

**Khwaja Fareed University of Engineering &  
Information Technology, Rahim Yar Khan**



# **Tender Document**

**Tender No. Lab-098**

**Supply and Installation of Lab Equipment for Chemical  
Engineering Department**

**at**

**Khwaja Fareed University of Engineering  
& Information Technology  
Rahim Yar Khan**

**TENDER DOCUMENT**

**TENDER No. Lab-098**

**Supply and Installation of Lab Equipment for Chemical  
Engineering Department**

at

Khwaja Fareed University of Engineering and Information Technology

TENDER PRICE Rs. 1000/-

Last date of submission: 19/08/2019

FOR OFFICE USE ONLY

Serial No. \_\_\_\_\_

Sold to: M/S \_\_\_\_\_

Date of Sale \_\_\_\_\_

Bank Challan No. \_\_\_\_\_

Date \_\_\_\_\_

## 1. Overview

Khwaja Fareed University of Engineering & Information Technology, Rahim Yar Khan intends to purchase “**Supply & Installation of Lab Equipment for Chemical Engineering Department**” as provided at **Annex ‘A’**. The supplier will be responsible for Supply, delivery and commissioning of all specified items, wherever required, at the Khwaja Fareed University of Engineering & Information Technology, Rahim Yar Khan. This document provides complete instructions for bidders intending to participate in this Tender.

## 2. Instructions for Bidders

**2.1.** Response to the Tender (Bid) should be submitted in one part which shall include two separately sealed envelopes of **Technical Proposal and Financial Proposal** before **2:30 PM** on **19-08-2019**. Technical Proposals will be opened on same day at **3:00 PM** in the presence of representatives of responding bidders, if any, and Financial Proposals will be opened after completion of technical evaluation. The exact time and place for opening of financial proposals will be informed to technically qualified bidders.

**2.2.** Responding bidder shall deliver two sealed copies of the bid. Each copy being physically separate, bound, sealed and labeled. Proposals shall be delivered at the address given below.

**Dr. Aamir Alaudin, Director Procurement**

**Procurement Department**

**Khwaja Fareed University of Engineering & Information Technology  
Abu Dhabi Road, Rahim Yar Khan.**

**Tel. # 068-5882460**

**2.3.** Any queries regarding this proposal should be directed to the designated Contact Person listed below.

**Engr. Dr. Javed Iqbal, HoD Chemical Engineering Department Tel. # 068-5882448**

**2.4.** All bids must be submitted by filling the **Annex ‘B’**. Same should be enclosed in the financial proposal. Bidder must use the same numbers and labels used in this Request for Proposal.

**2.5.** The original Tender Document duly signed and officially sealed by the bidder must be submitted in whole with the proposals. Any conditional, ambiguous, incomplete, supplementary or revised offer after the opening of tender shall not be entertained.

### **3. Technical Proposal Format**

Bidders are required to include the following documents/information in their technical proposals in the order given below:

- i. Profile of company complete in all respect
- ii. List of Previous/Current customers, Purchase Orders of related Services with contact person and telephone/fax numbers.
- iii. Copy of National Tax Registration Certificate or Copy of Online Taxpayer Verification
- iv. Copy of Sales Tax Registration Certificate or Copy of Online Active Taxpayer
- v. Bank letter of financial standing /Bank Statement
- vi. An affidavit on Rs 100/- Stamp Paper issued after date of publishing of tender which illustrate that currently they are not black listed or de-barred by any Government/Semi-Government Department to participate in bidding. Failure to submit such affidavit may lead to disqualification.
- vii. Detailed item specifications or Services matched corresponding to the BOQ as given at **Annex 'A'**
- viii. Proposed delivery, response time, plan for rendering service
- ix. Signed and Stamped Complete Tender document
- x. Bank Draft of the Earnest Money

### **4. Financial Proposal Format**

Financial Proposal must include the following in the order given below:

- i. Equipment prices duly entered on the form in the attached BOQ
- ii. Validity period of the quoted price

### **5. Terms & Conditions**

**5.1.** This invitation for bids is open to all national original Manufacturers/ Distributors/Suppliers in Pakistan for supply.

- 5.2. All prices should be quoted in Pak Rupees and inclusive of all Government Taxes & Levies.
- 5.3. A bank draft equal to 2% of the estimated cost should accompany the Tender as **Earnest Money** drawn in favor of **KFUEIT Rahim Yar Khan**. The Tender shall not be considered without Earnest Money. Bank guarantee will not be accepted. Bank draft for Earnest Money should be placed with the Technical proposal.
- 5.4. Earnest Money for bidders not selected will be returned a minimum of two weeks after announcement of award and returned to successful bidder after signing the contract. If the selected bidder fails to sign the contract within stipulated time, Earnest Money will be forfeited.
- 5.5. A Bank draft of 05% of the total amount as **Performance Guarantee** will be provided by the supplier in favor of KFUEIT, Rahim Yar Khan within 10 days after decision of award of contract along with judicial stamp paper of the value 0.25 % of total cost for signing of contract agreement. Performance Guarantee shall remain valid for 12 months beyond delivery period and will be released after the completion of warranty/guarantee period, along with the satisfactory completion report by the inspection committee which will be intimated to the Seller and the Director Procurement KFUEIT, Rahim Yar Khan for their onward issuance of No Objection Certificate (NOC) for the release of performance guarantee.
- 5.6. The quantity of an order may vary depending on the quoted prices and the allocated funds.
- 5.7. The decision of the KFUEIT procurement committee will be binding on all concerned and will in no case be challenged in any forum.
- 5.8. KFUEIT Rahim Yar Khan reserves the right to modify the conditions / specifications of the Tender Document with written intimation to all the participants who have purchased the Tender Document.
- 5.9. Delivery period will be as per terms and conditions of purchase order/supply order.
- 5.10. Delivery shall be completed according to the agreed upon schedule.
- 5.11. In case the selected bidder fails to execute the contract strictly in accordance with the terms and conditions laid down in the contract, the Performance Guarantee shall be forfeited.

- 5.12. The University will inspect the advertising material at site/time of activity and may at KFUEIT Rahim Yar Khan and reject the item, if not found according to the stated specifications.
- 5.13. The University reserves the right to claim compensation for the losses caused by delay in the delivery of services.
- 5.14. It is the sole responsibility of the bidder to comply with local, national and international laws.
- 5.15. In case any supplies/material is found not in conformity with the specifications provided in the tender, either on account of inferior quality, defective workmanship, faulty design, faulty packing or is short supplied, or wrongly supplied, the supplier will replace the same free of charges or pay the full cost of replacement.
- 5.16. All the proposals submitted will become the property of the University.
- 5.17. All prices should be valid for at least 60 days. Withdrawal or any modification of the original offer within the validity period shall entitle the KFUEIT Rahim Yar Khan to forfeit the Earnest Money in favor of the KFUEIT Rahim Yar Khan and/or putting a ban on the future inquires or taking any other suitable action against the bidder.
- 5.18. Delivery of the items will be free of charge at Site/Activity place/Khwaja Fareed University of Engineering & Information Technology, Rahim Yar Khan during the office hours or according to the schedule of end user with a copy of Delivery Challan.
- 5.19. Items being ordered should be brand-new and according to order specification from the current production and covered under normal warranty/guarantee etc. as mentioned in the quote. Brochures mentioned and product details must be attached.

## **6. Tender Evaluation Criteria**

All bids shall be evaluated on technical and financial merit. The Company Evaluation Criteria is attached at **Annex 'D'** for reference. Technical evaluation process may include, but not limited to the consideration of the following with respect to the functional requirements given ahead:

- a. Technical specifications of proposed item
- b. Company Profile
  - I. Age of the company
  - II. Financial strength of the bidder

Financial Evaluation process will be based on the consideration of the quoted price.

**7. Undertaking**

On behalf of the company it is certified that we agree to the all the Instructions and Terms & Conditions given in this Tender Document

Name of bidder.....

Authorized person.....

Authorized signature.....

Stamp.....

Office Address.....

Tel No .....

Fax No .....

### Supply and Installation of Lab Equipment for Chemical Engineering Department

Sr. No.	Specifications/Minimum Requirements	Unit of Measure	Qty.
01	<p><b>Orbital Shaker With digital display of speed and timer separately</b></p> <p>Compact, flat agitator with ideal swivel motion. Electronic Adjustment of speed and time An LCD display makes it possible to read the speed and time setting. Dimensions: WxHxD mm 430x360x106, Orbital diameter 10 mm Continuous operation working time from 1-999 minutes. Platform size 12 x 12inch Speed range adjustable from 0 –350 rpm. Capacity to hold of various sizes.</p>	No.	1
02	<p><b>BOD Sensor System 6</b></p> <p>BOD Sensor Systems consist of a 6-position Stirring unit complete with 6 BOD Sensors, 6 Alkali holders for absorbing the carbon dioxide and 6 Stirring bars.</p> <p>Technical Data: Voltage: 230 V / 50 Hz Power: 2W Weight: 3 Kg (6.6 lb) With BOD incubator</p> <ul style="list-style-type: none"> <li>- Cooling system save money and conserve energy with velp units</li> <li>- Constant temperature of 20 °C</li> <li>- Purposely designed for BOD (biochemical Oxygen Demand) <ul style="list-style-type: none"> <li>• For a wide range of incubation and test application where an accurate and Precise temperature control is required along with stable temperature, including Biochemical Oxygen Demand</li> <li>• Medium size cooled incubator powered by two internal socket and where Samples are incubated at a constant temperature of 20°C</li> <li>• Forced air circulation ensures a uniform temperature inside the incubation chamber</li> <li>• The internal can be constantly monitored through the 2-digit digital display</li> <li>• High-efficiency and energy saving units limited consumption and lower operating Cost</li> <li>• Excellent reliability is achieved only <math>\pm 0.5^{\circ}\text{C}</math></li> </ul> </li> </ul> <p><b>Technical Data:</b> Display: 2-digit LCD display Total Volume: 120 liters</p>	No	1



	Settable temperature 20°C constant Temperature stability and homogeneity ± 0.5°C Shelves (supplied maximum 2 (max.2))		
03	<b>Water Bath Memmert</b> Basic class for standard temperature control tasks, Temperature range min. 5 °C above ambient up to +95 °C with additional boiling mode (+100 °C) State-of-the-art control technology of the Basic and models Microprocessor PID-temperature controller with integrated auto diagnostic system with fault indicator integrated digital timer from 1 min. to 99,59 hours Over temperature Protection (double) Interior Stainless-Steel Tank & Textured Stainless-Steel Casing Fitted With Gabled Cover Capacity: 10 Liters interior dimension 350x210x140mm	No	1
04	<b>Incubator Memmert Precision</b> <b>Adaptive multifunctional Digital PID-Microprocessor controller with High-Definition TFT-Color Display</b> <ul style="list-style-type: none"> <li>•Temperature range 10°C above ambient up to +80°C</li> <li>•Resolution of display for set point values 0.1°C</li> <li>•Double doors (interior glass, exterior stainless steel)</li> <li>•Adjustment of pre-heated fresh air admixture by air flap control in 10% steps,</li> <li>•digital timer adjustable from 1 minute to 99 days, 23 hours</li> <li>•adjustable electronic overtemperature monitor and mechanical temperature limiter, protection class 1</li> <li>•Double Over Temperature Protection</li> <li>•Interior &amp; Housing made of Stainless Steel</li> <li>•Set point WAIT function - the process time does not start until the set temperature is reached</li> <li>•Programme Stored in Case of Power Failure</li> </ul> Operated on 220volts, IN Series <ul style="list-style-type: none"> <li>• Capacity 32 Lit, Interior dimension: 400 x 320 x 250mm with One stainless steel tray</li> </ul>	No	1
05	<b>Nephelometer / Turbidity Meter</b> Portable use: For all water testing applications incl. drinking water, wine industry, process control Features: <ul style="list-style-type: none"> <li>•Multifunctional Lab Station</li> <li>•GLP/AQA conform documentation</li> <li>•Scattered light characteristics according to Pharmacopeia 5.0</li> </ul> Specification: Measuring principles: Nephelometric (90° scatter) Light source: IR-LED	No	1

	<p>Measuring range NTU: 0 ... 1100 / 0-1100  FNU: 0 ... 1100  Resolution: 0.01 from 0.00 ... 9.99, 0.1 from 10 ... 99.90  1 from 100 ... 1100  Accuracy: 0.01 NTU or <math>\pm 2</math> % of the measured value  Reproducibility: &lt;0.5% of the measured value or 0.01 NTU/FNU  Calibration: Automatic 3-point calibration  Response time: Approx. 3 seconds (IR)  Cuvettes: 28x60 mm (1.10x2.36 in.), 20 ml sample volume  Interface: RS 232, USB via adapter  Includes calibration kit includes calibration standards (0.02-10-1000),  2 empty cuvettes, Complete set</p>		
<p>06</p>	<p><b>Centrifuge Machine</b>  Microprocessor with large LCD display  Electrical lid lock  Quick access to samples  Active imbalance identification and cut-off  Quick Acceleration and Deceleration <input type="checkbox"/> Noise level &lt; 60 dBA, at max. speed  Easy removal of rotor, without tools  Manufactured in accordance to international Safety regulations, i.e. IEC 61010 Distinct Control Panel  Control panel with Touch-Operation  Simple one –handed operation  Easy to program with gloves on  Splash-proof foil keyboard  Permanent indication of pre-set and actual values  Selection of speed in both rpm and g-force, In increments of 10  10 acceleration and deceleration rates, possibility of unbraked deceleration  Pre- selection of the running time, from 10s to 99h 59min or continuous  Storage of up to 99 runs  Quick –key for short runs  Technical Data  Max. Speed: 6,800 rpm  Max. RCF: 4,445 xg  Max. Volume: 8x15ml  Speed range: 200-6,800 rpm  Running time 59min 50 s /10 s increments  99 h 59 min / 1 min increments   1-No. Angle Rotor Capacity 8 x 15 ml Speed 6800rpm   Complete with above Rotor operated on 220 Volts</p>	<p>No</p>	<p>1</p>

07	<p><b>Binocular Microscope</b></p> <p>The CX23 microscope's unique features accommodates the student and every requirement in the educational setting. This cost-effective system provides easy and safe operation throughout the workflow and ensures outstanding optical performance with large field number (FN) 20. Also, the built-in LED light source provides uniform and stable illumination for long term with low power consumption. Features:</p> <ul style="list-style-type: none"> <li>•Ergonomic grips add safety when retrieving the microscope from high places.</li> <li>•Colored grips indicate the appropriate places to hold the microscope.</li> <li>•Smooth, rounded design eliminates sharp edges.</li> <li>•The CX23 microscope is one of the lightest in its class.</li> <li>•A locking pin keeps the observation tube in place.</li> <li>•Interpupillary adjustments, ranging from 48 to 75 mm, enables individual users to set it to their needs.</li> <li>•Eyepoint adjustments accommodate the user's height and provide greater comfort.</li> <li>•Left and right diopter adjustment enable optimal focus for each eye.</li> <li>•The focus lock helps prevent the objectives from damaging the specimen.</li> <li>•Field number (FN) of 20 provides a wide field of view.</li> <li>•The CX23 microscope features plan achromat objectives that preserve outstanding image flatness throughout the field of view.</li> <li>•The energy saving LED light source provides a long operation lifetime of 20,000 hours.</li> <li>•Daylight balanced LED illumination preserves the vivid colors on HE-stained samples.</li> </ul> <p>Technical Data:  Body Aluminum die-cast metal frame, protective plastic covering  Optical System Infinity optical system  Focusing</p> <ul style="list-style-type: none"> <li>•Stage height movement</li> <li>•Coarse movement stroke: 15 mm</li> <li>•Coarse adjustment limit stopper</li> <li>•Torque adjustment for coarse adjustment knob</li> <li>•Fine focus knob (minimum adjustment gradations: 2.5 μm)</li> </ul> <p>Head: Binocular observation head, 30° inclined,  Interpupillary distance adjustment range: 48 – 75 mm,  Eyepoint adjustment: 370.0 – 432.9 mm  Eyepieces: Wide field 10X  Illumination System: LED light source, Built-in transmitted illumination system</p>	No	1
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	<p>Observation Modes: Bright Field  Nosepiece: Revolving nosepiece with rotation on ball bearings  Stage: Wire movement mechanical fixed stage  Traveling range: 76 mm (X) x 30 mm (Y), Specimen holder,  Specimen position scale  Condenser: Abbe Condenser  Objectives: Infinity Corrected optical system  Plan achromat (anti-fungus) 4X NA: 0.10 W.D.: 27.8 mm  Plan achromat (anti-fungus) 10X NA: 0.25 W.D.: 8.0 mm  Plan achromat (anti-fungus) 40X NA: 0.65 W.D.: 0.6 mm  Plan achromat (anti-fungus) 100X Oil NA: 1.25 W.D.: 0.13 mm</p>		
08	<p><b>Biosafety Cabinet Four Feet - LabGard NU-437S Class II, Type A2</b> The LabGard ES NU-437S Class II Biosafety Cabinet monitors plenum pressure through microprocessor controls. Ergonomic design and cost savings technologies enhance the user's environment while providing the proper biocontainment when working with cultures, viruses, and more.  <b>FlowGard Control System</b> The microprocessor controls monitor plenum pressure providing audible and visual alarms for low and high airflow. <b>Energy Saver Motor</b> An ultra-high-efficiency motor saves on your energy bills while increasing filter life lowering your total cost of ownership.  Motor Speed Control Internal Exhaust Dampener  Permanent Plenum w/ Quick Release Supply HEPA filter 99.99% @ 0.3 microns  Exhaust HEPA Filter 99.99% @ 0.3 Microns  Front Filter Removal  Fluorescent Lighting  Frameless Sliding Tempered Glass  Heavy Duty Ergo Armrest  Removable Work Tray  Metal Diffuser over Supply Filter  Duplex Outlets  Services Valves  <b>Technical Specifications:</b>  Class II  Nominal Size 4 Feet (1.2m)  External Dimensions (WxHxD): 1362 x 1600 x 835 mm  Internal Work Zone (WxHxD): 1178 x 724 x 597 mm  <b>Cabinet Construction</b> All welded stainless steel 16GA, Type 304 pressure tight design  <b>Style of Cabinet</b> Bench top/console w/base stand/storage cabinet  <b>HEPA Filter Seal Type:</b> HEPEX Seal Neoprene, spring loaded  Supply Filter-99.99% Eff. on 0.3microns  Exhaust Filter-99.99% Eff. on 0.3microns</p>	No	1

	<p><b>Diffuser for Air Supply (Metal)</b> Non-flammable  <b>Viewing Window:</b> Fully closed to 19 1/2 inches (495mm) open  Standard is tempered sliding glass <b>Standard Services:</b>  Service Coupling (3/8 inch NPT) One, Right Sidewall  Gas Valve/Service Coupling (3/8 inch NPT) One, Right Sidewall  Outlet Two, Backwall  Complete with Trolley &amp; UV Light Operated on 220 volts</p>		
09	<p><b>Electronic Analytical Balance Digital Microprocessor Controlled with Latest UniBlock Technology,</b>  UniBlock designs replaces 70 parts of Electromagnetic balances and ensures stable results.  Technical Specification:  Weighting Capacity: 220gm  Minimum display: 0.1mg  Pan size (mm): Ø91 approx.  Extra Feature: Overload Protection  Features:  Automatic calibration by pressing keys with internal calibration weight - Easy setting, expanded piece counting function comparator function, formulation modes  Windows direct communication function send balance data to excel without any data software with optional RS232C interface.  Complete unit, operated on 220Volts</p>	No	1
10	<p><b>DO Meter Multi-parameter portable Oxygen meter</b>  High-quality portable digital IDS multi-parameter instrument with a universal measurement input for starting with digital measurement technology  Future proof prepared for wireless sensor technology  QSC function for optimum tracking of the sensor quality  Technical Specification  Measuring range:-  Concentration measuring range:  0.00...20.00 mg/l, ± 0.5 % of value  0...90.00 mg/l, ± 0.5 % of value  Saturation measuring range:-  0.0 ... 200.0 % ± 0.5 % of value  0...6.00 mg/l, ± 0.5 % of value  Partial pressure measuring range:-  0.0 to 400 hPa ± 0.5 % of value  Temperature 0 ... 50.0 °C (32 ... 122 °F) ± 0.2 °C  Display LCD graphic, backlit  Memory manual 500 / 4500 automatic  Protection class IP 67  Complete with DO Probe FDO 925, Battery operated</p>	No	1

<p><b>11</b></p>	<p><b>Universal Oven precise drying,</b>  Adaptive Multifunctional Digital PID-microprocessor Controller With High-Definition TFT-Color Displays  Temperature range up to + 250°C  1 Pt 100 Sensor Din Class A in 4-Wire Circuit  forced air circulation (Fan)  forced air circulation by quite air turbine, adjustable in 10% steps  self-diagnostics for fault analysis  digital timer adjustable from 1 minute to 99 days, 23 hours  Interior Stainless Steel &amp; Textured Stainless-Steel Casing  Over Temperature Protection  Program Stored in Case of Power Failure  Easy to Clean Interior, Made of Stainless Steel  Operated on 220volts,  Capacity 53 Lit, interior dimension: 400 x400x330mm with Single stainless steel tray,</p>	<p>No</p>	<p>1</p>
<p><b>12</b></p>	<p><b>Autoclave with fully-automated process for easy &amp; quick control Feature:-</b>  -Time for sterilization can be easily adjusted by user-friendly control system. - When setting time for sterilization ends up, buzzer sound comes together with automatic exhaust of steam inside the equipment.  -The advanced dual safety system makes optimized protection against any kind of dangerous factors which may be caused by excessive upturn of temperature &amp; pressure.  -High-efficiency Over-Temperature Limit function fulfill reliable protection against overheating above a set temperature.  -User-friendly control panel enables end-users to take a look at both setting &amp; present temperature.  -When it comes up to a end-user’s setting temperature for sterilization, the timer is automatically activated and both operating temperature &amp; progress time of sterilization temperature are shown on the display for easy monitoring.  -The safety devices present effective protection functions against overheating and over current.  -Easy &amp; quick operation with the completely-isolated structure from the outside of the equipment. Technical Specifications: -  Temperature:  Range: Amb.+10°C to 125°C  Controller: Digital PID controller  (Program type: 5 pattern 18 segment)  Capacity: 40 ℓ  Dimensions (in) ø300 x 650mm</p>	<p>No</p>	<p>1</p>

	<p>Display: PV &amp; SV Dual Digital display  Timer: 99hr 59min 59sec  Pressure Gauge: 0 ~ 3kg/cm<sup>2</sup>  Operating Pressure: 1.2kg/cm<sup>2</sup> at 121°C (Degrees of Celcius)  Door packing: One Touch pressure Handle type  Safety Device: Over Temperature, Over pressure &amp; Over Current protector  Basket: Standard wire Basket  Power Supply: AC 230V, 50/60Hz</p>		
13	<p><b>Oil Bath Memmert, Heating Bath With the medium Oil,</b>  Total Safety at high temperature The high temperatures in the oil bath demand a finely- tuned temperature control as well as multiple over temperature protection. Apart from the electronic overtemperature controller, a wide range of visual and acoustic signals ensure smooth-running test procedures in the laboratory.</p> <ul style="list-style-type: none"> <li>•Temperature range min. 5 °C above ambient up to +200 °C</li> <li>•State-of-the-art control technology of the Excellent performance class</li> <li>•Fuzzy-supported PID microprocessor controller with integrated auto diagnostic system with fault indication</li> <li>•digital timer from 1 min. up to 999 hours</li> <li>•Triple Over temperature Protection</li> <li>•Interior Stainless-Steel Tank &amp; Textured Stainless Steel Casing</li> <li>•Fitted With Gabled Cover</li> </ul> <p>Operated on 220volts, ONE Series.  Capacity 10 Lit., interior dimension 350x210x140mm</p>	No	1
14	<p><b>UV/Vis Spectrophotometer</b>  Double beam spectrophotometer with fixed spectral resolution  Features</p> <ul style="list-style-type: none"> <li>•Outstanding long-term stability, excellent signal-to-noise ratio and best energy throughput</li> <li>•Holmium oxide filter for automatic wavelength calibration</li> <li>•Quartz coated optics</li> <li>•Highly precise imaging conditions due to aspheric optics</li> <li>•Second cell position for measuring turbid samples</li> <li>•Possibility to integrate in diverse dissolution systems</li> </ul> <p>Mode:  Energy, Absorption, Transmission, Reflectance  Wavelength range: 190—1100 nm  Spectral bandwidth: Fix 1.4 nm  Scanning speed:</p>	No	1

	<p>Wavelength accuracy 12000 nm/min (Deuterium line at 656nm): Wavelength reproducibility <math>\pm 0.1</math> nm (with Holmium oxide filter): <math>\leq 0.02</math> nm Photometric reproducibility: <math>\leq 0.0005</math> A Baseline stability at 500 nm: <math>\leq 0.0001</math> (RMS) Long-term stability a 500 nm: <math>\pm 0.0005</math> A/h Scanning speed: 12000 nm/min Cell holder: Single Cell holder Display: on Computer Cuvettes: 2 glass and 2 Quartz cells Complete with software, Computer &amp; Laser Printer</p>		
15	<p><b>Flame Photometer</b> Industrial Model digital single channel with unobstructed samples work area with following features -Safety features including Fail safe flame detection and shut off, with low air pressure indicator. -High sensitivity with fine manual control of air, and stable Flame design. -With ease of use resulting from auto ignition and flame optimization. Peak picker for presenting unambiguous readings with selected filter indicator. With built in Sodium, Potassium, Lithium, Calcium and Barium Filters. Minimum Detection Level @ 3 x noise Na 0.1 ppm K 0.1 ppm Li 0.1 ppm Ca 2 ppm Ba 20 ppm Specificity Na, K and Li interference is &lt;0.5% value of element under analysis, Aspiration rate 3 – 6 mL/min, Speed of Analysis/Time to stability 20 seconds, complete with compressor (but without Gas Cylinder), Operated on 220 Volts</p>	No	1
16	<p><b>Filtration assembly, consists of filtration flask 1000ml, Glass funnel, aluminum clamp and silicon stopper</b> <b>WITH Vacuum Pump Diaphragm Vacuum Pump</b></p> <ul style="list-style-type: none"> <li>• 100% oil-free transfer</li> <li>• Pure transferring, evacuation and compression of gases</li> <li>• Version for slightly aggressive or corrosive gases and vapors</li> </ul>	No	2



	<ul style="list-style-type: none"> <li>Maintenance-free <input type="checkbox"/> Environmentally friendly</li> <li>High level of gas tightness.</li> </ul> <p><b>Technical Specifications:</b>  Delivery (l/min)<sup>1)</sup> 6  Ultimate vacuum (mbar abs.) 100  Operating pressure (bar g) 2.4  Motor protection IP 20</p>								
17	<p><b>Micro Kjeldahl Digestion System Digital Microprocessor Controlled.</b>  Digestion Block: Six places, simultaneously digestion with  Programming through console, increases of Temperature controlled with microprocessor Temperature range ambient to 420 - 450°C, Setting of heating time 120 minutes, automatic Switch off, possibility to program upto 4 Increases of temperature and twice of permanence each of them.  Including digestion tube set,</p> <p>i. <b>Recirculating Water Vacuum Pump type JP</b>, Innovative recirculating water vacuum pump that allows to select the flow up to 35 l/min to optimize the functioning according to the different applications. The structure manufactured from polypropylene and ABS gives a high resistance to chemical aggression. The unit is designed for all the uses which require a non-pulsating suction; typical examples are rotating evaporators, vacuum filtrations etc. when coupled to a Scrubber type SMS allows a very effective removal of fumes evolved during acid mineralization.</p> <p>ii. <b>Scrubber Model SMS</b> is designed to neutralize corrosive and Toxic Fumes that develop during oxidative mineralization's. This is a highly efficient neutralization due to the optimized gas liquid contact, used for both basic and acid neutralization.</p> <p>iii. <b>Kjeldahl's Distillation Apparatus Basic Model</b> with Built in Titanium Condenser Steam Generator uses Deionised Water and is Maintenance Free  Digital LCD Display, with Automatic Sodium Hydroxide addition, manual Distillation residues removal, Manual dilution Water addition, Manual Boric Acid addition.</p> <table> <tr> <td>Measuring Range mg N</td> <td>0.1 to 200</td> </tr> <tr> <td>Reproducibility</td> <td>1%</td> </tr> <tr> <td>Recovery</td> <td>99.5% at Nitrogen</td> </tr> </table> <p>Levels between 1-200 mg N  Detection Limit 0.1mg N  Distillation time 5 minutes to collect 100ml Distillate  Sodium Hydroxide Volume 0-100ml</p>	Measuring Range mg N	0.1 to 200	Reproducibility	1%	Recovery	99.5% at Nitrogen	No	1
Measuring Range mg N	0.1 to 200								
Reproducibility	1%								
Recovery	99.5% at Nitrogen								

	<p>Tap water Consumption 0.5l/min at 15 degree C, 1litre/m at 30 degree C</p> <p>Time related to start for Devarda 0-99 minutes, Alloy Analysis</p> <p>Complete with all standard Accessories with Instruction Manual Operated on 220v</p>		
18	<p><b>Electronic balance digital top loading with Uni-block technology,</b></p> <p>One single block non-breakable, this brings various advantages fast</p> <p>Response, high stability, long life operation, Readability: 0.001 gm</p> <p>Capacity: 320gm</p> <p>Built in under weighing hook, piece counting function built in,</p> <p>RS 232C Data interface, overload protection, windows direct</p> <p>Function, No software required, stainless steel pan 108x105mm</p> <p>With draft shield, operated on 220 volts</p>	No	1
19	<p><b>Heating Mantle Temperature range upto 450°C max. Capacity 500ml</b></p>	No	2
20	<p><b>Multiparameter Benchtop Meter for pH/Cond/Oxi</b></p> <ul style="list-style-type: none"> <li>•Wireless ready</li> <li>•Simultaneous measurement with three independent measuring channels</li> <li>•Fatigue proof reading on brilliant color display</li> </ul> <p>Technical Specifications</p> <p>Parameter pH, mV, ISE, saturation, concentration, partial pressure, conductivity, spec. resistance, salinity, TDS, temperature</p> <p>Universal measuring channels 3</p> <p>Measuring range depends on the IDS sensor used</p> <p>Display LCD color graphic</p> <p>CMC/QSC Yes/Yes</p> <p>Data memory manual 500/10000 automatic</p> <p>Analog pH/ORP/ISE sensors ADA 94 pH/IDS DIN or ADA 94 pH/IDS BNC</p> <p>Logger manual/timer-controlled</p> <p>Interface USB A/Mini USB-B</p> <p>Complete as above</p> <p>With IDS sensors: digital IDS pH electrode SenTix® 940 with pH Range: 0.000 ... 14.000 ± 0.004, Temperature 0-80°C</p> <p>Calibration buffer 4, 7 and 10.01, 3 mol/l KCl, digital IDS conductivity cell TetraCon® 925, 0.01 mol/l KCl, conductivity standard,</p>	No	1

21	<p><b>Hot plate with Magnetic stirrer Digital</b>  Outstanding temp. Uniformity with CerAlTop™ aluminum alloy heating plate  Excellent resistance to chemicals scratches and surface abrasions  Maximum temperature 370 °C  Accepts up to 20-liter flasks  Electronic speed regulation up to 1500 rpm  Construction material: epoxy painted aluminum structure  Heating plate: aluminum alloy coated with ceramic coating  Heating plate diameter: 155 mm</p>	No	2
22	<p><b>Double Distillation Water Still</b>  •Made of borosilicate glass, ideal for producing high quality water  •Incorporates several security systems for automatic operation to work continuously  •Cooling water outlet by rubber tube. the condensed water not flowing through the cooling water outlet  •Energy saving through distillation of preheated cooling water  Specification:  Capacity: 4 Litre/hour  pH: Depends on tap water inlet 5.5-7 Conductivity: 1.5µS/cm  Cooling water: 1,2l/min.  Operated on 220V</p>	No	1
23	<p><b>Air Sampler for Microbiological Samples</b>  FEATURES  •Performance in compliance with ISO 14698-1  •Large LCD with illuminated touch panel  •All operator commands via touch keypad for easier cleaning  •Over 70.000 liters of air / 8 hours autonomy  •Infrared transfer of sampling data to PC or printer  •Up to 300 sampling cycles memorized  •USP chapter &lt;1116&gt; and 21-CFR 11 Compliance  •Sampling rate accurately maintained by speed sensor-incorrect aspiration aborts cycle  •Design avoids turbulence in unidirectional air flow and re-aspiration of tested air in accordance with ISO specifications  •Total traceability  •Bi-directional port to input and output data to a central unit from 1 to 24 samplers  •Automatic time calibration reminder  •Easy calibration monitoring with additional anemometer system  •Sampler can be operated whilst attached to mains  SPECIFICATIONS</p>	No	1

	<ul style="list-style-type: none"> <li>•Possibility to use 55 mm, 84 mm Contact plates (RODAC) or standard disposable 90 mm Petri dishes</li> <li>•Interval sampling with fully programmable parameters for —in operationl monitoring</li> <li>•Delay Start of up to 60 minutes</li> <li>•Infrared remote control (optional extra)</li> <li>•Certified aspirating head in aluminum or stainless steel</li> <li>•Multiple language choice</li> <li>•Reduced sampling time (six or ten minutes for 1000 liters of air) • Suitability in isolator</li> <li>•Large LCD with illuminated touch panel.</li> <li>•Air Flow rate: 100 l/min.</li> </ul>		
24	<b>Freezer (-20 to -40 degree Celsius)</b>	No	1
25	<b>Refrigerator (2 to -14 degree Celsius)</b>	No	1
26	<p><b>Conductivity Meter Benchtop</b></p> <ul style="list-style-type: none"> <li>•Measures 4 different parameters - EC, TDS (Total Dissolved Solids)</li> <li>•Auto-Ranging for EC &amp; TDS Measurements</li> <li>•Automatic temperature compensation</li> <li>•4-ring probe</li> </ul> <p>Technical Specifications:</p> <p>Range</p> <p>EC 0.00 to 29.99 <math>\mu</math>S/cm; 30.0 to 299.9 <math>\mu</math>S/cm; 300 to 2999 <math>\mu</math>S/cm; 3.00 to 29.99 mS/cm;30.0 to 200.0 mS/cm; up to 500.0 mS/cm actual conductivity (uncompensated EC)*</p> <p>TDS 0.00 to 14.99 mg/L (ppm); 15.0 to 149.9 mg/L (ppm); 150 to 1499 mg/L (ppm); 1.5 to 14.99 g/L (ppt); 15.0 to 100.0 g/L (ppt); up to 400.0 g/L actual TDS* (with 0.80 factor) Temp -20.0 to 120.0°C / -4.0 to 248.0°F</p> <p>Resolution</p> <p>EC 0.01 <math>\mu</math>S/cm; 0.1 <math>\mu</math>S/cm; 1.0 <math>\mu</math>S/cm; 0.01 mS/cm;0.1 mS/cm</p> <p>TDS 0.01 mg/L; 0.1 mg/L; 1.0 mg/L; 0.01 g/L; 0.1 g/L</p> <p>Temp 0.1°C / 0.1°F</p> <p>Temperature Compensation automatic, from -20.0 to 120.0°C / -4.0 to 248.0°F or manual, without temperature probe</p> <p>Complete unit as above, Operated on 220Volts</p>	No	1

**Supply and Installation of Lab Equipment for Chemical Engineering Department  
(Bid Form)**

<b>Sr. No.</b>	<b>Item Name</b>	<b>Unit of Measure</b>	<b>Qty.</b>	<b>Rate Per unit (inclusive of all taxes and Shipment charges)</b>	<b>Total Price (inclusive of all taxes and Shipment charges)</b>
01	Orbital Shaker	No.	1		
02	BOD Sensor System 6	No	1		
03	Water Bath Memmert (Capacity 10 Liter)	No	1		
04	Incubator Memmert Precision (Capacity 32 Liter)	No	1		
05	Nephelometer / Turbidity Meter	No	1		
06	Centrifuge Machine	No	1		
07	Binocular Microscope	No	1		
08	Biosafety Cabinet Four Feet	No	1		
09	Electronic Analytical Balance Digital Microprocessor Controlled with latest UniBlock Technology	No	1		
10	DO Meter Multi-parameter portable Oxygen meter	No	1		

<b>Sr. No.</b>	<b>Item Name</b>	<b>Unit of Measure</b>	<b>Qty.</b>	<b>Rate Per unit (inclusive of all taxes and Shipment charges)</b>	<b>Total Price (inclusive of all taxes and Shipment charges)</b>
11	Universal Oven Precise Drying	No	1		
12	Autoclave with fully automated process for easy & quick control Feature	No	1		
13	Oil Bath Memmert, Heating Bath with the medium Oil	No	1		
14	UV/Vis Spectrophotometer	No	1		
15	Double Beam spectrophotometer with fixed spectral resolution	No	1		
16	Flame Photometer	No	2		
17	Filtration assembly, consists of filtration flask 1000ml, Glass funnel, aluminium clamp and silicon stopper	No	1		
18	Micro Kjeldahl Digestion System Digital Microprocessor Controlled	No	1		
19	Electronic Balance digital Top Loading High Resolution type with UniBlock Technology	No	2		
20	Heating Mantle	No	1		
21	Multiparameter Benchtop Meter for pH/Cond/Oxi	No	2		
22	Hot Plate with Magnetic stirrer Digital	No	1		

Sr. No.	Item Name	Unit of Measure	Qty.	Rate Per unit (inclusive of all taxes and Shipment charges)	Total Price (inclusive of all taxes and Shipment charges)
23	Double Distillation Water Still	No	1		
24	Air Sample for Microbiological Samples	No	1		
25	Freezer (-20 to -40 degree Celsius)	No	1		
26	Refrigerator (2 to -14 degree Celsius)	No	1		
TOTAL: _____					
Total in Words: _____					

## Company Evaluation Criteria

- i. Profile of company complete in all respect
- ii. List of Previous/Current customers, Purchase Orders of related Services with contact person and telephone/fax numbers.
- iii. Copy of National Tax Registration Certificate or Copy of Online Taxpayer Verification
- iv. Copy of Sales Tax Registration Certificate or Copy of Online Active Taxpayer
- v. Bank letter of financial standing /Bank Statement
- vi. An affidavit on Rs 100/- Stamp Paper issued after date of publishing of tender which illustrate that currently they are not black listed or de-barred by any Government/Semi-Government Department to participate in bidding. Failure to submit such affidavit may lead to disqualification.
- vii. Detailed item specifications or Services matched corresponding to the BOQ as given at **Annex 'A'**
- viii. Proposed delivery, response time, plan for rendering service
- ix. Authorization Letter from Manufacturers where Applicable
- x. Signed and Stamped Complete Tender document
- xi. Bank Draft of the Earnest Money

**Note: Basic Evaluation Criteria is mandatory to fulfill to qualify for detailed evaluation. Failure to meet and submit all documents related to basic evaluation may lead to disqualification.**



## 2. Detailed Evaluation

(Minimum Passing Score Required is 65 Points for qualifying to Financial Opening)

<b>DETAILED EVALUATION CRITERIA FOR TENDER</b>			
<b>Specifications are available at Annex-A</b>			
<b>Sr. No</b>	<b>Item Name and Description</b>	<b>Marks</b>	<b>Max Marks</b>
<b>1</b>	<b>Past Performance/Experience of the Bidder (Reg. with GST/NTN) Attach copy of all supporting documents</b>	--	10
1.1	1 – 3 year experience	2	--
1.2	4 – 8 year experience	4	--
1.3	9 – 15 years' experience	6	--
1.4	Above 15	10	--
<b>2</b>	<b>Relevant Experience (Attach copy of all supporting documents)</b>	--	10
2.1	1 – 5 years' experience	3	--
2.2	6 – 10 years' experience	6	--
2.3	11 and above year experience	10	--
<b>3</b>	<b>Financial Position/ Status (Attach copy of all supporting documents)</b>	--	10
3.1	Last sales tax paid Form	4	--
3.2	Bank Certificate (satisfactory) attach original bank certificate indicating financial status	2	--
3.3	Statement Worth (Min 2 m) attach all supporting documents	4	--
<b>4</b>	<b>After Sale Services Available (Attach copy of all supporting documents)</b>	--	10
<b>5</b>	<b>Technical Evaluation of quoted items (Attach copy of all supporting documents)</b>	--	60
5.1	Specification matched as provided in Annex-A	30	
5.2	Literature in printed shape attached	2.5	
5.3	Reliability	2.5	
5.4	Delivery schedule as per need	5	
5.5	List of clients / where this equipment delivered	5	
5.6	Satisfactory letter from clients in favour of such equipment	5	
5.7	Guarantee / Warranty (as the case may be)	5	
5.8	Provision of Training to concerned user	2.5	
5.9	Free Installation (if required) as per requirement	2.5	
<b>Total</b>		--	100