



GOVERNMENT COLLEGE UNIVERSITY FAISALABAD

TENDER DOCUMENT No. 456/40/2017

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. 1,000/-

Sealed tenders / bids are invited from the well reputed firms / importers / suppliers, registered with Sales Tax and Income Tax Departments as Active Tax Payers for Supply and Installation of Scientific Equipments for Different Departmental and Central Hi-Tech Laboratories of GCUF. Details & Specifications of which are separately attached as Appendix "A".

GENERAL TERMS & CONDITIONS

1. Tender Opening Date & Procedure:

- 1.1 The procurement shall be completed in accordance with Punjab Procurement Rules 2014, on Single Stage - Two Envelope Bidding Procedure.
- 1.2 A single package containing two envelopes, separate Technical and Financial Bids (Summary Formats as a guideline are also attached as Appendices B & C) 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 Hrs on 29-01-2018.**

Note: Tender Number must be mentioned on the envelopes.

- 1.3 Technical Bids will be opened first on **29-01-2018 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. 1,000/- in shape of Call Deposit Receipt (CDR) in original on the name of "Treasurer, GCUF".
- 2.2 Financial Bid must be accompanied by Bid Security (refundable) @2% of the estimated price of **Rs. 220.00 Million** for whole tender OR Bid Security (refundable) @2% of the total quoted price of quoted equipment(s), in shape of Call Deposit Receipt (CDR) in original on the name of "Treasurer, GCUF".
- 2.3 Performance security @5% of the total bill shall be either retained by the University at the time of payment as per PPRA Rules, 2014 from the final bill of the successful bidder or will have to be submitted as a Call Deposit Receipt (CDR) / Bank Guarantee on the name of "Treasurer, GCUF" in original before the release of payment, which will be refunded / released after satisfactory performance / after sales service and termination of warranty period.

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 cancel whole tender or any part of it.
- 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 The vendor will request GCUF to open Letter of Credit (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 invoices in the name of "Treasurer, GCUF" within 15 days of issuance of supply order.
- 3.7 In case the opening of LC 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 / Pak Rs quoted items, the vendor has to provide the proof that the said item has been imported within 06 months 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 Bid Security / CDR or with 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.
- 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 The vendor / supplier fails to deliver the consignment within specified delivery period strictly in accordance with the terms and conditions as laid down in the Tender Document / Purchase Order.
- 4.9 If situation warranted, then University is authorized to forfeit the Bid 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 The vendor must ensure that the supplied items are new, in proper shape and meet the technical specifications.
- 5.3 The vendor will be responsible for the supply, installation, commissioning of scientific equipments alongwith on campus training.

- 5.4 The bidder shall quote single option of each equipment which may be equivalent to or higher than the required specifications. No alternative / multiple options will be accepted.
- 5.5 The bidder may quote price of one item or more than one item at his own choice.
- 5.6 The vendor shall provide any up-gradation of the software (if any) without any extra cost or hidden charges during warranty period.
- 5.7 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, Country of Principal Manufacturer (make), model, origin (Country of manufacturing), part number, manufacturer's authorization form (MAF), manufacturing year etc.
- 5.8 The vendor shall provide comprehensive documentation of system deployed including diagrams, configuration and manuals etc at the time of installation and commissioning.
- 5.9 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.
- 5.10 The bidder should read carefully "Lab Equipment Description and Specifications" before preparing Technical and Financial Proposals.
- 5.11 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.
- 5.12 Any condition written in technical or financial offer that is in conflict / contrary to the terms and conditions laid down in the said tender document will be considered null and void.
- 5.13 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.
- 5.14 The Bidders are required to submit their financial proposals in foreign currency i.e. US Dollar (\$) 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.
- 5.15 If the quoted prices are other than USD, then for comparison, the quoted prices will be converted to USD, for which the State Bank of Pakistan forex rate (Interbank-Selling) on the day of financial bid opening will be considered.
- 5.16 For prices quoted in foreign currency along with GST, only the price without GST will be considered.
- 5.17 In case the firms / vendors quote the prices in Pak Rs, for comparison the quoted prices will be converted to USD, for which the State Bank of Pakistan forex rate (Interbank-Selling) on the day of financial bid opening will be considered. For prices quoted in Pak Rs with GST, total price with GST will be considered and all Government taxes will be deducted at the time of payment as per applicable Government rules.
- 5.18 Letters for custom duty / excise duty / sales tax / other surcharge exemptions shall 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 exemption certificates, endorsed AWB / BL and approved EIF should be sent accordingly.
- 5.19 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 unless there is any delay in providing the required documents on account of GCUF.
- 5.20 In case of equipment against which only one financial bid receives / matures, market survey as per PPRA guidelines will be carried out.
- 5.21 Quoted equipments must be of companies from European Economic Countries/USA/Canada/Japan origin.

- 5.22 The vendor is responsible to provide import documents (AWB or BL, custom clearance documents, packing list, country of origin etc.) along with invoice and delivery challan for timely release of payment.
- 5.23 The GCUF reserves the right to suspend / cancel supply order (complete or any part of it) without assigning any reason thereof and without any obligation what so ever.
- 5.24 Warranty period will be at least one year or standard warranty (whatever is more). Warranty period will be considered from the date of equipment commissioning (not from date of delivery).
- 5.25 Custom clearance and transportation to destinations within GCUF campuses will be the sole responsibility of the vendor.

6. Terms of Payment:

- 6.1 No payment shall be made in advance to the successful bidder.
- 6.2 In case of LC, 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 price due to change in exchange rate at the issuance of supply order and the time payment has been made by the bank, will be adjusted accordingly.
- 6.3 In case of open account / credit, the payment will be made to the principal supplier within 30 working days on the provision of original non-deficient and non-discrepant documents by the vendor. Any difference of price due to change in exchange rate at the issuance of supply order and the time payment made by bank, will be adjusted accordingly.
- 6.4 In case of locally supplied / in-stock items, payment will be made in Pak Rupees through crossed cheque within 30 days after timely delivery, inspection and/ or installation of equipment as per GCUF Rules with the condition that the vendor has to provide the proof that the said item has been imported within 06 months of the bid submission / tender closing date along with invoice and delivery challan for timely release of payment.
- 6.5 Delivery time will be within 120 days from the issuance of Purchase / Supply Order. This period includes the time required for the submission of original proforma invoice alongwith insurance documents and premium paid receipt by the vendor to the University and the time required by the University Bank to process the Letter of Credit request. Any delay in the opening of LC will not automatically increase the duration for delivery time. 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, explaining the reasons of delay. Any such request will be considered after due deliberation and any additional charges alongwith penalty will be payable by the vendor.
- 6.6 In case of in-stock / locally supplied 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.
- 6.7 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.
- 6.8 No claim of payment for any additional charges than the supply order, on the name of change in Govt. duties, provincial revenue / taxes, transportation, installation charges will be entertained.
- 6.9 Stamp paper duty will be payable by the vendor as per Government rules.

7. Liquidated Damages:

- 7.1 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 supply order and the day equipment has received at GCUF campuses will be considered as described in clause 6.6.
- 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,

request to extend / amend the L/C should be submitted 15 days before the L/C expiry. Any such request will be considered after due deliberation and any additional charges alongwith penalty will be payable by the vendor.

Muhammad Mazhar Waseem

Incharge Officer, Procurement & Inventory Control

Allama Iqbal Road Faisalabad, Phone: 041-9201468 & 9201030

ISSUED TO:

M/S-----

Integrity Pack Format

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC.
PAYABLE BY THE SUPPLIERS OF GOODS, SERVICES & WORKS IN
CONTRACTS WORTH RS.10.00 MILLION OR MORE

Contract Number: _____ Dated: _____

Contract Value: _____

Contract Title: _____

_____ hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan or any administrative subdivision or agency thereof or any other entity owned or controlled by it (GoP) through any corrupt business practice.

Without limiting the generality of the foregoing, _____ 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 GoP, except that which has been expressly declared pursuant hereto.

_____ 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 GoP and has not taken any action or will not take any action to circumvent the above declaration, representation or warranty.

_____ 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 right and remedies available to GoP under any law, contract or other instrument, be voidable at the option of GoP.

Notwithstanding any rights and remedies exercised by GoP in this regard, _____ agrees to indemnify GoP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GoP in an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by _____ 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 GoP. [Company Name]

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 HEIs and R&D organizations.	
4.	Quoted equipments must be of companies from European Economic Countries/USA/ Canada /Japan origin.	

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

Project Title: Provision of Academic and Research Facilities of Government College University Faisalabad

Sr.#	Equipment Name and Specification	Quantity Requested		
1	pH, Conductivity, TDS Multimeter: pH range : -2.00 – +16.00 or better Resolution: -1999 to +1999 mV, 3 point calibration Temperature : up to 105.0°C of better, pH accuracy : ± 0.01 pH Conductivity range : 0.0 µS/cm – 500 mS/cm in 5 measuring ranges.or AutoRange, in addition at: K=0.01 cm-1 0.000 – 1.999 µS/cm ,K=0.1 cm-1 0.00 – 19.99 µS/cm Temperature measurement : up to 105.0°C or better,Salinity: 0.0 – 70.0 psu or better; Resolution 0.01 psu TDS: 0 – 199.9 g/l ,Resolution 0.01 mg/l Accuracy : ±0.5% of value including electrode stand, additional buffer standards for pH conductivity & TDS	6		
2	Hot Plate / Magnetic Stirrer: Stirring capacity (H ₂ O): Max. 20 liters, Ceramic Coated Steel top Motor Rating: 9/4 W, Speed control resolution: 5 rpm Speed range: 0 ~ 1,500 rpm, Temp. range: 340 C or above. Set of magnets (variable size) should be included.	13		
3	Glass Distillation Unit, Complete with Mountable Accessories: Output: 4 Ltr/hr or above (Pyrogen Free), Electrical Power 220/240 Volts, 50 - 60 Hz, Single Phase, 1.5 kW x 2 =3 KW Silica heaters, Cooling water required 1-2 lit/min Min. Pressure 3 psi, Weight 8-16 kgs. Conductivity 4 µS/cm, PH 5.5 to 6.5.	16		
4	EC Meter / Conductivity Meter: Date and Time display, 3-in-1 pH electrode/4-ring conductivity electrode, Auto buffer recognition, with 3-point calibration, Auto functions: ATC, auto self-diagnosis, ISO9001 certified and meet CE requirements, Auto/manual Endpoint modes, Measurement range: Conductivity 0.0 µS/cm to 199.9 mS/cm, TDS 0.1 mg/l to 1.999.9g/l, salinity 0.0 to 19.99 psu; temperature 0-100 oC; Resolution: Auto range, 0.1°C, Error Limits: ± 0.5 % F.S. ± 0.3 °C,	9		
5	UV Lamp Viewing Cabinet: UV Lamp dual wavelength 2x8 Watt lamp UV lamp, wavelength 254/366 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	5		
6	Analytical Balance: Digital microprocessor controlled, Automated calibration by pressing keys. Capacity: 220 grams or above, Readability: 0.001 g or better, Calibration: Internal/External. Weighting Capacity: 220gm, Minimum display: 0.1mg , Pan size (mm): Ø91 approx. Windows direct communication function, send balance data to excel without any data software with optional RS232C interface.	14		
7	Analytical Balance: Digital Microprocessor Controlled. Capacity: 4000 g. Readability: 10mg (0.01g). Repeatability: < + 10 mg. Pan Size 180 mm.	5		
8	Digital Thermal Cycling Oven: Adaptive Multifunctional Digital PID-microprocessor Controller with High-Definition TFT-Color Displays • Temperature range 5°C above ambient up to +300 °C • Single DISPLAY • natural convection • adjustment of pre-heated fresh air admixture by air flap control • self-diagnostics for fault analysis • Drying, High accurate Temperature. • Digital timer adjustable from 1 minute to 99 days, 23 hours • Multiple Overtemperature Protection with audible and visual alarm • Interior Stainless Steel & Textured Stainless Steel Casing Operated on 220volts, Capacity 50 Lit, with two stainless steel trays.	9		
9	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, Internal Chamber Size: 180x230x230mm (7" x 9" x 9"). Vent at back side.	3		
10	Shaking Water Bath (Temperature Controlled): Heater 2 kW, Capacity: 22 liters Temp. Range: Ambient +5°C – 100°C, Accuracy: ±0.1°C Microprocessor control with digital LED display and shaker control Adjustable shaking speed from 30 to 200 (OPM) oscillations/min. Over-temperature protection function Bugged stainless-steel chamber with easy to clean epoxy-powder coated exterior Push-button convenience for entry of temperature and shaking speed Automatic motor shut-down capability, Shaking Tray, Rubber Duck, 220 V, 50/60 Hz.	8		
11	Rotary Evaporator System: Motorized vertical lift, Programmable operations, Anticorrosion sealing system, Integrated vacuum control, Maximum safety, Automatic stop heating in dry bath condition, Evaporation volume 1000 ml, Max. Rotation speed 300 rpm or better, Head tilt angle 0-60°, Temperature range Ambient to 180°C or above, Bath material Teflon coated, Temperature accuracy ±1°C (Water) ±2°C (Oil), Bath volume 5 Lt, Timer, rotation 300 rpm or above. Built-in programmable vacuum control, Control on/off of vacuum pump, chiller temperature -30 to +100 OC or better Reservoir Capacity 15 Liters, Reservoir/Tank Material Stainless Steel, LCD display, with servo motor stabilizer, vacuum pump: Pumping speed: 18 L/min or above, Vacuum pressure: 12mbar or above, Noise: ≤ 42dB, chemical resistant. Chemical resistant vaccum pump, vaccum pump = 0.0005 mm Hg or better.	5		

12	UV/Vis Dual Beam Spectrophotometer: Mode: Absorption, Transmission, Reflectance, Concentration, Factor Wavelength range: 190 - 900 nm or above Spectral bandwidth: < 1.5 nm Scanning speed: 12000 nm/min Wavelength accuracy (Deuterium line at 656nm): ± 0.1 nm Wavelength reproducibility (with Holmium oxide filter): ≤0.02 nm Photometric reproducibility: ≤ 0.0005 A Stray light: ≤ 0.03 % T Baseline stability at 500 nm: ≤ 0.0001 (RMS) Longterm stability a 500 nm: ±0.0005 A/h Scanning speed: 6000 nm/min or better Long life Xenone Flash Lamp; Silicon photodiode detector; Auto zero function and lamp detector, Complete with application software, Computer i7 with laserjet printer, 4-8 Auto Cell Changer, Quartz cuvettes (3 ml, 1-1.5 ml) one pair each (Quartz & Glass) etc. Operated by panel controls or through a PC using the application software. Spare lamps one of each. Lamp life 5 years or above.	5		
13	UV Single Beam Spectrophotometer: Spectral bandwidth ≤ 2 nm UV-Visible and scanning, Spectrophotometer. Wavelength 190-1100 with 4 cell holder Included. Windows compatible Software, 4 Glass cells (10mm.) 2 Quartz cells (10mm.) Built in RS-232 PC connection interface. Silicon photodiode detector; Xenon flash lamp; Software Manual. Lamp life 5 years or above.	2		
14	Walk-in Cold Room 10'x10'x510': Thicknesses of panels (150 mm) 20 cm modulation, for 60-85-105 mm and 40 cm for 150 mm Floor panel finishes (phenolic resin), rust-proof Possibility of interior division or of joined cold rooms Hinged/sliding doors Maximum integration of the components to facilitate cleaning all accessories that help to comply with the current hygiene regulations should be included Storage - refrigeration unit. Temperature range -2 / +5 C, Air condensing units, evaporators and controllers.	1		
15	Inverted Microscope with Monitors and Accessories: Inverted Microscope with 12.5 megapixel color CCD fast working camera, Computer (Core i7) and loaded with software for image capture and adjustment, Monitors and Accessories, color laser printer ,TI-E: eyepiece 100%, left 100%, right 100%, eyepiece 20%/left 80% TI-E/B: eyepiece 100%, left 100%, right 100%, bottom 100% Motorized port switching Two ports (tube base unit with side port, back port) can be added optionally. Via motorized nosepiece up/down movement, Stroke (motorized): up 7.5mm, down 2.5mm, Motorized (pulse motor Minimum step: 0.025µm, Maximum speed: 2.5mm/sec or higher, Motorized escape and refocus mechanism (coarse) Coarse/fine switchable, Intermediate magnification 1.5x, Light intensity control, Light on/off switch,VPD on front of body, Operation with controller, TI-TD Binocular Tube D, TI-TS Binocular Tube S, TI-TERG Ergonomic Tube, TI-T-B Eyepiece Tube Base Unit, TI-T-BPH Eyepiece Tube Base Unit for PH, TI-T-BE Eyepiece Tube Base Unit with Side Por, CFI 10x, 12.5x, 15x, TI-DS Diascopic Illumination Pillar 30W, TI-DH Diascopic Illumination Pillar 100W TI-S-ER Motorized Stage with Encoders, TI-S-E Motorized Stage—Cross travel: X110 x Y75mm, Size: W400 x D300mm (except extrusions). TI-SR Rectangular Mechanical Stage—Cross travel: X70 x Y50mm, Size: W310 x D300mm, TISP Plain Stage—Size: W260 x D300mm TI-SAM Attachable Mechanical Stage—Cross travel: X126 x Y84mm when used with TI-SP Plain Stage Sextuple fluorescence filter cube rotating turret, Filter cubes with noise terminator mechanism, Field diaphragm centerable, 33mm ND4/ND8 filters, 25mm heat absorbing filter Option: Motorized sextuple fluorescence filter cube rotating turret, Motorized excitation filter wheel, Motorized barrier filter wheelContrast control: Senarmont method (by rotating polarizer) Objective side prism: for individual objectives (installed in nosepiece) Condenser side prism: LWD N1/N2/NR (Dry), HNA N2/NR (Dry/Oil) types. Hot stage should be included.	3		
16	Telescope: Saxon90 mm, Terrestrial Refractor Telescope	5		
17	Night Vision Equipment Company American Eagle Pocketscope NVEC Land Systems - Observation And Surveillance - Image Intensifier Monoculars: Combination of night viewer and still or video camera night lens, automatic brightness control. Equipped with a high quality eyepiece, carrying case, a x1 25mm objective lens (x2, x3 optional) and two alkaline batteries.	2		
18	Radio Telemetry Complete Apparatus: GPS Systems/Collars, Weighs just 825 grams Receive up to 96 locations fixes per day, up to 6 e-mails a day Long life: 5 years @ 3 locations/day 1.6 years @ 12 locations/day Remotely commanded release via e-mail Remotely modified user selectable location and data transmission schedule • Low battery "fail safe" collar release • Collar is refurbishable to maximize investment • Optional aluminum case for difficult applications.	2		
19	Refrigerator: Temperature 2 °C - 8 °C, Accuracy ±0.5 °C, Volume 350 ltrs. (12 cubic fit), No. of Baskets Five (05). Operating Voltage 230V AC. With Stabilizers. Battery Backup 10 hours or above.	4		
20	Vortex Mixer: Variable analog speed control of 0 to 2500 rpm (±25 rpm) or above with shaker. Steel base and silicon feet. Touch and Auto modes.	6		
21	DO Meter: DO Range 0.00 to 45.00 ppm (mg/L), 0.0 up to 300.0% saturation DO Resolution 0.01 ppm (mg/L); 0.1% saturation DO Accuracy ±1.5% of reading ±1 digit DO Calibration automatic one or two point at 100% saturation (8.26 mg/L) and 0% saturation (0 mg/L). DO Temperature Compensation ATC: 0 to 50 °C; 32.0 to 122.0 °F Salinity Compensation 0 to 40 g/L (with 1 g/L resolution) DO Altitude Compensation -500 to 4000 m (with 100 m resolution) Temperature Range -20.0 to 120.0 °C, -4.0 to 248.0 °F Temperature Resolution 0.1 °C, 0.1 °F Logging up to 1000 records organized in: Manual log-on-demand (Max. 200 logs), Manual log-on-stability (Max. 200 logs), Interval logging (Max. 600 samples; 100 lots) Connectivity 1 micro USB port for charging and PC connectivity, 1 USB port for storage Environment 0 to 50°C (32 to 122°F), RH max 95% non-condensing Battery Type/Life Built-in rechargeable battery with up to 8 hours of continuous use Power Supply 5 VDC adapter.	2		
22	pH Meter (Digital Bench Model): pH Electrode Condition Icons give user information of the electrode condition. Stand alone electrode arm/ swing arm stand, Auto buffer recognition, with 3-point calibration. ATC with 3-in-1 electrode to make accurate measurements auto endpoint, auto self-diagnosis. Date and Time Display Also record the most recent calibration data. Measurement Range: -2.00...16.00 pH. mV Range: -1999...+1999mV. Temperature Range: -5°C...110 °C. Resolution pH: 0.01 pH. Resolution mV: 1 mV. Resolution Temperature: 0.1 °C. Accuracy pH: ± 0.01 pH. Accuracy mV: ± 1 mV. Accuracy Temperature: ± 0.5°C. pH. Memory: 99 sets, most recent calibration data. Power/Battery: 240V/50-60Hz, 9 V DC. Display White backlight liquid crystal. RS232. Set of buffer 4, 7 & 10.	7		

23	Vacuum Oven: Medium size with temperature range 0-250°C, Electric supply 220-240V	1		
24	Vacuum Pump: Motor driven pumps completely mounted on rectangular base plate and furnished with V belt, Single stage. S-25 Displacement 25L/Min, Motor H.P. 0.25. Air Displacement 200 Liters / Minutes Optional Accessories: - a) Moisture Trap. b) Vacuum Gauge with Regulator. c) Non Return Valve	3		
25	Light Meter: Range: 0.001 to 1.999 Klux; 0.01 to 19.99 Klux; 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 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.	2		
26	Turbidity Meter: Turbidity Range: 0.00 to 50.0 NTU; Turbidity Resolution: 0.01 (0.00 to 9.99); 0.1 NTU (10.0 to 50.0); Turbidity Accuracy: ±0.5 NTU or ±5% of reading (whichever is greater); Turbidity Calibration: two-point; selectable between 0.00 - 50.0 FTU (0.00 and 20.0 FTU recommended); To measure free and total chlorine, cyanuric acid, pH, iodine, bromine, and low range iron.	2		
27	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		
28	Micro Pipettes Single Channel (P0.5, P10, P20, P100, P200, P1000 µl) or equivalent with accessories: Adjustable volume, Autoclaveable, Complete Set.	12		
29	Freezer -20C: Volume 600 liters or above. Temperature setting range -18 ~ -35 C Temperature control range -20 ~ -30C Control Controller Microprocessor Display LED Temperature sensor Thermistor Refrigeration Cooling method Direct Compressor 400W Refrigerant HFC Insulation material PUF Insulation thickness 60 mm Alarms Power failure V-B-R High temperature V-B-R Low temperature V-B-R Filter - Lid/door open V-B Construction Exterior material Painted steel Interior material Painted steel Outer door/lid Inner door/lid - Outer door/lid lock Y Shelves Drawers - Containers / baskets Optional Max. load -per shelf/basket/drawer 50Max. load -total 200 Access port -position left/top -diameter 30 Interior fluorescent lamp - Casters 4 (2 leveling feet) Electrical and Noise level Power supply 230V 50 Hz Single phase Noise level 42 db.	1		
30	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 samples in 1.5 mL tubes, 12 samples in 5 mL tubes, or up to 8 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		
31	Liquid Nitrogen Flasks: Max Cont. liter: 1 - 10 Holding time days: 5-16 Evaporation rate l/day: 0.2-0.6.	2		
32	Microwave Oven: Digital with steel body, Steel Panel, Size: 20L, 36L (One Each) and 52 L (Three in number).	5		
33	Automatic Air Compressor: Voltage: DC12V; Power: 100W;Electricity: 6A; Pressure: 0.09MPa; Output: 100LPM; Size: 235x143x170mm	4		
34	Oxygen Cylinder: 48 CFT with trolley.	5		
35	Chlorophyll Extraction with Filtration Assembly Vacuum Pump and Accessories: 47 mm and 25 mm filtration assembly with vacuum pump (Hg 5 lb).	1		
36	Automatic Tissue Processor: Basket rotar with motor. Wax bath thermostatically controlled. Tissue basket of Stainless Steel of 36mm dia with spring clips: Set of 6.Timing disc calibrated for 24 hrs. Specimen Beaker. ACCESSORIES Wax Bath: 2 nos., Stainless Steel Basket: 1 no., Tissue Containers: 10 nos. 24 Hr. timing calibrated timing: 6 nos., Dust Cover. Basket Rotar.	1		
37	Embedding 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		
38	Incubator: Temperature control: microprocessor temperature controller Temperature range: 05 C above ambient to 80 C Temperature accuracy: +0.1 C Temperature uniformity: ± 0.5 at 37 C, Circulation: forced filtered air., Chamber material: stainless steel., Programmable upto 99hours and 59 minutes Power requirements: 220VAC, 50/60Hz single phase. , Volume = 80 liter or above. Stainless steel wire shelves.	4		
39	Pipette Aid Automatic: Automatic, portable, battery-powered pipet pump equipped with a tissue culture nose piece incorporating a dual hydrophilic, hydrophobic 0.8 µm filter to prevent cross-contamination. Run for two hours (pipetting 2,000 times) without recharging. Should be supplied with 4 replacement filters. Safe, convenient instruments for converting pipettes into hand-operated dispensers. Can be used with glass or plastic pipettes ranging in size from 1 to 100 ml.	1		
40	Ultracentrifuge: Maximum speed (rpm) 100,000; Maximum RCF (x g) 802,000; Maximum capacity (mL) 6 x 250; Drive Imbalance tolerant direct drive; Accel/decel profiles 10/11 Speed range (rpm) 1,000 to maximum speed in 100 rpm increments; Speed control accuracy (rpm) ±10; Temperature set range (°C) 0 to +40; Temperature accuracy (°C) ±0.5; Ambient temperature range (°C) +10 to +35; Temperature control system Solid-state thermoelectric refrigeration (CFC-free); Vacuum system Oil-rotary vacuum pump with moisture removal function and oil diffusion pump; vacuum of 0.13 Pa; Control: Microprocessor; Programmability: 20 programs; Step-Run Heat output (kW/hr) < 1; Operational noise: (dBA) 53, measured 1 m in front of instrument Functions Automatic RCF; ω2dt Integrator; Real Time Control; Controlled Access; Rotor Life Management Electrical V (Hz) 208/220/230/240 (50/60), 16/20 A, single phase Certification CE and cCSAus certified. 2 years warranty and after sale service	1		
41	Cryotome with all accessories: Temperature Range, Cryochamber: -35 to 0°C (-31 to 32°F) Temperature Range, Cryobar: -55°C (-67°F) to chamber temperature Temperature Range, Specimen Head (14011-026 only): -40 to 0°C (-40 to 32°F) (within ±10°C of chamber temperature), Temperature Range, Electrical: 115V, 60Hz.	1		
42	DNA Concentration System with accessories: Ultra Purified DNA in Less Than 20 minutes Suitable for All Molecular Biology Applications DNA Purification, Concentration and Desalting from Agarose Gel Slices Using Beads or Spin Columns.	1		

43	Hybridization Oven: Temperature Range: Ambient +8°C - 85°C, Selection: Digital, Display: LED Uniformity: ±0.25°C Safety Over Temp. Cut Out: Yes Capacity (medium bottles) : 14 Shaking Platform :Yes Shaking Action : Orbital & linear Variable Speed Rotisserie : Yes Variable Axis Rotisserie :Yes Rotisserie Speed :5-15 rpm Platform Carrying Capacity : 4-10 kg Maximum Power: 250 W.	1		
44	Centrifuge: With continuously variable speed range 500 to 13000 rpm and time 0 to 99 minutes. Pulse mode setting from 1 to 90 seconds. With rotor or accessories. For 230V 50/60Hz single phase supplies. Centrifuge with capacity of 24 tubes of 2ml. Temperature Control 0-40oC, Fast pre cooling and max temperature accuracy inside the aerosol tight rotar.	6		
45	Vacuum Blotting System: Semi-Dry Blotting System. 20cm x 20cm. System transfers Western, Northern, or Southern gels reliably and quickly. The stainless steel cathode and platinum-coated titanium anode durable and corrosion free. Complete with two Mylar shields, safety-tip power leads and interlocking safety cover.	1		
46	Gel Documentation - Imaging System: Capable for Gel Documentation (Ethidium Bromide, SYBR dyes, SYPRO Ruby, Coomassie, Fluorescent Orange), Fluorescence and Colorimetry/densitometry operations UV and LED. Easy Electrophoresis gel imaging system (Hood) for DNA, RNA and Protein Gels. 3 Illumination modes (trans-UV, trans white, epi-white), Detector CCD, Compatable with most transilluminator and consumer digital camera. With compatible software, computer core i7 7th generation, LED, thermal printer and accessories.	4		
47	Thermal Cycler: Microprocessor controlled Thermal Cycler with 96-Deep Well Reaction Module with gradient (30-100 C), Temperature range 4-100oC, Max ramp rate 4 C per second, Temperature accuracy ± 0.5 oC, VGA colour touch screen display, Memory 500 typical programs, Unlimited with usb drive 220-240 V 50/60 Hz.	1		
48	Trays for Gels: Consisting of a 2" x 2" pocketless plastic tray stored inside a plastic hinged box. Gel coating applied directly to the surface of the plastic tray. Similar to Gel Boxes, the Gel-Tray products intended for manual applications in devices loaded using a vacuum pen, tweezers or fingers and unloaded using tweezers or fingers.	3		
49	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		
50	Tecator Soxtec 1043 mit Service Unit 1046: Foss/Tecator Extraction unit 1043. With controlunit. 6-flame. 220 V. 1500 W.	1		
51	Feed Mixture: One ton capacity semi automatic.	1		
52	Liquid Nitrogen Cylinder: Capacity 40 Liters, 22 psi, Cylinder Size 20 Cu ft .	2		
53	Incubator for BOD: Incubator; Aluminum interior solid door, capacity 150 liters, temprature 3 to 40 C, temprature resolution 0.1 C. For incubating samples saturated with oxygen at 20°C for (usually) five days. Such an incubator has a compressor to depress the temperature below ambient and a heater to bring it back up to 20°C.	9		
54	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		
55	Fiber Glass Tanks: High quality, flexible and resistant fiberglass material; Resin manufactured to accomodate the specific type of liquid; light weight, highly durable.	2		
56	Pressure Chamber & Osmometer: Linearity: Less than ±1% from a straight line over calibrated range Repeatability: 0 to 400 mOsm: ±2 mOsm/kg (1 S.D.) 400 to 2000 mOsm: ±0.5% (1 S.D.) Drift: Less than 1 mOsm/kg H2O per month, Temperature Effects: Less than 1 mOsm/kg H2O for every 5°C (9°F) ambient temperature change Operating Conditions Temperature: 18°C to 35°C (64°F to 95°F).	1		
57	Chlorophyll Content Meter: Resolution: 0.1 CCI unit, Repeatability: ± 1%, Sampling acquisition time: 2-3 seconds, Source: Custom 2 wavelength LED module.	5		
58	Yukon Electric - Electric/Wood/Coal Furnace: Yukon, Grate options: Standard Wood Grates.	1		
59	Oscilloscopes (B-H curve analyzer): Output current (peak) ± 5 A, max, Output voltage, (peak) ± 23 V (± 46V), max, Magnetic field signal detection, Voltage drop at Non-inductive resister, Maximum current at ±5A, Magnetic flux density signal detection, Voltage detection at induced voltage detection coil, Maximum signal detection voltage at ±40V, Oscilloscope, 8 bits, 100 MHz Measurement accuracy (23°C ±5°C) - Set frequency F ±0.1% - H amplitude measurement ±1% - 2Φm amplitude measurement ±1.5% - B amplitude measurement ±2% - Core loss measurement ±5% Measurement time Approx. 1 sec./step (when the measured frequency is 1 kHz or more) Universal Measurement POD Power AC 230V, 50/60 Hz , Approx. 500VA (MAX.) Operating temperatures +5°C to +40°C. Warranty Two years including parts and sale after service. Installation and training of the module should be done by the Principal Supplier.	1		
60	Analog Digital Trainer: Variable VDC +- 20V regulated VDC +- 5V function generator data switches level switches digital display digital VOA meter.	5		

61	Gas Flow Meter: Flow rate (0 - 500) sccm for O ₂ , N ₂ , SiH ₄ .	3		
62	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		
63	Micro Analytical Balance: Type: Digital Microprocessor Controlled, Capacity: 220 g. Readability: 0.1mg (0.0001g). Repeatability: < + 0.1 mg, Linearity: < + 0.3 mg, Response time: 3 Second. Pan size (dia): 90 mm, Calibration: Internal. Weighing Below Hook, All glass draught shield with 3 sliding doors, Communication: RS232, Display: LCD.	7		
64	LCR Meter: Frequency range 1mHz –3 GHz, LCR mode, Analyzer mode, Continuous measurement mode, Measurement parameters: Z,Y, θ, Rs (ESR),), Rp, Rdc (DC resistance), X, G, B, Cs, Cp, Ls, Lp, D (tanδ), Q, Measurement range: 100 mΩ to 100 MΩ, 12 ranges, Measurement frequency : 4 Hz to 5 MHz, Measurement signal level: V mode/CV mode: 5mv to 5 Vrms (upto 1 MHz), 10 Mv TO 1Vrms (1.001 MHz to 5 MHz), 1 mVrms steps CC mode: 10 μA to 50 mArms (up to 1 MHz) , 10 μA to 10 mArms (1.0001 MHz to 5 MHz), 10 μArms steps, V mode/CV mode: 5mv to 1 Vrms (upto 100 kHz), 1 mVrms steps CC mode: 10 μA to 100 mArms (100 mΩ and 1Ω ranges of up to 100 kHz) , 10 μArms steps, PC connectivity, LAN, USB, GPIB and cables, test fixtures e.g. Dielectric test fixtures, magnetic test fixtures, clip leads etc.	1		
65	Constant Current and Voltage Programable Power Supply: Current range 0 - 50 A, 24 V, resolution 0.1mA, 1mV.	2		
66	Cryostat for Liquid Nitrogen with Sample Holder: Specification: The probe is equipped in the form of vacuum chamber. The measurement temperature range is -190 degree C (83 degree K) ~ 200 degree C, or -40 degree C ~ 300 degree C. The digital temperature controller is programmable. With external micropositioners installed on the chamber and viewing chamber that user can adjust probing position at any time. Measured signals are fanned out through interface adaptors on the chamber for connection with external instruments. Vacuum Chamber Body · Chuck size 50mm in diameter for sample placement · Temperature range: -190degree C to 200 degree C, or -40degree C to 300 degree C · Hot Chuck and LN2 cooling control · LN2 Dewar Tank · Digital pressure switch (vacuum gauge) · Digital Temperature Controller for temperature control · Glass viewing window for probing · Equipped with Microscope, and the microscope stand · Equipped with Micropositioner.	1		
67	Temperature Controller: (Seebeck Measurement + Hall Setup): Measurement Temperature range 50 to 1000°C for Seebeck Co-efficient and conductivity Measurements. Steps & temp. difference steps, 125 max. 2 to 4 mm (square or diameter) x 5 to 22 mm (length) Low pressure helium gas (air).	1		
68	Oscilloscope (Dual trace 4 channel) with GPIB Interface and Software: Specification: For data acquisition, spectrum analyzer frequency range 9 kHz-200MHz, sample rate 2.5 GS/sec.	2		
69	Nd YAG laser (solid state laser with first second and third harmonic generations) YAG Laser with Amplifier: Specifications: Energy: 1000 mJ Wavelength: 1.064um Pulse duration: 10 ns Repetition rate: 100 Hz With seconds harmonics generator (Energy 500 mJ at 532 nm) With third harmonic generator (energy 250 mJ at 355 nm) With fourth harmonic generator (Energy 125 mJ at 266 nm) Temperature stability with integrated wavelength Interfacing and fully computer control and software managements. Water / air cooling system. All harmonic generators should be in compact module including the non linear crystal and removable set of dichroic mirror 0.5 mW He. Ne laser for alignments. Terms and Conditions: Warranty Two years including parts and sale after service. Installation and training of the module should be done by the Principal Supplier.	1		
70	Spectrometer: Spectrometer range: 200-980 nm with 7 channels Resolution: 0.1 nm (FWHM) Detection: CCDs with a combined 14,336 pixels, Frame rate: 500 Hz capability, computer-controlled Integration time: 1 ms; variable in free-run mode, Trigger delay: -121 μs to +135 μs in 500 ns steps, user-configured Trigger jitter: ~20 ns Trigger level: TTL not to exceed 5.5 V Computer connection: USB 1.1 or USB 2.0 Operating systems: Win 7/8/10 on desktop or notebook PCs Software: OOILIBS and OIOCOR or equivalent Power requirement: 5 volts @ <1 amp, power supply included Input optical fiber: sampling probe containing 7 fibers, 2 meters long with 74-UV collimating lens and a sampling lens, laser option up to 1000 mJ, continuous spectrum measurements and channels synchornization. Warranty Two years including parts and sale after service. Installation and training of the module should be done by the Principal Supplier.	1		

71	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 5 ps Period between pulses Range Resolution 100 ns to 42.9 s 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		
72	Vacuum Chamber with 7 ports (PLD System), SS Chamber with access door, in-situ monitoring by RHEED. Sample size = max 3 inch. Variable distance from target to substrate = flexible. Substrate Heating: Substrate: 2 with 2 or 3 inch wafer Maximum Heater temperature = 1000 C Heater Size = flexible Heater temperature control should be programmable PID temperature controller Heater should be adjustable from externally along x-, y- and z- axis. k-type thermocouple for input to PID controller Film thickness monitor, quartz crystal. Targets 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 Dry vacuum pumps = 2, Turbo molecular pump= 2. Minimum base pressure 1 E -7 Torr. Multiple digital Vacuum Gauges for pressure monitoring: Pirani and Ion gauges, 1 E -9 Torr. Mass flow controllers for gases (H2, N2, O2 etc.) upto 1 - 100 SCCM. Power Single Phase, 220V, power supply for the PLD system.	1		
73	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		
74	Ball Mill, Dry and Wet Grinding: Final fineness < 0.1 micrometer, wheel speed > 500 rev/min.	1		
75	Hydraulic Press: 20 - 150 ton with heating 500 C - 1000 C, accuracy 0.01+/- Mpa, heating rate 10 C/min. Dice for Circular, rectangle and Ring Shape Pilots.	1		
76	Thermo-Mechanical Analyzer: Temperature Range (max) -150 to 1,000 °C, 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 (L) x .35 mm (T) x 4.7 mm (W), Measurement Precision ±0.1%, Sensitivity 15 nm, Displacement resolution <0.5 nm, Dynamic Baseline Drift <1µm (100 to 500 °C), Force Range 0.001 to 2 N, 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 and training of the module should be done by the Principal supplier.	1		
77	Water Deionizer System: Pressure resistant max. 10 bar, Flow rate 1000 l/h, Capacity (at 10°dH - total salt) 4000l, Pure water quality 0.1 – 20 µS/cm, Max. water temperature 30°C, Connectors R ½" male thread with integrated conductivity meter.	2		
78	Water Purification System: Feed water temperature +2 to 35C, Feed water pressure 1 to 6 bar, Manganese and iron content < 0.05 mg/l, Free chlorine content < 1 mg/l, Silt density index (SDI) max. 3, Type I ultrapure deionized water, Ultrapure deionized water conductivity 18.2 MΩ x cm ± 0.055 µS/cm, Dispensing performance up to 1.6 l/min, TOC value 1 - 5 ppb, Endotoxines 0.001 EU/ml, Particle and bacteria content < 1 CFU/ml, Type II pure deionized water, Pure deionized water conductivity 15-10 MΩ x cm ± 0.067-0.1 µS/cm, Pure water performance at 15°C 12 l/h, With tap water input.	3		

79	Egg Candler: High Intensity Egg Candler/Ovoscope: Long durability LED light, Energy saving, low heat emission, No transformer needed, 220-230 V, Perfect contact with eggs, no light leakage, Folding, easy to hold.	5		
80	Digital Colony Counter: Automatic digital colony counter: HD CCD color camera, Digital Zoom 28x, Resolution 1280 x 960 pixels, Minimum size of colonies 0.05 mm, counting time 1000 colonies per second Lighting technology Long-life white LEDs / Dark Field, Automatic counting, Result export as PDF report, JPEG, PNG, BMP, Excel, Usb port, Computer Core i7 intel processor with Windows Operating system.	3		
81	Digital Colony Counter: Optimal contrast conditions By the customization of the color and the brightness an effortless work is made possible. Brightness: The brightness can be adjusted in 65 steps. The counting impulse is activated by the pressure sensitive counting plate. The pressure sensitivity for the count can be adjusted. Illumination area of 145 mm Ø with 1 cm ² and 1/9 cm ² graduation. LED illumination, Dust over, immersion oil and instruction manual. Rackless mechanical stage 150x133mm, travelling range 76mm (X) x 30mm (Y). Compensation triocular head "Arctype" for INFINITY optics, 30° inclined, 360° rotatable. Anti-Fungus treatment. Eyepiece EW 10x/20 Extra Widefield (Ø 23 mm) , Eyepiece EW 10x/20 Extra Widefield (Ø 23 mm) , ICO2 Plan 4x/0.10 , ICO2 Plan 10x/0.25 , ICO2 Plan 40x/0.65, spring loaded , ICO2 Plan 100x/1.25 oil, spring loaded, Abbé Multi System Condenser with aperture iris, n.A. 1.25 and scale for each objective, slot in condenser for PC and DF attachments. Fully automatic Digital Microprocessor controlled, vertical type top loading. Programs for Solids, Waste bags, Liquid waste with regulated steam exhaust for cooling, Liquid waste for self-cooling, Liquids with regulated steam exhaust for cooling, Liquids for self-cooling, Cleaning. LCD display of temperature & pressure, Temperature range up to 140C controllable, Standard basket SS included. From the sterilization chamber separated steam generator (built in) integrated into the housing, Internal memory for documentation of up to 500 sterilization cycles, "Autofill" - Automatic de-mineralized water feed for steam generation, Capacity: 110 Liters or more.	1		
82	Staining Rack / Dish with Cover: Slotted rack holds 50 microscope slides, sizes 3" x 1" as well as 3" x 1-1/2" . The unit measures approximately 200 x 83 x 105mm (7.87" x 3.27" x 4.13") overall. Rack is made of stainless steel and is resistant to most staining solutions and easy washable. The handle is permanently attached, but hinged to permit closure of dish and easy insertion and removal of the microscope slides. Dish and cover are made of soda lime glass. Maximum liquid volume without rack is approximately 950 ml.	4		
83	Phase Contrast Microscope with all Accessories and CCD camera and core i5 computer with preloaded software for image capture: PH condenser 1.25 N.A. (for objectives 4x, 10x, 20x, 40x, 100x) with Darkfield (dry) spot, with cover boxes and cleaning solutions.	2		
84	Autoclave: Autoclave fully automated: Main Processor Controlled. Gross Capacity: 63L or more 'Classic' Top Loading Sterilizer, Temperature Range 100 to 138° C, Single phase, 230v, 13A, 50/60Hz, 2 x Discard container s, 2x Stainless steel baskets , Cooling locks: Preventing opening of the autoclave above 80°C. (for fluid & discard cycles) , For Cycle Fault Cycle Interruption, Sterilize Failure Water Low, Door nlocked, Pressure Equipment Directive 2014/68/EC Certification, Fully programmable 5.7" Touch Screen Colour Controller , Five Pre Programmed Cycles and up to 50 available Five password levels to stop lower level users making changes Dual Sensing Interlock mechanism. Pulse Sensing System for Air Exhaust. Programmable Auto start Process Status Display Over Pressure Cutoff. Over Temperature Cutoff. Pressure Safety valve.	1		
85	Micro Filtration Apparatus: Microfiltration Assembly All glass (pyrex) autoclaveable complete with all accessories and vacuum pump: for for HPLC mobile phase filtration, analysis of particulate or bacterial contamination and general laboratory microfiltration.	2		
86	Horizontal Electrophoresis Apparatus with Power Supply: Midi Cell with Gel tray and Power supply, Gel tray size 15x7 and 15x10 cm, UV-Transparent Wide Mini-Gel Tray, Gel Caster, 10, 15, 20 and 30 well Comb, Comb Holder, Buffer tank 650 ml, 230V 50/60 Hz, Compatible Power supply to run 4 units at a time.	4		
87	Shaker Digital: Speed 15 to 500rpm ±1, Temperature Ambient+10° to 60°C, Corrosion-resistant stainless-steel Platform with Length 45.7cm and width 45.7cm, Exterior Height 102.9cm, Complete with Platform and fixing Clips for 100 and 250 and 500ml flasks, Motor Type Triple eccentric drive, Time Controller 0.1 hr. up to 999 hr. and 0.1 min. up to 999 min. and continuous, Digital Control System.	3		
88	Vertical Gel Electrophoresis Apparatus with All Accessories: Vertical Gel Electrophoresis Apparatus with All Accessories: Dimensions (W x L x H) 12 x 16 x 18 cm, Gel thickness 0.75 and 1.0 and 1.5 mm, Number of gels 1-4, Glass Short plate 10.1 x 7.3, Spacer plate 10.1x8.2, Tetra Cell Casting Stand and Clamps, 4 Frames and Gaskets, Replacement gaskets, Cell Buffer Dams, Sample Loading Guide, 5 Gel releasers, 10 and 15 well Comb for 0.75 and 1.0 and 1.5 mm thick gels 5 quantity, 5 Short plates, Tetra Electrode Assembly, Tetra Companion Running Module, Cassette Opening Lever, Total buffer volume 700 to 1000ml, Universal Power Supply .	2		
89	Anaerobic Jar: Polycarbonate jar, 3.5 liter capacity which accepts 12 x 90 mm plastic petri dishes. The yoke lid clamp has center wheel tightening with pressure gauge, automatic safety valve, Schrader inlet and outlet valves, low temperature catalyst, and dish carrier.	1		
90	Cooled Incubator: Temperature range 0 to +60°C u Stainless steel interior and exterior Microprocessor controlled programmer, Fan circulation. Temperature fluctuation ±0.1°C (at 37°C). Inner glass door*, Capacity liters 53 or above, Power rating W 450, With fuzzy logic, microprocessor PID controller with weekly programmer and daily schedule functions setting of up to 40 ramps with 1 minute to 999 hour segments, an alphanumeric, 8-digit display and internal 1024kb memory for GLP-compliant archive documentation output of all relevant data.	1		

91	Fluorescence Microscope with Trinocular Head and Computer system core i7 : Observation method includes Fluorescence (Blue/Green and Ultraviolet Excitations), Differential interference and phase contrast, Simple polarized light, Brightfield and Darkfield , Transmitted Koehler (LED and Halogen lamps) and Fluorescence (Light Guide Illumination, Hg and Xenon lamps) Illuminator , Motorized non-specific focus , Intermediate Magnification Changer , Motorized Revolving Nosepiece , Motorized (Ultrasonic) and Mechanical stage , Motorized (Universal) and Manual (Achromatic/Aplanatic, Ultra Low, Darkfield Dry and Oil, Swing-Out and Universal) Condenser , Widefield Observation Tubes (Binocular, Tilting Binocular, Trinocular, Tilting, Telescopic, Lifting Binocular, Erected Trinocular, Trinocular for Infrared) , Operating Environment with 5 - 40 °C Ambient Temperature and 80 % for temperatures up to 31 °C Maximum Relative Humidity, Computer Intel Core i7 with RAM 8GB or more, Solid State Drive (SSD), 1280 x 1024 (min. 1024 x 768) monitor resolution with 64 bit video card with separate graphics memory, Microsoft Windows 10 Pro (32-bit/64-bit), Compatible Color CCD, Monochrome CCD, Resolution 4080 x 3072 pixels (Color), 1360 x 1024 pixels (Monochrome) , color laser printer.	1		
92	4 Ft Laboratory Fume Hood Bench Top Model: Overall dimension: 52Wx54Hx 24D inches Approx. Working dimension: 47Wx36Hx 22D inches Approx. External construction: Oven baked epoxy painted MS. Fitted with:: Polypropylene working surface and drainage trough. Internal walls made of corrosion & acid resistant DEXERON board. · Two electric receptacles to work within the Hood. Inlets for water, gas & Vacuum. Vapor proof fluorescent light. · All function control panel for convenient handling. Heat resistant, acid/corrosion proof safety glass sash counterbalanced with corrosion resistant mechanism · Powerful stainless steel exhaust blower system capable to generate air velocity 100 f/m (avg) at working surface. 220V, 50Hz. Single Phase.	1		
93	Homogeniser: Particle reduction down to 1 µm. Operating range up to 2.5 liters. With Integral variable electronic speed control. Maximum speed 24000 rev/min. Overall 75 x 60 x 250 mm. For 220-240 V, 50/60 Hz. Single phase.	3		
94	Homogeniser: Power Source: Electric; Automatic Grade: Automatic; Capacity: 500L/H--10000L/H; High Pressure Homogenizer: Customized Electricity Motor; Homogenizer Pressure: Two Stage; Homogenizer Spare Parts: Provide; Process: Mild Processing; Application: Milk, Yogurt, Milk Powder, Dairy, Milk, Juice, Beverage; Product Material: Stainless Steel 304/316; Pressure: 250bar to 700bar; Homogenizer Application: Milk , Juice, Beverage, Butter, Honey, Cream; Motor: 3phases.	1		
95	Laminar Air Flow: Benches with Containment: External dimensions 1870x845x1450. H14 HEPA EN 182 with 99.999% at 0.3 µm particle size according to approx 100% between 0.12 µm and 0.17 µm particle size according to MPPS with H14 HEPA EN 182 Fans: Centrifugal high efficiency with speed control 230 V - 50 Hz single phase. Power consumption (Watts) 525. Fluorescent lights (Watts) 3x40. Ultra violet lights 36, Power socket (Amps) 15.	2		
96	Lyophilizer / Freezer Dryer with all Accessories: Console Freeze-Dry System with epoxy-coated steel and brushed stainless-steel front panels, with all compatible accessories including flasks, tubing and adapters With vacuum pumps (Shelf area 3.75 sq ft. or above Shelf temp -45 C to -70 C, 6-12 Lit in 24 hours, 12 Lit Total Capacity, Floor Model or Compact table top unit for effective lyophilisation of specimens with innovative Wireless Shelf Technology. 85° C condenser temperature for specimens containing solvents or with low eutectic points, Ice condenser capacity: 8kg, Ice condenser performance: 6kg/24h, Ice condenser temperature -80 C.	1		
97	Lyophilizer / Freezer Dryer with all Accessories: Digital Microprocessor Control with LCD display for indication of condenser temperature and vacuum, integrated Pirani sensor 0.001...1000mbar. Acrylic chamber with rack and 6 vacuum rubber valves in the cover. Acrylic chambers 200mm x 300mm. Inner shelves Ø270mm. Vial stoppering system. Vacuum regulation by magnetic valve. Vacuum pumps 5,10m³/h and chemical resistant type. Ampoules adapter 16. N2-liquid cooling with up to -150°C. Condenser size Ø270mm x 280mm. Volume 5.7 Liters. Temp of condenser -80°C. Ice capacity 2kg/24 h. Max. ice capacity 3 kg, Circulator paddles over older square paddle designs, Removable door for easy cleaning of paddle chamber, Meeting the food safety and quality demands of today's microbiologists. Whatever method you use to enumerate and identify bacteria, yeasts and moulds in your laboratory, thorough reproducible homogenization of the sample is the first and most critical step.	1		
98	Fermenter 6.7 Liters Certification CE standards and ISO, 5 liter or above capacity autoclavable vessels, speed 20 to 1000rpm, Water-jacketed for temperature maintenance, Temperature probe 0-85°C control, pH probe 0 to 14 range, pO2 probe for detection of 0 to 200% dissolved oxygen, Foam Level probe, Electrical conductivity sensor, Detectors for other parameters (pCO2, redox, Optical density and capacitance), Mass Flow meter, Gas inlet (for Air, O2, CO2, N2), Remote access via PC or tablet, Control eight units from a single user interface, Automatic gas mixing algorithms for simplified control (4-gas, 3-gas, O2 enrichment, N2 enrichment), Real-time sensor diagnostics anticipate sensor failure system, Stainless steel quick-connect system, Gas cylinder with digital display for inlet gases (Air, O2, CO2, N2), Touch interface control system, Computer Intel Core i7 7th generation, Solid State Drive (SSD), Ethernet and USB plug interface. Warranty Two years including parts and sale after service. Installation and training of the module should be done by the Principal Supplier.	1		
99	Ultra Low Temperature Freezer: Digital display, microprocessor controlled, latest filter less & single compressor technology, Temperature range: -40 to -85C, Capacity: 575L or more, Thickness > 125 nm. Castors and door key lock, Heated door frame, Heated vacuum valve, 100% HCFC/CFC free, Porthole for external temperature Probes, Approx. 60 hours battery backup for alarms, loggings and temperature display in case of power cut, Visual and acoustic alarm, RS485/232 Interface Computer USB data read out, Direct download/upload on/from USB memory stick, 3-level password protected, digital chart recorder with memory of 5 years, Imported pure sine wave UPS with Dry Batteries with backup of 2-3 hours. Gas availability in local market.	4		
100	Ordinary Light Microscope with All Accessories: Movable stage, Brightfield, Darkfield, Transmitted Koehler Illuminator (LED and 30 W Halogen Lamp), Abbe Condenser (Built-in NA1.25/ W.D.- 4 X - 100 X), Binocular and Tilting Binocular, objectives (4X, 10X, 40X, 100X) with CCD camera attached with filters.	6		
101	Surgical Box Stainless steel: with Instruments for dissection with scalpel blades and all accessories, Non magnetic stainless steel.	10		
102	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.	6		
103	Animal Cages Stainless Steel Wire Cages: Total 30 in number in one rack.	4		

104	Micro Dispenser / Multi-Channel Pipette: 12-Channel pipette, Autoclavable, Adjustable volume (20 µL to 200 µL and 100 µL – 1200 µL) One of each range. Multiple modes, High precision (1 % / 0.2 µL ; 0.25 % / 0.25 µL ; 0.15 % / 0.3 µL for 20 µL – 200 µL: 0.6 % / 0.6 µL ; 0.2 % / 1.2 µL ; 0.15 % / 1.8 µL for 100 µL – 1200 µL) and accuracy (2.5 % / 0.5 µL ; 0.8 % / 0.8 µL ; 0.8 % / 1.6 µL for 20 µL – 200 µL: while 3.6 % / 3.6 µL ; 0.8 % / 4.8 µL ; 0.8 % / 9.6 µL for 100 µL – 1200 µL), Universal tip holder, Tip ejector removal button, Tip ejector, Internal track system for equal pressure building, with all other pipette accessories including stands.	3		
105	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.	5		
106	ISS perusal piously TDS Meter: Particle size analyze Cod Digester aightscale, oven opened closed crush sloe	5		
107	Digital Sound Level Meter: According to IEC60651 with class 2 accuracy. Portable instruments suitable for measuring industrial and civil noise levels. Range +32 to +130dB x 0.1dB resolution, Accuracy ±1.0dB (±1 digit). Two response speed modes; slow (1 sec.) and fast (0.125 sec.)	10		
108	Water Flow Meter: Dry dial, Magnetic Drive, Measuring Accuracy Conforming to ISO 4064 CLASS-B, Interchangeable Spare parts for easy maintenance, Online replacement of entire Mechanism., Vacuum sealed register for clear reading in longer run, High sensitivity, low pressure loss ., Selected High Quality Material for durability.	5		
109	Digital Titrators: 60-100 mL capacity.	5		
110	Sulphur Dioxide (SO2) Meter: (Ultraviolet Fluorescence method) [Nominal Range 0-20 ppm Maximum 100 ppm Sensor Life > 2 years Resolution 0.1 ppm Min. Detectable 0.1 ppm Response Time < 15 sec. Warm-Up Time 60 sec. Operating Temperature -20 °C to 50 °C Pressure Range Atm ± 10% Relative Humidity 15 - 90 % non-condensing Alarm Audible 80db Dimensions H x D x W: 4.75" x 2.5" x 1.5" Weight 170 grams Battery 9 Volt Alkaline Battery.	4		
111	Oxides of Nitrogen as NO Meter: (Gas Phase Chemiluminescence) 191 °C Sampling system and 0.4µ inlet filter, Cooled PMT detector, 0-4 ppm to 10,000 ppm without NO2 loss. [Detector Type: Heated Reaction Chamber, Cooled Photomultiplier Tube Sensor Gas Sample System: Stainless Steel, 191 degree C filter and flow control components Reaction Chamber: 65 degree C Stainless Steel reaction chamber Ranges: 0-4, 10, 40, 100, 400, 1000, 4000, 10000 ppm NO / NOx, Auto-ranging standard Response Time: 1.5s (T5 to T95) Gas Flow Rate: 0.5 to 3.0 lpm Inlet Pressure: (-5.0) to 7.0 psig, calibration gas: -5 to 15 psig Accuracy and Repeatability: +/- 1% of range or 0.2ppm Temperature Effects: Zero: <+/- 0.5% from 5 to 35 degrees C, Span: <+/- 0.33% per degree C Detector Noise: <+/- 0.5ppm or 0.1% of range Linearity: < 2.0% of point or 1.0% FS NOX Gas Converter Efficiency: Greater than 95%, test with NOXGEN tester Remote Control: Range, calibration and standby mode via contact closure or RS-232 Outputs: 0-10VDC and isolated 4-20mA concentration and range ID voltage level Logic Outputs: Range, calibration, gas path, mode and readiness Alarms: Two configurable concentration alarms, logic outputs and one fault contact set Power: Dual voltage 115/230 VAC +/- 15%, switch-selectable, 600VA max. Environment: Temperature: 5-40 degrees C, 95%RH, non-condensing].	4		
112	Oxides of Nitrogen as NO2 Meter: (Gas Phase Chemiluminescence) with Dual Gas Filter Correlation IR and Paramagnetic Oxygen sensor to measure combinations of CO, CO2, NO, O2, SO2 and methane [Response Time: Typically, <15s (T5 to T95) Gas Flow Rate: 1.0 to 5.0 lpm Inlet Pressure: (-5.0) to 15 psig, calibration gas: 5 to 30 psig Accuracy and Repeatability: +/- 1.0% of range or 0.2ppm Temperature Effects: Zero: <+/- 0.2% per degree C, Span: <+/- 0.35% per degree C Detector Noise: Gas and Range dependant Linearity: < 0.5% Remote Control: Range, calibration and standby mode via contact closure or RS-232 Outputs: 0-10VDC and isolated 4-20mA concentration and range identifier voltage Logic Outputs: Range, calibration, gas path, mode and readiness Alarms: Two configurable concentration alarms, logic outputs and one fault contact set Power: Voltage 230 VAC +/- 15%, switch-selectable, 400VA max].	4		
113	Tropospheric Ozone (O3) Meter: (Non dispersive UV absorption method) Ambient Ozone Sensor (EZ-1X) Light Source up to 5 tungsten lamps with different narrow band interference filters Light Detector silicon photocell Logging 200 samples Connectivity USB Power Supply external 12 VDC power adapter or built-in rechargeable battery Environment 0 to 50°C (32 to 122°F); RH max 95% non-condensing Dimensions 235 x 200 x 110 mm (9.2 x 7.87 x 4.33").	4		

114	Suspended Particulate Matter (SPM) Meter: High Volume Sampling, Average not less than 1.1m3/ minute. Suspended Particulate Counter. [Measuring valuesTransmission, opacity, extinction, dust concentration Measuring ranges Transmission: 80 ... 100 % to 0 ... 100 %; adjustable; Opacity: 20 ... 0 % to 100 ... 0 %: adjustable Extinction: 0 ... 0.1 to 0 ... 2.5 dust concentration: 0 ... 800 mg/m3 to 0 ... 12 g/m3, depending on measuring distance Measuring accuracy Transmission: ± 0.4 %, Opacity: ± 0.4 % Extinction: ± 0.002 Measuring distance 0.5 ... 2 m, 1.5 ... 8 m, 6 ...15 m, depending on type of transmitter / receiver unit and reflector Gas temperaturemax. 600 °C Ambient temperature -20 ... +50 °C Protection category IP 65 Measured value output 0/2/4 ... 20 mA analog output; second analog output as an option Interfaces RS 232 for parameterization/service with MEPA; CAN interface as an option Status/control signals 3 relay output.	4		
115	Respirable Particulate Matter PM10 Meter: b Ray Absorption method [Measuring range: 0.3 to 1.0, 1.0 ~ 2.5, 2.5 to 10 microns (um) Range: 0 ~ 500 ug / m3 counting accuracy of 50% @ 0.3um, 98% @ ≥0.5 um said the quasi-volume : 0.1 liters (L) Response time: ≤10 seconds (s) DC supply voltage: 5.0 volts (V) Maximum Operating Current: 120 milliamperes (mA) Standby current: ≤200 microamps (uA) Operating temperature range: -20 ~ + 50 degrees Celsius (°C) Operating humidity range: 0 ~ 99% RH MTBF: ≥ 5 years (Y) Maximum size: 65 × 42 × 23 mm].	4		
116	Digital CO Meter: Carbon monoxide CO (Non Dispersive Infra Red NDIR method) [Response Time: Typically, <15s (T5 to T95) Gas Flow Rate: 1.0 to 5.0 lpm Inlet Pressure: (-5.0) to 15 psig, calibration gas: 5 to 30 psig Accuracy and Repeatability: +/- 1.0% of range or 0.2ppm Temperature Effects: Zero: <+/- 0.2% per degree C, Span: <+/- 0.35% per degree C Detector Noise: Gas and Range dependant Linearity: < 0.5% Remote Control: Range, calibration and standby mode via contact closure or RS-232 Outputs: 0-10VDC and isolated 4-20mA concentration and range identifier voltage Logic Outputs: Range, calibration, gas path, mode and readiness Alarms: Two configurable concentration alarms, logic outputs and one fault contact set Power: Dual voltage 115/230 VAC +/- 15%, switch-selectable, 400VA max. Environment: Temperature: 5-30 degrees C, 95% RH, non-condensing.	4		
117	Portable Airborne Lead & Lead Dust Monitor: Lead Pb (AAS method after sampling) [Air Sample Time 10-1200 minutes Air Sample Volume – 2-6 Liters/minute sample rate Lead Analysis Time – less than 7 minutes Detection Limit – LoQ Less than 0.05 ug/cubic meter Standard Detection Limit, as Shipped Automatic Operation – Up to 20 continuous samples; Extended Operation Option Available Samples between Battery Charges - 30 (AeroLead(R) 1200) Weight – 12.5 pounds Deminsions – 10.5" h x 7.5" w x 13" d Power Requirements – 110 VAC or internal 12 VDC Battery.	4		
118	Portable CO2 Meter: Carbon Dioxide CO2 (Digital CO2 Monitor) [CO2 Measurement: non-dispersive infrared (NDIR) Sampling Method: Tube sampling 500ml/min. Response Time: < 20 seconds Range: 1% to 100% CO2 Data Logging: 60,000 data points internal memory Logging interval: 5 seconds to 18 hours Sensor Life Expectancy: > 15 years Calibration certificate tag Maintenance Interval: No maintenance required Tubing size: 1/8" 1,000 hour pump - upgrade available to 10,000 hour pump LED Display CO2 in parts-per-million (ppm) for 1% and 5% models CO2 in percentage format (nn.nn%) for 30%, 60%, 100% Logging On/Off Percentage of memory free.	4		
119	Digital Sound Level Meter: Noise dB (Digital Noise meter) [±2dB accuracy with 0.1dB resolution A+C weighting AC analog output Record Max/Min values over time Utilizes 0.5"(12.7mm) electret condenser microphone].	4		
120	GARMIN GPS ETREX LEGEND HCX: Waterproof, so it can withstand the elements or an accidental dunk in water, Crisp 256-color, sunlight-readable display makes it easy to distinguish map details – plus, it looks fantastic, fast USB computer connection so you can transfer waypoints and other data to your computer. SPECIFICATIONS: Unit dimensions approx., WxHxD 2.2" x 4.2" x 1.2" , Display size approx. WxH: 1.3" x 1.7", Display resolution, WxH: 176x 220 pixels approx., Display resolution: WxH: 176x 220 pixels, Display type: 256 level color TFT, weight: 5.5. oz (156g) with batteris, interface: USB, accepts data cards, micro SD card (not included). Waypoints/favorites/location: 1000, Routes: 50, Track log: 10,000 points, 20 saved tracks.	3		
121	Light Microscope along with Digital Facilities: Trinocular; 360 Degrees Head Rotation; 30° Ocular Angle; Arc (Seidentopf) Interpupillary Adjustment with 47mm-76mm range; Upright View; Ocular Tube Diameter 30 mm; Reversed Nosepiece Orientation; Quintuple (5) Nosepiece Style; Coarse & Fine, Coaxial; Rack & Pinion Focus Mechanism; Fingertip Controls, Full Stage XY Stage Features; 216mm x 150mm Stage Dimensions; 2 Eyepieces included; SWF Super Widefield (FN 20mm) Eyepiece Style; 10X Available Eyepiece; 40x- 1,000x range with 4 objectives included; Plan Brightfield Objectives; Iris Diaphragm, Swing-out Filter Holder 1.25 mm; Transmitted LED Illumination Kohler 3W NEO-LED™; 110V-22V Power Supply with 500mA 250V Fuse.	3		

122	Centrifuge Temperature Controlled: Automatic rotor recognition, Max Speed: 15000rpm, Max RCF: 21000xg, Max capacity: 4 x 200ml, Temperature range: -05 to +40 °C, Timer: 1-99min or continuous, Short cycle: impulse key for short cycle; Swing Out Rotors: Capacity 4 x 200ml adaptor of 8 X 50ml Falcon tubes, 8 x 15ml falcon tubes, speed 4500rpm, RCF: 3300xg Angle Rotor: Capacity: 6 x 50ml & 15ml falcon tube, speed 9000rpm, RCF 9500xg. Builtin Codensation drain.	5		
123	Penetrometer Micrometric Vertical Adjustment: Light-alloy base with leveling screws. Stainless steel calibrated spindle (weight 47.5 g) with friction-free movement. Stop and release button. Dial with 360 divisions corresponding to 0.1 mm penetration steps. Automatic zeroing and relevant micrometric screw. Secured to a cast light-alloy base and slides on the base's upright. Complete with blocking device and device for the micrometric adjustment of displacements. Suitable for bitumen (needle) and grease (cone). Dimensions: 290 x 270 x 530 (h) mm. Weight: 5.5 kg Accessories supplied as standard: Complete unit with standard penetration needle (for bitumen), 50 and 100 g weights and sample containers: - Diameter 55 x 35 mm (up to 20 mm penetration).	3		
124	Pocket Penetrometer: 0 - 4.5 kgf/sq.cm With a special, calibrated, spring, reading taken directly on the penetration plunger. Measures: 0 - 4.5 kgf/sq.cm Dimensions: 19 mm dia. x 152.4 mm long. Weight: 250g.	5		
125	Stack/Flue Gas Analyzer: O2 Oxygen 0 - 21 % CO2 Carbon dioxide 0 - 25 % (calc.) CO Carbon monoxide 0 - 2,000ppm NOx Nitrogen oxide 0 - 1,200ppm HC Hydro carbon 0 - 100 % LEL SO2 Sulfur dioxide 0 - 4,000ppm H2S Hydrogen sulfide 0 - 500ppm Temp.: - Gas -20 to 1,200°C - Air -20 to 120°C, Draft hPa +/- 40 hPa Lambda / excess air 0 - 999% Losses 0 - 99.9 %, Memory, RS 232 Automatic 0- point calibration Integrated self check program ppm-mg-mg (ref O2) usable at all fuels Printer, Case, Gas Pump, Condense Trap, Filter User manual (engl.) Calibration certificate Battery / charger 115/230 V 50/60 Hz, 12V DC power jack Gas probe Type E 250 mm / 2,5 meter 315x185x380 mm.	2		
126	Arc GIS License:	1		
127	Universal Mutation Detailer System: Tank, core, and clamps: Tank: molded polycarbonate; core: molded polysulfone; clamps: molded glass-filled polycarbonate; Gradient former: Cast acrylic and aluminum; Lid: Polycarbonate; Electrodes: 0.010" diameter platinum; Electrical leads: Flexible, straight; Glass plates: 20 x 20 cm approx (20 cm format inner plate); Gel sizes: 16 x 20 cm approx. (maximum two per run); Spacers available: 0.75, 1.0, 1.5 mm; Combs: 16-, 20-, 25-, and 32- (1 mm only) well combs, and 1-well comb (prep comb for perpendicular gradient gels); Casting stand: Casts two 16 x 16 cm, two 16 x 10 cm, two 16 x 20 cm, or four 7.5 x 10 cm gels per setup; Heater and control: Temperature control (PID type) ±0.5°C variation within gel area, ±0.5°C actual in the range of 45–70°C; Maximum set temperature: 70.5°C DC voltage/power limit: 500 V DC voltage limit; 50 W power limit; Dimensions (W x D x H): Lid and tank assembly: 39 x 20 x 42 cm; Storage environment: 0–70°C, humidity 0–95% (noncondensing); Operating environment: 0–35°C, humidity 0–95%; Size and weight: 22 x 21 cm (W x H); 2.28 kg (5 lb); Capacity: 50 ml total (25 ml/syringe)	1		
128	Autoanalyser-3 HR: Colorimetric determination of NO3, NH4 and total dissolved nitrogen in water, wastewater samples and soil and plant extracts and fertilizer research. Specifications: Two channel fully automated system with autosampler and operating systems; Sampler: Random Access XY-2 Sampler that can hold 180 sample cups: 120 cups 4mL or 5 mL; Pump: Capacity for 28 pump tubes plus up to 8 air supply tubes; Digitally-controlled air injection system is synchronized with pump rollers; Leak detector automatically stops the pump motor; Chemistry module: Two analytical cartridges, Hydraulic components are glass; Hydraulic component internal diameter is 2.0 mm; Heating bath has high accuracy proportional control and user-replaceable coil; Optional dialyzer is available to eliminate interference from coloured samples, such as wastewater, without filtration; AA3 Digital Colorimeter with High Resolution (HR) Digital Photometer: Dual Beam detection system with same wavelength correction for high stability; Maximum-sensitivity 0.0000001-0.000001 Abs; 8,000,000 digital resolution for wide analytical range; Baseline and sensitivity setting controlled automatically from PC; Extended wavelength range 350-900 nm for extended sensitivity at low- to mid-wavelengths; AACE Software: Specifically written with 32 - Bit architecture for Windows XP and Windows 7; 10 Second quick start for routine operation; Allows automated start up – unattended.	1		
129	Gas Analyser: For determination of trace gases like CO2, CO, CH4 etc. Measuring technique: Non-dispersive infrared absorption, deflection method, single infrared-source, single-flux (single-beam); Measuring range: O2: 0-500ppm to 0-100%; CO: 0-500ppm to 0-100%; CH4: 0-1000ppm to 0-100%; Ambient temperature: -5 to 45 °C; Linearity: ± 2% FS; Repeatability: ±0.5% FS for the primary range (lower range) ±1% FS for the secondary range (higher range); Zero drift : ±2% FS/week; Span drift: ±2% FS/week; Response time: (90% response) 15 seconds or less including the time required for substitution of the sample cell.	1		
130	Constant Room Temperature / Growth Rooms: Dimensions: 6 feet (L) x 5 feet (W) x 5 feet (H); Temperature range: 10-30 °C; Temperature precision: ± 1°C; Control: Close Environmental Control; Computerized with light and dark periods and relative humidity control options; Stainless steel interior.	1		
131	Cold Room: Microprocesso Controlled Dimensions: 6 feet (L) x 5 feet (W) x 5 feet (H); Temperature range: 0-4 °C; Temperature precision: ± 0.1°C; Control: Close Environmental Control, fully automated; Stainless steel interior.	1		
132	Kjeldahl Distillation Unit: Mains voltage 230 V; Frequency 50/60 Hz; Power consumption 2200 W; Current consumption (230 V) 9.5 A; Dimensions (W x H x D) 360 x 660 x 400 mm; Recovery Rate ≥ 99.5 %; Reproducibility (RSD) ≤ ± 1 %; Detection limit ≥ 0.1 mg nitrogen; Integrated timer: range of 1 second to 99 minutes and 59 seconds; Steam generator: high-performance steam generator switches to stand-by mode when unattended for more than 30 minutes.	1		

133	Stereo Microscope: Axis Type: Rack and pinion with slip clutch; Dimensions (L x W x H): 12 x 7.5 x 12.5 in. (30.5 x 19.05 x 31.75cm); Head style: Binocular.	2		
134	Nanodrop Spectrophotometer: Micro-volume sample size (0.5-2.0µL); Easy to use—pipet sample directly onto the pedestal. Fast measurement time of less than 5 seconds; Full spectral output (190 - 950 nm); Preconfigured methods for A260, A280, labeled DNA or Proteins. User-friendly software that includes custom methods and data export capabilities Heating: 37°C, ±0.5°C Stirring: 150 - 850rpm Z-Height: 8.5mm Path length: 1-10 mm Cuvette dimensions: 12.5 x 12.5mm, up to 48mmH Cuvette path length options: 10, 5, 2 and 1mm Type: Masked cuvette Absorbance Range: 0.008 to 1.5 Measurement Time: <3 sec.	1		
135	Portable Total Suspended Solids (TSS) Meter: It shall have a digital display controlled by microprocessor circuitry. All run, programming, and calibration functions shall be accessible without having to open the enclosure. Unit shall be zero calibrated at the factory. Continuously display suspended solids in mg/l, time, and date. Provide an extended temperature, UV treated LCD digital display. Programming and diagnostics are also provided through this display. Provide self-diagnostics for the sensor and analyzer. Analyzer shall have error messages in the operating mode for higher or lower than normal sensor output voltage, temperature input outside the 0-60 degree C range, unstable instrument circuitry; error messages in the calibrate mode for unstable sensor temperature (after a 5 minute wait), unstable S.S. output of the sensor (after a 5 minute wait), and weak sensor output level. Provide data logging of up to fifty readings. Logged data to include at least SS, location, time, and date. Provide RS-232 serial communication port for suspended solids, time, date, and location stamps. Software for the download of stored data to a computer spreadsheet shall be provided. Provide standard back-lit LCD display. The sensor shall be an near-infrared type sensor operating at 880 nanometers that measures the amount of energy absorbed by the solids in the process. The sensor will automatically compensate for ambient light and shall not be damaged by exposure to direct or indirect sunlight.	3		
136	Digital Brix Refractometer: Measurement range 0–95 %Brix (1.3330–1.5318 nD), Accuracy 0.1 %Brix (0.00015 nD), Resolution 0.1 %Brix (0.0001nD), Temperature measurement 5–40 °C, Temperature accuracy 0.5 °C, Temperature compensation 5–40 °C, Prism Optical glass.	1		
137	Micro Quant: µQuant microplate spectrophotometer; Microplates: Accommodates standard 6-, 12-, 24-, 48-, 96- and 384-well microplates, and 60*-, 72*- and 96-well* Terasaki trays; Normal Read Mode: 60 sec; Rapid Read Mode: 45 sec; Optical Specifications λ range: 200 to 999 nm; λ accuracy: ± 2 nm; λ repeatability: ± 0.2 nm; λ bandpass: 2.4 nm; Optical Performance (96-well, flat-bottom and round-bottom plates, singlewavelength measurements): Absorbance Measurement Range: 0.000 to 4.000 OD; Accuracy: 0.000 to 2.000 OD ± 1% ± 0.010 OD; Linearity: 0.000 to 2.000 OD ± 1% Normal Read Mode; Repeatability (STD): 0.000 to 2.000 OD ± 1% ± 0.005 OD Normal Read Mode; Hardware and Environmental Specifications: Display: 2-line x 24-character LCD display; Light Source: Xenon flash; Environment: Operational temperature 18°-40°C (64.4°-104°F); Humidity: 10% to 85%, noncondensing; Power Supply: External 24 V power supply compatible with 100-240 V~ ± 10% @ 50-60 Hz.	1		
138	Lacto Scope: Two-point calibration: The device should be calibrated with two reference milks. Automatic Calibration. Cleaning, flushing and zero-point calibration are effected fully automatically. 20 different sets of calibration data. Various types of milk, e.g. full-cream milk, skim milk, cream, etc. can be analyzed. Parallel interface for printer attachment. Serial port for PC connection. With software. Sample throughput: up to 40 samples per hour. Measuring range: fat 0 to 40% (+0.02%), protein 0 to 10% (+0.03%), lactose 0 to 10% (+0.03%), SNF 0 to 15% (+0.04%), minerals 0 to 5% (+0.02%). Imported UPS with one hour batter back up and dry batteries, Fat from 0.01% to 45%; SNF from 3% to 40%; Density from 1000 to 1160 kg/m3; Protein from 2% to 15%; Lactose from 0.01% to 20%; Added Water content from 0% to 70%; Temperature of milk from 10C to 42oC; Freezing point from - 0.400 to - 0.700oC; Salts from 0.4% to 4%; pH (option) from 0 to 14; Conductivity (option) from 2 to 14 mS/cm.	1		
139	Hand Refractometer: Scale: Brix; Measurement Range: Brix 0.0 to 53.0% (Automatic Temperature Compensation); Minimum Scale: Brix 0.2%; Measurement Accuracy: Brix ±0.2% (at 20°C); Repeatability Brix: ±0.1% (20°C) ATC; International Protection Class: IP65 (except eye piece) Dust-tight and Protected against water jets; Dimensions & Weight: 3.2 x 3.4 x 16.8cm, 130g	5		
140	Cheese Vat: Rated Vat Capacity 500L, Inner Vat Thickness Exterior Vat Thickness Stainless Type Stainless Finish Corner Radius, agitator type: paddle, dimple heating jacket, side and bottom insulation, Sterilizable in an autoclave, 6.7 liters total volume, 4.5 liters working volume, Glass vessel with rounded bottom and double jacket from bottom to top for temperature control, SS Lid Stainless steel 316L Direct drive from top, DC motor, 90 W, 30 – 1500 rpm Agitation: Mechanical seal, shaft, 2 height adjustable six – blade stirrer, removable baffle cage Aeration: Auto cleavable sterile filter, check valve, connection piece, aeration tube with ring sparger Required air pressure approx. 1.5 bar Ventilation: Reflux cooler, connection piece, auto cleavable sterile filter Temperature Circuit: Connected to glass double jackets, all four temperature circuits connected by central supply and drain lines. Probes: Autoclavable temperature probe Pt100 incl. connecting cable, Autoclavable pH-gel-electrode incl. connecting cable, Autoclavable pO2-probe incl. connecting cable, Autoclavable height adjustable antifoam-probe incl. connecting cable Autoclavable sampling system, Cup for silicone diaphragm Integrated in stainless steel trunking Including heating finger and cooling water valve in temperature circuit. Temperature controller for heating and cooling, temperature range 4-60C (depending on the available cooling media) pH-control to activate the dosage of acid and base (pumps) pO2-control to activate the final elements, Cascade control vial stirrer speed and aeration valve antifoam - Control to activate the dosage to antifoam chemicals Consists of pressure valve, a rotameter (50-500L/h) a continuous solenoid valve (proportional valve), activated by pO2 controller, a check valve. Peristaltic Pump with variable speed: 1 for media feed, reversible, speed adjustable peristaltic pump including 2 meters silicone hose, hose clamp and GL45 screw cap with sterile filter. Suitable for pO2 cascade control Peristaltic Pump with fixed speed: 3 for acid, base and antifoam / harvesting fixed speed peristaltic pumps including 2 meters silicone hose and hose clamp. 3 x 250 ml auto cleavable glass bottle with sterile filter and 1 x GL 45 screw cap with sterile filter. Software for hand free operation for complete unit, Chiller with compressor.	1		

141	Grinding Mill: Type: Ball Mill; Product Type: Wheat grinding; Drive mode: Gear drive and belt drive; Operation Mode: 4 Grinding Jars Working Simultaneously; Max capacity: 2/3 of tank; Feeding size: ≤10mm; Discharge size: ≥0.1um; Running mode: Planetary type; Rotational speed(r/min): 70-670rpm. Grains, oilseeds, pulses, lentils, malt, pellets and more, Moisture, specific weight (hectoliter weight/test weight) and temperature, Analysis Time: ~ 15 seconds, Integrated thermal printer, RS-232, Sample Size: 500 ml Microprocessor controlled automatic single analysis system, designed for simple operation. With printer. Altitude correction and calculation for mixing and malt addition. Save money by avoiding of mixing sound and sprouted grain. Blend grains or flours to create a product with specific characteristics. No consumables or chemicals required. Automatic recalculation of FN results. The measured property is time (seconds), and no calibration is required. Uniform reporting for grain growers, traders and processors. International standards and recommendations such as AACC.	1		
142	Small Scale Dehydrator for Fruits and Vegetables: Application: For dehydration of fruits and vegetables; Dimension: 28"x28"x81". Type: Natural Circulation; Usage: Industrial; Structure: Fire Tube; Pressure: Low Pressure; Style: Horizontal; Fuel: Oil-fired; Output: Steam; Dimension(L*W*H): 2751*1500*1567mm; Rated Evaporation: 0.5t/h; Rated Steam Efficiency: 1.0Mpa; Rated steam temperature: 184°C; Feed Water Temperature: 20°C; Boiler Thermal Efficiency: 89 %; Heating Area: 16.5m2; Boiler water volume: 0.97m3; Running stability: Safe and reliable.	1		
143	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: 4730g; Max. Capacity: 4*300ml; Speed Accuracy: ±20rpm; Timing Range: 0~99min; Noise: ≤58dB; Power Supply: AC220V/110V±10%,50/60Hz.	1		
144	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		
145	Baking Line: Single Deck Baker Oven With Profer (Imported); Verticle Proofer 14 Trays; Dough Mixer (Imported) 15kg; Cutting Table 60"x30"x35"; Bread Slicer; Dough Mixer (Imported) 20Litre, Measurement: Rheology and viscosity, Torque range 0.5nNm to 250mNm, Temperature range -40°C to 300°C, Technology Rheometry – rotational.	1		
146	Digital Burette: Fully-digital controls the parameters setting and burette process, Titration impulse triggered by the motor enables a precision determination, Large LCD screen and all parameters can be set in the controller, with magnetic stirrer, range 0.01 to 99ml, resolution 10µl.	1		
147	Blood Shaker with Accessories: 3D mixing system, Graphics display blue/white with white backlight; Wireless and cable data transmission, Memory card; Weighing range from 10 to 990 ml; Automatic tare to zero for the empty bag; Adjustable Low and High Flow alarms; Adjustable maximum donation time; Automatic clamp of tubing at the end of donation; Weighing accuracy: + 2%. Orbital, 100-500 RPM, 1 to 1199 minutes, diameter: 10mm, Operating temperature range: +4 - 40°C, dimensions: 12 x12 inches, Universal Stand with 4 bars.	1		
148	Digital Stadiometer with Accessories: 3D mixing system, Graphics display blue/white with white backlight, Wireless and cable data transmission, Memory card, Weighing range from 10 to 990 ml, Automatic tare to zero for the empty bag, Adjustable Low and High Flow alarms, Adjustable maximum donation time, Automatic clamp of tubing at the end of donation, Weighing accuracy: + 2%, Multi Orbitrac Elliptical Dual Action Exercise Orbitrack Bike With Twister Orbitrek; Digital tread mill; Recumbent Bike; Adaptive Motion Trainer; Functional Training System.	1		
149	Digital Body Composition Scale with Accessories: Classification: Class 1, Type BF; Ultrasounds Parameters: BUA (Broadband Ultrasound Attenuation), SOS (Speed Of Sounds), OI (Osteoporosis Index); Diagnosing Parameters: OI, SOS, T-Score, Z-Score, % Young Adults, %Age Match, OPR; Methods And Transducers: Single Element Flat Type, Center Frequency: 0.5 MHz; Measurements Time: 15 Seconds; Precision: OI - in vivo <0.7%, BUA - in vivo <0.2%, SOS - in vivo <0.2%; Dimension(mm): 580mm x 300mm x 20mm; Operating Temperature: 5-35 C (50-104 F); Humidity (non-condensing): 20-80 % R.H; Electric Power Requirements: AC 110/220V ± 10%, 50/60 Hz, 120 W.	2		
150	G. C. Hb. Meters with Accessories: Testing principle: Boric Acid Affinity Chromatography; Testing item: Glycohemoglobin (HbA1c); Testing range: 4.0 % - 14.0%; Precision: CV<3% (HbA1c: 4.0 % - 6.5%); Blood sample: Finger blood or venous blood (EDTA Anticoagulation); Blood volume: About 3ml; Testing time: About 5 minutes; Data unite: Set in advance the data unit:NGSP%; IFCC mmol/mol; eAG mmol/l; Voice prompt: Voice prompt in whole process; Data storage: 1000 Testing data; Data port: Mini USB data interface, can be connected with HIS/LIS system printer; Power required: AAA battery x4; Analyzer dimension: 61.5mm x 122.9mm x24.5mm; Screen size: 47mm x 32mm; Weight: 11g (Does not include battery); Operating condition: Temperature: 100C—400C; Humidity: 30%—70%; Storage condition: Temperature: -100C—500C; Humidity: <80%.	1		
151	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		
152	Vacuum Sealer Digital: Application: Chemical, Food, Machinery & Hardware, Medical; Packaging Type: Bags, Film, Pouch, Stand-up Pouch; Packaging Material: Paper, Plastic, Wood; Automatic Grade: Automatic; Driven Type: Electric; Voltage: 220V±10%,50HZ; Power: 650w; Meat; Made: Stainless steel; Production Capacity: 220kg/h; Voltage: 220V; Power(W): 1.1KW; Dimension(L*W*H): 440*210*550mm.	1		
153	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		

154	Texture Analyzer: Max Product Height: 300 mm, Load Cells/Force Range: 5, 10, 15, 20, 30, 50, 100 kg. Force Resolution: 1 gf (grams-force), Force Accuracy: <0.025% Cn*, Speed Range: 0.1-30 mm/sec, Speed Accuracy: 0.03% at 5mm/s, Force Accuracy: Better than ±0.017 %, Position Accuracy: ± 0.02 mm, Precision (RSDr**): ≤ 0.5%, Power Requirements: 110-240 V, 50 - 60 Hz, Body with 6V30W Halogen for 220V/50Hz or 110V/60Hz. Quintuple revolving nosepiece. Sturdy base with supportive rubber feet, 360 x 280 mm. With low position coaxial coarse and calibrated fine focus control. Focusing range: 8mm up and 3mm down from focusing position (1.2mm above stage). Incorporates tension adjustment and safety autofocus stop unit. Filters: blue, green and frosted Specimen stage 160 x 250 mm with glass insert plate. Auxiliary stage 70mm x 180mm included. Built-in power supply. Collector system with integrated iris diaphragm. Dust cover, 2 spare bulbs and instruction manual included. Equipped with 100W HBO burner and focusing/centering screws. B (blue light), G (green light) and O (transmitted light), Excitation filter (EX) (B) EX490, (G) EX545, Double direction dichroic mirror (B) DM510, (G) DM580, Cut-off filter (BA) (B) BA530, (G) BA590, Super high pressure spherical mercury lamp HBO100W.	1		
155	Fluorescence Detector: Wavelength range: 190 to 1100nm, 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 Silicon-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 standard white 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, more than 1.6 million measurements; Temperature range 0 ... +40 °C; Relative humidity 0 ... 85 %, non-condensing.	1		
156	Ultrasound Assisted Extraction with Accessories: Sonication tank; transducer; refrigerated water circulation along with accessories as Motor power (5KW);Screw diameter (30);Screw Centre distance (26mm);Screw material (38CrMoAl);Rotate speed range (0~500rpm);Screw form(Bricks form);Pathway rate (11.6/12.7/23);Rotate speed range (0~550rpm);Temperature control(Electric heat and water cooler);Temperature range(Normal ~300 degree);Temperature (-1degree --- +1degree);Range pressure (0~30MPa);Feed rate (0.18KW);Cutter power (0.25KW);Shape (1.8x1x1.4(m));Output (8-12kg/h).	1		
157	UHT Milk Production Unit: Type: ice cream, Milk, etc. pasteurization; Voltage: 220V/380V; Power(W): 7750W; Product Types: Small Scale UHT Milk Processing Plant; Heating: +65C,+85C,+95C; Cooling: +4C; Capacity: 60L/2hours; Frequency: 50HZ/60HZ; Phase: 1/3; Compressor: Tecumesh; Refrigerant: R404A; Condenser: Water/Air; Material: 304 Food-grade Stainless Steel.	1		
158	Pilot Plant for Juice Concentrates: A-Juice Ingredients Mixing, Pasteurization and Homogenizer Vessel. (All Product Contact Parts made of SS 304) S.S Open-able half lid with motor fitting; Fitted with Three phase 5 HP 2800 RPM motor Driven silver son homogenizer; Double jacket vessel, Jacket filled with thermo oil, gas heating; Temp controlled for maintaining Ingredient Mixing Temp; Total volume of vessel will be 300 Liters and working volume will be 250 liters per batch. B-Processed Juice Storage and Filling Vessel. (All Product Contact Parts made of SS 304), S.S Open-able half lid with motor fitting; Double jacket vessel: Filled with thermo oil, gas heating; Temp controller for hot filling temp; Maintaining; Motor driven stirring, SS shaft with impeller; Four Filling valves for juice filling in the bottles; Total volume of vessel will be 300 Liters and working volume will be 250 liters per batch. C-Transfer pump for juice transfer from one vessel to other and juice filtering column attached to filling vessel. Both tanks connected with each other by using S.S pipes and valves. It is a multipurpose fruit and Vegetable pulping Machine. Single phase 2 HP motor Driven Pulper has Capacity of 0.5Ton per Day. Hoper with worm feeder.Fitted with pulp and seed outlet. All S.S Frame of Pulper to avoid Rust and to maintaining better hygienic conditions. Main shaft SS304 – 25-30mm; Crusher Brush Nylon Teflon (Food Grade) 22"; Nylon Wire length 25mm; Electric motor 1400 RPM 2 HP Single Phase; Foundation totally made of SS 304 channel 3"; Total body and nut bolts of SS 304; Main plate pulp machine SS304 – 6mm; Hopper SS304 – 2mm Wall Thickness; Filter Jali (8" Dia x 24" Length) SS 304 L Fine Jali Hole 0.6mm or as per requirement. Type: Fruit Juice Concentrate Machine; Daily output(T): 0.5; Machine principle: completely function, this machine can pump vacuum, melt crystal, filter sterilizing, fast cooling, continuous batching charging, continuous charging; This machine has advanced inside and outside cover and honey recycle pipe which material is SS304; This machine has evaporator, pre-heating pot, separators, filter, concentrate port, vacuum pump; Heat supply: Electrical steam; Motor: 1.5 KW, 220/380; Motor power: 11; Concentration effect(kg): Increase 3.48e per hour.	1		
159	Pasteurization and Cooling Tanks: Stainless steel tanks with capacity of 10 to 100 Liters along with machine that can fill all kind of liquids of juices. Dose type with double nozzles, variable volume capacity 100ml to 1000 ml.(1ml variable sitting). Electronic variable speed setting (15 to 45dose per min.) and speed digital display. S.S. Body, S.S. 316 pumps and fitting, plunger made of Teflon, spare silicon rubber, 'O' rings. For cleaning/ sterilization of pumps and accessories dismantling is very easy and without tools.	1		
160	Spray Dryer: Feed in (Kg/hr):33; Evaporation (Kg):16; Powder Rate (Kg):17; Power (kw):7.7; Cyclones: 1; Length (m): 2.3; Width (m): 2.5; Plant Height (m): 4.41 along with accessories as complete system for microencapsulation under open working conditions Integrated nozzle heating Liquid pumping by air pressure Concentric Nozzle Set, Nozzle set for capsule production Pulsation chamber shell vibrated plus a set of 7 external nozzles with high precision opening of 0.2, 0.3, 0.4, 0.5, 0.6, 0.7 and 0.9 mm made of stainless steel 1000 mL pressure bottle O-ring set for concentric nozzle Pre-filters for nozzle, diameter 7 mm (10 pcs.) Sterile containment for encapsulator with overall dimension of 850* 550 *850 (W * D * H) mm and purification area size of 700* 500 * 450 (W * D * H) mm System compatible UPS.	1		
161	Blanching and Washing Unit: Application: For fruits and vegetables; Dimension: 24"x24"x35"; Type: drawer type.	1		
162	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		
163	Laboratory Muffle Furnace: For temperatures adjustable up to 1100 °c. Microprocessor control with TFT touch screen. Precision ±2 °c of the set value. Resolution: 1 digit. Metal external case with vent at the back of the unit. Interior and door made of ceramic fibre, resistant and durable USB and RS-232 output. Self-test on starting. Type k probe. Stability time from 1 min to 99h or continuous. Programming mode 10 programs capacity. 6 segments per program. Network failure detection alarm. Probe error detection alarm. Over temperature and low temperature alarms. Visual audible warning alarms. Data logging memory up to 10000 data. Logging interval from 5 seconds to 30 min. Data download via RS -232 or USB. Pc software for on-line registration capacity 7 liters.	2		
164	Fruit and Vegetable Cutting Tables: Product: Stainless Steel Work Table; Size(mm): 800*700*H850; Material: Stainless Steel 304,201,430; Thickness: 0.7-1.0; Surface treatment: Brushed; Shelf: 2; Reinforcement: Reinforcing bar/wood board/forming; Structure: Knock-down; Feet: Adjustable 3cm.	4		

165	LC MS-MS: Binary Gradient Pump: Operation pressure range 0-60 MPa or better; Flow 5ml/min or above; High Pressure Binary Mixing Gradient; Delay volume as less as possible (120 uL or less); pH range 1-12 or above; Operation temp 4-55 oC or better. Auto Injector: Autosampler with variable volumes; Capacity 130 Vials of 2mL or above and option of upgradation of vials. Precision 0.25% at 5 uL to 100 uL or better; Injection volume range: 0.1 to 800 uL or above; Thermostating range 4-40oC. Column: Space up to four columns with 30 cm length and temp range 10 to 85 oC or above; Column Identification module should be offered as standard for GLP documentations. UV Detector: Double beam photometer; Max sampling rate 120 Hz; Light source, Deuterium Lamp Design; Noise < ±0.25 x 10-5 AU at 230 nm; < 0.80 x 10-5 AU at 230 nm and 254 nm (dual wavelength selection) or better; Operating temperature from 4- 55 oC. Mass: Range 5 to 2250 Da C175(detectable mass to charge range for singly charged ions) or better Resolution 0.5 Da manual and 0.7 Da auto or better; Mass Accuracy ± 0.1 Da or better 5-1000 m/z 0.01%, 1000-2000 m/z Mass Stability ± 0.1 amu or better over 24 hours Scan rate 12,500 Da/sec, Scan speed for given mass range for single charged ions; Sensitivity S/N > 6000:1 (noise = 1 x RMS) Positive ion 1 pg reserpine on-column, MRM m/z 609 > 195; Sensitivity S/N >2000:1 Negative ion 1 pg chloramphenicol on-column, MRM m/z 321 > 152; Sensitivity IDL: 60 fg (Measured @ 100 fg) Positive ions using reserpine on-column, MRM transition m/z 609.195; Sensitivity IDL 60fg (Measured @ 100 fg) negative ion using chloramphenicol on-column, MRM transition m/z 321 > 152.1 pg/µL solution will produce a minimum signal-to-noise ratio of 100:1 Accessories: Nitrogen Generator for LC MS system. Provide full continuous nitrogen capacity for single LCMS system in ESI or APCI modes. Include spare gas conditioners, pre-filter and catridges. Helium Gas Cylinder and regulators; Kits: MS accessory kit, calibration compounds kit, ESI/APCI source; Lan communication interface, Autosampler vials 100/pk minimum 3 numbers; HPLC columns 2.7 um, C18 5 um, C8 5 um Three columns atleast UPS 10 kVA online with 45 minute backup, pure sine wave Data processing units: Branded core i7 system with latest HP printer LED, 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, drug, pesticides, metabolites and toxicology. Tuning: auto; Warranty Two years including parts and sale after service. Installation and training of the module should be done by the Principal Supplier. Internation training of operation and services for 1 person.	1		
166	Ultra-Centrifuge Microprocessor controlled electronics with battery back up, Flat touch-screen display, Thermo-electric cooled chamber and Air-cooled drive , CFC Free, Imbalance tolerant, Complete unit with accessories Maximum speed (rpm) 100,000 ± 2 rpm or better; Maximum RCF (x g) 802,000; Maximum capacity (mL) 6 x 250 Tachometer: built-in to show live speed, Fitted with lid locking device, Emergency lid lock released, Motor over heat protection,Transparent lid, Automatic restart after power loss regardless of speed, Imbalance detector, Automatic rotor logging and on-board rotor and tube library and catalogue., Automatic, manual and graphic set-up of run parameters, Automatic Dry Cycle, Rotor Chamber pre-cooling and pre-heating Operate in ambient temp. range of 10-50°C. Temp. control range 0 to 40°C with 1 C increment. Infrared radiometric temperature control system accurate to +/-0.5°C. Automatic over temp. setting, Moisture purging vacuum pump Calculation and conversion features e.g. Convert RPM to RCF., speed rpm: input in increments of 100 Timer 1 minute to 999 hours 59 minutes (with one minute increment) with hold function. UPS 10 KVA., Automatic rotor life management for rotors., Floor Modal Vaccume System: oil roatry vaccume pump and oil diffusion pump. Power :200 - 240 Volts single phase with Tube Kit (autoclaveable, reusable tubes) 10 years drive warranty With all standard accessories. Saparately quote prices for: A-Fixed-Angle Rotor for 2, 15, 50 ml tubes B-Swinging buket rotor for 2, 15, 50 ml tubes including adaptors	1		
				0.000

Format for Technical Bid

1	2	3	4	5	6	7
Sr. No. as per University Tender	Equipment Name & Specifications	Model / Part #	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, manufacturing year, warranty etc. For further guidance follow the subject tender terms and conditions.					
2						
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.						
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

1	2	3	4	5	6	7	8	9	10
Sr. No. as per University Tender	Equipment Name (with accessories as per technical bid)	Model / Part #	Quantity	Currency Description (e.g. USD, EURO etc)	Unit Price	Total Price	Conversion Rate (Dated)	Total Price (Rs)	2 % Bid Security (Rs)
1									
2									
3									
4									
.									
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.									
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 value must be inclusive of all charges/taxes 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: