



GOVERNMENT COLLEGE UNIVERSITY FAISALABAD

TENDER DOCUMENT No. 670/130/2019

SUPPLY AND INSTALLATION OF SCIENTIFIC EQUIPMENTS FOR DIFFERENT DEPARTMENTAL AND CENTRAL HI-TECH LABORATORIES OF GOVERNMENT COLLEGE UNIVERSITY FAISALABAD UNDER THE PARF PROJECT

Purchase Price: Rs. 2,000/-

Sealed tenders / bids are invited from the well reputed firms / importers / suppliers, being active taxpayers of Sales Tax and Income Tax for “Supply and Installation of Scientific Equipments for Different Departmental and Central Hi-Tech Laboratories of Government College University Faisalabad under the PARF Project”. Details & Specifications of which are separately attached as Annexures “1A, 2A & 3A”.

GENERAL TERMS & CONDITIONS

1. Tender Opening Date & Procedure:

- 1.1 The procurement will be completed in accordance with Punjab Procurement Rules 2014, on Single Stage - Two Envelope Bidding Procedure.
- 1.2 A single package containing various envelopes, separate Technical and Financial Bids (Summary Formats as a guideline are also attached as Annexures-B, 1C & 2C) in complete conformity with terms and conditions as described in Tender Documents will be dropped in Tender Box placed at **Directorate of Procurement & Inventory Control (DP & IC)** of the GCUF, not later than **11:00 AM on 23-07-2020**.

Note: Tender Number must be mentioned on the envelopes.

- 1.3 Technical Bids will be opened first on the same day (as mentioned above) **at 11:30 Hrs** for evaluation by the "Technical Evaluation Committee".
- 1.4 Financial Bids of Successful Bidders after technical evaluation will be opened as per schedule issued later on.
- 1.5 Financial Bids of Unsuccessful Bidders will be returned un-opened.

2. Tender Fee, Bid Security and Performance Security:

- 2.1 Technical Bid must be accompanied by the Tender Fee of Rs. 2,000/- in shape of Call Deposit Receipt (CDR) in original on the name of “Treasurer, GCUF”.
- 2.2 **Financial Bid(s) must be accompanied by Bid Security(ies) (refundable) @ 2% of the estimated price of participated category(ies) (Estimated prices are mentioned alongwith Annexures-1A, 2A or 3A) whether quoting a single item or more than one within a category, in shape of Call Deposit Receipt (CDR) in original on the name of “Treasurer, GCUF” (for successful bidders it will be refunded /**

released after the provision of 10% Performance security). Financial Bid(s) should be submitted in separate envelopes against each category along with Bid Security (refundable) @ 2% of the estimated price of participated category(ies) i.e. that if a company is participating in all the three categories then it should provide separate envelopes of financial bids as described in clause 2.4 along with separate bid securities in shape of Call Deposit Receipts (CDRs) in original on the name of “Treasurer, GCUF”. *However, if any company has already prepared a cumulative bid security CDR @ 2% of the estimated price of Rs. 111.00 Million for whole tender in response to previous advertisements of same tender, then it should provide such CDR in separate sealed envelope instead of making it a part of any financial bid.*

- 2.3 Performance security @10% of the total worth of Purchase order / Contract agreement will have to be submitted as a Call Deposit Receipt (CDR) / Bank Guarantee (having validity at least till the expiry of warranty period) on the name of “Treasurer, GCUF” in original after the issuance of Purchase Order / Contract Agreement, which will be refunded / released after satisfactory performance / after sales service and termination of warranty period.
- 2.4 The Bidders are required to submit their financial proposals (separately) as per following categories:
 - a) FOR / PKR Basis (Annexure-1A):**
The Bidders may submit their financial proposals in Pak Rs (PKR). The rates / bids should be inclusive of all applicable Govt. Taxes, Duties, Carriage charges etc till delivery at GCUF Campuses (Summary Format as a guideline is also attached as Annexure-1C). However, the importers may avail the exemptions on Sales Tax and Income Tax as per prevailing rules, on the provision of valid import documents (e.g. AWB / BL, GD, CPR, Packing List, Undertaking etc).
 - b) CIF / CIP Basis (Annexure-2A):**
The Bidders are required to submit their financial proposals in foreign currency e.g. USD, EURO, POUND etc. on the basis of Cost, Insurance & Freight (CIF) value inclusive of all clearance charges, L/C charges (e.g. opening, amendment, release, cancellation), local carriage charges etc till delivery of equipment(s) at GCUF Campuses (Summary Format as a guideline is also attached as Annexure-2C).
 - c) FOR / PKR as well as CIF / CIP Basis (Annexure-3A),** separately as per attached Summary Formats (Annexures-1C & 2C, respectively) as described above.
- 2.5 For price comparison, the prices quoted in foreign currency will be converted to PKR, for which the State Bank of Pakistan forex rate (Interbank-Selling) on the day of financial bid opening will be considered.
- 2.6 For prices quoted in foreign currency along with GST, only the price without GST will be considered.
- 2.7 Letters for custom duty / excise duty / sales tax / other surcharge exemptions will be issued on the provision of AirWay Bill (AWB) / Bill of Lading (BL), country of origin, credentials of clearing agent etc, wherever applicable. At least 10 working days will be required to provide the said documents to the vendor, therefore the request for the provision of exemption certificates, endorsed AWB / BL and approved EIF should be sent accordingly.
- 2.8 In case, the vendor opts to import through its own, University will provide the exemption certificates as usual. However, acceptance / rejection of the documents at custom clearance will be the sole responsibility of the vendor and no claim on the name of demurrage charges, clearance charges etc will be accepted.
- 2.9 The quoted price should be item wise. The vendor may quote all items or partial items within the category. However, the comparison of price will be made on the basis of each item and purchase order(s) / contract agreement(s) will also be awarded accordingly, except where there is any compatibility issue. The price of items exempted from taxes (as per Govt. of Pakistan SROs) should be quoted accordingly.
- 2.10 The bidder should quote single option of each item which may be equivalent to or higher than the

required specifications. No alternative / multiple options will be accepted. The mentioned brand / trade name within the tender document are for reference / quality control, any item equivalent / compatible to that can be quoted.

- 2.11 The technical proposal should be prepared in such a way that the comparison between specifications mentioned in the tender and the specifications quoted by the vendor can be possible.
- 2.12 Any term & condition written in technical or financial offer that is in conflict / contrary / conditional to the terms and conditions laid down in the said tender document will be considered null and void. Participation in the tender will mean that the bidder has accepted the terms and conditions.
- 2.13 Quoted items must be of companies having origin in European Economic Countries / USA / Canada / Japan / China / Korea / Malaysia or otherwise as stated / restricted alongwith the item detail(s).

3. Validity of Offers and Mode of Import:

- 3.1 Offers shall be valid for 180 days from the closing date of submission of bids.
- 3.2 Withdrawal / modification of the original offer within the validity period shall entitle the University to forfeit Bid Security.
- 3.3 Sales Tax Number and NTN Number must be mentioned clearly on the letter head / cover letter / bidding documents.
- 3.4 The GCUF reserves the right to delete or decrease quantities as well as suspend / cancel whole tender / purchase order / contract agreement or any part of it, without assigning any reason thereof and without any obligation what so ever.
- 3.5 The University reserves the right to reject all bids / proposals at any time prior to the acceptance of bids or proposals as provided under Rule-35 of Punjab Procurement Rules 2014. However, upon bidder's request the ground of rejection will be communicated to the concerned but no justification will be given as per PPRA Rule 35(2).
- 3.6 In case of importable items through **LC at Sight**, the vendor will request GCUF to establish LC on the name of his principal(s) by providing the original proforma invoice(s) containing the Description of item(s), Price, HS Code, Country of origin, Beneficiary's bank details etc along with original insurance documents, premium paid receipt and the CDR / Bank Guarantee of amount equal to their proforma invoice(s) in the name of "Treasurer, GCUF" within 15 days of issuance of purchase order / contract agreement.
While, in case of importable items through **LC on Usance Basis** (60 days credit from the AWB Date), the vendor will request GCUF to establish LC (Usance Basis) on the name of his principal(s) by providing the original proforma invoice(s) containing the Description of item(s), Price, HS Code, Country of origin, Beneficiary's bank details etc along with original insurance documents and premium paid receipt within 15 days of issuance of purchase order / contract agreement.
- 3.7 In case the opening of LC (as described above), is not feasible for the vendor, then the vendor may import the item(s) on the name of GCUF through open account / credit basis.
- 3.8 In case of In-Stock quoted items, the vendor has to provide the proof that the said item has been imported (for imported items only) within 01 year of the bid submission / tender closing date.

4. Failures and Terminations:

No offer of a supplier / firm will be considered if:-

- 4.1 Bid received is either without Tender Fee / Bid Security / CDR or with Tender Fee / Bid Security / CDR less than the required.

- 4.2 Bid received is not in accordance with Tender Document, Tender Notice or Tender Specifications.
- 4.3 Bid received later than the date and time fixed for tender.
- 4.4 Bid / offer received is incomplete in any respect or unsigned.
- 4.5 Bid / offer received is ambiguous and / or conditional.
- 4.6 Bid / offer received from a firm which is black listed at any level.
- 4.7 Bid in which any erasing / cutting / overwriting etc. is observed.
- 4.8 Purchase order / contract agreement will be terminated, if the vendor / supplier fails to deliver the item(s) without plausible explanation within specified delivery period or the supplied items are not in accordance with the specifications as laid down in the Tender Document / Technical Bid / Purchase Order / Contract Agreement.
- 4.9 If situation warranted, then University is authorized to forfeit the Bid and / or Performance Security and the firm may also be black listed.
- 4.10 For acceptance of bids for equipment, bidders shall meet the Mandatory Requirements and Technical Specifications.

5. **Other Special Conditions:**

Following requirements define the scope of work of this Tender:

- 5.1 In case of any conflict, the decision of the Vice Chancellor of Government College University, Faisalabad, would be final & binding on both the parties.
- 5.2 Any query regarding the tender will have to be raised within the 07 days of its publication in national newspapers, so that sufficient time can be fetched to respond. Later than that, no query will be addressed.
- 5.3 The vendor must ensure that the supplied items are new, in proper shape and meet the technical specifications.
- 5.4 The vendor will be responsible for the supply, installation, commissioning of scientific equipments alongwith on campus training.
- 5.5 The vendor shall provide any up-gradation of the software (if any) without any extra cost or hidden charges during warranty period.
- 5.6 The bidder shall provide Company profile, Authorization with Principal firm(s), Company experience in related field, Project completed (within last three years), Major clients' list (within last three years) and "Equipment Technical Details (brochures, etc.)" by clearly mentioning the Specifications, Brand / Principal Manufacturer Name and Its Origin (Country), Model / Part Number, Origin (Product's Country of Origin), Valid Manufacturer's Authorization Form (MAF), Manufacturing Year etc (Summary Format as a guideline is also attached as Annexure-B).
- 5.7 The vendor shall provide comprehensive documentation of system deployed including diagrams, configuration and manuals etc at the time of installation and commissioning.
- 5.8 The vendor / supplier shall be responsible of providing services for operation and maintenance of the item provided, without any extra cost or hidden charges within warranty period.
- 5.9 The bidder should read carefully "Equipment Description and Specifications" before preparing Technical and Financial Proposals.
- 5.10 All the accessories, installation supplies (such as gas cylinders, standard kits / reagents, Desktop Computers, UPS etc) that are required for the installation and smooth running of the equipment, will have to be arranged by the vendor at no cost to GCUF, whether quoted in the specifications or not.
- 5.11 In case of equipment against which only one financial bid receives / matures, market survey as per PPRA guidelines will be carried out.

- 5.12 The vendor is responsible to provide import documents (AWB or BL, custom clearance documents, packing list, country of origin etc.) wherever applicable, along with invoice, Sales tax invoice (wherever applicable) and delivery challan for timely release of payment.
- 5.13 Warranty period will be at least one year or standard warranty or as demanded within specifications (whatever is more). Warranty period will be considered from the date of equipment commissioning / installation (not from date of delivery).
- 5.14 Custom clearance (wherever applicable) and transportation to destinations within GCUF campuses will be the sole responsibility of the vendor.

6. Terms of Delivery and Payment:

- 6.1 No payment will be made in advance to the successful local bidder. Advance payment can be made to the principal supplier(s) on behalf of local vendor after the provision of equal amount by the vendor to GCUF. However, such advance payments can only be made as per existing rules of State Bank of Pakistan for Advance Payment/Telegraphic Transfer/Wire Transfer.
- 6.2 In case of LC at sight, the payment will be made to the principal supplier within 05 working days on the provision of original non-deficient and non-discrepant documents by the beneficiary's bank. Any difference of amount due to change in exchange rate (difference that has arisen in the exchange rate mentioned in the purchase order / contract agreement and exchange rate of the day actual payment has been made by the bank) will be payable by the local vendor, accordingly.
- 6.3 In case of LC on Usance basis (60 days credit from the AWB Date), the payment will be made to the principal supplier after 60 days of AWB date subject to delivery, inspection and installation of equipment as per GCUF requirement and on the provision of original non-deficient and non-discrepant documents by the beneficiary's bank. Any difference of amount due to change in exchange rate (difference that has arisen in the exchange rate mentioned in the purchase order / contract agreement and exchange rate of the day actual payment has been made by the bank) will be payable by the local vendor, accordingly.
- 6.4 In case of open account / credit, the payment will be made to the principal supplier within 30 working days subject to delivery, inspection and installation of equipment as per GCUF requirement and on the provision of original non-deficient and non-discrepant documents by the beneficiary's bank. Any difference of amount due to change in exchange rate (difference that has arisen in the exchange rate mentioned in the purchase order / contract agreement and exchange rate of the day actual payment has been made by the bank) will be payable by the local vendor, accordingly.
- 6.5 In case of in-stock / locally produced / available item(s), payment will be made in Pak Rupees after deduction of all applicable taxes through crossed cheque within 30 days, subject to delivery, inspection and installation of equipment as per GCUF requirement with the condition that the vendor has to provide the proof that the said item has been imported (for imported items only) within 01 year of the bid submission / tender closing date along with Invoice, Sales tax invoice (wherever applicable) and Delivery challan for timely release of payment.
- 6.6 In case of items imported through LC, delivery time will be within 120 days from the issuance of Purchase / Supply Order / Contract Agreement or till the expiry of subject LC (whichever comes first). Otherwise, 2% penalty per month (not exceeding 10%) of the cost of item(s) will be imposed if not supplied within stipulated period. This period includes the time required for the establishment of Letter of Credit (LC) by the University bank. Any delay in the timely submission of required documents (as detailed above) / amendments in LC documents, will be on the part of vendor and will not automatically increase the duration of delivery time as given above. For extension in delivery time, the request by the vendor should be submitted 15 days before the expiry of delivery time as per Purchase /

Supply Order / Contract Agreement, explaining the reasons of delay. Any such request will be considered after due deliberation and any additional charges alongwith penalty (if imposed) will be payable by the vendor.

- 6.7 In case of in-stock / locally produced / available item(s), delivery time will be within 30 days from the issuance of Purchase / Supply Order / Contract Agreement. Otherwise, 2% penalty per month (not exceeding 10%) of the cost of item(s) will be imposed if not supplied within stipulated period.
- 6.8 In case of in-stock / locally produced / available item(s), the date of delivery will be the day equipment has received at GCUF campuses. While for directly imported item(s) through LC / Open account on the name of GCUF, a relaxation of 15 days after the expiry of delivery date may be given.
- 6.9 In case the vendor has quoted the item(s) in foreign currency, but later on claimed the payment in Pak Rs, deduction of taxes will be made as admissible under the rules.
- 6.10 No claim of payment for any additional charges than the Purchase / Supply Order / Contract Agreement, on the name of change in Govt. duties, provincial revenue / taxes, transportation, installation charges will be entertained.
- 6.11 All duties (Stamp paper duty etc) and taxes will be payable by the vendor as per applicable Government rules.

7. Liquidated Damages:

- 7.1 In case of delay, 2% penalty per month (not exceeding 10%) of the cost of item(s) will be imposed if not supplied within stipulated period.
- 7.2 For the determination of LD charges, the duration between the last date of delivery as per purchase / supply order / contract agreement / extended delivery date and the day equipment has received at GCUF campuses will be considered as described above.
- 7.3 The supplied items and their accessories should be as per bid specifications otherwise it will be rejected and returned at vendor's cost.
- 7.4 In case the vendor fails to arrange the shipment of the goods within the original validity of the L/C or Purchase Order / Contract Agreement, request to extend / amend the L/C or Purchase Order / Contract Agreement should be submitted 15 days before the L/C or Purchase Order expiry, explaining the reasons of delay. Any such request will be considered after due deliberation and any additional charges alongwith penalty (if imposed) will be payable by the vendor.
- 7.5 After the issuance of Purchase / Supply Order / Contract Agreement, if the vendor is unable / regret to deliver the item(s), bid / performance security equivalent to the worth of item(s) / regretted part of subject purchase / supply order(s) / contract agreement(s) will be forfeited.

Muhammad Ayub

Incharge Officer, Directorate of Procurement & Inventory Control
Allama Iqbal Road Faisalabad, Phone: 041-9201468 & 9201030

ISSUED TO:

M/S-----

Mandatory Requirement for Participating Bidders

S. No.	Attributes	Reference Page#
1.	Firms registered with Sales Tax and Income Tax Departments as Active Tax Payer.	
2.	Affidavit (that the firm has not been blacklisted by private, Govt., Semi Govt. and Autonomous Body)	
3.	The bidder should have at least 3 years of relevant experience in supplying, installation, commissioning and technical support of scientific equipments in HEIs and R&D organizations.	
4.	Quoted items must be of companies having origin in European Economic Countries / USA / Canada / Japan / China / Korea / Malaysia or otherwise as stated / restricted alongwith the item detail(s).	

Details of Call Deposit Receipt (CDR)

Signature_____

No_____ Amount_____

Name of Bidder_____

Bank_____ Branch_____ City_____

CNIC No _____

Name of the Firm & Address _____ Ph No _____

N.T.No. _____ Sales Tax No. _____

Issued By:**Muhammad Ayub**Incharge Officer, Directorate of Procurement & Inventory Control
Allama Iqbal Road Faisalabad, Phone: 041-9201468 & 9201030

SUPPLY AND INSTALLATION OF SCIENTIFIC EQUIPMENTS FOR DIFFERENT DEPARTMENTAL AND CENTRAL HI-TECH
LABORATORIES OF GOVERNMENT COLLEGE UNIVERSITY FAISALABAD UNDER THE PARF PROJECT

1A - Scientific Equipments (Estimated Price Rs. 17.00 Million) Price Required on FOR / PKR Basis

Sr. #	Equipment Name and Specifications	Quantity (Nos)
1-1A	EC Meter / Conductivity Meter: Advanced research grade benchtop EC/TDS/Salinity/Resistivity and pH/ORP/ISE two-channel meter, four-ring conductivity probe that operates over a wide range from 0.000 µS/cm to 1000.0 mS/cm or better with accuracy ±1% of reading (±0.01 µS/cm), calibrated up to five points with a choice of eight pre-programmed buffers or five custom buffers, real-time graphing, - 2.000 to 20.000 pH, mV Range: ±2000 mV, TDS: 0.000 to 999.9 ppm or better, Salinity: 0.00 to 42.00 psu or better, Resistivity: 1.0 to 100.0 MΩ•cm, Temperature: -20.0 to 120.0 °C, ISE Range: 1 x 10 ⁻⁶ to 9.99 x 10 ¹⁰ concentration, USB connectivity	7
2-1A	UV Lamp Viewing Cabinet: UV Lamp dual wavelength 2x8 Watt lamp UV lamp, wavelength 254 and 365 nm. Object size 20x20cm x 2mm thickness. A timer automatically turns off after 10 minutes. A glass filter in the viewing window. Shock Resistant Housing	2
3-1A	Analytical Balance: Digital Microprocessor Controlled. Capacity: 4000 g. Readability: 10mg (0.01g). Repeatability: < + 10 mg.	5
4-1A	Electrically Heated Muffle Furnace: Digital display. High performance hybrid muffle design for faster heating Cooling, Capacity 6.8 liters or above. Temperature range up to 1100°C/ 2012°F or higher, Internal Chamber Size: 180x230x230mm (7" x 9" x 9"). Vent at back side.	1

5-1A	Light Meter: Range: 0.001 to 1.999 Klux; 0.01 to 19.99 Klux or better; 0.1 to 199.9 Klux, Resolution: 0.001 Klux; 0.01 Klux; 0.1 Klux; Accuracy: ±6% of reading ±2 digits, Sensor: human-eye-response silicon photodiode with 1.5 m coaxial cable (fixed); Battery Type/Life: 9V / approximately 200 hours r higher of continuous use; auto-off after 7 minutes of non-use; Environment: 0 to 50°C (32 to 122°F); RH max 100%; Warranty for 3 years or above.	1
6-1A	UV Lamp: UV-light wavelength: 312 nm UV-light intensity variable Viewing area size - 11 x 14 cm UV protection shield for safety UV Mini 11 x 14 cm filter size, 4 x 6 W UV-bulbs (312 nm) with intensity switch; including UV-protecting shield.	1
7-1A	Blenders: AGITATION: Vigorous agitation at a range of frequencies and in multiple directions, for thorough homogenization of even the toughest samples. CAPACITY: Process up to 24 or higher samples in 1.5 mL tubes, 12 or higher samples in 5 mL tubes, or up to 8 or higher samples in 50 mL tubes. COOLING: Dry ice cooling system to keep samples at 4°C, within a few degrees. Sample tube oscillation in open air for good convective cooling. Sound insulation to keep homogenization quiet.	3
8-1A	Microwave Oven: Capacity 45 (L) Control System: Electronic, Cavity: Painted, Nominal Power microwave: 1100W, Microwave Power levels: 6, Convection function: No, Steam Function: No, Voltage / Frequency:230V/50Hz, Opening door: Handle, Defrost Setting: Yes, Process End Reminding: Yes	5
9-1A	Automatic Air Compressor: Voltage: DC12V; Power: 100W; Electricity: 6A; Pressure: 0.09MPa; Output: 100LPM; Size: 235x143x170mm	4
10-1A	Oxygen Cylinder: 48 CFT with trolley.	5
11-1A	Embeding Center: Capacity: Paraffin reservoir: 5 L; Left/Right chamber: 2,2 L, 190 cassettes, 400 molds; Power Requirements: Nominal voltage Version 2: 220-240 V; Networks frequency: 50/60 Hz; Power Consumption: 3,6 A; Temperature settings: Paraffin reservoir, left/right chamber, heated area, forceps receptacle: 40/70°C; Electrically heated forceps: 60/75°C.	1
12-1A	Lab Twin Screw Extruder: Building block structure, Assembled barrel, Two-way temperature control, wide temperature range, pressure points, Screw speed and wide adjusting range, all set can be automatic controlled, adapt to various raw material for testing, easy to operate, easy maintenance.	1
13-1A	Biofilter for Aquarium: Biological filter media for beneficial bacterial growth * Porous ceramic cylinders, increased surface area for better filtration * Perfect for fresh or saltwater canister filters for cleaner aquarium water, for 10, 000 gallons.	1

14-1A	Fiber Glass Tanks: High quality, flexible and resistant fiberglass material; Resin manufactured to accomodate the specific type of liquid; light weight, highly durable.	2
15-1A	Yukon Electric - Electric/Wood/Coal Furnace: Yukon, Grate options: Standard Wood Grates.	1
16-1A	Delays: Channels 4 independent pulses controlled in position and width. Range 0 to 2000 seconds, Resolution 5 ps, Accuracy 1 ns + (timebase error × delay) Jitter (rms), Ext. trig. to any output, T0 to any output, 25 ps + (timebase jitter × delay) 15 ps + (timebase jitter × delay), Trigger delay 85 ns (ext. trigger to T0 output), External Trigger, Rate DC to 1/(100 ns + longest delay). Maximum of 10 MHz, Threshold ±3.50 VDC, Slope Trigger on rising or falling edge, Impedance 1 MΩ + 15 pF, Internal Rate Generator, Trigger modes Continuous, line or single shot, Rate 100 μHz to 10 MHz, Resolution 1 μHz, Accuracy Same as timebase, Jitter (rms) <25 ps (10 MHz/N trigger rate), <100 ps (other trigger rates), Burst Generator, Trigger to first T0 Range Resolution 0 to 2000 s or better 5 ps Period between pulses Range Resolution 100 ns to 42.9 s or better 10 ns Delay cycles per burst 1 to 232 - 1 , Outputs (T0, AB, CD, EF and GH), Source impedance 50 Ω, Transition time <2 ns Overshoot <100 mV + 10 % of pulse amplitude, Offset ±2 V, Amplitude 0.5 to 5.0 V (level + offset <6.0 V) Accuracy 100 mV + 5 % of pulse amplitude, General Computer interfaces GPIB (IEEE-488.2), RS-232 and Ethernet. All instrument functions can be controlled through the interfaces., Non-volatile memory Nine sets of instrument configurations can be stored and recalled., Power <100 W, 90 to 264 VAC, 47 Hz to 63 Hz. Warranty Two years including parts and sale after service. Installation and training of the module should be done by the Principal Supplier.	1
17-1A	Optics for Laser: Coated lenses, polarizers, plates for phase shift, Prisms, Optics table- rigid, enhanced stiffness, broadband damping for vibration isolation, precision machined matte finish with +/- 0.1 nm flatness over 1m^2, all steel construction including top, bottom, core and sides, thick steel 5mm, 430 grade work surface, honey comb, magnetic mounts etc.	1
18-1A	Egg Candler: Bench Top Egg Candler/Ovascope: High Intensity, Long durability LED light, Energy saving, low heat emission, No transformer needed, 220-230 V, Perfect contact with eggs, no light leakage.	2

19-1A	Digital Colony Counter: Automatic digital colony counter: CMOS color camera, Digital Zoom 28x or better, Resolution 1 megapixels or higher, Minimum size of colonies 0.1 mm, counting time 1000 colonies per second, Lighting: Long-life white LEDs / Dark Field with automatic 6 combinations, Counting: Automatic with manual control, Counting on Petri dishes: 55-90 mm, Counting on pour, surface, Spiral® and circle plated dishes, Counting on chromogenic dishes, Inhibition zone reader, Rapid detection: up to 8 antibiotic sensitivities in 1 click - Inhibition zones and agar wells can be manually added or deleted - Built-in antibiotic database (CA-SFM, French Society of Microbiology) - Precision of inhibition zone measurement: 0.3 mm or better - Precision of agar well measurement: 0.3 mm, Result export as PDF report, JPEG, PNG, BMP, Excel, LIMS/SIL connection, Usb port with software, cables and control dishes	1
20-1A	Anaerobic Jar: Oxoid Anaerobic 3.5L System comes with polycarbonate jar and all necessary components. Accepts 12 x 90 mm plastic petri dishes. O-ring, self-centering cast lid and clamp with pressure gauge, automatic safety valve, Schrader inlet and outlet valves with Schrader valve chucks and clips, low temperature catalyst, and dish carrier.	1
21-1A	Surgical Box Stainless steel: with all standard Instruments kit for dissection with scalpel blades and all accessories, Non magnetic stainless steel.	4
22-1A	Bp Apparatus Auto / Manual With Stethoscope: Mercurial Blood Pressure Apparatus (Sphygmomanometer), Adjustable height with different cuff sizes, Stand with castors for easy movement, Digital Blood Pressure Monitor with Pulse and Irregular Heartbeat, Stethoscope Tunable diaphragm: Hear high or low frequency sounds by slightly adjusting pressure on the chestpiece. Dual-lumen tubing: Two sound paths in one tube eliminates the rubbing noise of traditional double tubes. Headset is easily adjusted for individual fit and comfort. Angled eartubes align with ear canals.	2
23-1A	Animal Cages Stainless Steel Wire Cages: Stainless steel cage housing system (30 cells/ Trolley) for mice and rats , 6 removable cages per rack, cage size: 300x400x210mm, 5 layers of racks, with watering and feeding facilities for each.	2
24-1A	Ice Cream Maker: Application: Ice Cream; Voltage: 220V(can be customized as customers' need); Power(W): 2000W; Weight: 85KG; Dimension(L*W*H): 620*515*1280mm; Material: Stainless Steel; Color: Stainless Steel Color; Capacity: 200L; Function: make hard ice cream, Max speed: 5000rpm; Max RCF: 4730xg; Max. Capacity: 4*300ml; Speed Accuracy: ±20rpm; Timing Range: 0~99min; Noise: ≤58dB; Power Supply: AC220V/110V±10%,50/60Hz.	1

25-1A	Digital Oxymeters with Accessories: Semi-quantitative reflectance photometer; Measuring using LEDs and colour detector; Wavelengths: 470, 525 and 625 nm; Evaluation time: 60 s; Capacity: 600 strips per hour; Touch screen: colour LCD display (320 x 240 dot-matrix); Built-in thermal printer; External communication to PC/LIS via RS232; Possibility to connect an external keyboard or a bar code reader (BCR) via PS2; Memory capacity: last 2000 measurements; Languages for end-users: EN, FR, RU, ES.	1
26-1A	Nitrogen Evaporator: Application: Distillation; Power Source: Electric; Process: Vacuum Distillation; Voltage: 220V; Water bath power: 5000W; Sealing: PTFE; Vacuum degree: <133pa; Condenser: vertical; Frequency control: yes; Display: digital.	1
27-1A	Blanching and Washing Unit: Application: For fruits and vegetables; Dimension: 24"x24"x35"; Type: drawer type.	1
28-1A	Semi-Automatic Food Packaging Machine: Type: Packaging Line, General; Application: Chemical, Commodity, Food, Machinery & Hardware, Medical, Other; Packaging Type: Bags, Film, Foil, Pouch; Packaging Material: Metal, Plastic, Other; Automatic Grade: Automatic; Driven Type: Electric; Voltage: 220V/50Hz; Power: 1.2Kw; Sealing method: back seal; Bag size: L: 50-200 W: 50-140; Measuring range: 5-100g; Packaging Speed: 35-90 bags/min.	1
29-1A	pH Meter (Digital Bench Model): pH Range -2.000 to 16.000 pH (Standard Mode) pH Resolution 0.001 pH, 0.01 pH pH Accuracy (@25°C/77°F) ±0.01 pH, ±0.002 pH pH Calibration 15 points (Standard mode) 1.68, 4.01 (3.00†), 6.86, 7.01, 9.18, 10.01, 12.45, and two custom buffers pH Temperature Compensation ATC: -5.0 to 100.0°C; 23.0 to 212.0°F* or better mV Range ±1000.0 mV; ±2000.0 mV mV Resolution 0.1 mV mV Accuracy ±0.2 mV (±999.9 mV); ±1 mV (±2000 mV) Relative mV Calibration Single point calibration, Stunning 5.5 inch LCD screen with 150° viewing angle to read	3
30-1A	Liquid Nitrogen Flasks: Max Cont. liter: 1 - 10 Holding time days: 5-16 Evaporation rate l/day: 0.2-0.6.	1
31-1A	Air Sampler (Bio Safety cabanit): Type of the cabinet according to NSF/ANSI 49A2 Class of the installed in the cabinet HEPA-filters according to EN 1822-1 H14 Average velocity of the inflow though the work opening, m/s0,47or better Average downflow velocity in the working chamber, m/s0,35or better Illuminance level in the working zone, lux, not less than1000 Air recirculation rate in the cabinet, %≈70	1

32-1A	Multimeter: To measure, pH, EC, DO and TDS pH Range 0.0 to 14.0 pH pH Resolution 0.1 pH or better pH Accuracy ±0.1 pH or better pH Calibration manual, one point Conductivity Range 0.00 to 4.00 mS/cm Conductivity Resolution 0.01 mS/cm Conductivity Accuracy ±2% F.S. TDS Range 0 to 1999 ppm (mg/L) TDS Resolution 1 ppm (mg/L) TDS Accuracy ±2% F.S. Temperature Range 0.0 to 60.0°C / 32.0 to 140.0°F.	5
33-1A	Electronic/Analytical Balance Capacity: 220 grams or above, Readability: 0.0001 g, Linearity: ±0.0002 g, Calibration: Internal/External	3

**SUPPLY AND INSTALLATION OF SCIENTIFIC EQUIPMENTS FOR DIFFERENT DEPARTMENTAL AND CENTRAL HI-TECH
LABORATORIES OF GOVERNMENT COLLEGE UNIVERSITY FAISALABAD UNDER THE PARF PROJECT**

2A - Scientific Equipments (Estimated Price Rs. 76.00 Million) Price Required on CIF / CIP Basis

Sr. #	Equipment Name and Specifications	Quantity (Nos)
1-2A	Oscilloscope (VSM): Specification: High sensitivity (Resolution better than 10-6 emu/rt-Hz) Magnetic Field System: Electromagnet Adjustable gap between iron cores. Maximum magnetic field is equal to or larger than 1.5 T when the gap is 40 mm. Power Supply: Power : 1500 W Input : 100 - 240 VAC, 50 / 60 Hz, Output: Voltage 0 - 80V, Current 0 - 19 A Gauss Meter Range:30k Gauss to 1 Gauss Embedded Magnetic Flux Detector Vibrator System (Vibrator Frequency : 3 Hz - 120 Hz) Vibrator, Sample Holder Programmable sample autorotation about z-axis Control System: Built-in computer systems (with Microsoft Windows) Built-in Software Interface for Collecting and Analyzing Data (Hysteresis loops can be measured automatically to find the saturation magnetization, coercivity, and remanence of magnetic samples. Demagnetization process can be performed and measured automatically.) Built-in Data Acquisition System Sensitivity : 2 nV to 1V or better	1

2-2A	Vacuum Chamber with 7 ports (PLD System), SS Chamber with access door, in-situ monitoring by RHEED. Throw distance computer controlled, Substrate: 2 with 2 or 3 inch wafer, load lock sample handling, Maximum substrate heating temperature = 1000 C, heating should be computer controlled, Film thickness monitor and controller, quartz crystal. Multiple targets maximum up to six (target size is flexible) Targets should be rotatable by 360 degrees continuous (RPM flexible) Target Rastering (max. 100C/sec) Target Indexing Adjustable target height Protection of targets from cross-contamination by a target shield Vacuum valves should be electro pneumatic, Dry vacuum pumps = 2, Turbo molecular pump= 2. Minimum base pressure 1 E -9 Torr. Multiple digital Vacuum Gauges for pressure monitoring: Pirani and Ion gauges, 1 E -9 Torr and with vacuum accessories. Mass flow controllers for gases (H2, N2, O2 etc.) upto 1 - 100 SCCM. Power Single Phase, 220V, power supply for the PLD system.	1
3-2A	Thermo-Mechanical Analyzer: (The specs mentioned below is for reference. Any equivalent or better specs can be quoted) Temperature Range (max) -150 to 1,000 °C or better, Temperature Precision ±1°C, Furnace Cool Down Time (air cooling) <10 min from 600 °C to 50°C, Maximum Sample Size – solid 26 mm (L) x 10 mm (D), Maximum Sample Size – film/fiber Static Operation 26 mm (L) x 1.0 mm (T) x 4.7 mm (W), Dynamic Operation 26 mm (1.) x .35 mm (T) x 4.7 mm (W), Measurement Precision ±0.1%, Sensitivity 15 nm or better, Displacement resolution <0.5 nm, Dynamic Baseline Drift <1µm (-100 to 500 °C), Force Range 0.001 to 2 N or higher, Force Resolution 0.001 N, Frequency 0.01 to 2 Hz, Mass Flow Control Included, Atmosphere static or controlled flow Inert Oxidizing or Reactive Gases, Standards should be Included, Stress/Strain measurements should be Included, Creep should be Included, Stress Relaxation calculations should be included, Dynamic TMA (DTMA) should be Included, Modulated TMA mode should be supported. Mode of deformations like compression, expansion, penetration, 3-point bending and tension should be supported. Program capable of text editing, Data security in case of power failure, Thermocouple break protection, Repetition measurements with minimum parameter input, Evaluation of current measurement, Curve comparison up to 32 curves, Storage and export of evaluations, Export and import of data ASCII, Data export to MS Excel, Zoom function, 1 and 2 derivation, Programmable gas control, Statistical evaluation package, Free scaling, Glass transition and softening point evaluation, Softening point detection with automatic software controlled system shut down , Display of relative/absolute shrinkage or expansion curves , Presentation and calculation of technical / physical expansion coefficient , Rate Controlled Sintering (RCS) Software , Sinter process evaluation , Semiautomatic evaluation functions , Several system correction features , Automatic zero point adjustment, Automatic software controlled sample pressure adjustment. All accessories with consumables should be provided including: Sample preparation devices , Different types (designs/materials) of sample holders , Vernier calipers for online input of the sample length , Selection of Gas Boxes for up to 4 gases , Low temperature LN2 cooling device (-150°C). A 10 KVA backup UPS. Warranty two years including parts and sale after service. Installation and training should be done by the Principal supplier at GCUF.	1

4-2A	Spray Dryer: Inlet Temperature OC 150-200, Power Supply V-ph-Hz 230-1-50/60, Electrical load kW 3, Maximum solids % 60 subject to viscosity, 2 variants, standard co-current operation or with a closed circuit for inert atmosphere production.requiring less than 0.2m2 of bench space and remains extremely operator friendly making it an ideal platform . Heating, air flow and compressed air is fully adjustable as is the peristaltic pump designed to deliver variable feed rates to three fluid nozzle, A robust casing houses electrical heaters, fans, compressor and an integral peristaltic pump, he feed flow and temperatures are PID controlled for accuracy. Western EEC, USA, UK, Japan	1
5-2A	LC (with MS optional accessories): (The specs mentioned below is for reference. Any equivalent or better specs can be quoted) Gradient Pump (Binary or Quaternary): Maximum pressure 5000 PSI or Better; Flow 5ml/min or above; pH range 1-12 or above; Operation temp 4-45C or better. Autoinjector / Autosampler: Autosampler include flush needle port and peristaltic pump and have variable volumes; Capacity 100 plus Vials of 2mL and option of up-gradation of vials. Precision 0.25% at 5 uL to 100 uL or better; Injection volume range: 0.1 to 1500 uL or above; Thermostating range 4-40C. Column oven: Space of two or more columns with 30 cm length and temp range 10 to 65oC or above; Each column can be equipped with individual hat exchange. Column: C18 (Reversed Phase), 4.6 x 150 mm, 2.7 micro meter. Optional Accessories (Rate must be quoted separately): 1. Nitrogen Generator: 32L/min @ 6.9 bar/1.13 CFM @ 100 psi or better and mac relative humidity 70%. 2. MSD: MSD include AP-ESI Ion source and mass range 2 to 1250 m/z or higher, SIM sensitivity ESI positive/negative, signal to noise ration, RMS > 40:1, Scan Speed 10000 u/sec (Da/Sec) oor higher, Mass resolution auto-tune unit resolution (< 0.7 u)Da)). 500 SI M ions per time segment or equivalent; minimum 1msec SIM dwell time; Mass stability should be <0.1 u (Da) or 100 ppm, whichever is larger. Single-point data system method capability with full control. Time programming, SIM ion selection, Fragmentor voltage, External CAN valves, MS diverter valve2, Detector High energy conversion dynode and electron multiplier horn Vacuum system, One turbo-molecular pump with one mechanical pump, Software CFR Fully Compliant US FDA 21 CFR PART 11 Should be supplied with Data Base Library. 3. Refractive Index Detector: RI range 1.00-1.75 RIU calibrated, optics temperature control up to 55oC, sample cell volume 8 uL maximum data rate 74 Hz, Maximum flow rate 5ml/min or better. 4. Fluorescence Detector: For multiple wavelength detection on line application of Ex and Em- spectra, up to 148 Hz data range or better includes standard flow cell 8uL, Operating temperature up to 40oC or better, Detection type Multi-signal fluorescence detector with rapid on-line scanning capabilities and spectral data analysis; Performance specifications Single wavelength operation: RAMAN (H2O) > 500 (noise reference measured at signal) or better Ex=350 nm, Em=397 nm, or equivalent dark value 450 nm, or better standard flow cell; • RAMAN (H2O) > 3000 (noise reference measured at dark value) Ex=350 nm, Em=397 nm, dark value 450 nm, standard flow cell. Dual wavelength operation: or better. RAMAN (H2O) > 300 Ex= 350 nm, Em= 397 nm and Ex= 350 nm, Em= 450 nm, standard flow cell. 5. Autosampler vials of 2ml with cap,100/pk minimum 3 packet; 6. HPLC columns C8 5 micro meter (Two Columns), C6-phenyl column 3 micro meter. 7. Diode Array Detector: 512 or 1024-element photodiode array or better; Light source, Deuterium/tungsten Lamp Design; Data range up to 80 Hz or better; Wavelength range 190-800 or higher; Slith width 1, 2, 4, 8, 16 nm programmable slit; Diode width < 1 nm; Short term noise; Compatible updated computer with printer. Compatible to the operational and data processing softwares for UV/PDA and MS data applications. Qualitative and quantitative processing. Data base: Suitable and compatible Pharmaceuticals, Chemicals, Drugs, Mycotoxins, Pesticides, Metabolites and Toxicology. Tuning: auto. 8. A compatible Licensed Operating Software, Computer Set (e.g. Branded Desktop package, Intel Core i7-4570 (3.20 GHz), System Memory 8GB or better, Hard Disc 2 x 500 GB; RAID 1 Configuration DVDRW, Optical Mouse, Keyboard, 2 serial ports, Extra Network Interface card, pre-installed Windows 10 (64bit),19" TFT Screen) or better, HP Laser Jet colour printer. 9. Support Kit: IMB140 Support Kit. Warranty two years including parts and sale after service. Installation and training should be done by the Principal supplier at GCUF.	1

6-2A	FPLC (Fast Protein Liquid Chromatography) with all necessary parts Note: Rates must be quoted separately for optional major components / parts /accessories. The specification mentioned below is for reference. Any equivalent or better specifications can be quoted. System should be suitable for high recovery, high resolution separation, fractionation, and simultaneous desalting of complex protein samples (like immunodepleted serum or plasma protein). Should be suitable greater than 95-99% protein samples recovery. Should be supplied with starter kit & buffers for minimum of 100 sample. 1. FPLC Unit Preassembled base model including following components: two inert high performance dual-piston pumps Flow rate: 0.001 - 25ml/min. max. pressure: 200 bar o higher Flow rate for column packing: max. 50 ml/min facilitate column packing using Delta column pressure either measured (with column valve V9-C) or calculated Pisten back-flush rinsing sytem with reservoir, two inlet tubing with filter holder and filter, Gradient Mixer with 1.4 ml chamber, Injection Valve (manual load, inject, pump load, direct load, wash), U9-M Triple variable wavelength Monitor (190-700nm or higher) in steps of 1 nm, use of advanced fibre optics for cool flow cell with UV-cell Volume 2ul volume and 2mm optical pathlength, Conductivity Monitor with conductivity cell and temperature sensor, Conductivity range: 0.01 - 999,99 mS/cm, Flow restrictor FR-902, Online Filter Kit, Purge Kit with Syringe, Inlet Valve (V9-IAB) switching between buffers and cleaning solutions (A1, A2, B1, B2) and Outlet Valve (V9-Os) to switch between outlet position, waste and fraction collector, Accessory box with column holder 10-50mm, purge kit, 2x column clamp for 10-21mm o.d.columns, sample loop 500ul, Assortment Box with screws, unions, PEEK capillaries, spare inlet filter, tubing cutter, screw lids, stop plugs, tubing holder. Operating manual in printed form in english language, CD with system configuration and CD with system handbooks and operating manual in different ENGLISH-language Power Consumption: 300 W during run 165 W stand-by 25 W using Power save mode (according ECO) 2. Operating Software DVD package 3. Desktop package 220V w 19 TFT, Includes: Branded Desktop PC. Intel Core i7-4570 (3.20 GHz), System Memory 8GB, Hard Disc 2 x 500 GB; RAID 1 Configuration DVDRW, Optical Mouse, Keyboard, 2 serial ports, Extra Network Interface card, pre-installed Windows 10 (64bit),19" TFT Screen, HP Laser Jet colour printer, 4. pH Valve Kit (V9-pH) monitor pH gradients and elution conditions the valve enable bypass of pH-electrode and/or flow restrictor allow to maintain pH-electrode in the flow path during calibration. 5. pH electrode, 6. COLUMN HOLDER STEEL HiScale, 7. SAMPLE LOOP 1.0 ML, INV, 8. SAMPLE LOOP 2.0 ML, INV, 9. SAMPLE LOOP 5 ML, PEEK, 10. SUPERLOOP 10 ML, 11. SUPERLOOP 50 ML, 12. Fraction collector F9-C, Covered x-y fraction collector for save collection of up to 576 fractions in tubes, bottles or deep-well plates, Spillage -free over the entire flow rate range using either Drop Sync or at higher flow rates an accumulator, different cassettes (different formats) can be combined freely with automated rack validation upon loading - racks have a locked clamp which enable to empty and wash tubes while staying within in the rack, Fraction volumes: 0.1 to 50 ml, delay volume: 518 ul supplied with 4 x deep well plate cassettes and 2 x 50 ml cassettes, Maximum capacity is 6 cassettes or one rack 13. Cassette, for 8 ml tubes (2-pack), 14. Cassette, for 3 ml tubes (2-pack), 15. Barcode scanner 2D with USB, 16. UniTag (sheet with 108 labels), 17. Column holder, 18. Column holder rod, 19. Fraction collector F9-R. 20. Separation / Purification Columns (Column can load up to 350 ug or better of total protein mass): Affinity chromatography (His-Tagged Proteins and Antibody Purification), Size exclusion / gel filtration chromatography (Preparative Purification), Size exclusion / gel filtration chromatography (Desalting), Ion exchange chromatography (strong anion), hydrophobic interaction chromatography, Reversed phase chromatography (RPC) columns; One Column of Each Category. 21. A compatible UPS (For Whole FPLC Unit) for backup. Warranty two years including parts and sale after service. Installation and training should be done by the Principal supplier at GCUF.	1
------	--	---

SUPPLY AND INSTALLATION OF SCIENTIFIC EQUIPMENTS FOR DIFFERENT DEPARTMENTAL AND CENTRAL HI-TECH
LABORATORIES OF GOVERNMENT COLLEGE UNIVERSITY FAISALABAD UNDER THE PARF PROJECT

3A - Scientific Equipments (Estimated Price Rs. 46.00 Million) Price Required Both on FOR / PKR & CIF / CIP Basis

Sr. #	Equipment Name and Specifications	Quantity (Nos)
-------	-----------------------------------	-------------------

1-3A	Inverted Microscope with Monitors and Accessories: (The specs mentioned below is for reference. Any equivalent of better specs can be quoted) Observation mode: Brightfield, phase contrast. Head: Trinocular (2-position 100/0, 50/50), 45° inclined. Interpupillary distance: Adjustable between 50 and 75 mm. Dioptric adjustment: On the left eyepiece tube. Eyepieces: WF10x/22 mm, high eye-point and with rubber cups. Nosepiece: Quintuple revolving nosepiece, rotation on ball bearings. Objectives: IOS LWD W-PLAN objective 4x/0.13, IOS LWD W-PLAN PH 10x/0.25 IOS LWD W-PLAN PH 20x/0.40 IOS LWD W-PLAN PH 40x/0.65, IOS LWD W-PLAN objective 60x/0.70 All with anti-fungus treatment. Specimen stage: Mechanical stage mountable on the right side of the stage, total dimension = 250 x 230 mm, X-Y translation range 120 x 80 mm, metallic interchangeable inserts for slides, Petri dishes, Terasaki, multi-Well plates, etc. Pair of side extensions to expand the surface of the stage. Focusing: Coaxial coarse (adjustable tension) and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Condenser: LWD pre-centered condenser, N.A. 0.30, W.D. 72 mm. With 4x/10x, 20x/40x phase contrast slider and brightfield. Removable to extend the working distance up to 150 mm. Transmitted illumination: X-LED8 with white 8 W LED (6,300K) with brightness control. With aperture diaphragm. Multi-plug 220Vac power supply. With PRO Series 3.1 Megapixel High-Performance CMOS Camera, OPTIKA M-620 0.35x Focusable C-Mount Adapter, and Blue, green and frosted filter, Slider with Phase Rings, with all required adaptors and accessories. Instruction manual and dust cover included. Core i3 7th generation 4 gb ram, 500 gb with 17" LED Monitor	2
2-3A	Hybridization Oven: Temperature Range: Ambient +5°C - 80°C or better, Selection: Digital, Display: LED, Uniformity: ±0.5°C, Safety Over Temp. Cut Out: Yes, Capacity (medium to large bottles): 12 or higher Shaking Platform :Yes, Shaking Action : Orbital & linear, Variable Speed Rotisserie : Yes, Variable Axis Rotisserie :Yes, Rotisserie Speed: 4-20 rpm, supplied with two large bottles.	1
3-3A	Laser Power Meter: With thermal sensor, photodiode sensor, pyroelectric sensor, beam track sensor preferably, GPIB calbes, USB/RS232, Automation interface, power measurement range 10pW - 100kW, energy measurement range 10 pJ - 40 J. Replaceable battery pack and carrying case along with other accessories.	2

4-3A	Oscilloscope (Dual trace 4 channel) with GPIB Interface and Software: Specification: For data acquisition, spectrum analuzer frequency range 9 kHz-200MHz, sample rate 2.5 GS/sec.	1
5-3A	Fermenter: Specifications: User Options, Control and Display Standard 19-inch rack with Euro card modules, Set-points, parameter setting via local keypad, On line display of process variables and control set points, Adjustable PID coefficients for a particular process, Default setting of PID coefficients, Process value monitoring, Programmable process value range, Automatic fermentation/cultivation, Module failure alarms. Range and Accuracy, Parameter Range Accuracy, Stirrer Motor 50- 14000 RPM 2 RPM, Temperature 5-95 °C 0.2% pH 2-14 0.1%, Dissolved Oxygen 0-95% 2%, The user monitors the fermentation process by means of the display software. The software also provides the interface for a variety of settings.Control Algorithm Loops Controllers, Stirrer Fuzzy Controller, Temperature PID, pH PID, Dissolved Oxygen PID, Foam controller ON/OFF Interface/Display Software The user monitors the fermentation process by means of the display software. The software also provides the interface for a variety of settings. Main Control window controls the overall process by authenticating the user saving the login details, Parameters tuning window allows access to different options, Off-line window displays the relevant data, Real-time process parameter trends in graphical form. Electrical Heater 1KW, Motor 0.5HP, AC, 3Φ, Drive Unit 1KW, 3Φ, Power 440V/50Hz, 3.5KW,3Φ Mechanical Vessel Capacity 10 Litres ot higher, Wrk vol. 7 Litres, Material Borosilicate with NW 200 flange, O-Ring Silicon, Top Lid SS 316L, with 14 ports Impellers Diameter 80mm, Type Ruston turbine 6 blades, Baffles 4 baffles used as cooling coils Aeration I/O Flow 0.2 micron (50mm disc), Air Flow 0.15 L/min, Air Pressure 0.05 to 0.2MPa •Windows based PC software for monitoring, data logging, display and control purposes	1

6-3A	Elisa Plate Reader with Computer, Software and Accessories: Monochromator-based system, Incubator with programmable temperature control: Spectral scanning feature with no need of filters built in spectral scanning properties, Wave length 200 to 1000 nm full range, Single and dual wavelength Photometric methods, Monochromator step size 1 nm, Bandwidth 5 nm, Minimum wavelength accuracy ±2.0 nm, Metal plate adaptor, Wavelength repeatability ±0.2 nm, Indication range 0 to 4.0 OD, Resolution 0.001 OD, Linearity ≤2.0% and 0 to 3.0 OD at 405 nm, Accuracy ±1.0% or 0.015 and 0 to 3.0 OD, Reproducibility 96-well plate ≤1.0% or 0.005 and 0 to 3.0 OD at 405 nm, Read time 8 sec/96-well/single wavelength and 15 sec/384-well/single wavelength and 35 sec/1,536-well/single wavelength, Built-in incubator, Plate shaker, Also able to perform kinetic analysis, Absorbance calibration plate, Original software package, Microplate Washer, Computer Corei7 intel 3rd generation with accessories and printer.	2
7-3A	Flow Meter (Air Quality Monitoring Instrument): Particulate Sensor for TSP/ PM 10 / PM2.5 (Installed), Impactor Sleeve, Dust Compression Plate, PM 10 Particle Size Impactor, Solar/Precipitation Cap for PM Sensor, Impactor Dust Seal; Particulate Sensor for PM10 ; Particulate Sensor for PM2.5; Particulate Impactor for PM1.0; Carbon Monoxide Sensor CO; Nitrogen Dioxide Sensor NO2; Carbon Dioxide (CO2) Sensor; Methane (CH₄) Sensor; Software; USB Download Cable; External Power Cable; Pump Adjust Trim Stick; Gas Inlet Tube; Universal Battery Charger; Stand TRIPOD; Impactor Grease; Quartz Microfiber Filters 203 mm×254 mm; Charger for Back Up Battery- External Temperature & Relative Humidity Sensor. Or Equivalent	1
8-3A	Gas Analyser: CO2 analyzer precision: Within 0.1 µmol mol-1 RMS with 4-second averaging at 400 µmol mol-1, H2O analyzer precision: Within 0.01 mmol mol-1 RMS with 4-second averaging at 10 mmol mol-1, Bulk flow rate range: 680 – 1700 µmol s-1 at SATP1, Light source uniformity: <±10% variation over 90% of aperture Chamber temperature control range: 10 °C above or below ambient, Modulation frequency: 1 Hz – 250 kHz., Measuring light peak wavelength: 625 nm, Red actinic and saturating flash peak wavelength: 625 nm/., Blue actinic peak wavelength: 475 nm., Far-red peak wavelength: 735 nm Actinic light output: 0 – 3000 µmol m-2 s-1 total at 25 °C, 0 – 1000 µmol m-2 s-1 blue at 25 °C, 0 – 2000 µmol m-2 s-1 red at 25 °C Saturation light: 0 – 16,000 µmol m-2 s-1 at 25 °C., Far-red light: 0 – 20 µmol m-2 s-1 at 25 °C.	1

9-3A	Controlled Temperature Incubator with Light and Humidity Control: Temperature range: 10-70 °C; Temperature precision: ± 1°C; Twin display, Digitally controlled active humidification and dehumidification up to 90%, adjustable from 10-90% rh with digital display of relative humidity - resolution of display 0.5%, setting accuracy 1% Control: Close Environmental Control with light and dark periods and relative humidity control options; Stainless steel interior. Humidity supply with distilled water from external tank by self-priming pump, with audible and visual alarm, Light module cold white 5.500 Kelvin, illumination strength 10.000 Lux, programme-controlled dimming from 0 to 100 % (in 10 % steps), ramp programming in combination with temperature and humidity, Operated on 220volts, Capacity 700 Lit.	1
10-3A	Farinogram / Farinograph: Mains supply: 230 V, 50/60 Hz, single-phase A.C.,3.2 A dynamometer, with electronic torque measuring system, total measuring range: 0 - 20 Nm speed: 0 - 200 min-1 speed deviation: 0 % automatic water dosing system, colored display, connection: via USB port, to a PC, including Farinograph® software 7200200. Dimensions: (W x H x D) 470 x 450 x 880 mm Weight (without mixer): approx. 75 kg net.	1
11-3A	Fluorescence Detector: Wavelength range: 190 to 1100nm or better, Sensitivity: 1µg/ml, Dynamic range: 5.2x10, photodiode detector, Intelligent Filter Modules (IFM), Pulsed Xenon lamp with press-to-read operation, No replacement required in normal operation, Raw fluorescence readings, Concentration standard curve: Blank + up to 6 standards, Kinetics, timed option, In both raw fluorescence and concentration modes, Kinetics options: 1 reading every 3 to 999 seconds, 20 No. methods stored, No. results stored: 100 per method, GLP, RS232, Measuring apertures Ø8 mm (PCE-CSM 2), Ø20 mm (PCE-CSM 4); Sensor Silicium-photodiode; Colour spaces CIEL*a*b*C*h; Formula for indifference in colour ΔE*ab, Light source D65; Type of light source LED; Data memory 100 standards, 20000 samples; Repeatability 30 measurements on average, with standardwhite plate; Standard deviation within ΔE*ab 0.08; Dimensions 205 x 67 x 80 mm; Power Supply rechargeable lithium-ion-batteries, 3.7 V at 3200 mAh; Charging time 8 hours; Battery operation time approx. 5000 measurements; Lifetime of lamp 5 years plus, more than 1.6 million measurements; Temperature range 0 ... +40 °C; Relative humidity 0 ... 85 %, non-condensing.	1

12-3A	UHT Milk Production Unit: Heating tank: Construction material: SS304L, With heat preservation, heating power: 6KW, motor power:2.2KW, agitating speed: 36r/min or better. With electric controller. Capacity: 200L. Cooling tank: Capacity 200L, Compressor unit: Panasonic, 2P Power: 2KW. Refrigerating capacity:5000kcal/h. Agitating power: 0.37KW, agitating speed:36r/min, Inner layer thickness: 2mm, Refrigeration plate thickness: 9mm. Outer wrapping thicknessL 1.5mm, heat preservation layer thickness: 5mm. Construction material:SS304L. Pipe cooler. sanitary pump 0.75kw. Homogenizer: 200L, 20-25Mpa., stainless steel pipe fittings Φ32, Liquid filling machine: Capacity:1000Bags, Filling capacity:200-500ml, 1.2KW 220VAC/380VAC. Imported	1
13-3A	UV/Vis Dual Beam Spectrophotometer with fixed spectral resolution: (The specs mentioned below is for reference. Any equivalent of better specs can be quoted) Czerny-Turner mount, Double beam monochromator, Wave length Range: 190 to 1,100 nm, Spectral band width: 1.5 nm or less Stray light: 198 nm (KCl) : 1.0 % or less 220 nm (NaI) : 0.05 % or less 340 nm (NaNO2) : 0.05 % or less, wave length accuracy: ±0.3 nm (Xe : 260.6, 484.3, 881.9 nm, Hg : 253.7, 435.8, 546.1 nm), Wavelength repeatability: ±0.1 nm, Photometric range: Abs : -3.3 to 3.3 %T : 0 to 300, Photometric accuracy (certified according to NIST SRM 930) ±0.002 Abs (0 to 0.5 Abs) ±0.004 Abs (0.5 to 1.0 Abs), Photometric repeatability (repeatability according to NIST SRM 930): ±0.002 Abs (0 to 1.0 Abs), Scan speed:10, 40, 100, 200, 400, 800, 1,200, 2,400, 4,800, 6,000 nm/min, Response: Fast, Medium, Slow, Baseline Stability: 0.0005 Abs/h (260 nm after a two-hour warm-up period), Noise level: 0.0001 Abs (RMS, 260 nm, 0 Abs), Baseline flatness: ±0.0009 Abs (200 to 950 nm), Light source: Xenon flash lamp, Detector: Silicon photodiode, Cell holder: Automatic 6-cell turret, For connection to PC : PC-compatible printer, LAN port : connected to a router or PC, USB port : connected to USB memory for use when transferring CSV-format files, Power: 70 W or Less Ambient temperature: 15 to 35 °C, Ambient humidity: 25 to 80 % (no condensation, to be 70 % or less at temperatures exceeding 30 °C) Auto zero function, Complete with application software, Computer, Quartz cuvettes (3 ml, 1-1.5 ml) one pair each, Extra lamps etc. C = concentration & F = factor, auto-zero. Power supply 220 V. Operated by panel controls or through a PC using the application software.	3

Format for Technical Bid

1	2	3	4	5	6	7	8	9
Sr. No. as per University Tender	Equipment Name & Specifications	Model / Part #	Brand / Manufacturer Name and Its Origin	Product's Country of Origin	Quantity	Valid Manufacturer Authorization Letter Attached (Yes / No)	Reference Brochure Attached (Yes / No)	Compliance / Remarks (If any)
1	Note:- Provided specifications should be comparative to the tender specifications, clearly mentioning major specifications (not the literature) along accessories, installation requirements, model #, manufacturer name and its country of origin, country of make / product's country of origin, manufacturing year, warranty etc. For further guidance follow the subject tender terms and conditions.							
2								
.								
.								
Grand Total								

Note:- All the above information must be compiled in MS Excel (Preferably) or MS Word format. The hard form must be submitted as described in tender terms and conditions. Whereas, the soft file will be requested after the technical bid opening. The mentioned Sr # should be as per University tender. Don't put your own serial numbers.

Name:
Contact #
Signature with Designation and Date:

Format for Financial Bid Summary (FOR / PKR Basis)

1	2	3	4	5	6	7	8
Sr. No. as per University Tender	Equipment Name (with accessories as per technical bid)	Model / Part #	Brand / Manufacturer Name	Quantity	Unit Price (PKR) including GST etc	Total Price (PKR) including GST etc	2% Bid Security (PKR) as per Total Price
1							
2							
3							
4							
.							
.							
.							
Grand Total							

Note:- All the above information must be compiled in MS Excel (Preferably) or MS Word format. The hard form of the summary must be submitted along with financial bid as described in tender terms and conditions. Whereas, the soft file will be requested, in case the technical bid is accepted after evaluation. The quoted price must be inclusive of all applicable Govt. Taxes, Duties, Carriage Charges etc till delivery of equipment(s) at GCUF Campuses as described in the terms and conditions of the subject tender. The mentioned Sr # should be as per University tender. Don't put your own serial numbers.

Name:
Contact #
Signature with Designation and Date:

Format for Financial Bid Summary (CIF / CIP Basis)

1	2	3	4	5	6	7	8	9	10	11	12
Sr. No. as per University Tender	Equipment Name (with accessories as per technical bid)	Model / Part #	Brand / Manufacturer Name	Quantity	Currency Description (e.g. USD, EURO, POUND etc)	Unit Price (CIF / CIP)	Total Price (CIF / CIP)	Conversion Rate (Being used for Conversion to PKR)	Date of Conversion Rate being Used	Total Price (PKR)	2% Bid Security (PKR) as per Total Price
1											
2											
3											
4											
.											
.											
.											
Grand Total											

Note:- All the above information must be compiled in MS Excel (Preferably) or MS Word format. The hard form of the summary must be submitted along with financial bid as described in tender terms and conditions. Whereas, the soft file will be requested, in case the technical bid is accepted after evaluation. The quoted price must be inclusive of all clearance charges, L/C charges (e.g. opening, amendment, release, cancellation), local carriage charges etc till delivery of equipment(s) at GCUF Campuses as described in the terms and conditions of the subject tender. For currency conversion, exchange rate near to bid submission date can be taken. The mentioned Sr # should be as per University tender. Don't put your own serial numbers.

Name:
Contact #
Signature with Designation and Date: