VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, *BURLA*
SAMBALPUR-768018, ODISHA

TENDER CALL NOTICE

No.VSSUT/Chem/6469/16 Date:04.05.2016

Sealed tenders are invited from the farms with VAT clearance certificate, copy of PAN card, for the supply of instruments for the Department of Chemistry, VSSUT Burla. This would reach the office of the Registrar through speed or registered post by 25 May, 2016, 1PM. For details, visit the University: www.vssut.ac.in.

Sd- 4/5/16
REGISTRAR

Memo no: No.VSSUT/Chem/6470(8)/16 Date:04.05.2016

Copy to:

1. M/s Display Line, 219, Sahid Nagar, Bhubaneswar 751007, with a request to publish the above advertisement in one issue of the all Odisha daily edition of SAMAJ and the TIMES OF INDIA (Odisha, Kolkata, Delhi, Visakhapatnam, Ahmadabad edition) on or before 06/05/2016 at the I & PR approved/ lowest rate. The bill may be sent in triplicate along with a copy of the paper in which the publication is made.
2. Dean Faculty Planning, with a request to arrange displaying the content in the University website.
3. Comptroller of Finance, VSSUT Burla.
4. PA to Registrar, VSSUT Burla.
5. Head of the Department, Chemistry, VSSUT Burla.
6. University Notice Board.

4/5/16
REGISTRAR

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List of equipments with specifications required for Department of chemistry

Sl. No.	Name of instruments/Equipments	Specification
01	UV-visible spectrophotometer	Bench top UV-Vis spectrophotometer, wavelength range:200-1100nm, Microprocessor based, Optical System: Single Beam, Grating 1200 lines / mm, spectral bandwidth: 2 nm, wavelength accuracy and repeatability: ±2nm and ±1nm, photometric accuracy: ±0.005Abs, photometric repeatability: ≤3%T, photometric range: -0.3-2000Abs, Light Source & Detector, Deuterium and Tungsten halogen lamp, Silicon photodiode with data output USB port, Display: LCD, Operating mode:%T, Abs, Concentration
02	Colorimeter	Wavelengths: 400-700nm Multi-wavelength range selected by filters, Range: 0 to 100% transmittance, calibration directly with OD and %T, photocell detector, Accuracy: ±0.5%T, Resolution: 1% T
03	Electronic balance (0.0001g) least count	With least read out 0.0001g. Weighing range 200g. Reproducibility 0.01mg. large LCD display. Weighing space (W×D×H)- 174×162×227 mm. Shock proof construction. Stable temperature behaviour.
04	Hot oven	Inner Size (WxHxD): 18" x 18"x 18", Tray Capacity: 95lits, Internal chamber: SS, External: Powder Coated Mild Steel Sheet, Temperature up to 250°C +/- 1°C, Forced Air Circulation By ¼ / ½ HP Motor & Axial Flow Fan, Aluminium treys, Asbestos Packing Door, Microprocessor Based PID Digital Temperature Indicator-Cum-Controller with timer
05	Density meter	Accuracy- ±0.001 g/cm^3, Measurement Range- 0–3 g/cm^3, Temperature Range- 10–40 °C, With drying unit.
06	Pensky Martin's Flash point apparatus	Electrical heating
07	Redwood's Viscometer-1	Electrical heating
08	Redwood's Viscometer-2	Electrical heating
09	FTIR spectrometer	Spectral range- Should be 4000-400 cm^{-1} or better. Spectral resolution- Should be better than 2cm^{-1}. Signal to noise ratio- Should be better than 40000:1. Detector- Should be room temperature DTGS/DLATGS or better. Optical design- Should be gold coated mirrors permanently aligned and optics with capability to withstand high humidity having ZnSe beam splitter and ZnSe windows. Software specification- Software for data measurement, manipulation, and evaluation with a step by step assistance. Should include search capabilities as well as the possibility to create user own libraries. Should include quantification tool and should be 21 CFR complaint.

		Accessory- Universal ZnSe ATR for solid, liquid, paste, powder, and gel sample palatizer. Other accessories- All necessary sample preparation accessories are to be offered under separate heat for transmission unit such as 15 ton Hydraulic press, Agate mortar pestle, KBr Die set, Liquid demountable cell with KBr windows, IR grade KBr power etc. The equipment has to be provided with a computer system (i3 or better processor) of standard configuration along with B/W laser printer and suitable UPS from local source.
10	Microwave Synthesiser	The system must incorporate a modular design composed of a Focused Microwave Reactor Module. The system must be able to insure efficient operation for the synthesis of compounds in sealed vials about 10 mL in size or under atmospheric conditions in flasks about 125 mL in size with ground glass joint size about 24/40 in size with complete usr-assured safety. The system must feature a power delivery system that is capable of providing continuous microwave power in programmable 1-watt increments throughout a range from 0-300 watts. The system must incorporate the ability for temperature measurement and feedback control this temperature control system must be non-invasive and have a working range up to 300^0C. The system must incorporate in situ stirring system to affect the stirring of the reaction content of both the atmospheric and sealed vials using off-the-shelf magnetic stir bars. System should be offered with 100nos 10ml vials, caps and septa.
11	Hot plate with magnetic stirrer	Dimension of work plate 184*184 (7 inches). Work plate material- Glass ceramic, Motor type- DC Brush less motor. Motor rating input(W)-18, Motor rating output(W)-10, Stirring positions- 1, Heating output(W)- 1000, Dimension (W×D×H)mm- 215×360×112, Speed range (rpm)- 100-1500.
12	Pyrolysis Reactor	Lab scale batch pyrolysis experiments of max 0.5-1kg capacity (stainless steel), with programmable temperature controller (up to max 1000ºC) to carry out the experiment at different varying temperatures, different pressure values (optional), different heating rate with an option for inert gas purging/creating vacuum inside the reactor.
13	Nitrogen cylinder	10Kg-30Kg
14	Three necked polymer preparation vessel with Three tube apparatus for gas passing	50ml
15	Ion selective Electrodes along with base instrument (main meter) along with electrode for estimation of As^{+3}, Cr^{+6}, Cd^{+2} ,Fe ,Pb^{+2}, F^-, Hg^{+2}, NO_3^- along with standard sample 5 no for all electrode	Ion Selective Electrode Bench top meter, Range- 0 to 19999, Resolution- Up to 3 significant digit, Relative accuracy- ±0.2 mV or ±0.05 % of reading whichever is greater, Units- ppm, M, mg/L, %, ppb, none, Calibration point- Up to 5, Calibration editing- Yes, Calibration features- Timed end point, linear point to point, non-linear selectable auto-blank, low concentration range stability. Suitable electrodes with range 0 to 19999 resolution up to 3 significant digit of As^{+3},

		Cr^{+6}, Cd^{+2} ,Fe^{2+}, Pb^{+2}, F^{-}, Hg^{+2}, NO^{3-} to be fitted to the main base ISE meter.
16	Limiting Oxygen Index Meter	Apparatus has facility to carry out tests at ambient and at high temp. Digital display of critical oxygen percentage & temp. Controller for doing temp. Index. With oxygen indicator with galvanic sensor. Features- Micro adjustments gas flow meter to indicate flow of Oxygen, Nitrogen and mixture of gas to ± 1% accuracy. Calibration certificate of the manufacturer will be provided. Micro adjustment of gas by imported Swagelok make metering valve. Gas pressure gauges to indicate the pressure of Oxygen and Nitrogen. (Range- 0-100psi) least count. Gas dispersion in chimney is through circulation inside a hollow cylinder placed at the bottom of the gas chimney. % AGE limiting Oxygen value is displayed with the help of digital oxygen meter. No need to calculate the limiting oxygen value by observing the volumes from the gas flow meter. Accuracy for oxygen meter is ± 0.5% Resolution is 0.1%. The equipment can be used to carry out temp. Index- Heaters provided of 1KW capacity and protection through solid state relay is a standard feature. PID Temp. Controller of accuracy $\pm 0.2\ ^{0}C$.
17	Ultrasonic Probe Sonicator	Output frequency 23 $\pm$ 3 KHz, Electronic control of the ultrasonic generator. Digital Timer. Sample processing Volume of 5 to 900 ml. Sound proof chamber. Input 220-240 V A.C., 50 Hz. Sonicator Tip S.S. diameter (approx): 4mm,6mm
18	Oxygen Cylinder	10Kg-30Kg
19	Victor Mayer's Apparatus	Victor Meyer's Apparatus Complete with Outer and Inner tube.
20	P^{H} Meter	Microcontroller based digital P^{H} Meter, Bench top P^{H} meter, 0-14PH range, 0 to ±1999mV range, with backlit graphic LCD display, Triode 3 in 1 P^{H}/ATC probe (combined electrode) with P^{H} 4, 7, 10 Buffer tablet for calibration
21	Conductivity Meter	Microcontroller based digital conductivity meter, Bench top conductivity meter, Frequency 100Hz or 1kHz automatic, 0.1µs to100mS, temp 0-100ºC (Auto/ manual), cell constant acceptable from 0.1 -5.0.
22	UV-Chamber, Ultra Violet Flourescence Inpection cabinet.	Dual wave, having filter fitted with separate low pressure mercury vapour tubes for short Ultra Violet (254 nm) and long UV (365 nm) plus separate lamp for visible light.
23	Bomb Calorimeter for measurement of calorific value, removable type for bomb and bucket.	Automated bucket and jacket fill as well as vessel fill and rinse. Automatic cooling. Fixed bomb cylinder with removable head for fast sample loading. Operator time per test is 1 minute. 0.1% precision class instrument. 0.0001 ºC Temperature Resolution. 5000 – 8000 calorie sample range. Dimensions (in) 16.5 wide X 15.5 deep X 20.0 high. Dimensions (cm) 42 wide X 40 deep X 51 high.
24	Sound pressure measurement dB meter	Accuracy- +1.4dB, Frequency range- 31.5HZ to 8KHZ, Dynamic range- 50dB, Lavel range- Lo-30dB to 80dB, Med-50dB to 100dB, Hi- 80dB to 130dB, Frequency weighting-

		A/C, Time weighting- Fast(125MS), Slow(1S), Microphone- ½" Electric condenser, Display- 4 Digits, Resolution- 0.1dB, Display update- 2Times/Sec, Max hold- Hold the maximum reading, Min hold- Hold the minimum reading, Hold- Hold the reading.
25	Phase contrast microscope with camera	Inverted Microscope with transmitted light LED illumination. The Microscopes should include Fixed stage plate with left or right hand drive carrying standard inserts for slide or various culture plates, flasks and Petri-dishes etc. A4-fold revolving nosepiece with infinity optics, tube lens, phototubes-condenser holder including collector, aperture diaphragm and filter holder. Illuminated ON/OFF switch-Interface - power supply including mains cable. Trinocular tube with 40-45° viewing angle. Condenser with a free working distance of 35-40 mm and a numerical aperture of 0.45 or better for Bright field Phase Contrast studies. Slider for Phase Contrast with 4 positions, 1x Bright field and 3x light rings for condenser. Objectives Plan Achromatic of 4x/5x, 10x, 20x and 40x with long working distance for Bright field and Phase contrast applications. 10X magnification eye pieces with minimum 20 mm field of view
26	Refractometer with water circulation arrangement	Measurement range Refractive Index (nD) 1.3000 to 1.7100, Brix 0.0 to 95.0% (Automatic Temperature Compensation is executed from 5 to 50°C), Minimum scale Refractive Index (nD) 0.0001, Brix 0.1%, Measurement accuracy Refractive Index (nD) ±0.0002, Brix ±0.1%, Measurement temperature 5 to 50°C, Power supply AC adapter (100 to 240V (50/60Hz) AC input) Power consumption 16VA.

Note:

1. **Price quoted must be in Indian Rupees inclusive of all taxes. It should also include transportation, installation and demonstration.**
2. **There is every right to cancel for purchase of any item in the list.**

HOD, Chemistry