Tender Notice No. JNTUK/SFT/2018-19/Lab. equipment **Date: 04-10-2018**

TENDER SCHEDULE

1. Sealed tenders are invited from reputed manufacturers/Authorized suppliers in India for supply of Ion Chromatography System, Semi Micro Balance, Micro balance/ Analytical balance, UV-Vis Spectrophotometer, Digital Flame Photometer, Digital Ultrasonic bath with lid and a basket, Homogenizer, Refrigerators, Temperature data loggers and Hygrometers. Specifications and all the details are given below separately.

2. **Method of Selection:** Selection of the bidders will be a two stage process. In the first stage the bidders will be pre-qualified based on the compliance to specifications and other requirements mentioned in the Technical Bids. The bids of Technically qualified bidders only will be considered for opening the Financial Bid.

3. **The Bidder must submit one copy each of the technical bid and the Financial Bid in separate sealed covers. Bids received in unsealed conditions will be summarily rejected.**

4. The Bidders are required to submit two envelops, one labeled 'Technical Bid' and the other labeled 'Financial bid', for each equipment separately. Both the bids must be sealed in one larger envelop and should be marked, super scribing as "Tender Notice No.", "Tender for …….. (Name of the Equipment)- The name of the Bidder submitting the bid must also be clearly indicated on the envelope.

5. The sealed covers should be sent by the Registered Post to the registrar (or) to be dropped in the sealed box provided in the office of the Registrar on or before **22nd October 2018 at 15:00 hours**.

6. Date of opening Bids:
   a) Technical Bids: 25-10-2018 at 16:00 hrs
   b) Financial Bids of technically qualified bids: 05-11-2018 at 11:00 hrs

7. Documents to be submitted by the bidder:
   a) Technical bid in the format prescribed along with supporting documents like application notes and other details, if any, can be attached as mentioned herein with signature, name, designation and seal of the authorized representative of the bidder on each page of the technical bid.
   b) Financial bid in the format prescribed in this document with signature, name, designation and seal of the authorized representative of the bidder on each page of the financial bid.
   c) Under taking, accepting all the terms and conditions, as given in the tender document.
   d) A list of at least 5 Installations of the quoted model or a comparable model of equivalent sensitivity in the country, preferably in Food sector along with the Contact Name, contact no, mail ID and complete address along with technical bid.
   e) At least two Performance certificate from the organizations (at least one from the Government sector), where the quoted model/ or any other model of equivalent sensitivity has already been installed, indicating LOD/LOQ of at least 10 parameters relevant to food sector.

8. The tenderer should produce copy of GST certificate and PAN card.

9. Non-refundable processing fee, for each equipment separately, of Rs. 1000/- in the form of Demand Draft drawn in favor of "The Registrar, JNTUK, Kakinada" payable at Kakinada are only eligible to participate in the tender.

10. JNTUK is registered with DSIR and exempted from payment of excise and Customs Duty.

11. Since JNTUK is a Government University. Whatever conditions are applicable to any Government institute shall be applicable, even if not specified.

12. Any tender that is received after due date will not be accepted. JNTUK is not responsible for any postal delay.

13. **ACCEPTANCE:** It is not binding on the university to accept the lowest of the tenders. The university reserves the right to place orders for individual items with different tenderers.

14. JNTUK reserves the right to accept or reject any or all of the offers at any stage of the process without assigning any reasons thereof and any claim /dispute on this shall not be entertained.

15. No financial costs should be mentioned in the technical bid and the same shall be provided separately in a sealed envelope marked financial bid.

16. The financial bid has to be filled necessarily in the format given and has to be signed by the authorized representative of the bidder with full name designation and seal on each page.

17. Bidders should quote in INR or Foreign currency but the Final Price offered should be inclusive of all charges involved up to delivery and installation at JNTUK Kakinada.

18. The supplier should aim at a turnkey supply and installation of the equipment. Any accessory which is felt mandatory for the proper working of the equipment but not mentioned in the specification has to be quoted and supplied along with.

19. Any unfair practice detected at any stage of the tendering process will lead to automatic disqualification/blacklisting of the concerned firm.

20. Price quoted should be valid for minimum 1 year.

21. **Delivery period:** The period of delivery at destination from date of placing orders is 60 days.

22. Payment terms: 100% Payment will be made only after the receipt of all items in good condition, successful installation, satisfactory demonstration of Instrument performance as per Tender Specifications, training and validation (wherever applicable), and on receipt of the company's invoice with all required supporting documents. **No Advance will be paid in any case either in part or in full.**

23. **Delivery Terms:** F.O.R. Destination: JNTU Kakinada campus. The delivery should be compulsorily up to JNTU Kakinada. The price should be F.O.R. destination inclusive of taxes, packing & forwarding charges, freight and delivery charges.

24. The bidders need to give an undertaking that application support and services would be available for minimum 5 years.

25. Service support should be available to School of Food Technology, JNTUK turnaround time of 3 working days.

26. EMD: The tender should be submitted along with earnest money deposit in the form of Demand Draft in favor of "The Registrar, JNTUK, Kakinada" to be payable at State Bank of India, GEC campus, Kakinada. The EMD for various equipment are as follows:

S.NO	EQUIPMENT	EMD in Rs.	Rs. In words
1	Ion Chromatography System	60,000	Sixty Thousand
2	Semi Micro Balance	10,000	Ten Thousand
3	Micro balance/ Analytical balance	10,000	Ten Thousand
4	UV-Vis Spectrophotometer	10,000	Ten Thousand
5	Digital Flame Photometer	10,000	Ten Thousand
6	Digital Ultrasonic bath with lid and a basket	10,000	Ten Thousand
7	Homogenizer	5,000	Five Thousand
8	Refrigerators (2No's)	5,000	Five Thousand
9	Temperature data loggers (2 No's)	5,000	Five Thousand
10	Hygrometers (6 No's)	5,000	Five Thousand
11	Nitrogen Generator	20,000	Twenty Thousand

Registrar

ITEM NO: 1

Ion Chromatography System

SPECIFICATIONS

S. No.	Main Heads/ Components	Specification
1.	**Ion Chromatography System**	1. The Ion Chromatography system to be quoted must be latest, high end and should have inert, nonmetallic PEEK (polyether ether ketone) fluidic components throughout the system to ensure solvent compatibility and metal contamination-free chromatography. 2. Ion Chromatography System to analyze Cations like Na+ , K, Li+ , NH4 + , Ca+ , Mg, etc. and anions like Cl- , F- , Br, NO2, PO4 -3 ,SO4 -3 , etc., and Organic acids, carbohydrates, cyanide, sulfide, Propyl amines, Cyclohexylamines in ppm/ppb range. The system should be capable of running suppressed and non-suppressed conductivity detection only for conductivity application for better results. Complete system should be controlled by the Chromatography LICENCED version of software. 3. High Performance fully Integrated & Preconfigured Ion Chromatography System designed to perform ion separations with conductivity detection, Electrochemical/amperometry detection in trace ppb range (<1ppb) with suitable software. 4. The flow paths should be of PEEK or inert material withstanding the entire pH range 0-14. 5. PC based system with data acquisition and system control through the same software. 6. Software identify for the column connected. 7. System should be upgradable to future for dual configuration 8. Quaternary Gradient Pump: One number serial dual pistons pump of built-in Low/High pressure of serial dual piston type for running gradient and isocratic applications. • Flow range: 0.001 to 10.00 ml/min or better • Resolution/Increment of flow rate: 0.01 mL or better • Pulsation/Ripple: Lower than 1% or better • Reproducibility/Accuracy of eluent flow: ± 0.1% or better • Pressure range: 0 – 5000 PSI • Gradient Profile/Progression: Linear, Concave and convex. • A suitable inline mobile phase degasser for pump should be provided • Delay volume should be <600µL 7. Separation Compartment: I. Temperature of the column oven should be in the range from 10°C to 70°C with setting increment of 0.1°C II. accuracy in temperature should be about ±0.5°C III. Capable of housing atleast two columns for simultaneous measurement IV. It should contain leak sensor to detect any leak

V. Suppressor with low noise of about ≤0.2nS and void volume of < 75 µL
VI. Motorized Injector port controlled by software

8. Conductivity Detector: One number of conductivity detector for analysis of anion and cation, microprocessor based with a Thermostated micro-flow cell conductivity block, cell temperature stability/accuracy <0.0010 C. The user should be able to set temperature of the conductivity block up to 500C.

- Conductivity measurement range: 0 – 15000 µS/ cm or more
- Noise < 0.1nS/cm at 1uS/cm level
- Temperature coefficient/Linearity range 0-5% or better.
- Temperature ranging from >20°C to 50°C or greater with a stability of ≤ 0.001° C
- Adjustable cell constant with flow cell volume – 0.7 to 1µL
- Maximum pressure should be >700 psi
- Programmable temperature compensation with auto ranging facility

9. Electrochemical Detector: must have the following modes of operation for determination of cyanide, sulphide and carbohydrates using a flow through cell. Pulse amperometry or integrated mode of detection, DC amperometry mode of detection or CV mode. Infinite waveforms and Infinite integrations times must be supported to optimize detection conditions for individual analytes. The detailed specifications are as under:
    i) Highly sensitive electrochemical detector for oxidative and reductive detection with a current ranging from ~2nA or lower to 2mA or better. It should have DC, Scan and Pulsed Amperometric modes for analysis requirement.
    ii) Complete detection system with detection cell and other accessories
    iii) Three electrode measuring cell with relevant working Electrode
    iv) Electrodes should be quoted for continuous use
    v) Reference electrode
    vi) Working electrode: Gold with polishing kit and glassy carbon.
    vii) Potential Range: ±2.00 V or better in 0.001V increment
    viii) Should be able to connect other detectors in series for parallel monitoring of two detectors
10. Column Housing: Housing for columns (up to two) in a thermostated block with temperature control range 5°C to 70°C or better.
11. Injector: Electrolytically activated 6 port with fast response time, rheodyne injection valve operable through software with the option of variable sample loops from 5,10,20,50,100 and 250 µL
12. Suppressor: Membrane based suppressor for system using Hydroxide eluent or 'packed bed suppressor' along with carbonate suppressor for system using carbonates based eluent for anions. Suppressor for cations should also be quoted along with its regenerant accessories. The suppressors must be operated continuously for anion as well as Cation applications with 2mm ID for 0.25ml/min flow of eluent.

		Suppressor regeneration must be carried out electrolytically in recycle mode Suppressor device must be able to suppress hydroxide or methanesulfonic acid eluents as required for EPA, ASTM, ISO, or other standardized methods. All the separate accessories should be available for operation of cation as well as anion suppressors. 13. Chromatographic columns: All the following columns should be supplied for specific applications and all these columns should be accompanied guard columns and other essential accessories. I. Column for analysis of anions and organic acids II. Column for analyses of cations, propylamines and cyclohexylamines III. Column for analyses of carbohydrates IV. Columns for analyses of cyanide and sulphide Columns should be compatible for Hydroxide and MSA eluents respectively. Column chemistry also should be compatible for IC- ICPMS hyphenation - speciation applications 14. Connector kit should be provided for speciation studies. 15. Data Processor: A PC with high end configuration along with Laserjet coloured multifunctional printer for the data acquisition & processing system along with complete system control should be offered. The necessary software should be fully Windows based. The software should be able to control the system. 16. Auto sampler should have 50 vial position of vial capacity 5mL or more sample volume minimum. Should have non-metallic flow path and should be completely controlled by software. Vials of other capacities should be quoted. Should be quoted with minimum of 200 numbers of vials along with instrument 17. Mobile Phase PTFE Containers with pressurization & helium purging facility of capacity 1L for the storage of Eluent and regenerant should be quoted separately as per need of applications. 18. Others IQ/OQ/PQ of the system and for individual modules are required. Standards, chemicals, filters for 2000 samples. Two additional set of consumable except columns should be quoted (not cover under warranty) Local party items supplied should have 3-year warranty e.g. UPS, PC etc. Solvent filtration kit has to be supplied along with system. UPS with half an hour back up. Solvent and sample filtration Unit should be quoted. Nitrogen Cylinder- 3 No's with purification panel should be included with main quote. Consumables should be provided for 5 years should be included with main quote. Warranty-Minimum five years comprehensive warranty from the date of installation.

ITEM NO: 2

Semi Micro Balance

SPECIFICATIONS

S. No.	Main Heads/ Components	Specification
1.	**Semi Micro Balance**	Parameters Range Maximum Capacity : upto 40 gm : upto 60 gm : upto 120 gm Readability : 0.01 mg : 0.01mg : 0.1mg Repeatability : 0.02 mg : 0.04 mg : 0.07mg Linearity : 0.1 mg : 0.1 mg : 0.2mg Setting Time : 6 s : 6 s : 2 s Pan size: 80mm Bottom Housing: Metallic Calibration: Internal calibration with ISOCAL facility Power Supply: 100 – 240V AC, 50-60 Hz Display: LCD/LED digital display Standard Features The balance is Fully Microprocessor based RS232 Interface for Printer/ Computer. Direct data transfer to windows programs. The Balance is compact in design & Windshield 3 sides accessible Leveling for centering (Screw arrangement) Required Cables, Instruction manual with calculation sheet and results. Supply should be completed with all accessories required for installation and commissioning of the items at site Display result: 0.2/0.4 IP Protection : IP43 Sensitivity Drift between: 1 Warranty-Minimum five years comprehensive warranty from the date of installation.

ITEM NO: 3

Micro balance/ Analytical balance

SPECIFICATIONS

S. No.	Main Heads/ Components	Prescribed Specification
1.	**Micro balance/ Analytical balance**	Capacity : 21g Repeatability: 0.002mg Linearity: 0.004mg Settling time : 8s PAN Size : 50mm Calibration : Internal Calibration modes : Cal touch key with built in or external weight Operation temperature range :5 to 40°C Functions: Specific gravity measurement software, piece counting, % display, unit conversion Built in clock : Yes Data : RS232 Power : AC 100-240,50/60 Hz Display result: 0.2/0.4 IP Protection : IP43 Sensitivity Drift between: 1 Warranty-Minimum five years comprehensive warranty from the date of installation.

ITEM NO: 4

UV-Vis Spectrophotometer

SPECIFICATIONS

S. No.	Main Heads/ Components	Specifications
1.	**UV-Vis Spectrophotometer**	Supplying, Installation, & Demonstration of Microprocessor based UV-Vi Spectrophotometer with operation on 220 V/ 50 Hz following specification: Optical Design: True Double Beam with sample and reference cuvette positions lens free system to reduce chromatic aberrations Monochromator: Czerny-Turner Monochromator with blazed holographic gratin with 1200 gr/mm or better. Light Source: Deuterium and Tungsten Halogen/ Xe Flash Lamp. Lamps shoul have 5 years of warranty Light source changeover : Auto (user selectable from 325 to 370 nm) or better Capable For solid, liquid and film analysis is desirable. Detector: Dual Silicon Photodiodes/ Photo Multiplier Printer Interface: Interface for external printer connectivity or through PC Serial Interface: RS-232 (exclusive for UV solutions program) or USB connectivit for PC Quartz cuvettes: 1 and 3ml capacity 10 mm path length Scan Ordinate Modes: Absorbance, % Transmittance, % Reflectance Concentration, 1^{st}-4^{th} Derivative Wavelength Range: 190 to 1100 nm or more Spectral bandwidth: Variable and from 0.5 upto 20 nm. Wavelength Accuracy: ± 0.1 nm (@ D2 Peak @ 656.1 nm) & ± 0.3 nm (full range) Wavelength Reproducibility: ≤ 0.01 nm Scanning Speed must be <1 to 6000 nm/min; continuously variable Should have Data Intervals: 20, 10, 5, 2, 1, 0.5, 0.2, 0., 0.05 nm) Should have Photometric Range of: 4 Abs 0 to 300% T Should have Slew Speed of 30,000 nm/min Photometric Accuracy: (@0-.5 Abs): ± 0.002Abs; (@.5-1Abs): ± 0.004Abs. NIS SRM 930 ± 0.008Abs; (@1.0-2.0Abs) ±0.3% T

		Photometric Reproducibility: ± 0.001Abs @ 0 to 0.5 Abs (Certified according t ±0.002 Abs (0.5 to 1.0 Abs) NIST SRM 930) ±0.004 Abs (1.0 to 2.0 Abs) ±0.1% T Response: Fast, Standard, Slow Baseline Stability: 0.0003 Abs/h (at 500nm, 2 hours Photometric Noise: 0A: ≤ 0.00005 Abs (@700 nm RMS) Drift: < 0.0005 A/hr (500 nm, 1.0 nm SBW, 1 hour warm-up) Stray light: ≤ 1% T at 198 nm (KCl), ≤ 0.02% T at 220 nm (NaI), ≤ 0.02% T at 34 nm ($NaNO_2$) Baseline flatness: ±0.0005 Abs(After 1 hour of warmup) within 200 to 950 nm GLP/GMP complied USB ports for high speed PC and printer connectivity, data storage and transfe through USB Pend drive Large sample compartment compatible with wide range of accessories Compatible PC and offline UPS Cuvettes should be supplied along with the instrument Optional Item: For solid, liquid and film analysis is desirable using 50 mm or mor Integrating Sphere attachment Software should include following features Measurement Mode: Photometry, Wavelength scan, Time Scan & Multipl Wavelength, Ratio (260/280) Working curve type: Linear, Quadratic, Polygonal line & K Factor input, calculatio of correlation coefficient, concentration unit input, kinetic assay, spectrum an working curve printout, spectrum display, Peak/valley detection, Tracing, Scal Expansion/ Contraction, Smoothing, Differentiation, Area calculation, Fundamenta arithmetic calculations between spectra, Data saving, validation functio Automatic wavelength calibration, Self-diagnostic functions, Lamp ignition tim etc. Live Display offers walk-up simplicity for real time single wavelengt measurements or quick identification of a sample peak Next-generation Quantification package makes quantitative analysi straightforward Advanced Fixed wavelength analysis with graphical data display and user define limits Integrated calculations provide more data per measurement in Scan and Fixed

		Wavelength scanning application with advanced tools for peak analysis and spectral processing Advanced kinetics features including multi-stage measurement,temperature ramping and comprehensive data fitting options Seamless paper-based reporting with user defined parameters Workbook and template scheme makes data organization easy Warranty-Minimum five years comprehensive warranty from the date of installation.

ITEM NO: 5

Digital Flame Photometer

SPECIFICATIONS

S. No.	Specifications
1.	The flame photometer should be able to detect and display 5 elements simultaneously Na, K, Li, Ca and Barium. The system should come with built-in filters for all the above 5 elements. The Flame photometer should have Auto ignition feature. Also, there should be a flame detector installed in the system to monitor to see if the flame has lighted within a set period, if not, the system should turn off the fuel and sound alarm. There should be a provision to see the flame through a port in the side of the chimney to adjust the flame and also should have a "Flame Set" feature where a graphic and number are displayed that can be used to consistently return to the desired flame setting. The system should be capable of handling single point calibration and multipoint calibration with the following ranges. Also, the system should be able to store calibration data and perform multi-mode calibrations to reduce analysis time significantly. Single Point Calibration — Multi Point Calibration Na - 0.05 - 60ppm — Na - 0.05 - 1000ppm* K - 0.05 - 100ppm — K - 0.05 - 1000ppm* Li - 0.1 - 50ppm — Li - 0.1 - 1000ppm* Ca - 2.5 - 100ppm — Ca - 2.5 - 1000ppm* Ba - 30 - 3000ppm The coefficient of variability should be <1% for 20 consecutive samples over 10 minutes (after instrument stabilization) at concentrations of 100ppm or less. The instrument should be very sensitive and should give the following detection limits for all the five elements. Limits of Detection Na - 0.02ppm K - 0.02ppm Li - 0.05ppm Ca - 1.0ppm Ba - 10ppm The instrument should be able to achieve the stability and give the stable readings in less than 15 seconds after sample is introduced into the flame. The system should have option to choose different units of measurement : ppm, mg/l,meq/l mmol/l The measurement drift should be less than 1% per 30 minutes after instrument stabilization The sample aspiration rate should be between 3-5 .5 ml /min The flame photometer should have USB and RS232 interfaces to connect to the computer. The specificity for these elements should be Na/K/Li = <0.5% to each other when equal in concentration at <100ppm. It should be possible to use Propane, butane or LPG gases. The instrument should be devoid of internal standardization for simplification of operation. The use of internal standard would cause complications significantly for obtaining quick and

	easy results. The task of adding precise amounts of an internal standard element to all samples and standards is considerable and apart from the possibility of induced errors, time and cost are real considerations. The instrument should come with built-in compressor and external compressors are not preferred. The FP-PC software should be supplied along with the flame photometer. It should be written with GLP compliance in mind and should facilitate the creation of data and reports in PDF format. The instrument should come with a starter pack containing Pipettes, Volumetric Flask, Sample Cups and standards for all the five elements. Range Sodium 0-100 ppm Lithium 0-100 ppm Potassium 0-100 ppm Calcium 15-100 ppm Sensitivity Full Scale: Reading 100 can be adjusted Sodium 01 ppm FSD or better Lithium 01 ppm FSD or better Potassium 01 ppm FSD or better Calcium 10 ppm FSD or better Accuracy ± 2 % of FSD Reproducibility ± 1 Digit Display 2 & ½ Digital Display Fuel LPG Compressor Oil free portable (diaphragm type) mini compressor unit with pressure regular Regulator In built preset regulator Nebulizer Concentric non-corrosive nebulizer Atomizer Axial flow type Detector Photosensitive device / silicon photodiode Ignition System In-built electronic ignition by press of switch Filters Narrow band Interference non faded glass filters turret mounted (sodium, potassium, calcium, lithium are included) Burner Stainless Steel Recorder Output 0-200 mV full scale and 0-100 mV useful for 100 counts Power 220 ± 10 % Volt AC 50 Hz

	Li Filter Ca Filter Auto Shut off at Power off for LPG Gas Line Spares Fuse: 10 No. Atomizer (Nebulizer Assembly): 02 No. Sensitivity Plot: 02 No. Zero Fine Plot: 02 No. Micro Switch: 02 No. Mixing Chamber Assembly with SS Burner: 02 No. Nebulizer Inlet Tube (Roll of 1 Feet) : 03 Roll Photosensitive detector 02 No Narrow band Interference non faded glass filters turret mounted for sodium, Potassium, calcium and lithium:01 No Warranty-Minimum five years comprehensive warranty from the date of installation.

ITEM NO: 6

Digital Ultrasonic bath with lid and a basket

SPECIFICATIONS

S. No.	Specifications
1.	Capacity (ltr): 5.5 Temperature controller and display Timer to use for specific time as required Power: About 2650 watt Fast Degassing should be provided Frequency: 40 KHZ Drain outlet valve - Complete drain without tilting List of Accessories- To be specified. Should include Stainless Steel baskets, Support rack & beaker position cover, Lid and two set of all fuses used in the instrument Safety requirements- As per International Standards, to be specified Suitable solid inert stainless steel tray and beaker positioning cover for minimum three 250 ml beakers should be provided (pls specify) Warranty-Minimum five years comprehensive warranty from the date of installation

ITEM NO: 7

Homogenizer

SPECIFICATIONS

S. No.	Specifications
1.	Compact digital unit with high watt motor 0.2ml - 2L volume range Viscosity up to 50,000 mPas Bright LED display & user-friendly Volume Processing Range: 0.2ml - 2L* Power Rating: 350 Watts RPM Range: 0 – 45000 rpm Speed Control: Digital; Variable Speed Probes Features: Made from 316 Stainless Steel and PTFE Precision crafted rotor-stator generator probe Quick connect design for ease of use and safety Disassemble and reassemble in seconds Chemically compatible with all cleaning methods and most reagents Variety of diameters from 6mm - 20mm and lengths to be provided Probes to be provided: 6mm saw probe for 0.2ml – 50ml; 10mm saw probe for 10ml – 100 ml, 20mm saw probe for 250ml -2000 ml Warranty-Minimum five years comprehensive warranty from the date of installation.

ITEM NO: 8

Laboratory Refrigerator (2No's)

SPECIFICATIONS

S. No.	Specifications
1.	Capacity: 300 litre Inner Cabinet made up of durable white epoxy Painted steel / Stainless Steel SS304 Inner shelves are made of epoxy plastic coated steel rods/ shelves made of SS304 Outer cabinet made up of corrosion resistant powder coated CRCA sheet Full length illumination with additional ON/OFF switch. Fitted with castors, front two wheels with brakes. Self-closing, swing type hinged Double glazed shatter-proof tempered glass door provides safety Heated film on glass door prevents water condensation Glass Door with lock and key CFC/HCFC free Eco friendly refrigeration & PUF insulation. No frost, fan assisted cooling circulation system & sensor activated auto defrost mechanism. Ultra-fast pull down & self-evaporating drip tray. Rear to front hot air anti condensation. Low noise, green technology & energy saving. Hermetically sealed type compressor. Microprocessor based Digital temperature controller. PT100/ NTC thermistor sensor with calibration certificates traceable to national standards. Provision of access port for connectivity purpose. Password protected configuration for preventing authorized access. Input 220/240V, 50 Hz with power cord & plug. Battery backup (10-24 hours) for Digital Temp Display, Alarm Functions & Chart Recorder/ Audio- visual alarm for high/ low temperature deviation & door open/ close. Alarm for sensor failure, power failure & low battery (optional). Suitable for operation at high ambient up to 45°C. Complies with Electrical safety standards of EN-61010-1:2010 & EN 61326-1:2006. Factory tested IQ/PQ documentation Data loggers for continuous recording and monitoring of temperature / humidity with battery back-up, SMS/Email alert, remote monitoring (WI-FI) and data acquisition with continuous data storage upto minimum of 3 to 6 month time (Optional to be offered at extra cost) Company must provide proof of selling same items with these specifications Note: All components like Body parts, control system and refrigeration should be from the same Manufacturer/Company. Company/Vender should have local service support and service, engineer must attend the complaint within 48 hours. Warranty-Minimum five years comprehensive warranty from the date of installation.

ITEM NO: 9

Temperature data logger- (2No's)

SPECIFICATIONS

S. No.	Specifications
1.	1. Purpose of Equipment: Functions as portable monitor for use in refrigerators/ Oven/Incubators. 2. It displays and stores data that can be downloaded to a PC with MS windows supported software. 3. Temperature range – 30˚C to 50˚C 4. Accuracy: 0.3˚C 5. Measuring interval- 1-255 mins 6. Memory Size: 2000 to 2500 Measurements. 7. External Material: Stainless steel/Plastic. 8. Weight: 3 to 5 gm. 9. Power source: internal lithium battery. 10. Battery life available: 5+ years or 1 million measurements. 11. Reading software and cable needs to be provided. 12. The equipment quoted should be CE Certified or USFDA approved. Warranty-Minimum five years comprehensive warranty from the date of installation and with NABL calibration certificates for each year to be included with the quote.

ITEM NO: 10

Digital Temperature Humidity Meter (6 No's)

SPECIFICATIONS

S. No.	Specifications
1.	1. Temperature -20 °C to 60 °C ± 0.5 °C - Readability 0.1 °C 2. R.H. 5 % to 95 % R.H. ± 2.5 % - % R.H readability 3. Backlit dual display of humidity and temperature 4. Past record storage capacity 5. Min/Max/Avg data hold 6. Low battery indicator Warranty-Minimum five years comprehensive warranty from the date of installation and with NABL calibration certificates for each year to be included with the quote.

ITEM NO: 11

Nitrogen Generator

SPECIFICATIONS

S. No.	Specifications
1.	The system should be of modular design, compact in size, automatic operation, minimum noise level, low operational cost. Nitrogen should be generated from the atmospheric air. Whole system should be compact and properly assembled without any leakage with operating voltage 230v50 Hz. The equipment should be capable of running for 24 hrs round the year. Installation – indoor. Should employ membrane technology. Should provide us with a certificate of suitability of gas generator. Outlet pressure -6.5-7 Bar. Flow rate: should be 5 L/min. It should have inbuilt requisite filters. Service due &high duty alarm inbuilt in system. Safety- it should have safety system with safe alarms. Outlet temp.-ambient. Compressor should have air buffer vessel so as to heave compressor operating in phases(Automatic on off modes depending on pressure side the compressor). Should work in temperature range of 15 to 30 degree Celsius in humidity range of 65-89%. Suspended particles in generated nitrogen less than 0.01 micrometres. The nitrogen generator should be supplied with a suitable built in quiet air compressor 50-55- dB so that is can be kept inside the laboratory. It should be Oil free piston compressor. Should have proven certified installations at least 25 no's from the country. Please submit reference list of installations. Spare parts should be available for next ten years. Warranty-Minimum five years comprehensive warranty from the date of installation to be included with the main quote.

FORMATS FOR BIDS

FORMAT OF THE TECHNICAL BID:

1. **Name of the Equipment: ……..**
2. **Model: ……..**
3. **Specification and cost:**

S. No.	Main Heads/ Components	Specifications Given in the tender	Specification of the Quoted Model	Deviations, if any.	Additional features, if any

4. Undertaking

I …….. (Name of the person) Authorized signatory of M/S …….. (Name of the firm) herby agree to all the term and conditions. JNTUK in its own discretion can cancel /modify the tender process and will have the right to accept or reject any or all Bids and to annul the qualification process at any stage without any liability or any obligation for such acceptance, rejection or annulment, without assigning any reasons

Name:

Signature:

Date:

Seal:

FORMAT FOR FINANCIAL BID:

1. **Name of the Equipment: ……..**
2. **Model: ……..**
3. **Specifications and cost:**

S. No.	Main Heads/ Components	Specifications Given in the tender	Specification of the Quoted Model	Cost in INR or Foreign Currency

4. Undertaking

I …….. (Name of the person) Authorized signatory of M/S …….. (Name of the firm) herby agree to all the term and conditions. JNTUK in its own discretion can cancel /modify the tender process and will have the right to accept or reject any or all Bids and to annul the qualification process at any stage without any liability or any obligation for such acceptance, rejection or annulment, without assigning any reasons

Name:

Signature:

Date:

Seal: