range osmometer) @ 25°C ambient. **Measurement Time:** 90 seconds. **Resolution:** 1mmol/kg. Featuring a Fully automated	1			

Annexure-3: Department of Agronomy

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
		Measuring process repeatability ≤ 2mmol/kg Standard Deviation between 20 to 1000 mmol/kg; ≤0.5% of reading between 1000 and 3200 mmol/kg: while operating between 20 and 25 °C. **Calibration:** Automatic using Opti-mole ™osmolality standards. **Readout:** 240X128 pixel backlit LCD. **Operating Temperature**: For indoor use only between 15°C and 37°C with a maximum relative humidity of 85%. For use at elevations upto 2000 meters. (Instrument should be at stable temperature before calibrating. **Storage Temperature**: 0°C to 60°C. **Serial Outputs**: RS-232 (ASCII format). USB- Slave. Electrical **Line voltage:** 100 to 240 Volts AC @ 50-60 Hz. Transient. Power 40 Watts maximum. Fuses (2 required) 5x20 mm time-delay type T-1 ampere at 250 Volts. Size (H X W X D) 20 cm (8") x 28 c (11") x 36cm (14") **Weight:** 6.8kg (15lbs).				
4	Seed Chamber Germination	Capacity: 432 Lit. Temp. Range & Variation: 10^0C ~ 60^0C,Fluctuation: ± 0.5^0C at 10^0C, ± 0.5^0C at 25^0C (0% light intensity) ± 1^0C at 10^0C, ± 1□ at 25^0C (100% light intensity) Humidity Range & Variation: 30% ~ 95% RH, ±3% at 60^0C Fluctuation: ±1% Humidifier: Evaporation by Fan with Heater Illumination Range:0 to 12,000 Lux Lamp: FPL 55Wx14 Bank:3 Side Walls Temp. & Humidity	1			

Annexure-3: Department of Agronomy

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
		Sensor: Temp. : PT100, Humidity : Capacitive Sensor Heat-up Time (up to 37^{0}C): 11 min. (0 % illumination) / 9 min. (100 % illumination) Cool-down Time (down to 10^{0}C): 13 min. (0 % illumination) / 15 min. (100 % illumination) Display: 7" Full Touch Screen TFT LCD (Smart-LabTM Controller) Controller: Smart-LabTM Controller Program Function: Temperature and Humidity : 120 Patterns, 1,200 Segments Light Bank : 7 steps Door Internal Tempered Safety Glass with Silicon Packing External 3-Side Magnetic Packing Door with Light Bank Packing Size & Gross Weight: 1,400x 1,220 xh 2,210mm,				
5	Sample Drying Oven	Control: PID control, +/- 3%RH at the aspirated sensor. Components: Vaisala dry humidity sensor, stainless steel tubing, stainless steel on/off solenoid, inline water filter, controls and data logging by the controller. Humidity Sensor Specifications: Range 0 to 100%, accuracy at 20°C: +\- 3% (0 to 90% RH). Specifications: Microprocessor controlled, digital display. Capacity: 100 liters. Timer: 0-99 min. Temperature range: ambient +5C to 260C	1			

Annexure-4: Department of Plant Breeding & Genetics

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
1.	Hot Air Oven	Forced Convection-type Ovens, Digital Fuzzy Control System, Jog-Dial with Push Button, Capacity 105Lit, Temperature range +50Cto 250C, Recovery Time 8 min. to 100 C, Display Digital LCD with Back Light, Timer 99hr 59 min (delay/continuous function),Material Stainless steel (#304) Insulation Glass Wool Shelves 2ea of stainless steel Wire Shelves included, Load per Shelf : 16 kg	1			
2.	Centrifuge Machine	Micro Prime Centrifuge, Speed 500-15,000 Rpm (10 Rpm steps) Rcf Max 22,000 G Timer 0-99 Mins & Hold (30 sec steps) Dims HWD 235 x 235 x 350mm,Power 140 Watts, Memory 10 programs, Accel rates 10 programs, Decel rates 10 programs, Rotor type 8 x 15ml ,Tube size max 17 x 120mm ,Maximum Speed Rpm 6,000 Maximum Rcf (G) 3,400	1			
3.	Compound Microscope	Binocular LED Microscope Eyepieces: Wide Field focusable paired eyepieces WF 10x/20mm, Objectives 4x,10x,40x,100x, Condenser Sub-stage Abbe condenser NA 1.25 with aspheric lens, Viewing Body Siedentopf Binocular tube, 30° inclined, 360° captive rotation, interpupillary distance 48-75mm	1			
4.	Ultra-High Low Deep Freezer (-80°C)	SMART Digital Ultra-Low Temp. Freezer, Upright-type UniFreezTM System can freeze down to -86℃ , Capacity 503 Lit Temp Range -86 C~ -65 C at Room Temperature of 30 C and Humidity of 70%, Sensor PT100 Sensor, Compressor Hermetic Type Display 7" Full Touch Screen TFT LCD , Shelves Included 3 Stainless steel Shelves, Max. Q'ty of Racks 16pcs of 20(4x5)-Placed Rack (RFU50), Material Internal Stainless	1			

Annexure-4: Department of Plant Breeding & Genetics

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
		steel (#304), Power Consumption 458Wh				
5.	PH/EC Meter	Range pH: -2.00~18.00 ph. Accuracy: Electrode:±0.02 Temperature Compensation: 0~100°C. auto or manual Power Supply: DC12V/1A Conductivity Range: 0.00~20.00 uS/cm Resistivit:0~100 mΩ.cm TDS: 0~100g/L Salinity:0~100 ppt	3			
6.	Distill water machine	Capacity: Output 60 litre per hour. **Output**: Pure water Type II (analytical grade) according ASTM D1193 **Input**: Tap water **Production**: 1 l/min **Purification process control:** By microprocessor **Installation requirements:** 120/220V AC + water supply (≤ 3 m. distance / ≥ 2 bar pressure) **Measures and weight:** 48 x 25 x 45 cm (LxWxH) 12 kg Equipped with Kit of Cartridges	1			
7.	Ice Machine	Automatic ice flaker, Fully automated controller, Slide away access door high grade Stainless steel 304 exterior, ice storage bin 25kg, Ice making capacity 85 kg / 24 hrs Power 80W,Refrigerant R134a Cooling type Air cooling, Water supply Tap water, Voltage 220 V; 50 Hz, Dimensions 400 x 510 x 845mm.	1			
8.	Micro Oven	Supply voltage: 220 volts, 50Hz. single phase A.C. Power Consumption: 1300W approx. Microwave Power: 700W - 850W 5. Oven Capacity: 20 litre - 25 litre 6. Microwave Frequency : 2450 MHz	1			
9.	PAGE Running Set	Unit Dimension (W x L x H) 190 x 130 x 150mm , Plate Dimension (W x L) 100 x 100mm , Gel Dimension (W x L) 75 x 80mm , Maximum Sample 80 samples, 20 samples per gel , Buffer Volume 250 ~ 1200ml , Ice cooling Pack Yes Dummy plate and Casting Base Yes , Construction Injection molded construction ,Durable, leak proof environment for complete safety and long life	1			

Annexure-4: Department of Plant Breeding & Genetics

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
		Electrical safety Lid can be fastened in only one way On removal, power is disconnected from buffer chamber Rapid Casting Gel Use casting dams. Power Supply Output Voltage / Inc 10 - 300V / 1V, Output Current / Inc 10 - 400mA / 1mA, Output Power 60W, Output Type Constant voltage or constant current, Control Microprocessor controller Terminal Pairs 2 Pairs Timer 1~999 minutes with alarm, continuous				
10.	Horizontal Electrophoresis Set	Horizontal Electrophoresis System, Midi plus 7 x 7 cm & 7 x 10 cm UV Tray, 2 x 8 sample 1 mm thick combs, Low buffer consumption Single molded tank, Dimension (WxLxH)210 x 90 x 90mm Gel Dimension (WxL) 70 x 70mm 70 x 100mm, Maximum Sample 32 for 70 x 70mm Tray (2 x 16 sample combs), 64 for 70 x 100mm Tray (4 x 16 sample combs) Buffer Volume 225 ml, Material Injection molded construction Power Supply Output Voltage / Inc 10 - 300V / 1V, Output Current / Inc 10 - 400mA / 1mA, Output Power 60W, Output Type Constant voltage or constant current, Control Microprocessor controller Terminal Pairs 2 Pairs Timer 1~999 minutes with alarm, continuous	1			

Annexure-5: Department of Soil Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
1.	Rotary Evaporator	Digital Rotary Evaporator, Condenser Type Vertical-type or Diagonal-type Bottle Capacity Evaporating: Included 2×Evaporating Flasks : 1×0.5Lit & 1×1Lit, Available 100-/250-ml, 2Lit Evaporating Flask(Optional) Receiving: Included 1ea 1 Lit Flask Rotary Speed 10 ~ 180 rpm Evaporating Capability 20 ml/min, Bath Capacity 6.5 Lit / Φ254×130 mm Temp. Range 0℃~ 100℃, Chiller/Digital Precise Refrigerated/Heating Bath Circulator, Temp. Range & Accuracy －25℃~ +150℃, ±0.1℃, Max Flow Rate :25Lit./min, Bath Volume 8 Lit. Recirculating Water Aspirator, PP Water Tank, Safety Check Valve 80Lit/min, 0.0098MP, Capacity 15 Lit Max. Vacuum Degree 0.098 MPa Flow 80 Lit./min, Single Tap Air Sucking Amount 10 Lit./min, 2A Material of Water Tank PP	1			
2.	Digital Turbidity Meter	Bench top Turbidity Meter 4.3 Inch colored FTT screenBig storage space and support USB storage and data transfer to USB drive, Measuring principles Nephelometric(900 scatter) Light source IR-LED Resolution 0.01from 0.00...9.99,0.1from10...99.9 ,1from100...1100 Calibration Automatic 3 point calibration Response time Approx. 3seconds, Applications For all water testing, drinking water, industrial waste water, river water and wine	1			
3.	Dissolved Oxygen Meter	Display 6.5 inch LED screen Parameters Concentration, saturation, temperature DO range 0.000~90 mg/L (ppm) DO Resolution 0.01/0.1 , DO Accuracy ±0.5% DO Saturation 0.0~600% Saturation Resolution 0.1% Temperature Measuring Range (0～100)℃ , Salinity	1			

Annexure-5: Department of Soil Sciences						
S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
		Compensation (0.0~50.0) g/L Pressure Compensation (80~105) kPa (automatic) Humidity 5-85% Power 12V1A				
4.	BOD Measurement System	Range DO 0.00 to 50.00 mg/L (ppm); 0.0 to 600.0 % saturation Barometric Pressure 450 to 850 mmHg Temperature -20.0 to 120.0°C (-4.0 to 248.0°F) Resolution DO 0.01 mg/L (ppm); 0.1% saturation Barometric Pressure 1 mm Hg, Temperature 0.1°C/°F Accuracy (@20°C) DO ±1.5% of reading ±1 digit	1			
5.	Conductivity/TDS Meter	Display: 6.5 inch LED Screen Parameters: conductivity, Resistivity, TDS, salinity, temperature Conductivity measuring range: (0.00~20.00) µS/cm (20.0 ~200.0) µS/cm (200~2000) µS/cm (2.00~20.00) mS/cm (20.0~200.0) mS/cm Conductivity resolution 0.01/ 0.1/1µS/cm 0.01/0.1mS/cm Conductivity Accuracy Electrode: ±1.0%FS Instrument: ±1.50%FS Resistivity measuring range 0 ~100 MΩ·cm TDS 0~100 g/L Salinity 0~100 ppt Temp measuring range (-10~110) Temp resolution 0.1 Temp accuracy ±0.5 Data storage 100 sets Communication interfaces USB, RS232, wireless Bluetooth Working conditions Temperature: 5-40° Humidity: 5-85% Power 12V1A Size & Weight 240 × 170 × 70mm/600g	1			
6.	pH Meter	Bench top pH Meter Display 6.5 inch LED screen Parameters pH, mV, Temperature PH Measuring range -2,000 – 18,000 pH PH Resolution 0.001/0.01/0.1 pH PH Accuracy +0.02 pH mV Measuring range -1999.99-1999.99 mV mV Resolution 1 mV Temp Measuring range -5 - 1100C Temp Accuracy +0.50C	1			

Annexure-5: Department of Soil Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
		Calibration 3 point, automatic Data Storage 1000 sets Working Conditions Temperature 5-400 Humidity 5-85% Power 9V2A				
7.	Analytical Balance	Maximum capacity: 250g Readability: 0.0001g Repeatability (S.D.): 0.0002g Pan size: 90mm Ø Typical stabilisation time: 3 Sec Overall dimensions (wxdxh): 8.7 x 12.2 x 12.7" / 221 x 310 x 323mm	1			
8.	Water Distillation System	Borosilicate coil condenser. Out put: 4litre/ hour. Water quality: Double distillation. Pyrogen Free: Yes. PH 5.6 -6.0 Conductivity <1µS. cm^{-1} Power Rating 6kW Tap Water Pressure (min-max)* 70-560 kPa 10-80 $lbf.in^{-2}$ Tap Water Flow (min) 2 litres. min^{-1} Power: 220VAC. 50/60Hz.	1			
9.	Chlorine Meter	High-precision Colorimeter Minimum readout 0.001 Measuring range 0-10, 10-100, 100-500 Repeatability ≤0.5% Zero draft ±0.5%FS Applications Industrial Waste water and river water	1			
10.	COD Auto analyzer	Measuring range: 5－5000mg/L Resistance against chlorine interference: [CL－]＜1000 mg/L,[CL－]＜4000mg/L(optinal) •Precision: COD=20 mg/L V＜10% , COD=300 mg/L V＜4.3%	1			
11.	Dual chamber incubator	Incubator Forced Convection-Type , Digital Fuzzy Control System Jog-Dial with Push Button Capacity: 105 Lit. Dimension Interior (mm): 485 x 410 x 533 , Temperature RANGE +5C to 70C, Fluctuation: ± 0.2^{0}C at 37^{0}C, ±0.3^{0}C at 50^{0}C, Sensor: PT 100 Control Resolution: ±0.1^{0}C Heat-up Time: 17 min. to 37 ^{0}C, Display: Digital LCD with Back Light, Timer: 99hr 59 m, Material Internal Stainless steel (#304)	1			

Annexure-5: Department of Soil Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
		Shelves: 2ea ,Circulation: Forced Air Type, Power Supply: 230V, 50/60Hz				
12.	Growth Chamber	Growth Chamber, Capacity 432 Lit Temperature Range & Variation 10℃ ~ 60℃, ±1℃ at 20℃,Fluctuation ± 0.5℃ at 10℃, ± 0.5℃ at 25℃ (0% light intensity),Humidity Range & Variation 30% ~ 95% RH, ±3% at 60℃ Fluctuation ±1% Humidifier Evaporation by Fan with Heater Illumination, Range 0 to 12,000 Lux, Lamp FPL 55W×14,Bank 3 Side Walls,Temp. & Humidity Sensor Temp. PT100,Heating Power Temperature 1.5 kW for Humidity 1.5 kW Compressor 1/2HP	1			
13.	Autoclave	Digital Fuzzy-control Autoclaves, Standard -type, Steam Sterilizer, Electronic Door Lock Sys, Capacity 60 Liter Temp. Range & Accuracy Ambient 5 C to 132 C, 0.5 C at 121 C, Pressure & Gauge 1.2 Kgf/cm2 at 121 C/ 2.0 Kgf/cm2 at 132 C, 0~3Kgf/ cm2 Sterilization Mode Solid-or Liquid-mode Heating, Power/Consumption 3 kW,Timer & Alarm 60 min, Error Status & Timer-end Display Digital LCD Display with Back-light Function, Basket 2ea of Stainless steel wire Basket are included, Packing Size 840x610xh1252mm	1			
14.	Grinding Mill	Working volume (funnel):approx. 300 ml (volume of the funnel) Motor type / power: 3-phase AC motor; up to 1000 W input / up to 600 W output Supply voltage / frequency: 230V / 50 Hz or 100-120V / 60 Hz Speed range: 50 - 6'000 rpm Display: LED Noise emission (drive only): lower 70 dB(A) at 6'000 rpm (no load)	1			

Annexure-5: Department of Soil Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
		Dimensions / Weight:251 x 325 x 480 / approx. 12 kg Environment: 0-40°C, 95% rel. humidity Sieve 0.2mm Sieve 0.5mm Sieve 0.8mm Sieve 1.0mm Sieve 1.5mm Sieve 2.0mm Sieve 3.0mm Sieve 4.0mm Sieve 5.0mm Sieve 6.0mm				
15.	UV Visible Spectrophotometer	Display: 7 inch TFT Keyboard Control: Silicone Buttons , Optical System: Double Beam, Holographic grating, 1200 lines/mm, Slit Width:1nm Wavelength Range:190-1100nm Wavelength Accuracy: +0.3nm Wavelength, Repeatability:<0.1nm Light Source: Tungsten Halogen/Deuterium Lamp Baseline Flatness: +0.0015A (200-1000nm) Noise: 0.0003A@500nm Working Mode: T,A,C,E Processor:Cortex_M3, 120Mhz Power Requirements:220V, 50/60Hz	1			
16.	Quartz Tube Furnace	Max. Temp. 1200 ^{0}C, PID temperature control, Quartz tube: 10mm - 500mm, Thermocouple: K type	1			
17.	Filtration assembly with Vacuum Pump	Vacuum Filtration Stand, Spin- lock connection facilitates fast and stable installation without clamp, Funnel capacity 300ml,Flask capacity 1200ml,Filter diameter 47mm/50mm ,Effective filtration area 12.5cm2, Oil-free Vacuum Pump Max. power consumption (W): 60 Max. current (A) 0.3 Max. vacuum - 650mmHg=85.5kPa=110 torr, Motor rotation 1450RPM,Capacitor 2uf/450v,Horse power 1/8HP,Noise Level 50dB	1			
18.	Sonicator	Net power output: VCX 500 - 500 Watts. Frequency: 20 kHz Remote actuation compatible Dimensions (H x W x D) 9¼" x 7½" x 13½" (235 x 190 x 340 mm) Weight: 15 lbs. (6.8 kg)				

Annexure-5: Department of Soil Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
19.	Digital Water Bath	Capacity: 22 Lit Temperature Range & Accuracy: Ambient +5^{0}C~100^{0}C, ±0.1^{0}C Temperature Resolution: 0.1^{0}C-Display, 0.1^{0}C-Control Temp Uniformity & Probe: ± 1.0 ^{0}C, PT100 Heater Power: 2K Timer: 99 hr 59 min (Delay & Continuous run), Error Status & Time-end Display: Digital LCD display with Back-Light Function Controller: Digital fuzzy controller with jog-shuttle switch (Turn + Push) Safety Devices: Over temp/ -Current Protection, Sensor Error Detection Material internal: Stainless steel (#304)-Internal, Power Coated Steel-External	1			
20.	Microscope	Trinocular LED Microscope, Wide Field focusable paired eyepieces WF 10x/20mm, Objectives 4x,10x,40x,100x, Mechanical Stage: RACKLESS X-axis, double plate mechanical stage plate size 200 x 140mm, X/Y travel range 78 x 54mm, with Digital Camera 16.0 MP Color CMOS, and PC	1			
21.	Shaking Incubator	Temp. Range Ambient: 10^{0}C ~ 60^{0}C Temp. Accuracy & Uniformity Accuracy : ±0.2^{0}C at 37^{0}C, Uniformity : ±0.5^{0}C at 37^{0}C Temp. Sensor: PT100 Sensor Heater: 700 W Compressor: 1/4 HP Compressor Control: Intelligent Control of Refrigerator for preventing Overload of Compressor Refrigerant: CFC-Free(R-404A) Refrigeration System Shaking Speed & Stroke: 30 ~ 250 rpm, 25mm Orbital Motion Timer & Alarm: 99hr 59min (with Continuous run.), Error status & Timer-end Display: Digital LCD with Back-Light Function Controller: Digital Fuzzy Controller with Jog-Dial Switch (Turn+Push) Room Lamp:60W Krypton Lamp Platform: Included Universal Platform for Various Shapes & Sizes of	1			

Annexure-5: Department of Soil Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
		Flasks Optional Flask Holder: Durable & Flexible Plastic Flask Holder (up to 1000ml) **Available Max. Capacity of Flask Holder** for 50~100ml Available 16 ea Flask Holder "FH100", for 50~100ml Flask for 200~300ml Available 8 ea Flask Holder "FH250", for 200~300ml Flask for 500~1,000ml Available 4 ea Flask Holder "FH500", for 500~1,000ml Flask Safety Circuit: Over Temp./ Current Protector, Leakage Breaker, Sensor Error Detector Material: Internal : Stainless steel (□304), External : Powder Coated steel Dimension: Internal: 530 x 530 x h350mm, External : 575 x 855 x h850mm Packing Size (w x d x h) (mm):1,000 x 800 x h1,100mm Power Consumption: 1.2 kWPower Supply & Cord/Plug*: 1 Phase, AC 120 V, 60 Hz or AC 230 V, 50 / 60 Hz				
22.	Sieve shaker	DRY SIEVING:- MEASURING RANGE: 32UM – 63UM. MAX. SAMPLE QUANTITY (APPROX)1KG. SIEVING TIME (APPROX): 3 – 20MIN. WET SIEVING:- MEASURING RANGE: 20UM – 10MM. MAX. SAMPLE QUANTITY (APPAROX) 20 – 100GM. SIEVING TIME (APPROX): 3 – 10MIN. POWER: 220 VAC. 50/60HZ. MICRO-PRECISION SIEVING:- MEASURING RANGE: 5um to 100um.	1			
23.	Floor Refrigerated Centrifuge	Floor Standing Refrigerated Centrifuge 3L Max. Speed 500-15,000 Rpm (1 Rpm steps) Rcf Max 22,000 G Timer 0-9999Mins & Hold (1 sec steps) Dimensions HWD 710 x 650 x 630mm Weight 125 Kg (without rotor) Power 1200 Watts, Memory 108 programs, Accel rates 10 programs, Decel rates 10 programs, Temp -9°C to + 40°C PID, Controlled to + / - 1°C, Swing out Rotor4x750ml, 15ml Adaptors x 48Places. 50ml Adaptors x 16Places, Fixed Angle Rotor 24 x 15ml, Tube Size 17 x 120 mm max Max Speed 6,000rpm Max Rcf 4800 Autoclavable at 121°C	1			

Annexure-5: Department of Soil Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
24.	Guelph Permeameter Kit	Auger Cutting Diameter: - 6.0 cm (2-3/8") Well Height Range - 2.5 cm to 25 cm, Hydraulic Conductivity Range: - 10-4 to 10-7 m/sec - (10-2 to 10-5 cm/sec),Collapsible Water Container Capacity - 11.36 liters (3.0 gallons),Maximum Permeameter Capacity - 3.18 liters (0.84 gallons)	1			
25.	Kjeldahl Digestion System	Microprocessor built-in the case Programmable auto-start All programs can have up to 18 steps for temperature/incubation Nine user free programs Quick and safe manipulation of samples Used together with "SCRUBBER" does not need fume hood, Solids: 5 gr. (macro), 1 gr. (micro), Liquids: 15 mL. (macro),3 mL. (micro) Places: 6 Digestion block Ø tube mm: 42 Dimension H x W x D in mm: 740 x 355 x 400 Temperature Range °C: 450 Power Consumption: 1500W	1			

Annexure-6: Department of Horticulture

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
1.	Rotary Evaporator	Digital Rotary Evaporator, Condenser Type Vertical-type or Diagonal-type Bottle Capacity Evaporating: Included 2×Evaporating Flasks : 1×0.5Lit & 1×1Lit, Available 100-/250-ml, 2Lit Evaporating Flask(Optional) Receiving: Included 1ea 1 Lit Flask Rotary Speed 10 ~ 180 rpm, Evaporating Capability 20 ml/min, Bath Capacity 6.5 Lit / Φ254×130 mm, Temp. Range 0℃~ 100℃, Chiller/Digital Precise Refrigerated/Heating Bath Circulator, Temp. Range & Accuracy －25℃~ +150℃, ±0.1℃, Max Flow Rate :25Lit./min, Bath Volume 8 Lit. Recirculating Water Aspirator, PP Water Tank, Safety Check Valve 80Lit/min, 0.0098MP, Capacity 15 Lit Max. Vacuum Degree 0.098 MPa Flow 80 Lit./min, Single Tap Air Sucking Amount 10 Lit./min, 2A Material of Water Tank PP	1			
2.	Portable Chlorophyll meter	• User-friendly, low cost chlorophyll content meter for the measurement of relative chlorophyll content in leaf samples.• Field portable, light-weight, robust design (230L x 91W x 45H)mm, 250gms • Dual wavelength optical absorbance (620 & 940nm) • Chlorophyll content range: 0-2000 units • Simple 2 button keypad operation • Auto calibration and temperature compensation • 60 measurement memory capacity • No PC required	1			
3.	PH/EC Meter	Range pH: -2.00~18.00 ph. Accuracy: Electrode:±0.02 Temperature Compensation: 0~100°C. auto or manual Power Supply: DC12V/1A Conductivity Range: 0.00~20.00 uS/cm Resistivit:0~100 mΩ.cm TDS: 0~100g/L Salinity:0~100 ppt	3			
4.	Laser Pyrometers	Standard	1			

Annexure-6: Department of Horticulture

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
5.	Digital balance	Maximum capacity: 600g Readability: 0.01g Tare Range: Full range Pan Size: 120mm ø Weighing Units: g, lb, oz, N, GN, ct, dr, dwt, mm, ozt, T, tl.H, tl.S, tl.T Calibration: External calibration / Internal manual calibration Display: Backlit LCD with 18mm-high digits Power Supply:12VDC 50/60Hz 800mA adapter / Internal rechargeable battery Operating Temperature 0° to 40°C Draught Shield: Round 132mm ø x 90mm Overall Dim: 174x252x80mm (wxdxh)	1			
6.	Water Distillation Apparatus	Capacity: Output 60 litre per hour. **Output**: Pure water Type II (analytical grade) according ASTM D1193 **Input**: Tap water **Production**: 1 l/min **Purification process control:** By microprocessor **Installation requirements:** 120/220V AC + water supply (≤ 3 m. distance / ≥ 2 bar pressure) **Measures and weight:** 48 x 25 x 45 cm (LxWxH) 12 kg Equipped with Kit of Cartridges	1			
7.	Deionizer	**Output**: Pure water Type II (analytical grade) according ASTM D1193 (American Society for Testing & Material) **Input**: Tap water **Production**: 1 l/min (60liters/hour) **Purification process control:** By microprocessor **Installation requirements:** 120/220V AC + water supply (≤ 3 m. distance / ≥ 2 bar pressure) **Guarantee:** 12 months from installation. Conductivity < 1 µS/cm Dimensions (cm): Equipment 18.5 x 7 x 68 cm (LxWxH) Weight in operation: 4 kg **Feed Water Requirements** Maximum Pressure 6 Bar Minimum Pressure 2 Bar Temperature 5-35 ºC	1			
8.	Water Distillation Apparatus	Capacity: Output 60 litre per hour. **Output**: Pure water Type II (analytical grade) according ASTM D1193 **Input**: Tap water **Production**: 1 l/min **Purification process control:** By microprocessor **Installation requirements:**	1			

Annexure-6: Department of Horticulture

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
		120/220V AC + water supply (≤ 3 m. distance / ≥ 2 bar pressure) **Measures 1and weight:** 48 x 25 x 45 cm (LxWxH) 12 kg Equipped with Kit of Cartridges				
9.	Micro-Kjeldhal Digestion System	Places: 6 Ø tube mm: 42 H x W x D in mm: 740 x 355 x 400 Temp. °C: 450 Power W:1500 • Microprocessor built-in the case• Programmable auto-start • All programs can have up to 18 steps for temperature/incubation • Nine user free programs. Solids: 5 gr. (macro), 1 gr. (micro) Liquids: 15 mL. (macro),3 mL. (micro)	1			
10.	Amino Acid Analyzer	UV/VIS detection with Ninhydrin reagent. UV/VIS detection with Ninhydrin reagent.	1			
11.	Dual chamber incubator	Capacity: 105 Lit. Dimension (w x d x h): Interior (mm): 485 x 410 x 533 Exterior (mm): 635 x 695 x 841 Heater Power: 300W **Temp.** Range: Ambient Temperature +5^{0}C to 70^{0}C Fluctuation: ± 0.2^{0}C at 37^{0}C, ±0.3^{0}C at 50^{0}C Variation: ± 0.5□ at 37^{0}C,± 0.9□ at 50^{0}CSensor: PT 100 Control Resolution: ±0.1^{0}C Heat-up Time: 17 min. to 37 ^{0}C,30 min. to 50^{0}C Recovery Time: 3 min. to 37^{0}C, (Door open 30sec): 4 min. to 50^{0}C Controller: Digital Fuzzy Control by Advanced Microprocessor Jog-Dial with Push Button RS232 Port: Available to connect with PC Display: Digital LCD with Back Light Timer: 99hr 59 min (delay/continuous function)	1			
12.	Growth Chamber	Capacity: 432 Lit. Temp. Range & Variation: 10^{0}C ~ 60^{0}C,Fluctuation: ± 0.5^{0}C at 10^{0}C, ± 0.5^{0}C at 25^{0}C (0% light intensity) ± 1^{0}C at 10^{0}C, ± 1□ at 25^{0}C (100% light intensity) Humidity Range & Variation: 30% ~ 95% RH, ±3% at 60^{0}C Fluctuation: ±1% Humidifier: Evaporation by Fan with Heater Illumination Range:0 to 12,000 Lux Lamp: FPL 55Wx14 Bank:3 Side Walls Temp. & Humidity	1			

Annexure-6: Department of Horticulture

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
		Sensor: Temp. : PT100, Humidity : Capacitive Sensor Heat-up Time (up to 37^{0}C): 11 min. (0 % illumination) / 9 min. (100 % illumination) Cool-down Time (down to 10^{0}C): 13 min. (0 % illumination) / 15 min. (100 % illumination) Display: 7" Full Touch Screen TFT LCD (Smart-LabTM Controller) Controller: Smart-LabTM Controller Program Function: Temperature and Humidity : 120 Patterns, 1,200 Segments Light Bank : 7 steps Door Internal Tempered Safety Glass with Silicon Packing External 3-Side Magnetic Packing Door with Light Bank Packing Size & Gross Weight: 1,400x 1,220 xh 2,210mm,				
13.	Multi-parameter ethylene meters	Standard	1			
14.	Sonicator	Power Supply: Net Power output: VC 500 – 500 Watts. VC 750 Watts. Frequency: 20kHz Remote actuation Compatible. Dimensions: (HxWxD) 9 ¼" x 7 ½" x 13 ½" (235 x 190 x 340mm) Weight: 15lbs. (6.8kg) Sealed Converter: Part No: CV 334. Piezoelectric lead zirconate crystals (PZT) Diameter: 2 ½" (63.5mm) Weight: 2 lbs. (900g) Converter Cable: Cable length: 6 (1.8m). Standard Probe: Tip diameter: ½" (13mm) with threaded end and replaceable tip solid probe with non-replaceable tip Please specify processing capability: 10 ml to 250 ml. length: 5 3/8" (136mm) weight: ¼ lb (340g) Titanium alloy Ti-6Al-4V	1			
15.	Digital Water Bath	Capacity: 22 Lit Temperature Range & Accuracy: Ambient +5^{0}C~100^{0}C, $\pm$0.1^{0}C Temperature Resolution: 0.1^{0}C-Display, 0.1^{0}C-Control Temp Uniformity & Probe: $\pm$ 1.0 ^{0}C, PT100 Heater Power: 2K Timer: 99 hr 59 min (Delay & Continuous run), Error Status & Time-end Display: Digital LCD display with Back-Light Function Controller: Digital fuzzy controller with jog-shuttle	1			

Annexure-6: Department of Horticulture

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
		switch (Turn + Push) Safety Devices: Over temp/ -Current Protection, Sensor Error Detection Material internal: Stainless steel (#304)-Internal, Power Coated Steel-External				
16.	Shaking Incubator	Temp. Range Ambient: 10^0C ~ 60^0C Temp. Accuracy & Uniformity Accuracy : $\pm$0.2^{0}C at 37^{0}C, Uniformity : $\pm$0.5^{0}C at 37^{0}C Temp. Sensor: PT100 Sensor Heater: 700 W Compressor: 1/4 HP Compressor Control: Intelligent Control of Refrigerator for preventing Overload of Compressor Refrigerant: CFC-Free(R-404A) Refrigeration System Shaking Speed & Stroke: 30 ~ 250 rpm, 25mm Orbital Motion Timer & Alarm: 99hr 59min (with Continuous run.), Error status & Timer-end Display: Digital LCD with Back-Light Function Controller: Digital Fuzzy Controller with Jog-Dial Switch (Turn+Push) Room Lamp:60W Krypton Lamp Platform: Included Universal Platform for Various Shapes & Sizes of Flasks Optional Flask Holder: Durable & Flexible Plastic Flask Holder (up to 1000ml) **Available Max. Capacity of Flask Holder** for 50~100ml Available 16 ea Flask Holder "FH100", for 50~100ml Flask for 200~300ml Available 8 ea Flask Holder "FH250", for 200~300ml Flask for 500~1,000ml Available 4 ea Flask Holder "FH500", for 500~1,000ml Flask Safety Circuit: Over Temp./ Current Protector, Leakage Breaker, Sensor Error Detector Material: Internal : Stainless steel (□304), External : Powder Coated steel Dimension: Internal: 530 x 530 x h350mm, External : 575 x 855 x h850mm Packing Size (w x d x h) (mm):1,000 x 800 x h1,100mm Power Consumption: 1.2 kWPower Supply & Cord/Plug*: 1 Phase, AC 120 V, 60 Hz or AC 230 V, 50 / 60 Hz	1			

Annexure-6: Department of Horticulture

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
17.	Laminar Flow Chamber	Outer Dimensions W x D x H: 900 x 810 x 1350 mm 35 x 31.9 x 53.1" Workspace(W x D x H): 770 x 660 x 750 mm 30.3 x 26 x 29.5" Test Standard: USA Federal Standard 209E/ ISO 14644-1,CE Air Velocity m/s 0.3m/s, 60 FPM Cleanliness in Workstation: Class-100 (FS 209E) ISO 4, ISO-14644-1 Hood Material: High grade cold rolled steel and surface is static powder coated Work Table Material: Stainless steel SUS 304 Noise (Tested 20 cm from <50dB the work table,1.2m above ground) Power Supply 110 / 220V 50/60 Hz, Single phase Illumination: 800 LUX LED lighting Filter: HEPA Filter Efficiency of 99,9995% at 0.3 Microns H14	1			

Annexure-7: Department of Entomology

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
1.	Rotary Evaporator	Digital Rotary Evaporator, Condenser Type Vertical-type or Diagonal-type Bottle Capacity Evaporating: Included 2×Evaporating Flasks : 1×0.5Lit & 1×1Lit, Available 100-/250-ml, 2Lit Evaporating Flask(Optional) Receiving: Included 1ea 1 Lit Flask Rotary Speed 10 ~ 180 rpm Evaporating Capability 20 ml/min, Bath Capacity 6.5 Lit / Φ254×130 mm Temp. Range 0℃~ 100℃, Chiller/Digital Precise Refrigerated/Heating Bath Circulator, Temp. Range & Accuracy －25℃~ +150℃, ±0.1℃, Max Flow Rate :25Lit./min, Bath Volume 8 Lit. Recirculating Water Aspirator, PP Water Tank, Safety Check Valve 80Lit/min, 0.0098MP, Capacity 15 Lit Max. Vacuum Degree 0.098 MPa Flow 80 Lit./min, Single Tap Air Sucking Amount 10 Lit./min, 2A Material of Water Tank PP	1			
2.	Autoclave machine	Digital Fuzzy-control Autoclaves, Standard -type, Steam Sterilizer, Electronic Door Lock Sys, Capacity 60 Liter Temp. Range & Accuracy Ambient 5 0C to 132 0C, □0.5 0C at 121 0C, Pressure & Gauge 1.2 Kgf/cm2 at 121 0C/ 2.0 Kgf/cm2 at 132 0C, 0~3Kgf/ cm2 Sterilization Mode Solid-or Liquid-mode Heating,Power/Consumption 3 kW,Timer & Alarm 60 min, Error Status & Timer-end Display Digital LCD Display with Back-light Function, Basket 2ea of Stainless steel wire Basket are included, Packing Size 840x610xh1252mm	1			
3.	Colony Counter	Digital Colony Counter, Four digital displays 4, Magnification 2~3 X, Petri dish diameter 60 mm, 90-150 mm adjustable Memory 100 Average Yes, Zero reset Yes Count back Yes, Illumination LED (adjustable) Pressure	1			

Annexure-7: Department of Entomology

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
		sensitivity Adjustable, Applications, Total bacteria counting, Total coliform counting				
4.	Ice Machine	Automatic ice flaker, Fully automated controller, Slide away access door high grade Stainless steel 304 exterior, ice storage bin 25kg, Ice making capacity 85 kg / 24 hrs Power 80W,Refrigerant R134a Cooling type Air cooling, Water supply Tap water, Voltage 220 V; 50 Hz, Dimensions 400 x 510 x 845mm	1			
5.	Distillation plant	Capacity: Output 60 litre per hour. **Output**: Pure water Type II (analytical grade) according ASTM D1193 **Input**: Tap water **Production**: 1 l/min **Purification process control:** By microprocessor **Installation requirements:** 120/220V AC + water supply (≤ 3 m. distance / ≥ 2 bar pressure) **Measures and weight:** 48 x 25 x 45 cm (LxWxH) 12 kg Equipped with Kit of Cartridges	1			
6.	Chemical Storage Cupboard	Standard, wood with locks	5			
7.	Inverted Microscope	Inverted Trinocular Fluorescence Microscope, Eyepieces Wide Field eyepieces WF 10x/22mm paired with eye guards, Viewing Body Siedentopf Tinocular, 30° inclined, 360° rotatable, Objectives LW series infinity corrected Fluorescence Plan achromatic objectives, antifungal 4x,10x,20x, Fixed plain stage 160mm x 240mm, Fluorescence Illumination Kit, B-Excitation Block, G-Excitation Block, Bulb Housing, Operating Environment, Digital camera 6.0 MP Color CMOS, resolution Dynamic 1920x1080 pixels, Static 3264x1836 pixels ,Pixel size 2.7µm x 2.7µm A/D conversion 24 Bit RGB, Pixel clock 48 MHz Dynamic range 65 dB	1			

Annexure-7: Department of Entomology

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
8.	Micropipette Set	Micropipette Adjustable Fully Autoclavable Smart and reliable volume adjustment Single-handed volume setting, Shock, UV light and autoclaving resistance, Ejector shaft height adjustment system called Justip™ allows a, wide selection of tips to tightly fit the nozzle, Ranges 0.5-10 µl, 10- 20 µl, 10-100 µl,Upto 1 ml	1			
9.	Fume Hood	White polypropylene structure featuring high chemical resistance One-piece welded structure Built-in polypropylene worktop Tempered glass slide front sash External Dimensions 1200 x 830 x 2320 mm , Workspace 1000 x 630 x 1170 mm, Front Sash Max Opening 720 mm / 28.3" Air Velocity 0.5±0.1m/s, 100 ±20FPM, Cabinet Material White Polypropylene Work Table Material HPL/ Ceramic / Epoxy / PP, Display 9" color touch screen, Illumination >800 LUX LED lights	1			
10.	Labomed Microscope computer system with camera	Trinocular LED Microscope, Wide Field focusable paired eyepieces WF 10x/20mm, Objectives 4x,10x,40x,100x, Mechanical Stage: RACKLESS X-axis, double plate mechanical stage plate size 200 x 140mm, X/Y travel range 78 x 54mm, with Digital Camera 16.0 MP Color CMOS, and PC	1			
11.	Insect Rearing Chamber	Standard	1			
12.	pH Meter	Bench top pH Meter Display 6.5 inch LED screen Parameters pH, mV, Temperature PH Measuring range -2,000 – 18,000 pH PH Resolution 0.001/0.01/0.1 pH PH Accuracy +0.02 pH	2			

Annexure-7: Department of Entomology

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
		mV Measuring range -1999.99-1999.99 mV mV Resolution 1 mV Temp Measuring range -5 - 1100C Temp Accuracy +0.50C Calibration 3 point, automatic Data Storage 1000 sets Working Conditions Temperature 5-400 Humidity 5-85% Power 9V2A				
13.	Shaker	Digital Orbital Shaker Digital LCD with Back-Light Function, Smooth Start and Change of Shaking Speed Shaking Platform Size: 350×350 mm, Shaking Motion: Orbital Motion, Speed Range: 10 ~ 300 rpm, Max. Load: 10 kg Amplitude of Rotation (mm):20 mm, Motor: Brushless DC Motor Program Function: 10 Steps, 6 Programs Platform: Universal Platform for various Shapes & Size of Flask, Safety Circuit: Overload Protector for Motor Net Weight: 20 kg Power Consumption: 40 W Electrical Reqts: AC 80V~240V, 50/60Hz	1			
14.	Ultra-High Low Deep Freezer (-80°C)	SMART Digital Ultra-Low Temp. Freezer, Upright-type UniFreezTM System can freeze down to -86℃ , Capacity 503 Lit Temp Range -860C~-650C at Room Temperature of 300C and Humidity of 70%, Sensor PT100 Sensor, Compressor Hermetic Type Display 7" Full Touch Screen TFT LCD , Shelves Included 3 Stainless steel Shelves, Max. Q'ty of Racks 16pcs of 20(4x5)-Placed Rack (RFU50), Material Internal Stainless steel (#304), Power Consumption 458Wh	1			
15.	Cool Incubator	Incubator SIR SMART Low Temperature(B.O.D) Digital Fuzzy Control System Full Touch Screen TFT LCD(Smart-LabTM Controller) Automatic Data Recording Self-Diagnostic Function	1			

Annexure-7: Department of Entomology

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
		Capacity: 420 Lit. Air Flow-type: Forced Convection-type Temp. Range & Accuracy:0C ~ 60 C, + 0.2C at 37C Heat-up Time: 35 min. to 37C Heating Power/Consumption: 1.2 kW , Compressor: 1/2HP Display: 4" Full Touch Screen TFT LCD, Controller: Smart-LabTM Controller Material: Internal : Stainless steel (#304), External : Powder Coated steel Dimension (w x d x h): Interior (mm) 705 x 605 x 1,000 Power Consumption: 2.3 kW Power Supply & Cord/Plug*: AC 230 V, 50 / 60 Hz				
16.	Insect collection boxes	Standard	100			
17.	Insecticide sprayers / Knapsack hand sprayer	Standard	15			
18.	Insecticide sprayers / Knapsack hand sprayer	Standard	15			
19.	Ulv sprayer	Standard	2			
20.	Cabinets for insect preservation	Standard	9			
21.	GPS device	Standard	2			
22.	Stanning Rack	Standard	6			

Annexure-7: Department of Entomology

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
23.	Analytical Balance	Standard	4			
24.	Electrophoresis Unit Gel	Standard	4			
25.	Gradient thermo cycler	Standard	1			
26.	Phosphen meter	Standard	2			
27.	Liquid Nitrogen Container	Standard	1			
28.	Solo Power Sprayer MH 40	Standard	2			
29.	Agrimondo Turbine Sprayer	Standard	3			
30.	Rearing jars	Standard	8			
31.	Humidifier	Standard	1			
32.	Insects showcase cabinet	Standard	10			
33.	Anaerobic jars	standard	2			
34.	Class II safety cab2inet	standard	1			

Annexure-7: Department of Entomology

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
35.	Field backpack insect collecting net	standard	10			

Annexure-8: Department of Environmental Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
1.	Spectrophotometer	Calibrate 0%A and 100%T automatically. Stand accessories: Lamp,Cuvette holder,4pcs of 10mm Glass cuvettes, 2pcs of 10mm Quartz cuvettes. Display: 70*40mm blue backlit LCD Wavelength Range: 190 - 1020nm Slit Width: 2nm Wavelength Accuracy: ±2nm Wavelength Repeatability: ≤1nm Photometric Accuracy: 0.5%T Photometric Repeatability: 0.2%T Stray light: ≤0.15%T@ 360nm Stability: 0.002A@ 500nm Output Port: RS232 Light Source: Tungsten Halogen/ Deuterium Lamp Power Requirements: AC 110-220V, 50-60HZ Shipping Dimensions and Weight: 530* 460* 320mm ,9Kg	1			
2.	pH Meter portable	Display Large LCD screen with controllable white backlight. **PH** Measuring range（-2.00 ~ 19.999） pH Resolution 0.1/0.01 pH Accuracy Electrode: ±0.01 pH, Instrument: ±0.02 pH Input current ≤2×10^{-12} A Input impedance ≥3×10^{12} Ω Stability ±0.01 pH/3h Temp compensation (0 ~ 100)C (automatic) **mV** Measuring range(mV/ORP/EH) - 1999.9mV ~ 0 ~ 1999.9mV Resolution 1mV Accuracy ±0.1% FS **Others Parameters** Data storage 200 Sets Storage contents Series number, measuring value, measuring unit and temperature Power Two AA batteries(1.5V) Size & Weight 65×120×31mm/180g (instrument) 255×210×50mm/790g (with carrying case)	2			
3.	Conductivity meter	Display: 6.5 inch LED Screen Parameters: conductivity, Resistivity, TDS, salinity, temperature Conductivity measuring range: (0.00~20.00) μS/cm (20.0 ~200.0) μS/cm (200~2000) μS/cm (2.00~ 20.00) mS/cm (20.0~200.0) mS/cm Conductivity resolution 0.01/ 0.1/1μS/cm 0.01/0.1mS/cm Conductivity Accuracy Electrode: ±1.0%FS Instrument: ±1.50%FS Resistivity measuring range 0 ~100 MΩ·cm	2			

Annexure-8: Department of Environmental Sciences						
S#	**Name of Equipment (s)**	**Client Specifications**	**Qty**	**Vendor's Specifications**	**Brand Name & Model**	**Brand Make (country origin)**
		TDS 0~100 g/L Salinity 0~100 ppt Temp measuring range (-10~110) Temp resolution 0.1 Temp accuracy ±0.5 Data storage 100 sets Communication interfaces USB, RS232, wireless Bluetooth Working conditions Temperature: 5-40° Humidity: 5-85% Power 12V1A Size & Weight 240 × 170 × 70mm/600g				
4.	Distillation Plant	Capacity: Output 60 litre per hour. **Output**: Pure water Type II (analytical grade) according ASTM D1193 **Input**: Tap water **Production**: 1 l/min **Purification process control:** By microprocessor **Installation requirements:** 120/220V AC + water supply (≤ 3 m. distance / ≥ 2 bar pressure) **Measures and weight:** 48 x 25 x 45 cm (LxWxH) 12 kg Equipped with Kit of Cartridges	1			
5.	Digital Precise Water Bath	Capacity: 22 Lit Temperature Range & Accuracy: Ambient $+5^0$C~100^0C, $\pm 0.1^0$C Temperature Resolution: 0.1^0C-Display, 0.1^0C-Control Temp Uniformity & Probe: ± 1.0 ^{0}C, PT100 Heater Power: 2K Timer: 99 hr 59 min (Delay & Continuous run), Error Status & Time-end Display: Digital LCD display with Back-Light Function Controller: Digital fuzzy controller with jog-shuttle switch (Turn + Push) Safety Devices: Over temp/ -Current Protection, Sensor Error Detection Material internal: Stainless steel (#304)-Internal, Power Coated Steel-External	1			
6.	Incubator	Capacity: 50 Lit. Dimension (w x d x h): Interior (mm): 370 x 350 x 419 Exterior (mm): 518 x 637 x 700 Heater Power: 200W **Temp.** Range: Ambient Temperature +5□ to 70□ Fluctuation: $\pm 0.2^0$C at 37^0C, $\pm 0.3^0$C at 50^0C Variation: ± 0.5□ at 37^0C, ± 0.9□ at 50^0C Sensor: PT 100 Control Resolution: $\pm 0.1^0$C Heat-up Time: 17 min. to 37 ^{0}C,28 min. to 50^0C Recovery Time: 3 min. to 37^0C, (Door open	1			

Annexure-8: Department of Environmental Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
		30sec): 4 min. to 50^0C Controller: Digital Fuzzy Control by Advanced Microprocessor Jog-Dial with Push Button				
7.	PM Collector	High volume air sampler: Ambient air sampler Model no. 120SL Sampling flow rate:1.3m^3/min Range flow rate: 600 to 1300 l/min Noise reduction by a noiseless blower (brushes) and silencer	1			
8.	PM Collector for Stacks Emission	PM 2.5 collector with Mass Flow Controller, Brush, Pressure Recorder: Dickson Chart Recorder, Timer: 24 hour, Elapsed Time Indicator: Digital , Flow Rate: 36-60 CFM. Housing: Anodized Aluminum, Filter Holder: Stainless Steel, 8" x 10" (or as per model offered), Calibration equipment: Variable Flow Calibration Ki	1			
9.	Noise Meter Portable	Measuring range: 35 - 135 dB Frequency range: 31.5 Hz - 8 kHz Accuracy: ±2 dB Frequency rating: A Class II	1			
10.	Fixed Metrological Station with Toxic Gas Analyzer	Fixed metrological station with provisions for: 1. Wind speed and direction 2. Solar radiation 3. Temperature (air, water, soil) 4. Relative humidity 5. Precipitation 6. Snow depth 7. Barometric pressure 8. Soil moisture 9. Detecting gas emissions (H2/CO/H2S/CH4/NO2/SO2/CH2O/O2/NH3/O3) • Embedded PC (Intel Atom, 1.6GHz, dual core, 2GB RAM,	1			

Annexure-8: Department of Environmental Sciences						
S#	**Name of Equipment (s)**	**Client Specifications**	**Qty**	**Vendor's Specifications**	**Brand Name & Model**	**Brand Make (country origin)**
		32GB SSD hard drive) • Communications: Ethernet, WIFI • Aeroqual Connect software interface (configuration, diagnostics, and data acquisition) • Aeroqual Cloud Support subscription, free for the life of the instrument, unlimited users • Power Module (90-264 VAC, 47-63Hz) • External Temperature & Humidity Sensor (-40 to 120° C; 0-100% RH) • Pole and wall mount brackets • Documentation (Hard Copy: User Guide, Log Book; Soft Copy on USB stick) • Manufacturer's Standard 12 month Warranty • Free unlimited access to Aeroqual's online training system				
11.	GPS	NIT DIMENSIONS (WIDTH / HEIGHT / DEPTH): 6.1 x 16.0 x 3.6 cm, SCREEN SIZE (WIDTH / HEIGHT): 3.6 x 5.5 cm; 6.6 cm diagonal (2.6 "),SCREEN RESOLUTION (WIDTH / HIGH): 160 x 240 pixels, SCREEN TYPE: 65,000-color transflective TFT, WEIGHT: 230 g with batteries, BATTERY 2 AA batteries (not included); NiMH or lithium recommended, WATER RESISTANCE RATING: IPX7, MEMORY /	2			

Annexure-8: Department of Environmental Sciences						
S#	**Name of Equipment (s)**	**Client Specifications**	**Qty**	**Vendor's Specifications**	**Brand Name & Model**	**Brand Make (country origin)**
		HISTORY: 8 GB, HIGH SENSITIVITY RECEIVER: Yes, EQUIPMENT INTERFACE: Compatible with high speed USB and NMEA 0183, POSSIBILITY TO ADD MAPS: Yes, BASE MAP: Yes				

Annexure-9: Department of Earth Sciences/Geology

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Brand Name & Model	Brand Make (country origin)
1.	GeoForm machine	Precision thin section cutting and Grinding machine • Diamond or CBN Cut off Wheels; Ø200mm • Specimen holder with vacuum for standard slides • Built in micrometer with digital readout for precise grinding of material. Water cooling • Electrical: 220-1-50	**1**			
2.	Polarizing Microscope with Digital Imaging System+ LCD/LED system	Style: (Multihead Main Units) trinolcular hear) (Secondary Units-Binocular Head) Eyepiece: WHK10x/20 L, Nosepiece: Quintuple, Focusing: Coaxial coarse and fine adjustment mechanisms Stage: Graduated mechanical stage, Objectives: All Olympus D Plan Objectives 4x, 10x, 40x, 100x: Substage: Abbe Condenser 1.25 N. A.with rack and pinion, Light Source: 6v 20wHalogen	**1**			
3.	Brunton compass, Japan made	Adjustable needle locking mechanismHinge clinometers with 1° increments for 1/2° readable dip measurements. Single NdFeB magnet resists demagnetization better than any other type of magnet. Magnetic declination adjustment allows for east or west declination setting to +/- 180°Precision aligned mirror with convenient "see through" sighting capability6061 -T6 hard anodized aluminum body for permanent color and scratch resistance. Weight: 12.8 ozU.S. Patent No. 6,516,526	5			
4.	Streak Plates	Standard Plates used for grinding of minerals.	10			
5.	Sieve Sets with motor operated Shaker	Standard	1			

6.	GPS for field work	Physical and Technical Dimensions (W x H x D): 6.1 x 16 x 3.6 cm (2.4" x 6.3" x 1.4") Display Size (W x H): 3.6 x 5.5 cm (1.43" x 2.15") 2.6" diag (6.6 cm) Display Resolution (W x H): 160 x 240 pixels Display Type: transflective, 65-K colour TFT Weight: 260.1 g (9.2 oz) with batteries Battery: 2 AA batteries (not included) Battery Life: 20 hours, typical Waterproof: Yes (IPX7) High-sensitivity Receiver:	4			
7.	PROCTOR HAMMER (MANUAL)	The Manual Standard Soil Compaction Hammer has 5.5lb (2.5kg) mass enclosed in a guide sleeve with vent holes to insure unrestricted free-fall. Drop is 12in (305mm). The Manual Modified Soil Compaction Hammer has 10lb (4.5kg) mass enclosed in a guide sleeve with vent holes to insure unrestricted free-fall. Drop is 18in (457mm).	1			
8.	SEIVE ANALYSIS (including all seive sizes)	DRY SIEVING:- MEASURING RANGE: 32UM – 63UM. MAX. SAMPLE QUANTITY (APPROX)1KG. SIEVING TIME (APPROX): 3 – 20MIN. WET SIEVING:- MEASURING RANGE: 20UM – 10MM. MAX. SAMPLE QUANTITY (APPAROX) 20 – 100GM. SIEVING TIME (APPROX): 3 – 10MIN. POWER: 220 VAC. 50/60HZ. MICRO-PRECISION SIEVING:- MEASURING RANGE: 5um to 100um.	1			
9.	Speedy Moisture Tester	6 g cap. complete with electronic balance, accessories and carryng case	1			
10.	WEIGHT SET	Set of slotted steelweights tot.37.5kg: 2x0.250kg;, 2x0.500kg; 2x1kg; 3x2kg; 3x4kg; 2x8kg.,	1			
11.	Casagrande Appratus (Liquid Limit)	Liquid limit device with counter ASTM-AASHTO-UNI model. ACCESSORIES Glass plate 500 x 500 x 10 mm, Flexible spatula 100 mm blade, Flexible spatula 160 mm blade, Plastic wash bottle 500 ml, , Porcelain evaporating dish dia. 120 x 50 mm h, Moisture content tin dia. 75X30 MM	2			

12.	Los Angeles abrasion machine	Conforming to EN and ASTM standards. 230V, 50Hz, 1ph., Set of 12 abrasive charges ASTM/UNI	1			
13.	STANDARD PENETRATION TEST APPARATUS	SPT SPLIT SAMPLER Stainless Steel , Spt Hammer Of 140 Lbf, Spt Guide Rod Assembly, Spt Lifting Hook Assembly, Spt Drilling Rod 42mm X 5 Feet Approximately. With Coupling Nipple (6), Spt Tripod Set 2" Dia (15 Ft Approximately), Manila Rope (Rate Per Foot) (50), Screw Wrench 18" Follow The Astm Standards.	1			
14.	PLASTIC LIMIT (Complete set with all accessories)	Plastic limit set accessories: Glass plastic limit plate 300 x 300 mm, Stainless steel rod dia 3 mm, Porcelain evaporating dish dia 120 x 32 mm h, Flexible spatula 100 mm blade, Aluminium cup dia 75x30 mm with cover. Set of 6	1			
15.	Hydrometer with all accessories	Hydrometer particle size test set to ASTM D422 - AASHTO T88. 230V, 50Hz, 1ph. Comprising: Hydrometer jar 1000 ml. Graduated glass., Rubber bung for cylinder 22-D1006/A, Soil hydrometer 151/H, Laboratory thermometer -10 to + 50 deg.C, Constant temperature water bath. 230V/50Hz/Ph, High speed stirrer. 230V/50-60Hz/1Ph, Sodium hexametaphosphate 1000 g, Borosilicate glass beaker 250 ml	1			
16.	Fossils kit	12 premium educational fossils, Each with an illustrated description card, Geologic Time Chart Card denoting evolutionary milestones	5			
17.	Permeameter	Open System: Sample rings phi 53 and 60 mm, 5,10 or 25 samples, Closed System: Sample rings phi 53 and 60 mm, Pump: Type Eheim 1048, Power Rating: 230 V, 50 Hz, Power 10 W, Capacity 10 liter per minute, IP67: 1,5 Meter	1			

18.	Rocks core drilling machine	The Electric Core Drill adapts to a wide range of drilling jobs in addition to pavement coring. The column rotates 180 ° horizontally, allowing precise placement of drill bit. The super-duty two-speed (450/900rpm) 3.5hp motor and carriage can be removed or reattached without changing location for ease in snapping cores and adding extension rods. The 10in (254mm) wide wheeled base has a vacuum anchor to solidly grip smooth pavement or floors. Unit includes oilless vacuum pump, filter, hose, and quick connections.	1			
19.	Mixing tray for sand and aggregate (one each size)	Galvanized Sampling Tray (12"X12"X2"), Galvanized Sampling Tray (18"X18"X3"), Galvanized Sampling Tray (24"X18"X3"), Galvanized Sampling Tray (36"X24"X3"), Cylinder Mould For Concrete 6" Dia X 12" Height	1			
20.	Direct/ Shear Residual Machine	Speed Range: adjustable from 0.00001 to 9.99999 mm/min, Maximum Shear Force: 5000 N, Maximum Vertical Load: 500 N or 5000 N using 10:1 lever-arm device, Speed drive ratio: stepper motor 1/10000 resolution, Horizontal Travel: preset via fimware up to 20mm, Displacement Limits: controlled by optical safety switch, Digital Display: 4-row/ 20 character LCD. Easy to operate with membrane keyboard, Specimen sizes: 60 and 100 mm square; 50,60, 63.5 and 100 mm diameter, Overall Dimensions: 953*387*1180mm (w*d*h), Weight: 120 Kg: Standards: ASTM D3080/AASHTO T236	1			
21.	Proctor moulds and rammers (complete set)	The Soil Compaction Mold, 6" ID-Standard, 1/13 Cu Ft. fit the Automatic Mechanical Soil Compactors, and also may be used with manual soil compactors. Molds are 4.584in (116.4mm) in height with detachable extension collar and base plate, and are plated for rust resistance., straight edge. Standards: ASTM D558, D698, D1557, AASHTO T99, T134, T180/ CNR N 69	1			

22.	CBR (California Bearing Ratio) Loading frames and presses inclusive of all accessories	motorised ram, two-column structure and adjustable crossbeam. Loading capacity: 50kN Clearance between columns: 270mm Test speed: 1.27 mm/min Ram travel: 120mm Power rating: 300W Complete with load ring 50kN capacity with 0.001 mm resolution dial gauge [strictly conforming to the Standards], CBR piston and penetration depth gauge. 230V, 50Hz, 1ph Standards: EN 13286-47/ASTM D 1883/AASHTO T193/BS 1377:4/NF P94-078/UNI CNR 10009	1			
23.	Cathodo luminescence (CL) Microscope with EDX spectroscopy system image capturing and coating facilities.	CL-Microscope, High sensitive CCD-camera, Coating facility, EDX spectroscopy system and all other required accessories.	1			
24.	Centrifuge machine for large tubes	Speed more than 15000rpm, 1.5ml, 50ml tubes rotor	1			
25.	Sedigraph and Brinkman PSA Laser 2010	Standard	1			
26.	schmidth hammer	Type N, psi scale	1			
27.	Polariscope	condensing lens/ Interference Spheres, immersion cell.GIA/GEM Polariscope	4			
28.	Gem Microscope	Digital 12V system eliminates spike and flicker irregularities which reduces eye fatigue Stereo Zoom Magnification from 10x to 64x 47,000+ lux exceeds the needs for diamond examination while satisfying the requirements for colored gems GIA-patented darkfield and brightfield illumination using LCD intensity read-out for recall of the previous intensity setting Three ports for mounting illumination accessories Exclusive stationary power cord for 345 degree base rotation; 100V-240V global electrical compatibility. 12V for color temperature stability Simulates north facing daylight for accurate color grading	1			

29.	Spectroscope	Kassoy Prism type spectroscope, Adjustable slit aperture with slide focus	2			
30.	Digital Specific Gravity Balance	Lightweight Gem Holder Support and Underwater Weighing Pan bullet Independent, Spill-Resistant, Adjustable Beaker Support bullet Beaker for filling with water - 50 to 100ml capacity bullet Aluminum Test Weight whose SG = 2.70 bullet Stainless Steel Tweezers bullet Complete instructions (although this method is very simple) bullet Table of 300 common minerals/gems sorted by specific gravity, with 6 other properties, including refractive index. (Or purchase our Mineral Search software and let your computer do the work of searching a gem and mineral database by specific gravity and other properties)	1			
31.	Double goose neck (Fiber optic light) FIB0005	150W Fiber Optic Dual Gooseneck Microscope Illuminator	1			
32.	Lamps	Eglo Top Desk 7059 Table Lamp in Black… Eglo Bidi 7059 Table Lamp Colour: Black Product Code: 87002 Bulbs Not Included Rocker Switch H470mm Maximum Wattage: 60w	5			
33.	Hardness Pick Set (In a wooden case)	Four double ended picks with hardness point of 2-9 on Mohs hardness scale. A grinding plate for sharpening your points. Streak plate.Glass plate for quick "hard" or "soft" determination, A hardness plate with a hardness of 3.5 Magnet, Paper table listing common minerals and their hardness, Hardness testing instructions. All of this in a compact (7" x 2 1/2" x 1 5/8") wooden case that takes up minimal space on a desk or shelf	5			
34.	Hardness Pick Set (In a Plastic Field case)	This hardness pick set has the same contents as the kit described above. It is packaged in a durable plastic case for easy carrying in the field. The case opens and closes on a hinge and has a plastic latch. The case measures approximately 5" by 8" by 1 3/4" when closed.	5			

35.	Mineral Hardness Test Kits	Standard	7			
36.	GPR(Ground Penetrating Radar)	Dimensions (H*W*D): (115cm*70cm*90cm), Sensor Frequency: 250 MHz, Antennas: Ultra-Wide Bandwidth (UWB), Screen: 7.25" color LCD, daylight optimized, Cart Material: Nonmetallic Depth range: Up to 8m/ 27' maximum, Memory: 64 GB, Wheel sets and Transport Option should be included.	1			
37.	SoilSpy Rosina	Sampling: 89 kHz Per channel in continous mode, Output frequency (fs): 128,256,512, 1024, 2048, 4096, 8192, Recordng Length: continous- no limits for fs< 2048 Hz, dynamic range: 142 dB, Band: DC-360 Hz, Max channel No. 255, Each channel can be set as trigger and acquire at the same time. No need for a separate trigger cable, allows for continous visualization in real time (for fs < 2048 Hz).	1			
38.	Rock chisel	The Rock Chisel, 1.25"w x 8"L, is top quality for digging, splitting, prying. Made from one-piece forged solid steel. Handle has nylon-vinyl grip.	5			
39.	Geological Hammer, USA made	Rock hammer with a leather-wrapped handle, Solid steel construction; pointed tip, Head weighs 22-Ounce and 7-Inch long, Overall length 13-Inch; weighs 1-Pound 14-Ounce	5			

Annexure-10 Department of Medical Lab Technology						
S. No	**Name of Equipment (s)**	**Client Specifications**	**Qty**	**Vendor's Specification**	**Brand Name & Model**	**Brand Make (country origin)**
1.	VIDAS for hormone analysis	Stand-alone PC with printer, monitor, keyboard, and mouse (not included in listed dimensions) Electrical requirements: voltage: 100-240 VAC Frequency: 50-60Hz, heat emission: approximately 921 BTU/hr, Rapid Results, Efficient workflow	1			
2.	Micropipette Set	Micropipette Adjustable Fully Autoclavable Smart and reliable volume adjustment Single-handed volume setting, Shock, UV light and autoclaving resistance, Ejector shaft height adjustment system called Justip™ allows a, wide selection of tips to tightly fit the nozzle, Ranges 0.5-10 µl, 10- 20 µl, 10- 100 µl,Upto 1 ml	1			
3.	Vertical (PAGE) electrophoresis tank	Unit Dimension (W x L x H) 190 x 130 x 150mm , Plate Dimension (W x L) 100 x 100mm , Gel Dimension (W x L) 75 x 80mm , Maximum Sample 80 samples, 20 samples per gel , Buffer Volume 250 ~ 1200ml , Ice cooling Pack Yes Dummy plate and Casting Base Yes , Construction Injection molded construction ,Durable, leak proof environment for complete safety and long life Electrical safety Lid can be fastened in only one way On removal, power is disconnected from buffer chamber Rapid Casting Gel Use casting dams.	1			
4.	Blotting apparatus	Large Blotting System, CE, 3 place, fits gel cassette/glass plate dimensions 16cm(w) x 22cm (h) with EPS-200 X High Current Power Supply	1			
5.	Densitometer	Measuring range: 0-5 OD with 2mm and 3mm aperture Good temperature range with normal power requirement.	1			

Annexure-10 Department of Medical Lab Technology						
S. No	**Name of Equipment (s)**	**Client Specifications**	**Qty**	**Vendor's Specification**	**Brand Name & Model**	**Brand Make (country origin)**
6.	Hemoglobin Testing system (HPLC)/ Fully automated system for diabetes monitoring and thalassemia testing	Automatic system startup checklist and touch screen operation. Whole blood primary tube sampling. Separate programs for fast HbA1c or HbA2/F/A1c .	1			

3.3.3. Financial Proposal Forms

The following forms shall be attached with Financial Proposal

3.3.3.1. CDR @ 2% of the Total Bid Value

Sr. No	Total Bid Value (PKR)	CDR Amount (PKR)	CDR No. and Bank Details

Note: For purchase of lab equipment's individual price shall be taken for comparative analysis whereas for chemicals and glassware overall lot price shall be considered for comparative analysis

3.3.3.2 Financial Proposal Form Price Schedule for Lab Equipment's (Inclusive of all applicable taxes/duties)

Annexure-1 Department of Microbiology						
S. No	**Name of Equipment (s)**	**Client Specifications**	**Qty**	**Vendor's Specification**	**Unit Price (PKR)**	**Total Price (PKR)**
17.	Shaking Water Bath	Digital precise shaking water bath, Reciprocating motion with universal spring rack, Capacity 18 liter, Digital fuzzy contrl, Temperature range & accuracy +5°C to 100°C±0.1°C, SENRO PT100	1			
18.	Refrigerated Centrifuge Machine	Speed: 500-15,000 Rpm (1 Rpm steps) Rcf Max: 22,000 G, Temp. Variable -9°C to +40°C with stand by cooling, Emergency lid release, Lid Spring Strut, Lid lock detection, Imbalance detection, Over speed sensor, Motor overheat sensor, Swing out Rotor, With adaptor 1.5ml, 15ml, 50ml, & 100ml	1			
19.	Ice Machine	Automatic ice flaker, Fully automated controller, Slide away access door high grade Stainless steel 304 exterior, ice storage bin 25kg, Ice making capacity 85 kg / 24 hrs Power 80W,Refrigerant R134a Cooling type Air cooling, Water supply Tap water, Voltage 220 V; 50 Hz, Dimensions 400 x 510 x 845mm.	1			
20.	Colony Counter	Digital Colony Counter, Four digital displays 4, Magnification 2~3 X, Petri dish diameter 60 mm, 90-150 mm adjustable Memory 100 Average Yes, Zero reset Yes Count back Yes, Illumination LED (adjustable) Pressure sensitivity Adjustable, Applications, Total bacteria counting, Total coliform counting	1			
21.	Chemical Storage Cupboard	All-steel construction *1.0mm cold rolled steel board, *With adjustable shelves, *Epoxy coating with high temperature treatment, *304 stainless steel handle	5			

Annexure-1 Department of Microbiology						
S. No	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specification	Unit Price (PKR)	Total Price (PKR)
22.	Autoclave machine	Digital Fuzzy-control Autoclaves, Standard -type, Steam Sterilizer, Electronic Door Lock Sys, Capacity 60 Liter Temp. Range & Accuracy Ambient 5 C to 132 C, 0.5 C at 121 C, Pressure & Gauge 1.2 Kgf/cm2 at 121 C/ 2.0 Kgf/cm2 at 132 C, 0~3Kgf/ cm2 Sterilization Mode Solid- or Liquid-mode Heating, Power/Consumption 3 kW, Timer & Alarm 60 min, Error Status & Timer-end Display Digital LCD Display with Back-light Function, Basket 2ea of Stainless steel wire Basket are included, Packing Size 840x610xh1252mm	1			
23.	Rotary evaporator	Digital Rotary Evaporator, Condenser Type Vertical-type or Diagonal-type Bottle Capacity Evaporating: Included 2×Evaporating Flasks : 1×0.5Lit & 1×1Lit, Available 100-/250-ml, 2Lit Evaporating Flask(Optional) Receiving: Included 1ea 1 Lit Flask Rotary Speed 10 ~ 180 rpm Evaporating Capability 20 ml/min, Bath Capacity 6.5 Lit / Φ254×130 mm Temp. Range 0℃~ 100℃, Chiller/Digital Precise Refrigerated/Heating Bath Circulator, Temp. Range & Accuracy — 25℃~ +150℃, ±0.1℃, Max Flow Rate :25Lit./min, Bath Volume 8 Lit. Recirculating Water Aspirator, PP Water Tank, Safety Check Valve 80Lit/min, 0.0098MP, Capacity 15 Lit Max. Vacuum Degree 0.098 MPa Flow 80 Lit./min, Single Tap Air Sucking Amount 10 Lit./min, 2A Material of Water Tank PP	1			

Annexure-1 Department of Microbiology						
S. No	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specification	Unit Price (PKR)	Total Price (PKR)
24.	Inverted Microscope	Inverted Trinocular Fluorescence Microscope, Eyepieces Wide Field eyepieces WF 10x/22mm paired with eye guards, Viewing Body Siedentopf Tinocular, 30° inclined, 360° rotatable, Objectives LW series infinity corrected Fluorescence Plan achromatic objectives, antifungal 4x,10x,20x, Fixed plain stage 160mm x 240mm, Fluorescence Illumination Kit, B-Excitation Block, G-Excitation Block, Bulb Housing, Operating Environment, Digital camera 6.0 MP Color CMOS, resolution Dynamic 1920x1080 pixels, Static 3264x1836 pixels ,Pixel size 2.7µm x 2.7µm A/D conversion 24 Bit RGB, Pixel clock 48 MHz Dynamic range 65 dB	1			
25.	Anaerobic jars	Advance system with 250ml, 500ml, 1000ml jars and automated	2			
26.	Growth Chamber for fungal growth	Growth Chamber, Capacity 432 Lit Temperature Range & Variation 10℃ ~ 60℃, ±1℃ at 20℃,Fluctuation ± 0.5℃ at 10℃, ± 0.5℃ at 25℃ (0% light intensity),Humidity Range & Variation 30% ~ 95% RH, ±3% at 60℃ Fluctuation ±1% Humidifier Evaporation by Fan with Heater Illumination, Range 0 to 12,000 Lux, Lamp FPL 55W×14,Bank 3 Side Walls,Temp. & Humidity Sensor Temp. PT100,Heating Power Temperature 1.5 kW for Humidity 1.5 kW Compressor 1/2HP	1			
27.	Vertical Incubator	Inner Capacity 170 L Door left/right On site Decontamination 120℃ Dry,Display7" LCD touch screen, Date Tracking 240 hours continuous, Internal Dimension (mm) 547W x 479D x 647H, with CO2 supply, Control	2			

Annexure-1 Department of Microbiology						
S. No	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specification	Unit Price (PKR)	Total Price (PKR)
		system Microprocessor PID Sensor N.D.I.R. Control range 0-20% Control accuracy ±0.1, Temperature Control system Microprocessor PID Range Amb. +5-50°C Accuracy ±0.2°C Uniformity ±0.3°C,				
28.	Class II safety cabinet (A2)	Polypropylene Bio Safety Cabinet 6 mm tempered glass side walls,304 stainless steel work surface and spill tray, Two H14 HEPA filters, Advanced EC fan with 304 stainless steel housing Workspace (W x D x H) 840 x 665x 550 mm Test Standard: CE / ISO-9001, 08/EN12469 Downflow Velocity 0.45 m/s, 90 FPm, Inflow velocity 0.5 m/s, 100 fpm, Cleanliness level Class 100/ISO 5 Noise Level <52dB, Material Welded white polypropylene structure with stainless still 304 worktop	1			
29.	PCR thermal cycler	Gradient Thermal Cycler , Sample Capacity 96x0.2ml Peltier Quantity 6 Block Material Aluminum Alloy Temperature Range (°C) 0-100°C Heating Rate (°C/sec) 4 Cooling Rate (°C/sec) 3 Hot-lid Temperature (°C) 30-110°C Gradient Range (°C) 1-30°C, Display Screen 8 inch, 800×600 Pixels, TFT, TOUCH, Programs Saving 10000 files + (USB Flash), PC Control Software: Yes	1			
30.	Nano drop	Spectrophotometer Micro volume Upgradable Flourometer Minimum Sample Size 0.5 µL, Pathlength 0.5 mm (auto ranging to 0.03 mm) Light Source Pulsed Xenon flash lamp Wavelength Range 190-840 nm, Wavelength	1			

Annexure-1 Department of Microbiology						
S. No	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specification	Unit Price (PKR)	Total Price (PKR)
		Accuracy 1 nm, Spectral Resolution 1.5 nm (FWHM at Hg 253.7 nm) Measurement Time <4 seconds, On board Controller (No PC required) Operating System Custom Android™ OS CPU TI OMAP ARM Processor Display 1280 X 800 high definition color display Touch screen with swipe and pinch motion glove compatible Internal Storage 8GB flash drive Connectivity 3 USB ports for printer, barcode reader and USB drive Networking Ethernet and Wi-Fi,				
31.	Multi-channel pipettes	8 channelled Micropipette Adjustable Fully Autoclavable Smart and reliable volume adjustment 2-20ul, 20-200ul	1			
32.	Gel Documentation system/Trans illuminator	Gel Documentation System Compact image System,10.0 megapixel digital camera ,High resolution 8" TFT screen, Digital control panel ,Compact chamber and lightweight Built-in UV transilluminator Safety door switch Multi power source Camera 5 x optical Pixels 10.0 megapixels Filters +3 Close up filter and EtBr or SYBR Green filter(optional) Storage Media memory card, Computer Interface USB 2.0 Hi-speed Darkroom UV Transilluminator Wavelength 254 / 312 / 365nm Filter Size 210 x 210mm Light source 8W x 6 tubes Including Software	1			
17	Water Deionizer System	Capacity: Output 60 litre per hour. **Output**: Pure water Type II (analytical grade) according ASTM D1193 **Input**: Tap water **Production**: 1 l/min **Purification process**	1			

Annexure-1 Department of Microbiology						
S. No	**Name of Equipment (s)**	**Client Specifications**	**Qty**	**Vendor's Specification**	**Unit Price (PKR)**	**Total Price (PKR)**
		control: By microprocessor **Installation requirements:** 120/220V AC + water supply (≤ 3 m. distance / ≥ 2 bar pressure) **Measures and weight:** 48 x 25 x 45 cm (LxWxH) 12 kg Equipped with Kit of Cartridges				

Annexure-2: Department of Food Science & Technology

S. No	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
8.	Weighing Balance	Maximum capacity: 250g Readability: 0.0001g Repeatability (S.D.): 0.0002g Pan size: 90mm Ø Typical stabilisation time: 3 Sec Overall dimensions (wxdxh): 8.7 x 12.2 x 12.7" / 221 x 310 x 323mm	2			
9.	Sonication bath	Capacity (Liters): 10L Tank size inner (mm): 290 x 240 x h150 Heat temp ^{0}C: Ambient to 90^{0}C Timer (min.): 0 ~ 99 Drain valve: 1/2"NPT HF-peak out (W): 200W Power: 590W	1			
10.	TLC Visualizer	Width: 480 mm, depth: 537 mm, height: 596 mm Net weight: 17.0 kg; 2 x UV tube short wavelength (254 nm) - direct light 2 x UV tube long wavelength (366 nm) - direct light 2 x white light tube - direct light 2 x white light tube - transmitted light	1			
11.	Chromatogram Immersion Device	Uniform vertical speed, freely selectable between 30 mm/s and 50 mm/s. Immersion time selectable between 1 and 8 seconds and indefinitely. To accommodate 10 cm and 20 cm plate height., Battery operated, independent of power supply.	1			
12.	Refrigerator	minus 20 temperature	2			
13.	TLC Plate Heater	The temperature selectable between 25 and 200 °C. The 20 x 20 cm heating surface	1			
14.	TLC developing chamber	One for 20x20 TLC plate; two for 10x10 TLC	3			

Annexure-3: Department of Agronomy

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
1	Water Distillation Apparatus	Capacity: Output 60 litre per hour. **Output**: Pure water Type II (analytical grade) according ASTM D1193 **Input**: Tap water **Production**: 1 l/min **Purification process control:** By microprocessor **Installation requirements:** 120/220V AC + water supply (≤ 3 m. distance / ≥ 2 bar pressure) **Measures and weight:** 48 x 25 x 45 cm (LxWxH) 12 kg Equipped with Kit of Cartridges	1			
2	Shaking Water Bath	Capacity: 18 Lit. Max.Q'ty of Erlenmeyer Flask: 250 ml x6 ea 500 ml x4 ea 1000 ml x1 ea Temp. Range & Accuracy: Room Temp. +5^{0}C to 100^{0}C, ± 0.1^{0}C Temp. Resolution: 0.1^{0}C Display, 0.1^{0}C-Control Temp. Uniformity & Probe: ±0.5^{0}C , PT100 Heating Power: 1.4 kW Shaking Speed & Resolution: 20 ~ 250 rpm, 1rpm - Display/1rpm – Control Shaking Stroke (mm):15, 20, 30 Available (20 as factory Default) Timer & Alarm: 99hr 59min (Delay & Continuous run), Error status & Timer-end Display: Digital LCD with Back-Light Function Controller: Digital Fuzzy Controller with Jog-Shuttle Switch (Turn+Push) Safety Circuit: Over-Temp./-Current protection, Sensor Error Detection	1			
3	Osmometer	**Sample Volume**: 10µl nomial. Other accessory sample volumes: 2 µl using AC -063, 20 µl using ac-064 sample holder, and approximately 60 µl using AC-065 SAMPLE HOLDER. **Measurement Range:** Typically 20 to 3200 mmol/kg (up to 3600mmol/kg with extended range osmometer) @ 25ºC ambient. **Measurement Time:** 90 seconds. **Resolution:** 1mmol/kg. Featuring a Fully automated Measuring process repeatability ≤	1			

Annexure-3: Department of Agronomy

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
		2mmol/kg Standard Deviation between 20 to 1000 mmol/kg; ≤0.5% of reading between 1000 and 3200 mmol/kg: while operating between 20 and 25 °C. **Calibration:** Automatic using Opti-mole ™osmolality standards. **Readout:** 240X128 pixel backlit LCD. **Operating Temperature**: For indoor use only between 15°C and 37°C with a maximum relative humidity of 85%. For use at elevations upto 2000 meters. (Instrument should be at stable temperature before calibrating. **Storage Temperature**: 0°C to 60°C. **Serial Outputs**: RS-232 (ASCII format). USB- Slave. Electrical **Line voltage:** 100 to 240 Volts AC @ 50-60 Hz. Transient. Power 40 Watts maximum. Fuses (2 required) 5x20 mm time-delay type T-1 ampere at 250 Volts. Size (H X W X D) 20 cm (8'') x 28 c (11") x 36cm (14") **Weight:** 6.8kg (15lbs).				
4	Seed Chamber Germination	Capacity: 432 Lit. Temp. Range & Variation: 10^0C ~ 60^0C,Fluctuation: ± 0.5^0C at 10^0C, ± 0.5^0C at 25^0C (0% light intensity) ± 1^0C at 10^0C, ± 1□ at 25^0C (100% light intensity) Humidity Range & Variation: 30% ~ 95% RH, ±3% at 60^0C Fluctuation: ±1% Humidifier: Evaporation by Fan with Heater Illumination Range:0 to 12,000 Lux Lamp: FPL 55Wx14 Bank:3 Side Walls Temp. & Humidity Sensor: Temp. : PT100, Humidity : Capacitive Sensor Heat-up Time (up	1			

Annexure-3: Department of Agronomy

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
		to 37^{0}C): 11 min. (0 % illumination) / 9 min. (100 % illumination) Cool-down Time (down to 10^{0}C): 13 min. (0 % illumination) / 15 min. (100 % illumination) Display: 7" Full Touch Screen TFT LCD (Smart-LabTM Controller) Controller: Smart-LabTM Controller Program Function: Temperature and Humidity : 120 Patterns, 1,200 Segments Light Bank : 7 steps Door Internal Tempered Safety Glass with Silicon Packing External 3-Side Magnetic Packing Door with Light Bank Packing Size & Gross Weight: 1,400x 1,220 xh 2,210mm,				
5	Sample Drying Oven	Control: PID control, +/- 3%RH at the aspirated sensor. Components: Vaisala dry humidity sensor, stainless steel tubing, stainless steel on/off solenoid, inline water filter, controls and data logging by the controller. Humidity Sensor Specifications: Range 0 to 100%, accuracy at 20°C: +\- 3% (0 to 90% RH). Specifications: Microprocessor controlled, digital display. Capacity: 100 liters. Timer: 0-99 min. Temperature range: ambient +5C to 260C	1			

Annexure-4: Department of Plant Breeding & Genetics

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
11.	Hot Air Oven	Forced Convection-type Ovens, Digital Fuzzy Control System, Jog-Dial with Push Button, Capacity 105Lit, Temperature range +50Cto 250C, Recovery Time 8 min. to 100 C, Display Digital LCD with Back Light, Timer 99hr 59 min (delay/continuous function),Material Stainless steel (#304) Insulation Glass Wool Shelves 2ea of stainless steel Wire Shelves included, Load per Shelf : 16 kg	1			
12.	Centrifuge Machine	Micro Prime Centrifuge, Speed 500-15,000 Rpm (10 Rpm steps) Rcf Max 22,000 G Timer 0-99 Mins & Hold (30 sec steps) Dims HWD 235 x 235 x 350mm,Power 140 Watts, Memory 10 programs, Accel rates 10 programs, Decel rates 10 programs, Rotor type 8 x 15ml ,Tube size max 17 x 120mm ,Maximum Speed Rpm 6,000 Maximum Rcf (G) 3,400	1			
13.	Compound Microscope	Binocular LED Microscope Eyepieces: Wide Field focusable paired eyepieces WF 10x/20mm, Objectives 4x,10x,40x,100x, Condenser Sub-stage Abbe condenser NA 1.25 with aspheric lens, Viewing Body Siedentopf Binocular tube, 30° inclined, 360° captive rotation, interpupillary distance 48-75mm	1			
14.	Ultra-High Low Deep Freezer (-80°C)	SMART Digital Ultra-Low Temp. Freezer, Upright-type UniFreezTM System can freeze down to -86℃ , Capacity 503 Lit Temp Range -86 C~ -65 C at Room Temperature of 30 C and Humidity of 70%, Sensor PT100 Sensor, Compressor Hermetic Type Display 7" Full Touch Screen TFT LCD , Shelves Included 3 Stainless steel Shelves, Max. Q'ty of Racks 16pcs of 20(4x5)-Placed Rack (RFU50), Material Internal Stainless steel (#304), Power Consumption 458Wh	1			

Annexure-4: Department of Plant Breeding & Genetics

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
15.	PH/EC Meter	Range pH: -2.00~18.00 ph. Accuracy: Electrode:±0.02 Temperature Compensation: 0~100°C. auto or manual Power Supply: DC12V/1A Conductivity Range: 0.00~20.00 uS/cm Resistivit:0~100 mΩ.cm TDS: 0~100g/L Salinity:0~100 ppt	3			
16.	Distill water machine	Capacity: Output 60 litre per hour. **Output**: Pure water Type II (analytical grade) according ASTM D1193 **Input**: Tap water **Production**: 1 l/min **Purification process control:** By microprocessor **Installation requirements:** 120/220V AC + water supply (≤ 3 m. distance / ≥ 2 bar pressure) **Measures and weight:** 48 x 25 x 45 cm (LxWxH) 12 kg Equipped with Kit of Cartridges	1			
17.	Ice Machine	Automatic ice flaker, Fully automated controller, Slide away access door high grade Stainless steel 304 exterior, ice storage bin 25kg, Ice making capacity 85 kg / 24 hrs Power 80W,Refrigerant R134a Cooling type Air cooling, Water supply Tap water, Voltage 220 V; 50 Hz, Dimensions 400 x 510 x 845mm.	1			
18.	Micro Oven	Supply voltage: 220 volts, 50Hz. single phase A.C. Power Consumption: 1300W approx. Microwave Power: 700W - 850W 5. Oven Capacity: 20 litre - 25 litre 6. Microwave Frequency : 2450 MHz	1			
19.	PAGE Running Set	Unit Dimension (W x L x H) 190 x 130 x 150mm , Plate Dimension (W x L) 100 x 100mm , Gel Dimension (W x L) 75 x 80mm , Maximum Sample 80 samples, 20 samples per gel , Buffer Volume 250 ~ 1200ml , Ice cooling Pack Yes Dummy plate and Casting Base Yes , Construction Injection molded construction ,Durable, leak proof environment for complete safety and long life Electrical safety Lid can be fastened in only one way On removal, power is disconnected from buffer chamber	1			

Annexure-4: Department of Plant Breeding & Genetics						
S#	**Name of Equipment (s)**	**Client Specifications**	**Qty**	**Vendor's Specifications**	**Unit Price (PKR)**	**Total Price (PKR)**
		Rapid Casting Gel Use casting dams. Power Supply Output Voltage / Inc 10 - 300V / 1V, Output Current / Inc 10 - 400mA / 1mA, Output Power 60W, Output Type Constant voltage or constant current, Control Microprocessor controller Terminal Pairs 2 Pairs Timer 1~999 minutes with alarm, continuous				
20.	Horizontal Electrophoresis Set	Horizontal Electrophoresis System, Midi plus 7 x 7 cm & 7 x 10 cm UV Tray, 2 x 8 sample 1 mm thick combs, Low buffer consumption Single molded tank, Dimension (WxLxH)210 x 90 x 90mm Gel Dimension (WxL) 70 x 70mm 70 x 100mm, Maximum Sample 32 for 70 x 70mm Tray (2 x 16 sample combs), 64 for 70 x 100mm Tray (4 x 16 sample combs) Buffer Volume 225 ml, Material Injection molded construction Power Supply Output Voltage / Inc 10 - 300V / 1V, Output Current / Inc 10 - 400mA / 1mA, Output Power 60W, Output Type Constant voltage or constant current, Control Microprocessor controller Terminal Pairs 2 Pairs Timer 1~999 minutes with alarm, continuous	1			

Annexure-5: Department of Soil Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
26.	Rotary Evaporator	Digital Rotary Evaporator, Condenser Type Vertical-type or Diagonal-type Bottle Capacity Evaporating: Included 2×Evaporating Flasks : 1×0.5Lit & 1×1Lit, Available 100-/250-ml, 2Lit Evaporating Flask(Optional) Receiving: Included 1ea 1 Lit Flask Rotary Speed 10 ~ 180 rpm Evaporating Capability 20 ml/min, Bath Capacity 6.5 Lit / Φ254×130 mm Temp. Range 0℃~ 100℃, Chiller/Digital Precise Refrigerated/Heating Bath Circulator, Temp. Range & Accuracy －25℃~ +150℃, ±0.1℃, Max Flow Rate :25Lit./min, Bath Volume 8 Lit. Recirculating Water Aspirator, PP Water Tank, Safety Check Valve 80Lit/min, 0.0098MP, Capacity 15 Lit Max. Vacuum Degree 0.098 MPa Flow 80 Lit./min, Single Tap Air Sucking Amount 10 Lit./min, 2A Material of Water Tank PP	1			
27.	Digital Turbidity Meter	Bench top Turbidity Meter 4.3 Inch colored FTT screenBig storage space and support USB storage and data transfer to USB drive, Measuring principles Nephelometric(900 scatter) Light source IR-LED Resolution 0.01from 0.00...9.99,0.1from10...99.9 ,1from100...1100 Calibration Automatic 3 point calibration Response time Approx. 3seconds, Applications For all water testing, drinking water, industrial waste water, river water and wine	1			
28.	Dissolved Oxygen Meter	Display 6.5 inch LED screen Parameters Concentration, saturation, temperature DO range 0.000~90 mg/L (ppm) DO Resolution 0.01/0.1 , DO Accuracy ±0.5% DO Saturation 0.0~600% Saturation Resolution 0.1% Temperature Measuring Range (0～100)℃ , Salinity Compensation (0.0~50.0) g/L	1			

Annexure-5: Department of Soil Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
		Pressure Compensation (80~105) kPa (automatic) Humidity 5-85% Power 12V1A				
29.	BOD Measurement System	Range DO 0.00 to 50.00 mg/L (ppm); 0.0 to 600.0 % saturation Barometric Pressure 450 to 850 mmHg Temperature -20.0 to 120.0°C (-4.0 to 248.0°F) Resolution DO 0.01 mg/L (ppm); 0.1% saturation Barometric Pressure 1 mm Hg, Temperature 0.1°C/°F Accuracy (@20°C) DO ±1.5% of reading ±1 digit	1			
30.	Conductivity/TDS Meter	Display: 6.5 inch LED Screen Parameters: conductivity, Resistivity, TDS, salinity, temperature Conductivity measuring range: (0.00~20.00) µS/cm (20.0 ~200.0) µS/cm (200~2000) µS/cm (2.00~20.00) mS/cm (20.0~200.0) mS/cm Conductivity resolution 0.01/ 0.1/1µS/cm 0.01/0.1mS/cm Conductivity Accuracy Electrode: ±1.0%FS Instrument: ±1.50%FS Resistivity measuring range 0 ~100 MΩ·cm TDS 0~100 g/L Salinity 0~100 ppt Temp measuring range (-10~110) Temp resolution 0.1 Temp accuracy ±0.5 Data storage 100 sets Communication interfaces USB, RS232, wireless Bluetooth Working conditions Temperature: 5-40° Humidity: 5-85% Power 12V1A Size & Weight 240 × 170 × 70mm/600g	1			
31.	pH Meter	Bench top pH Meter Display 6.5 inch LED screen Parameters pH, mV, Temperature PH Measuring range -2,000 – 18,000 pH PH Resolution 0.001/0.01/0.1 pH PH Accuracy +0.02 pH mV Measuring range -1999.99-1999.99 mV mV Resolution 1 mV Temp Measuring range -5 - 1100C Temp Accuracy +0.50C Calibration 3 point, automatic Data Storage 1000 sets	1			

Annexure-5: Department of Soil Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
		Working Conditions Temperature 5-400 Humidity 5-85% Power 9V2A				
32.	Analytical Balance	Maximum capacity: 250g Readability: 0.0001g Repeatability (S.D.): 0.0002g Pan size: 90mm Ø Typical stabilisation time: 3 Sec Overall dimensions (wxdxh): 8.7 x 12.2 x 12.7" / 221 x 310 x 323mm	1			
33.	Water Distillation System	Borosilicate coil condenser. Out put: 4litre/ hour. Water quality: Double distillation. Pyrogen Free: Yes. PH 5.6 -6.0 Conductivity <1µS. cm^{-1} Power Rating 6kW Tap Water Pressure (min-max)* 70-560 kPa 10-80 $lbf.in^{-2}$ Tap Water Flow (min) 2 litres. min^{-1} Power: 220VAC. 50/60Hz.	1			
34.	Chlorine Meter	High-precision Colorimeter Minimum readout 0.001 Measuring range 0-10, 10-100, 100-500 Repeatability ≤0.5% Zero draft ±0.5%FS Applications Industrial Waste water and river water	1			
35.	COD Auto analyzer	Measuring range: 5－5000mg/L Resistance against chlorine interference: [CL－]＜1000 mg/L,[CL－]＜4000mg/L(optinal) •Precision: COD=20 mg/L V＜10% , COD=300 mg/L V＜4.3%	1			
36.	Dual chamber incubator	Incubator Forced Convection-Type , Digital Fuzzy Control System Jog-Dial with Push Button Capacity: 105 Lit. Dimension Interior (mm): 485 x 410 x 533 , Temperature RANGE +5C to 70C, Fluctuation: ± 0.2^{0}C at 37^{0}C, ±0.3^{0}C at 50^{0}C, Sensor: PT 100 Control Resolution: ±0.1^{0}C Heat-up Time: 17 min. to 37 ^{0}C, Display: Digital LCD with Back Light, Timer: 99hr 59 m, Material Internal Stainless steel (#304) Shelves: 2ea ,Circulation: Forced Air Type, Power Supply: 230V, 50/60Hz	1			

Annexure-5: Department of Soil Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
37.	Growth Chamber	Growth Chamber, Capacity 432 Lit Temperature Range & Variation 10℃ ~ 60℃, ±1℃ at 20℃,Fluctuation ± 0.5℃ at 10℃, ± 0.5℃ at 25℃ (0% light intensity),Humidity Range & Variation 30% ~ 95% RH, ±3% at 60℃ Fluctuation ±1% Humidifier Evaporation by Fan with Heater Illumination, Range 0 to 12,000 Lux, Lamp FPL 55W×14,Bank 3 Side Walls,Temp. & Humidity Sensor Temp. PT100,Heating Power Temperature 1.5 kW for Humidity 1.5 kW Compressor 1/2HP	1			
38.	Autoclave	Digital Fuzzy-control Autoclaves, Standard -type, Steam Sterilizer, Electronic Door Lock Sys, Capacity 60 Liter Temp. Range & Accuracy Ambient 5 C to 132 C, 0.5 C at 121 C, Pressure & Gauge 1.2 Kgf/cm2 at 121 C/ 2.0 Kgf/cm2 at 132 C, 0~3Kgf/ cm2 Sterilization Mode Solid-or Liquid-mode Heating, Power/Consumption 3 kW,Timer & Alarm 60 min, Error Status & Timer-end Display Digital LCD Display with Back-light Function, Basket 2ea of Stainless steel wire Basket are included, Packing Size 840x610xh1252mm	1			
39.	Grinding Mill	Working volume (funnel):approx. 300 ml (volume of the funnel) Motor type / power: 3-phase AC motor; up to 1000 W input / up to 600 W output Supply voltage / frequency: 230V / 50 Hz or 100-120V / 60 Hz Speed range: 50 - 6'000 rpm Display: LED Noise emission (drive only): lower 70 dB(A) at 6'000 rpm (no load) Dimensions / Weight:251 x 325 x 480 / approx. 12 kg Environment: 0-40°C, 95% rel. humidity Sieve 0.2mm Sieve 0.5mm Sieve 0.8mm Sieve 1.0mm Sieve 1.5mm Sieve 2.0mm	1			

Annexure-5: Department of Soil Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
		Sieve 3.0mm Sieve 4.0mm Sieve 5.0mm Sieve 6.0mm				
40.	UV Visible Spectrophotometer	Display: 7 inch TFT Keyboard Control: Silicone Buttons , Optical System: Double Beam, Holographic grating, 1200 lines/mm, Slit Width:1nm Wavelength Range:190-1100nm Wavelength Accuracy: +0.3nm Wavelength, Repeatability:<0.1nm Light Source: Tungsten Halogen/Deuterium Lamp Baseline Flatness: +0.0015A (200-1000nm) Noise: 0.0003A@500nm Working Mode: T,A,C,E Processor:Cortex_M3, 120Mhz Power Requirements:220V, 50/60Hz	1			
41.	Quartz Tube Furnace	Max. Temp. 1200 ^{0}C, PID temperature control, Quartz tube: 10mm - 500mm, Thermocouple: K type	1			
42.	Filtration assembly with Vacuum Pump	Vacuum Filtration Stand, Spin- lock connection facilitates fast and stable installation without clamp, Funnel capacity 300ml,Flask capacity 1200ml,Filter diameter 47mm/50mm ,Effective filtration area 12.5cm2, Oil-free Vacuum Pump Max. power consumption (W): 60 Max. current (A) 0.3 Max. vacuum - 650mmHg=85.5kPa=110 torr, Motor rotation 1450RPM,Capacitor 2uf/450v,Horse power 1/8HP,Noise Level 50dB	1			
43.	Sonicator	Net power output: VCX 500 - 500 Watts. Frequency: 20 kHz Remote actuation compatible Dimensions (H x W x D) 9¼" x 7½" x 13½" (235 x 190 x 340 mm) Weight: 15 lbs. (6.8 kg)				

Annexure-5: Department of Soil Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
44.	Digital Water Bath	Capacity: 22 Lit Temperature Range & Accuracy: Ambient +5^{0}C~100^{0}C, ±0.1^{0}C Temperature Resolution: 0.1^{0}C-Display, 0.1^{0}C-Control Temp Uniformity & Probe: ± 1.0 ^{0}C, PT100 Heater Power: 2K Timer: 99 hr 59 min (Delay & Continuous run), Error Status & Time-end Display: Digital LCD display with Back-Light Function Controller: Digital fuzzy controller with jog-shuttle switch (Turn + Push) Safety Devices: Over temp/ -Current Protection, Sensor Error Detection Material internal: Stainless steel (#304)-Internal, Power Coated Steel-External	1			
45.	Microscope	Trinocular LED Microscope, Wide Field focusable paired eyepieces WF 10x/20mm, Objectives 4x,10x,40x,100x, Mechanical Stage: RACKLESS X-axis, double plate mechanical stage plate size 200 x 140mm, X/Y travel range 78 x 54mm, with Digital Camera 16.0 MP Color CMOS, and PC	1			
46.	Shaking Incubator	Temp. Range Ambient: 10^{0}C ~ 60^{0}C Temp. Accuracy & Uniformity Accuracy : ±0.2^{0}C at 37^{0}C, Uniformity : ±0.5^{0}C at 37^{0}C Temp. Sensor: PT100 Sensor Heater: 700 W Compressor: 1/4 HP Compressor Control: Intelligent Control of Refrigerator for preventing Overload of Compressor Refrigerant: CFC-Free(R-404A) Refrigeration System Shaking Speed & Stroke: 30 ~ 250 rpm, 25mm Orbital Motion Timer & Alarm: 99hr 59min (with Continuous run.), Error status & Timer-end Display: Digital LCD with Back-Light Function Controller: Digital Fuzzy Controller with Jog-Dial Switch (Turn+Push) Room Lamp:60W Krypton Lamp Platform: Included Universal Platform for Various Shapes & Sizes of Flasks Optional Flask Holder: Durable & Flexible Plastic Flask Holder (up to 1000ml) **Available Max. Capacity of Flask Holder** for 50~100ml Available 16	1			

Annexure-5: Department of Soil Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
		ea Flask Holder "FH100", for 50~100ml Flask for 200~300ml Available 8 ea Flask Holder "FH250", for 200~300ml Flask for 500~1,000ml Available 4 ea Flask Holder "FH500", for 500~1,000ml Flask Safety Circuit: Over Temp./ Current Protector, Leakage Breaker, Sensor Error Detector Material: Internal : Stainless steel (□304), External : Powder Coated steel Dimension: Internal: 530 x 530 x h350mm, External : 575 x 855 x h850mm Packing Size (w x d x h) (mm):1,000 x 800 x h1,100mm Power Consumption: 1.2 kWPower Supply & Cord/Plug*: 1 Phase, AC 120 V, 60 Hz or AC 230 V, 50 / 60 Hz				
47.	Sieve shaker	DRY SIEVING:- MEASURING RANGE: 32UM – 63UM. MAX. SAMPLE QUANTITY (APPROX)1KG. SIEVING TIME (APPROX): 3 – 20MIN. WET SIEVING:- MEASURING RANGE: 20UM – 10MM. MAX. SAMPLE QUANTITY (APPAROX) 20 – 100GM. SIEVING TIME (APPROX): 3 – 10MIN. POWER: 220 VAC. 50/60HZ. MICRO-PRECISION SIEVING:- MEASURING RANGE: 5um to 100um.	1			
48.	Floor Refrigerated Centrifuge	Floor Standing Refrigerated Centrifuge 3L Max. Speed 500-15,000 Rpm (1 Rpm steps) Rcf Max 22,000 G Timer 0-9999Mins & Hold (1 sec steps) Dimensions HWD 710 x 650 x 630mm Weight 125 Kg (without rotor) Power 1200 Watts, Memory 108 programs, Accel rates 10 programs, Decel rates 10 programs, Temp -9°C to + 40°C PID, Controlled to + / - 1°C, Swing out Rotor4x750ml, 15ml Adaptors x 48Places. 50ml Adaptors x 16Places, Fixed Angle Rotor 24 x 15ml, Tube Size 17 x 120 mm max Max Speed 6,000rpm Max Rcf 4800 Autoclavable at 121°C	1			
49.	Guelph Permeameter Kit	Auger Cutting Diameter: - 6.0 cm (2-3/8") Well Height Range - 2.5 cm to 25 cm, Hydraulic Conductivity Range: - 10-4 to 10-7 m/sec - (10-2 to 10-5 cm/sec),Collapsible	1			

Annexure-5: Department of Soil Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
		Water Container Capacity - 11.36 liters (3.0 gallons),Maximum Permeameter Capacity - 3.18 liters (0.84 gallons)				
50.	Kjeldahl Digestion System	Microprocessor built-in the case Programmable auto-start All programs can have up to 18 steps for temperature/incubation Nine user free programs Quick and safe manipulation of samples Used together with "SCRUBBER" does not need fume hood, Solids: 5 gr. (macro), 1 gr. (micro), Liquids: 15 mL. (macro),3 mL. (micro) Places: 6 Digestion block Ø tube mm: 42 Dimension H x W x D in mm: 740 x 355 x 400 Temperature Range °C: 450 Power Consumption: 1500W	1			

Annexure-6: Department of Horticulture

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
1.	Rotary Evaporator	Digital Rotary Evaporator, Condenser Type Vertical-type or Diagonal-type Bottle Capacity Evaporating: Included 2×Evaporating Flasks : 1×0.5Lit & 1×1Lit, Available 100-/250-ml, 2Lit Evaporating Flask(Optional) Receiving: Included 1ea 1 Lit Flask Rotary Speed 10 ~ 180 rpm, Evaporating Capability 20 ml/min, Bath Capacity 6.5 Lit / Φ254×130 mm, Temp. Range 0℃~ 100℃, Chiller/Digital Precise Refrigerated/Heating Bath Circulator, Temp. Range & Accuracy －25℃~ +150℃, ±0.1℃, Max Flow Rate :25Lit./min, Bath Volume 8 Lit. Recirculating Water Aspirator, PP Water Tank, Safety Check Valve 80Lit/min, 0.0098MP, Capacity 15 Lit Max. Vacuum Degree 0.098 MPa Flow 80 Lit./min, Single Tap Air Sucking Amount 10 Lit./min, 2A Material of Water Tank PP	1			
2.	Portable Chlorophyll meter	• User-friendly, low cost chlorophyll content meter for the measurement of relative chlorophyll content in leaf samples.• Field portable, light-weight, robust design (230L x 91W x 45H)mm, 250gms • Dual wavelength optical absorbance (620 & 940nm) • Chlorophyll content range: 0-2000 units • Simple 2 button keypad operation • Auto calibration and temperature compensation • 60 measurement memory capacity • No PC required	1			
3.	PH/EC Meter	Range pH: -2.00~18.00 ph. Accuracy: Electrode:±0.02 Temperature Compensation: 0~100°C. auto or manual Power Supply: DC12V/1A Conductivity Range: 0.00~20.00 uS/cm Resistivit:0~100 mΩ.cm TDS: 0~100g/L Salinity:0~100 ppt	3			
4.	Laser Pyrometers	Standard	1			

Annexure-6: Department of Horticulture

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
5.	Digital balance	Maximum capacity: 600g Readability: 0.01g Tare Range: Full range Pan Size: 120mm ø Weighing Units: g, lb, oz, N, GN, ct, dr, dwt, mm, ozt, T, tl.H, tl.S, tl.T Calibration: External calibration / Internal manual calibration Display: Backlit LCD with 18mm-high digits Power Supply:12VDC 50/60Hz 800mA adapter / Internal rechargeable battery Operating Temperature 0° to 40°C Draught Shield: Round 132mm ø x 90mm Overall Dim: 174x252x80mm (wxdxh)	1			
6.	Water Distillation Apparatus	Capacity: Output 60 litre per hour. **Output**: Pure water Type II (analytical grade) according ASTM D1193 **Input**: Tap water **Production**: 1 l/min **Purification process control:** By microprocessor **Installation requirements:** 120/220V AC + water supply (≤ 3 m. distance / ≥ 2 bar pressure) **Measures and weight:** 48 x 25 x 45 cm (LxWxH) 12 kg Equipped with Kit of Cartridges	1			
7.	Deionizer	**Output**: Pure water Type II (analytical grade) according ASTM D1193 (American Society for Testing & Material) **Input**: Tap water **Production**: 1 l/min (60liters/hour) **Purification process control:** By microprocessor **Installation requirements:** 120/220V AC + water supply (≤ 3 m. distance / ≥ 2 bar pressure) **Guarantee:** 12 months from installation. Conductivity < 1 µS/cm Dimensions (cm): Equipment 18.5 x 7 x 68 cm (LxWxH) Weight in operation: 4 kg **Feed Water Requirements** Maximum Pressure 6 Bar Minimum Pressure 2 Bar Temperature 5-35 ºC	1			
8.	Water Distillation Apparatus	Capacity: Output 60 litre per hour. **Output**: Pure water Type II (analytical grade) according ASTM D1193 **Input**: Tap water **Production**: 1 l/min **Purification process control:** By microprocessor **Installation requirements:** 120/220V AC + water	1			

Annexure-6: Department of Horticulture

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
		supply (≤ 3 m. distance / ≥ 2 bar pressure) **Measures 1and weight:** 48 x 25 x 45 cm (LxWxH) 12 kg Equipped with Kit of Cartridges				
9.	Micro-Kjeldhal Digestion System	Places: 6 Ø tube mm: 42 H x W x D in mm: 740 x 355 x 400 Temp. °C: 450 Power W:1500 • Microprocessor built-in the case• Programmable auto-start • All programs can have up to 18 steps for temperature/incubation • Nine user free programs. Solids: 5 gr. (macro), 1 gr. (micro) Liquids: 15 mL. (macro),3 mL. (micro)	1			
10.	Amino Acid Analyzer	UV/VIS detection with Ninhydrin reagent. UV/VIS detection with Ninhydrin reagent.	1			
11.	Dual chamber incubator	Capacity: 105 Lit. Dimension (w x d x h): Interior (mm): 485 x 410 x 533 Exterior (mm): 635 x 695 x 841 Heater Power: 300W **Temp.** Range: Ambient Temperature +5^{0}C to 70^{0}C Fluctuation: ± 0.2^{0}C at 37^{0}C, ±0.3^{0}C at 50^{0}C Variation: ± 0.5□ at 37^{0}C,± 0.9□ at 50^{0}CSensor: PT 100 Control Resolution: ±0.1^{0}C Heat-up Time: 17 min. to 37 ^{0}C,30 min. to 50^{0}C Recovery Time: 3 min. to 37^{0}C, (Door open 30sec): 4 min. to 50^{0}C Controller: Digital Fuzzy Control by Advanced Microprocessor Jog-Dial with Push Button RS232 Port: Available to connect with PC Display: Digital LCD with Back Light Timer: 99hr 59 min (delay/continuous function)	1			
12.	Growth Chamber	Capacity: 432 Lit. Temp. Range & Variation: 10^{0}C ~ 60^{0}C,Fluctuation: ± 0.5^{0}C at 10^{0}C, ± 0.5^{0}C at 25^{0}C (0% light intensity) ± 1^{0}C at 10^{0}C, ± 1□ at 25^{0}C (100% light intensity) Humidity Range & Variation: 30% ~ 95% RH, ±3% at 60^{0}C Fluctuation: ±1% Humidifier: Evaporation by Fan with Heater Illumination Range:0 to 12,000 Lux Lamp: FPL 55Wx14 Bank:3 Side Walls Temp. & Humidity Sensor: Temp. : PT100, Humidity : Capacitive	1			

Annexure-6: Department of Horticulture

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
		Sensor Heat-up Time (up to 37^{0}C): 11 min. (0 % illumination) / 9 min. (100 % illumination) Cool-down Time (down to 10^{0}C): 13 min. (0 % illumination) / 15 min. (100 % illumination) Display: 7" Full Touch Screen TFT LCD (Smart-LabTM Controller) Controller: Smart-LabTM Controller Program Function: Temperature and Humidity : 120 Patterns, 1,200 Segments Light Bank : 7 steps Door Internal Tempered Safety Glass with Silicon Packing External 3-Side Magnetic Packing Door with Light Bank Packing Size & Gross Weight: 1,400x 1,220 xh 2,210mm,				
13.	Multi-parameter ethylene meters	Standard	1			
14.	Sonicator	Power Supply: Net Power output: VC 500 – 500 Watts. VC 750 Watts. Frequency: 20kHz Remote actuation Compatible. Dimensions: (HxWxD) 9 ¼" x 7 ½" x 13 ½" (235 x 190 x 340mm) Weight: 15lbs. (6.8kg) Sealed Converter: Part No: CV 334. Piezoelectric lead zirconate crystals (PZT) Diameter: 2 ½" (63.5mm) Weight: 2 lbs. (900g) Converter Cable: Cable length: 6 (1.8m). Standard Probe: Tip diameter: ½" (13mm) with threaded end and replaceable tip solid probe with non-replaceable tip Please specify processing capability: 10 ml to 250 ml. length: 5 3/8" (136mm) weight: ¼ lb (340g) Titanium alloy Ti-6Al-4V	1			
15.	Digital Water Bath	Capacity: 22 Lit Temperature Range & Accuracy: Ambient +5^{0}C~100^{0}C, $\pm$0.1^{0}C Temperature Resolution: 0.1^{0}C-Display, 0.1^{0}C-Control Temp Uniformity & Probe: $\pm$ 1.0 ^{0}C, PT100 Heater Power: 2K Timer: 99 hr 59 min (Delay & Continuous run), Error Status & Time-end Display: Digital LCD display with Back-Light Function Controller: Digital fuzzy controller with jog-shuttle switch (Turn + Push) Safety Devices: Over temp/ -Current Protection, Sensor	1			

Annexure-6: Department of Horticulture

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
		Error Detection Material internal: Stainless steel (#304)-Internal, Power Coated Steel-External				
16.	Shaking Incubator	Temp. Range Ambient: 10^0C ~ 60^0C Temp. Accuracy & Uniformity Accuracy : $\pm$0.2^{0}C at 37^{0}C, Uniformity : $\pm$0.5^{0}C at 37^{0}C Temp. Sensor: PT100 Sensor Heater: 700 W Compressor: 1/4 HP Compressor Control: Intelligent Control of Refrigerator for preventing Overload of Compressor Refrigerant: CFC-Free(R-404A) Refrigeration System Shaking Speed & Stroke: 30 ~ 250 rpm, 25mm Orbital Motion Timer & Alarm: 99hr 59min (with Continuous run.), Error status & Timer-end Display: Digital LCD with Back-Light Function Controller: Digital Fuzzy Controller with Jog-Dial Switch (Turn+Push) Room Lamp:60W Krypton Lamp Platform: Included Universal Platform for Various Shapes & Sizes of Flasks Optional Flask Holder: Durable & Flexible Plastic Flask Holder (up to 1000ml) **Available Max. Capacity of Flask Holder** for 50~100ml Available 16 ea Flask Holder "FH100", for 50~100ml Flask for 200~300ml Available 8 ea Flask Holder "FH250", for 200~300ml Flask for 500~1,000ml Available 4 ea Flask Holder "FH500", for 500~1,000ml Flask Safety Circuit: Over Temp./ Current Protector, Leakage Breaker, Sensor Error Detector Material: Internal : Stainless steel (□304), External : Powder Coated steel Dimension: Internal: 530 x 530 x h350mm, External : 575 x 855 x h850mm Packing Size (w x d x h) (mm):1,000 x 800 x h1,100mm Power Consumption: 1.2 kWPower Supply & Cord/Plug*: 1 Phase, AC 120 V, 60 Hz or AC 230 V, 50 / 60 Hz	1			
17.	Laminar Flow Chamber	Outer Dimensions W x D x H: 900 x 810 x 1350 mm 35 x 31.9 x 53.1" Workspace(W x D x H): 770 x 660 x 750 mm 30.3 x 26 x 29.5" Test Standard:	1			

Annexure-6: Department of Horticulture

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
		USA Federal Standard 209E/ ISO 14644-1,CE Air Velocity m/s 0.3m/s, 60 FPM Cleanliness in Workstation: Class-100 (FS 209E) ISO 4, ISO-14644-1 Hood Material: High grade cold rolled steel and surface is static powder coated Work Table Material: Stainless steel SUS 304 Noise (Tested 20 cm from <50dB the work table,1.2m above ground) Power Supply 110 / 220V 50/60 Hz, Single phase Illumination: 800 LUX LED lighting Filter: HEPA Filter Efficiency of 99,9995% at 0.3 Microns H14				

Annexure-7: Department of Entomology

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
1.	Rotary Evaporator	Digital Rotary Evaporator, Condenser Type Vertical-type or Diagonal-type Bottle Capacity Evaporating: Included 2×Evaporating Flasks : 1×0.5Lit & 1×1Lit, Available 100-/250-ml, 2Lit Evaporating Flask(Optional) Receiving: Included 1ea 1 Lit Flask Rotary Speed 10 ~ 180 rpm Evaporating Capability 20 ml/min, Bath Capacity 6.5 Lit / Φ254×130 mm Temp. Range 0℃~ 100℃, Chiller/Digital Precise Refrigerated/Heating Bath Circulator, Temp. Range & Accuracy －25℃~ +150℃, ±0.1℃, Max Flow Rate :25Lit./min, Bath Volume 8 Lit. Recirculating Water Aspirator, PP Water Tank, Safety Check Valve 80Lit/min, 0.0098MP, Capacity 15 Lit Max. Vacuum Degree 0.098 MPa Flow 80 Lit./min, Single Tap Air Sucking Amount 10 Lit./min, 2A Material of Water Tank PP	1			
2.	Autoclave machine	Digital Fuzzy-control Autoclaves, Standard -type, Steam Sterilizer, Electronic Door Lock Sys, Capacity 60 Liter Temp. Range & Accuracy Ambient 5 0C to 132 0C, □0.5 0C at 121 0C, Pressure & Gauge 1.2 Kgf/cm2 at 121 0C/ 2.0 Kgf/cm2 at 132 0C, 0~3Kgf/ cm2 Sterilization Mode Solid-or Liquid-mode Heating,Power/Consumption 3 kW,Timer & Alarm 60 min, Error Status & Timer-end Display Digital LCD Display with Back-light Function, Basket 2ea of Stainless steel wire Basket are included, Packing Size 840x610xh1252mm	1			
3.	Colony Counter	Digital Colony Counter, Four digital displays 4, Magnification 2~3 X, Petri dish diameter 60 mm, 90-150 mm adjustable Memory 100 Average Yes, Zero reset Yes Count back Yes, Illumination LED (adjustable) Pressure sensitivity Adjustable,	1			

Annexure-7: Department of Entomology

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
		Applications, Total bacteria counting, Total coliform counting				
4.	Ice Machine	Automatic ice flaker, Fully automated controller, Slide away access door high grade Stainless steel 304 exterior, ice storage bin 25kg, Ice making capacity 85 kg / 24 hrs Power 80W,Refrigerant R134a Cooling type Air cooling, Water supply Tap water, Voltage 220 V; 50 Hz, Dimensions 400 x 510 x 845mm	1			
5.	Distillation plant	Capacity: Output 60 litre per hour. **Output**: Pure water Type II (analytical grade) according ASTM D1193 **Input**: Tap water **Production**: 1 l/min **Purification process control:** By microprocessor **Installation requirements:** 120/220V AC + water supply (≤ 3 m. distance / ≥ 2 bar pressure) **Measures and weight:** 48 x 25 x 45 cm (LxWxH) 12 kg Equipped with Kit of Cartridges	1			
6.	Chemical Storage Cupboard	Standard, wood with locks	5			
7.	Inverted Microscope	Inverted Trinocular Fluorescence Microscope, Eyepieces Wide Field eyepieces WF 10x/22mm paired with eye guards, Viewing Body Siedentopf Tinocular, 30° inclined, 360° rotatable, Objectives LW series infinity corrected Fluorescence Plan achromatic objectives, antifungal 4x,10x,20x, Fixed plain stage 160mm x 240mm, Fluorescence Illumination Kit, B-Excitation Block, G-Excitation Block, Bulb Housing, Operating Environment, Digital camera 6.0 MP Color CMOS, resolution Dynamic 1920x1080 pixels, Static 3264x1836 pixels ,Pixel size 2.7µm x 2.7µm A/D conversion 24 Bit RGB, Pixel clock 48 MHz Dynamic range 65 dB	1			

Annexure-7: Department of Entomology

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
8.	Micropipette Set	Micropipette Adjustable Fully Autoclavable Smart and reliable volume adjustment Single-handed volume setting, Shock, UV light and autoclaving resistance, Ejector shaft height adjustment system called Justip™ allows a, wide selection of tips to tightly fit the nozzle, Ranges 0.5-10 µl, 10- 20 µl, 10-100 µl,Upto 1 ml	1			
9.	Fume Hood	White polypropylene structure featuring high chemical resistance One-piece welded structure Built-in polypropylene worktop Tempered glass slide front sash External Dimensions 1200 x 830 x 2320 mm , Workspace 1000 x 630 x 1170 mm, Front Sash Max Opening 720 mm / 28.3" Air Velocity 0.5±0.1m/s, 100 ±20FPM, Cabinet Material White Polypropylene Work Table Material HPL/ Ceramic / Epoxy / PP, Display 9" color touch screen, Illumination >800 LUX LED lights	1			
10.	Labomed Microscope computer system with camera	Trinocular LED Microscope, Wide Field focusable paired eyepieces WF 10x/20mm, Objectives 4x,10x,40x,100x, Mechanical Stage: RACKLESS X-axis, double plate mechanical stage plate size 200 x 140mm, X/Y travel range 78 x 54mm, with Digital Camera 16.0 MP Color CMOS, and PC	1			
11.	Insect Rearing Chamber	Standard	1			
12.	pH Meter	Bench top pH Meter Display 6.5 inch LED screen Parameters pH, mV, Temperature PH Measuring range -2,000 – 18,000 pH PH Resolution 0.001/0.01/0.1 pH PH Accuracy +0.02 pH mV Measuring range -1999.99-1999.99 mV	2			

Annexure-7: Department of Entomology

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
		mV Resolution 1 mV Temp Measuring range -5 - 1100C Temp Accuracy +0.50C Calibration 3 point, automatic Data Storage 1000 sets Working Conditions Temperature 5-400 Humidity 5-85% Power 9V2A				
13.	Shaker	Digital Orbital Shaker Digital LCD with Back-Light Function, Smooth Start and Change of Shaking Speed Shaking Platform Size: 350×350 mm, Shaking Motion: Orbital Motion, Speed Range: 10 ~ 300 rpm, Max. Load: 10 kg Amplitude of Rotation (mm):20 mm, Motor: Brushless DC Motor Program Function: 10 Steps, 6 Programs Platform: Universal Platform for various Shapes & Size of Flask, Safety Circuit: Overload Protector for Motor Net Weight: 20 kg Power Consumption: 40 W Electrical Reqts: AC 80V~240V, 50/60Hz	1			
14.	Ultra-High Low Deep Freezer (-80°C)	SMART Digital Ultra-Low Temp. Freezer, Upright-type UniFreezTM System can freeze down to -86℃ , Capacity 503 Lit Temp Range -860C~-650C at Room Temperature of 300C and Humidity of 70%, Sensor PT100 Sensor, Compressor Hermetic Type Display 7" Full Touch Screen TFT LCD , Shelves Included 3 Stainless steel Shelves, Max. Q'ty of Racks 16pcs of 20(4x5)-Placed Rack (RFU50), Material Internal Stainless steel (#304), Power Consumption 458Wh	1			
15.	Cool Incubator	Incubator SIR SMART Low Temperature(B.O.D) Digital Fuzzy Control System Full Touch Screen TFT LCD(Smart-LabTM Controller) Automatic Data Recording Self-Diagnostic Function Capacity: 420 Lit. Air Flow-type: Forced Convection-type	1			

Annexure-7: Department of Entomology

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
		Temp. Range & Accuracy:0C ~ 60 C, + 0.2C at 37C Heat-up Time: 35 min. to 37C Heating Power/Consumption: 1.2 kW , Compressor: 1/2HP Display: 4" Full Touch Screen TFT LCD, Controller: Smart-LabTM Controller Material: Internal : Stainless steel (#304), External : Powder Coated steel Dimension (w x d x h): Interior (mm) 705 x 605 x 1,000 Power Consumption: 2.3 kW Power Supply & Cord/Plug*: AC 230 V, 50 / 60 Hz				
16.	Insect collection boxes	Standard	100			
17.	Insecticide sprayers / Knapsack hand sprayer	Standard	15			
18.	Insecticide sprayers / Knapsack hand sprayer	Standard	15			
19.	Ulv sprayer	Standard	2			
20.	Cabinets for insect preservation	Standard	9			
21.	GPS device	Standard	2			
22.	Stanning Rack	Standard	6			
23.	Analytical Balance	Standard	4			

Annexure-7: Department of Entomology

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
24.	Electrophoresis Unit Gel	Standard	4			
25.	Gradient thermo cycler	Standard	1			
26.	Phosphen meter	Standard	2			
27.	Liquid Nitrogen Container	Standard	1			
28.	Solo Power Sprayer MH 40	Standard	2			
29.	Agrimondo Turbine Sprayer	Standard	3			
30.	Rearing jars	Standard	8			
31.	Humidifier	Standard	1			
32.	Insects showcase cabinet	Standard	10			
33.	Anaerobic jars	standard	2			
34.	Class II safety cab2inet	standard	1			
35.	Field backpack insect collecting net	standard	10			

Annexure-8: Department of Environmental Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
1.	Spectrophotometer	Calibrate 0%A and 100%T automatically. Stand accessories: Lamp,Cuvette holder,4pcs of 10mm Glass cuvettes, 2pcs of 10mm Quartz cuvettes. Display: 70*40mm blue backlit LCD Wavelength Range: 190 - 1020nm Slit Width: 2nm Wavelength Accuracy: ±2nm Wavelength Repeatability: ≤1nm Photometric Accuracy: 0.5%T Photometric Repeatability: 0.2%T Stray light: ≤0.15%T@ 360nm Stability: 0.002A@ 500nm Output Port: RS232 Light Source: Tungsten Halogen/ Deuterium Lamp Power Requirements: AC 110-220V, 50-60HZ Shipping Dimensions and Weight: 530* 460* 320mm ,9Kg	1			
2.	pH Meter portable	Display Large LCD screen with controllable white backlight. **PH** Measuring range（-2.00 ~ 19.999） pH Resolution 0.1/0.01 pH Accuracy Electrode: ±0.01 pH, Instrument: ±0.02 pH Input current ≤2×10^{-12} A Input impedance ≥3×10^{12} Ω Stability ±0.01 pH/3h Temp compensation (0 ~ 100)C (automatic) **mV** Measuring range(mV/ORP/EH) - 1999.9mV ~ 0 ~ 1999.9mV Resolution 1mV Accuracy ±0.1% FS **Others Parameters** Data storage 200 Sets Storage contents Series number, measuring value, measuring unit and temperature Power Two AA batteries(1.5V) Size & Weight 65×120×31mm/180g (instrument) 255×210×50mm/790g (with carrying case)	2			
3.	Conductivity meter	Display: 6.5 inch LED Screen Parameters: conductivity, Resistivity, TDS, salinity, temperature Conductivity measuring range: (0.00~20.00) μS/cm (20.0 ~200.0) μS/cm (200~2000) μS/cm (2.00~ 20.00) mS/cm (20.0~200.0) mS/cm Conductivity resolution 0.01/ 0.1/1μS/cm 0.01/0.1mS/cm Conductivity Accuracy Electrode: ±1.0%FS Instrument: ±1.50%FS Resistivity measuring range 0 ~100 MΩ·cm TDS 0~100 g/L Salinity	2			

Annexure-8: Department of Environmental Sciences						
S#	**Name of Equipment (s)**	**Client Specifications**	**Qty**	**Vendor's Specifications**	**Unit Price (PKR)**	**Total Price (PKR)**
		0~100 ppt Temp measuring range (-10~110) Temp resolution 0.1 Temp accuracy ±0.5 Data storage 100 sets Communication interfaces USB, RS232, wireless Bluetooth Working conditions Temperature: 5-40° Humidity: 5-85% Power 12V1A Size & Weight 240 × 170 × 70mm/600g				
4.	Distillation Plant	Capacity: Output 60 litre per hour. **Output**: Pure water Type II (analytical grade) according ASTM D1193 **Input**: Tap water **Production**: 1 l/min **Purification process control:** By microprocessor **Installation requirements:** 120/220V AC + water supply (≤ 3 m. distance / ≥ 2 bar pressure) **Measures and weight:** 48 x 25 x 45 cm (LxWxH) 12 kg Equipped with Kit of Cartridges	1			
5.	Digital Precise Water Bath	Capacity: 22 Lit Temperature Range & Accuracy: Ambient +5^{0}C~100^{0}C, ±0.1^{0}C Temperature Resolution: 0.1^{0}C-Display, 0.1^{0}C-Control Temp Uniformity & Probe: ± 1.0 ^{0}C, PT100 Heater Power: 2K Timer: 99 hr 59 min (Delay & Continuous run), Error Status & Time-end Display: Digital LCD display with Back-Light Function Controller: Digital fuzzy controller with jog-shuttle switch (Turn + Push) Safety Devices: Over temp/ -Current Protection, Sensor Error Detection Material internal: Stainless steel (#304)-Internal, Power Coated Steel-External	1			
6.	Incubator	Capacity: 50 Lit. Dimension (w x d x h): Interior (mm): 370 x 350 x 419 Exterior (mm): 518 x 637 x 700 Heater Power: 200W **Temp.** Range: Ambient Temperature +5□ to 70□ Fluctuation: ±0.2^{0}C at 37^{0}C, ±0.3^{0}C at 50^{0}C Variation: ± 0.5□ at 37^{0}C, ± 0.9□ at 50^{0}C Sensor: PT 100 Control Resolution: ±0.1^{0}C Heat-up Time: 17 min. to 37 ^{0}C,28 min. to 50^{0}C Recovery Time: 3 min. to 37^{0}C, (Door open 30sec): 4 min. to 50^{0}C Controller: Digital Fuzzy	1			

Annexure-8: Department of Environmental Sciences						
S#	**Name of Equipment (s)**	**Client Specifications**	**Qty**	**Vendor's Specifications**	**Unit Price (PKR)**	**Total Price (PKR)**
		Control by Advanced Microprocessor Jog-Dial with Push Button				
7.	PM Collector	High volume air sampler: Ambient air sampler Model no. 120SL Sampling flow rate:1.3m^3/min Range flow rate: 600 to 1300 l/min Noise reduction by a noiseless blower (brushes) and silencer	1			
8.	PM Collector for Stacks Emission	PM 2.5 collector with Mass Flow Controller, Brush, Pressure Recorder: Dickson Chart Recorder, Timer: 24 hour, Elapsed Time Indicator: Digital , Flow Rate: 36-60 CFM. Housing: Anodized Aluminum, Filter Holder: Stainless Steel, 8" x 10" (or as per model offered), Calibration equipment: Variable Flow Calibration Ki	1			
9.	Noise Meter Portable	Measuring range: 35 - 135 dB Frequency range: 31.5 Hz - 8 kHz Accuracy: ±2 dB Frequency rating: A Class II	1			
10.	Fixed Metrological Station with Toxic Gas Analyzer	Fixed metrological station with provisions for: 10. Wind speed and direction 11. Solar radiation 12. Temperature (air, water, soil) 13. Relative humidity 14. Precipitation 15. Snow depth 16. Barometric pressure 17. Soil moisture 18. Detecting gas emissions (H2/CO/H2S/CH4/NO2/SO2/CH2O/O2/NH3/O3) • Embedded PC (Intel Atom, 1.6GHz, dual core, 2GB RAM,	1			

Annexure-8: Department of Environmental Sciences						
S#	**Name of Equipment (s)**	**Client Specifications**	**Qty**	**Vendor's Specifications**	**Unit Price (PKR)**	**Total Price (PKR)**
		32GB SSD hard drive) • Communications: Ethernet, WIFI • Aeroqual Connect software interface (configuration, diagnostics, and data acquisition) • Aeroqual Cloud Support subscription, free for the life of the instrument, unlimited users • Power Module (90-264 VAC, 47-63Hz) • External Temperature & Humidity Sensor (-40 to 120° C; 0-100% RH) • Pole and wall mount brackets • Documentation (Hard Copy: User Guide, Log Book; Soft Copy on USB stick) • Manufacturer's Standard 12 month Warranty • Free unlimited access to Aeroqual's online training system				
11.	GPS	NIT DIMENSIONS (WIDTH / HEIGHT / DEPTH): 6.1 x 16.0 x 3.6 cm, SCREEN SIZE (WIDTH / HEIGHT): 3.6 x 5.5 cm; 6.6 cm diagonal (2.6 "),SCREEN RESOLUTION (WIDTH / HIGH): 160 x 240 pixels, SCREEN TYPE: 65,000-color transflective TFT, WEIGHT: 230 g with batteries, BATTERY 2 AA batteries (not included); NiMH or lithium recommended, WATER RESISTANCE RATING: IPX7, MEMORY / HISTORY: 8 GB, HIGH	2			

Annexure-8: Department of Environmental Sciences

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
		SENSITIVITY RECEIVER: Yes, EQUIPMENT INTERFACE: Compatible with high speed USB and NMEA 0183, POSSIBILITY TO ADD MAPS: Yes, BASE MAP: Yes				

Annexure-9: Department of Earth Sciences/Geology

S#	Name of Equipment (s)	Client Specifications	Qty	Vendor's Specifications	Unit Price (PKR)	Total Price (PKR)
1.	GeoForm machine	Precision thin section cutting and Grinding machine • Diamond or CBN Cut off Wheels; Ø200mm • Specimen holder with vacuum for standard slides • Built in micrometer with digital readout for precise grinding of material. Water cooling • Electrical: 220-1-50	**1**			
2.	Polarizing Microscope with Digital Imaging System+ LCD/LED system	Style: (Multihead Main Units) trinolcular hear) (Secondary Units-Binocular Head) Eyepiece: WHK10x/20 L, Nosepiece: Quintuple, Focusing: Coaxial coarse and fine adjustment mechanisms Stage: Graduated mechanical stage, Objectives: All Olympus D Plan Objectives 4x, 10x, 40x, 100x: Substage: Abbe Condenser 1.25 N. A.with rack and pinion, Light Source: 6v 20wHalogen	**1**			
3.	Brunton compass, Japan made	Adjustable needle locking mechanismHinge clinometers with 1° increments for 1/2° readable dip measurements. Single NdFeB magnet resists demagnetization better than any other type of magnet. Magnetic declination adjustment allows for east or west declination setting to +/- 180°Precision aligned mirror with convenient "see through" sighting capability6061 -T6 hard anodized aluminum body for permanent color and scratch resistance. Weight: 12.8 ozU.S. Patent No. 6,516,526	5			
4.	Streak Plates	Standard Plates used for grinding of minerals.	10			
5.	Sieve Sets with motor operated Shaker	Standard	1			

6.	GPS for field work	Physical and Technical Dimensions (W x H x D): 6.1 x 16 x 3.6 cm (2.4" x 6.3" x 1.4") Display Size (W x H): 3.6 x 5.5 cm (1.43" x 2.15") 2.6" diag (6.6 cm) Display Resolution (W x H): 160 x 240 pixels Display Type: transflective, 65-K colour TFT Weight: 260.1 g (9.2 oz) with batteries Battery: 2 AA batteries (not included) Battery Life: 20 hours, typical Waterproof: Yes (IPX7) High-sensitivity Receiver:	4			
7.	PROCTOR HAMMER (MANUAL)	The Manual Standard Soil Compaction Hammer has 5.5lb (2.5kg) mass enclosed in a guide sleeve with vent holes to insure unrestricted free-fall. Drop is 12in (305mm). The Manual Modified Soil Compaction Hammer has 10lb (4.5kg) mass enclosed in a guide sleeve with vent holes to insure unrestricted free-fall. Drop is 18in (457mm).	1			
8.	SEIVE ANALYSIS (including all seive sizes)	DRY SIEVING:- MEASURING RANGE: 32UM – 63UM. MAX. SAMPLE QUANTITY (APPROX)1KG. SIEVING TIME (APPROX): 3 – 20MIN. WET SIEVING:- MEASURING RANGE: 20UM – 10MM. MAX. SAMPLE QUANTITY (APPAROX) 20 – 100GM. SIEVING TIME (APPROX): 3 – 10MIN. POWER: 220 VAC. 50/60HZ. MICRO-PRECISION SIEVING:- MEASURING RANGE: 5um to 100um.	1			
9.	Speedy Moisture Tester	6 g cap. complete with electronic balance, accessories and carryng case	1			
10.	WEIGHT SET	Set of slotted steelweights tot.37.5kg: 2x0.250kg;, 2x0.500kg; 2x1kg; 3x2kg; 3x4kg; 2x8kg.,	1			
11.	Casagrande Appratus (Liquid Limit)	Liquid limit device with counter ASTM-AASHTO-UNI model. ACCESSORIES Glass plate 500 x 500 x 10 mm, Flexible spatula 100 mm blade, Flexible spatula 160 mm blade, Plastic wash bottle 500 ml, , Porcelain evaporating dish dia. 120 x 50 mm h, Moisture content tin dia. 75X30 MM	2			

12.	Los Angeles abrasion machine	Conforming to EN and ASTM standards. 230V, 50Hz, 1ph., Set of 12 abrasive charges ASTM/UNI	1			
13.	STANDARD PENETRATION TEST APPARATUS	SPT SPLIT SAMPLER Stainless Steel , Spt Hammer Of 140 Lbf, Spt Guide Rod Assembly, Spt Lifting Hook Assembly, Spt Drilling Rod 42mm X 5 Feet Approximately. With Coupling Nipple (6), Spt Tripod Set 2" Dia (15 Ft Approximately), Manila Rope (Rate Per Foot) (50), Screw Wrench 18" Follow The Astm Standards.	1			
14.	PLASTIC LIMIT (Complete set with all accessories)	Plastic limit set accessories: Glass plastic limit plate 300 x 300 mm, Stainless steel rod dia 3 mm, Porcelain evaporating dish dia 120 x 32 mm h, Flexible spatula 100 mm blade, Aluminium cup dia 75x30 mm with cover. Set of 6	1			
15.	Hydrometer with all accessories	Hydrometer particle size test set to ASTM D422 - AASHTO T88. 230V, 50Hz, 1ph. Comprising: Hydrometer jar 1000 ml. Graduated glass., Rubber bung for cylinder 22-D1006/A, Soil hydrometer 151/H, Laboratory thermometer -10 to + 50 deg.C, Constant temperature water bath. 230V/50Hz/Ph, High speed stirrer. 230V/50-60Hz/1Ph, Sodium hexametaphosphate 1000 g, Borosilicate glass beaker 250 ml	1			
16.	Fossils kit	12 premium educational fossils, Each with an illustrated description card, Geologic Time Chart Card denoting evolutionary milestones	5			
17.	Permeameter	Open System: Sample rings phi 53 and 60 mm, 5,10 or 25 samples, Closed System: Sample rings phi 53 and 60 mm, Pump: Type Eheim 1048, Power Rating: 230 V, 50 Hz, Power 10 W, Capacity 10 liter per minute, IP67: 1,5 Meter	1			

18.	Rocks core drilling machine	The Electric Core Drill adapts to a wide range of drilling jobs in addition to pavement coring. The column rotates 180 ° horizontally, allowing precise placement of drill bit. The super-duty two-speed (450/900rpm) 3.5hp motor and carriage can be removed or reattached without changing location for ease in snapping cores and adding extension rods. The 10in (254mm) wide wheeled base has a vacuum anchor to solidly grip smooth pavement or floors. Unit includes oilless vacuum pump, filter, hose, and quick connections.	1			
19.	Mixing tray for sand and aggregate (one each size)	Galvanized Sampling Tray (12"X12"X2"), Galvanized Sampling Tray (18"X18"X3"), Galvanized Sampling Tray (24"X18"X3"), Galvanized Sampling Tray (36"X24"X3"), Cylinder Mould For Concrete 6" Dia X 12" Height	1			
20.	Direct/ Shear Residual Machine	Speed Range: adjustable from 0.00001 to 9.99999 mm/min, Maximum Shear Force: 5000 N, Maximum Vertical Load: 500 N or 5000 N using 10:1 lever-arm device, Speed drive ratio: stepper motor 1/10000 resolution, Horizontal Travel: preset via fimware up to 20mm, Displacement Limits: controlled by optical safety switch, Digital Display: 4-row/ 20 character LCD. Easy to operate with membrane keyboard, Specimen sizes: 60 and 100 mm square; 50,60, 63.5 and 100 mm diameter, Overall Dimensions: 953*387*1180mm (w*d*h), Weight: 120 Kg: Standards: ASTM D3080/AASHTO T236	1			
21.	Proctor moulds and rammers (complete set)	The Soil Compaction Mold, 6" ID-Standard, 1/13 Cu Ft. fit the Automatic Mechanical Soil Compactors, and also may be used with manual soil compactors. Molds are 4.584in (116.4mm) in height with detachable extension collar and base plate, and are plated for rust resistance., straight edge. Standards: ASTM D558, D698, D1557, AASHTO T99, T134, T180/ CNR N 69	1			

22.	CBR (California Bearing Ratio) Loading frames and presses inclusive of all accessories	motorised ram, two-column structure and adjustable crossbeam. Loading capacity: 50kN Clearance between columns: 270mm Test speed: 1.27 mm/min Ram travel: 120mm Power rating: 300W Complete with load ring 50kN capacity with 0.001 mm resolution dial gauge [strictly conforming to the Standards], CBR piston and penetration depth gauge. 230V, 50Hz, 1ph Standards: EN 13286-47/ASTM D 1883/AASHTO T193/BS 1377:4/NF P94-078/UNI CNR 10009	1			
23.	Cathodo luminescence (CL) Microscope with EDX spectroscopy system image capturing and coating facilities.	CL-Microscope, High sensitive CCD-camera, Coating facility, EDX spectroscopy system and all other required accessories.	1			
24.	Centrifuge machine for large tubes	Speed more than 15000rpm, 1.5ml, 50ml tubes rotor	1			
25.	Sedigraph and Brinkman PSA Laser 2010	Standard	1			
26.	schmidth hammer	Type N, psi scale	1			
27.	Polariscope	condensing lens/ Interference Spheres, immersion cell.GIA/GEM Polariscope	4			
28.	Gem Microscope	Digital 12V system eliminates spike and flicker irregularities which reduces eye fatigue Stereo Zoom Magnification from 10x to 64x 47,000+ lux exceeds the needs for diamond examination while satisfying the requirements for colored gems GIA-patented darkfield and brightfield illumination using LCD intensity read-out for recall of the previous intensity setting Three ports for mounting illumination accessories Exclusive stationary power cord for 345 degree base rotation; 100V-240V global electrical compatibility. 12V for color temperature stability Simulates north facing daylight for accurate color grading	1			

29.	Spectroscope	Kassoy Prism type spectroscope, Adjustable slit aperture with slide focus	2			
30.	Digital Specific Gravity Balance	Lightweight Gem Holder Support and Underwater Weighing Pan bullet Independent, Spill-Resistant, Adjustable Beaker Support bullet Beaker for filling with water - 50 to 100ml capacity bullet Aluminum Test Weight whose SG = 2.70 bullet Stainless Steel Tweezers bullet Complete instructions (although this method is very simple) bullet Table of 300 common minerals/gems sorted by specific gravity, with 6 other properties, including refractive index. (Or purchase our Mineral Search software and let your computer do the work of searching a gem and mineral database by specific gravity and other properties)	1			
31.	Double goose neck (Fiber optic light) FIB0005	150W Fiber Optic Dual Gooseneck Microscope Illuminator	1			
32.	Lamps	Eglo Top Desk 7059 Table Lamp in Black… Eglo Bidi 7059 Table Lamp Colour: Black Product Code: 87002 Bulbs Not Included Rocker Switch H470mm Maximum Wattage: 60w	5			
33.	Hardness Pick Set (In a wooden case)	Four double ended picks with hardness point of 2-9 on Mohs hardness scale. A grinding plate for sharpening your points. Streak plate.Glass plate for quick "hard" or "soft" determination, A hardness plate with a hardness of 3.5 Magnet, Paper table listing common minerals and their hardness, Hardness testing instructions. All of this in a compact (7" x 2 1/2" x 1 5/8") wooden case that takes up minimal space on a desk or shelf	5			
34.	Hardness Pick Set (In a Plastic Field case)	This hardness pick set has the same contents as the kit described above. It is packaged in a durable plastic case for easy carrying in the field. The case opens and closes on a hinge and has a plastic latch. The case measures approximately 5" by 8" by 1 3/4" when closed.	5			

35.	Mineral Hardness Test Kits	Standard	7			
36.	GPR(Ground Penetrating Radar)	Dimensions (H*W*D): (115cm*70cm*90cm), Sensor Frequency: 250 MHz, Antennas: Ultra-Wide Bandwidth (UWB), Screen: 7.25" color LCD, daylight optimized, Cart Material: Nonmetallic Depth range: Up to 8m/ 27' maximum, Memory: 64 GB, Wheel sets and Transport Option should be included.	1			
37.	SoilSpy Rosina	Sampling: 89 kHz Per channel in continous mode, Output frequency (fs): 128,256,512, 1024, 2048, 4096, 8192, Recordng Length: continous- no limits for fs< 2048 Hz, dynamic range: 142 dB, Band: DC-360 Hz, Max channel No. 255, Each channel can be set as trigger and acquire at the same time. No need for a separate trigger cable, allows for continous visualization in real time (for fs < 2048 Hz).	1			
38.	Rock chisel	The Rock Chisel, 1.25"w x 8"L, is top quality for digging, splitting, prying. Made from one-piece forged solid steel. Handle has nylon-vinyl grip.	5			
39.	Geological Hammer, USA made	Rock hammer with a leather-wrapped handle, Solid steel construction; pointed tip, Head weighs 22-Ounce and 7-Inch long, Overall length 13-Inch; weighs 1-Pound 14-Ounce	5			

Annexure-10 Department of Medical Lab Technology						
S. No	**Name of Equipment (s)**	**Client Specifications**	**Qty**	**Vendor's Specification**	**Unit Price (PKR)**	**Total Price (PKR)**
1.	VIDAS for hormone analysis	Stand-alone PC with printer, monitor, keyboard, and mouse (not included in listed dimensions) Electrical requirements: voltage: 100-240 VAC Frequency: 50-60Hz, heat emission: approximately 921 BTU/hr, Rapid Results, Efficient workflow	1			
2.	Micropipette Set	Micropipette Adjustable Fully Autoclavable Smart and reliable volume adjustment Single-handed volume setting, Shock, UV light and autoclaving resistance, Ejector shaft height adjustment system called Justip™ allows a, wide selection of tips to tightly fit the nozzle, Ranges 0.5-10 µl, 10- 20 µl, 10- 100 µl,Upto 1 ml	1			
3.	Vertical (PAGE) electrophoresis tank	Unit Dimension (W x L x H) 190 x 130 x 150mm , Plate Dimension (W x L) 100 x 100mm , Gel Dimension (W x L) 75 x 80mm , Maximum Sample 80 samples, 20 samples per gel , Buffer Volume 250 ~ 1200ml , Ice cooling Pack Yes Dummy plate and Casting Base Yes , Construction Injection molded construction ,Durable, leak proof environment for complete safety and long life Electrical safety Lid can be fastened in only one way On removal, power is disconnected from buffer chamber Rapid Casting Gel Use casting dams.	1			
4.	Blotting apparatus	Large Blotting System, CE, 3 place, fits gel cassette/glass plate dimensions 16cm(w) x 22cm (h) with EPS-200 X High Current Power Supply	1			
5.	Densitometer	Measuring range: 0-5 OD with 2mm and 3mm aperture Good temperature range with normal power requirement.	1			

Annexure-10 Department of Medical Lab Technology						
S. No	**Name of Equipment (s)**	**Client Specifications**	**Qty**	**Vendor's Specification**	**Unit Price (PKR)**	**Total Price (PKR)**
6.	Hemoglobin Testing system (HPLC)/ Fully automated system for diabetes monitoring and thalassemia testing	Automatic system startup checklist and touch screen operation. Whole blood primary tube sampling. Separate programs for fast HbA1c or HbA2/F/A1c .	1			

3.3.4. Contract Form

THIS AGREEMENT made the _____ day of _____ 2021 between The University of Haripur (hereinafter called “the Procuring Agency (PA)”) of the one part and [name of Supplier] (hereinafter called “the Supplier”) of the other part:

WHEREAS the PA invited bids for certain Goods and has accepted a bid by the Supplier for the supply of those Goods in the sum of [contract price in words and figures] (hereinafter called “the Contract Price”.)

NOW THIS AGREEMENT WITNESSE AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the conditions of Contract referred to.
2. The following documents shall be deemed to form and be read and constructed as part of this agreement, viz.:
    a. The Bid Form and the Price Schedule submitted by the Bidder;
    b. The Schedule of Requirements;
    c. The Technical Specifications;
    d. The General Conditions of Contract;
    e. The Special Conditions of Contract;
    f. The PA’s Notification of Award.
3. In consideration of the payments to be made by the PA to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the PA to provide the Goods and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The PA hereby covenants to pay the Supplier in consideration of the provision of the goods the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and year first above written.

Signed, sealed, delivered by _____ the for the PA)

Signed, sealed, delivered by _____ the for the Supplier)

3.3.5. FORM OF INTEGRITY PACT

Contract No: _____

Dated: _____

Contract Value: _____

Contract Title: _____

…… [Name of Supplier] hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from The University of Haripur (UOH) or any administrative subdivision or agency thereof or any other entity owned or controlled by UOH through any corrupt business practice.

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

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

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

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

Name of PA_____	**Name of Seller**_____
Signature:_____	**Signature**:_____
[Seal]	**[Seal]:**

3.3.8. FORM OF CONTRACT AGREEMENT

THIS CONTRACT AGREEMENT (hereinafter called the "Agreement") made on the _____ day of _____2021_____between_____ (hereafter called the "Employer") of the one part and _____ (hereafter called the "Contractor") of the other part.

WHEREAS the Employer is desirous that certain procurement, viz _____ should be executed by the Contractor and has accepted a Tender by the Contractor for the execution and completion of such procurement and the remedying of any defects therein.

NOW this Agreement witnessed as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents after incorporating addenda, if any except those parts relating to Instructions to Tenderers shall be deemed to form and be read and construed as part of this Agreement, viz:
    (a) The Letter of Acceptance
    (b) The Contract Data
    (c) Conditions of Contract
    (d) Schedules to Tender
    (e) Specifications
    (f) Tendering Data
3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the procurement process of IT equipment's and remedy defects therein in conformity and in all respects within the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor, in consideration of the execution and completion of the procurement process of IT equipment's as per provisions of the Contract, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS WHEREOF the parties hereto have caused this Agreement to be executed the day and year first before written in accordance with their respective laws.

The Common Seal of _____was hereunto affixed in the presence of: or

Signed, Sealed and Delivered by the said _____ in the presence of:

Binding Signature of Employer_____

Binding Signature of Contractor_____

3.3.9. UNDERTAKING

I have read the terms and conditions thoroughly regarding "Tender dated _____, I hereby undertake to abide by these terms & conditions in letter and spirit. In case of false, fake information or documents, I shall be liable to disqualification and subsequently my CDR be forfeited by the Procuring Entity.

Signature: _____

Name of Authorize Person: _____

Company/Firm Name: _____

Seal: _____