



Sidho-Kanho-Birsha University

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District - Purulia, PIN – 723104, W.B.
Phone : 03252- 202419 Website-www.skbu.ac.in

Ref No: FO/884 /SKBU/18

Date: 27/09/2018

E- Tender Notice (4th Call)

Earlier Tender Ref No: FO/586/SKBU/18 Dated 18/06/2018

1. SIDHO-KANHO-BIRSHA University, Purulia intends to procure Lab Instruments for **Chemistry Department** at Purulia. The tentative quantity of the required items along with technical configuration of each items are mentioned at Annexures separately. SKB University is looking for interested bidders who have experience in supplying of above type of instruments.
2. Bidders are advised to study all technical and financial aspects, instructions, forms, terms and specifications carefully in the tender document. Failure to furnish all information required in the Tender Document or submission of a bid not substantially responsive to the Tender document in every respect will be at the Bidder's risk and may result in the rejection of the bid.
3. Intending bidder may download the tender documents from the website **<https://wbtenders.gov.in>** OR **www.skbu.ac.in**. **Only Online Submission of Tender will be accepted.** Last date of submission: **20/10/2018 up to 12:00 hrs. Opening Date 22/10/2018, 1 PM.**
4. The categories of items and quantity indicated in the Tender Document are tentative. SKB University (SKBU), however, reserves the right to increase or decrease the quantity or delete some or all of the items depending on the needs of the SKBU and availability of funds without assigning any reasons.
5. The bidder should indicate specifically the **Basic Price, Taxes, GST, Entry tax, other duties (if any)**, and levies chargeable quantitatively against each item. **University will assist to have way bill (if necessary) but the pay will be borne by the bidder.** University having valid Central excise duty exemption certificate issued by DSIR, New delhi..No additional information will be entertained after due date. SKBU may reject bids if they do not carry such information separately and specifically quantitatively.
6. The tender should be submitted in two cover system (electronically) as defined in E-Tender participation system: (a) Technical Bid (b) Financial Bid.
7. The bidder should clearly indicate the delivery period and validity period of tender.
8. The bidder should clearly indicate the availability of service and maintenance facilities at Purulia for the items quoted.

9. The bidders are required to quote for each item separately in terms of basic price and all other charges. **Prices can be quoted in Multi Currency.**
10. The bidder (Technical Bid) must be submitted along with the copies of OEM license or authority from the manufacturer.
11. SKB University reserves the right to reject any or all tenders without assigning any reason whatsoever.
12. No advance payment or payment against Performa invoice will be made. Payment will be made after receipt, inspection, and installation/testing.
13. All damaged or unapproved goods shall be returned at the bidder's risk and cost and the incidental expenditure thereupon shall be recovered from the concerned party.
14. On acceptance of tender, the date of delivery should be strictly adhered to otherwise, the SKB University reserves the right not to accept the delivery in full or in part. In case the order is not executed within the stipulated period, the SKB University will be at liberty to make purchases through other sources.
15. Payment of bill will be made through by crossed account payee Cheque or electronic payment (NEFT) only after delivery and successful installation of each of the items.
16. Delivery Schedule: The Company shall be able to deliver the required items within 15 days of the receipt of order. Delivery/Installation is to be done at Purulia, West Bengal.
17. Warranty : All the products must carry minimum one year comprehensive warranty.
18. The products asked for should be of very high standard and of mentioned brand.
- 19. Liquidated Damages :** The Company shall be liable to indemnify the SKB University in all respects and meet and pay off the litigation expenses and all the liabilities including damages, sums etc. arising out of and as a consequence of the negligence, deficiencies, mistakes, lapses, delays etc. in the execution of the various jobs and the services provided.
20. The company should ensure quick back up response in case of equipment failure which should be replaced if needed within 48 hours of the distress call.
- 21. Payment:** There is no provision for making advance payment to the Company. However, the running bills for the jobs completed can be submitted by the company and will be cleared for payment within reasonable period.
- 22. Purchase Order:** The purchase order for the entire quantity can be placed either in one lump sum or as per the requirement through repeat order subject to availability of fund of the required items. The quantity shown is tentative and may increase or decrease.

Registrar

Annexure 1

Proforma For Technical Bid

Sl	Particulars	Information
1	Name of the Firm & Owner : (with Telephone/Mobile Numbers, email)	
2	Type of Organisation (Proprietorship/Partnership/Pvt. Ltd./Limited Company) Month/Year of Establishment	
3	Website of Bidder, if any	
4	Month/Year of Establishment	
5	PAN/Sales Tax/VAT Regd. Nos.	
6	Annual Turnover 2017-18	
7	Whether product(s) offered by the bidders are exactly as per the configuration of SKB University. If not, indicate the changes in each product	
8	Clientele (submit copies)	
9	Validity of Tender	
10	Whether Terms & Conditions issued by SKB University are acceptable to the Firm	
11	Whether Warranty as per the desired specification	

**** Bidder should only quote rate for 1 unit of each item in BOQ.**

Date

Name:

Signature of Owner/Authorized Representative

Designation:

Detail Specifications of the Equipments

Sl. No.	Instruments	Specification
1	HIGH RESOLUTION XRD SYSTEM	<p>The XRD must contain horizontal sample mount with theta-theta (θ-θ) goniometer with high resolution scanning mode. The entire system must be provided with the following specification:</p> <p>The XRD system must have the capability to configure in different mode like, high resolution X-Ray Diffraction (HR XRD), Grazing Incidence X-Ray Diffraction (GIXRD), X-Ray Reflectometry (XRR), Thin film, capillary and Small Angle X-Ray Scattering (SAXS) and application softwares . The system software must automate all process from the setting and aligning of the optics to sample measurement. The software package must guide the user stepwise using intelligence based software for the technique and know how to make advanced measurement such as film thickness and pore/particle size analysis etc. The package must have the best optical configuration for each application, check the hardware setting and run automatic alignment sequences. Also the following items must be supplied with this package are</p> <p>(a) Suitable Closed Circuit Chilling Water System for the XRD system. (b) UPS with 30 mins back-up with 15KVA or higher output power. (c) PC and Printer and others necessary items for complete installation</p> <p><u>X-RAY GENERATOR:</u></p> <p>Maximum Rated Output : 3KW continuous rated maximum output power.</p> <p>Rated Voltage : 20-60 KV (in steps of 1 KV).</p> <p>Rated Current : 2-60 mA (in steps of 1 mA).</p> <p>Stability: $\pm 0.01\%$ per 10% main variations (for voltage and current, within $\pm 10\%$ input power variations).</p> <p>X-Ray Tube Shield: Electro Magnetic Shutter interlocked with radiation enclosure.</p> <p>Safety Device: Abnormal cooling water, flow rate, water Pressure, Temperature detection, abnormal XG load (over load, line current, abnormal low and high voltage, emergency stop switch, leak breaker), shutter malfunction detection.</p> <p>X-Ray Tube: Cu Target material, long line fine focus with Ni K_{β} Filter.</p> <p><u>GONIOMETER:</u></p>

The θ - θ Goniometer must hold the sample in a Horizontal and Stationary position. The XRD system must be equipped with a Parabolic Multilayered Mirror and should have the provision for changing from Bragg & Brentano(BB) focusing optics to Parallel Beam (PB) optics and Vis-A-Vis with auto alignment facility.

The Goniometer should be capable of using small angle scattering measurement, thin film measurement, capillary for measurement of liquid and gel like materials with proper slit and accessories.

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|-------------------------|---|
| (1) Geometry: | Vertical θ/θ (keeps sample horizontal and stationary) |
| (2) Scanning mode: | θ_D/θ_S independent or coupled |
| (3) Minimum step width: | (θ_D, θ_S) 0.0001 ° |
| (4) Scanning step: | θ_D/θ_S coupled 0.0002 – 10 ° step (2θ)
θ_D/θ_S independent 0.0001 – 5 ° step |
| (5) Range: | θ_D/θ_S coupled -3 – +160 ° (2θ) with Capability to work in transmission mode geometry. |
| (6) Goniometer radius: | 300 mm or better |
| (7) Z-Axis : | -10 to + 2mm. 0.0005mm step (Motorized) |

Illumination: Both Symmetric and Asymmetric illumination.

OPTICAL SYSTEM:

Slit Exchange:

Type: Automatic Computer Controlled & Programmable Variable Slits (both incident and receiving side)

Slit Width:

Incident Slit (IS) : 0.05-7.00 mm, 0.01 mm Step or better

Receiving Slit (RS2): 0.05 – 20.00 mm, 0.01 mm Step or better

Height Limiting Slit: Necessary Height Limiting Slits are to be included..

Automatic Optical System Alignment:

Complete automatic alignment without manual intervention is needed. Automatic Alignment should be done by the software for the alignment of source height, source angle, mirror optic, crystal optic, slit height, sample surface and detector angle. Automatic Computer Control adjustment for detector high voltage and pulse height analyzer.

Rotary Attenuator:

- 1) Type: Computer Controlled, Programmable Automatic Rotary attenuator
- 2) Configuration: 1/70, 1/1000, 1/14000 and Open with automatic selection depending on the X-Ray intensity.

Flexible Soller Slit System:

Type: Incident & receiving Soller Slits should be provided.

High speed Semi Conductor 1-D Detector :

The High Speed Detector should be maintenance free and must work without using any cooling agent with minimum scan speed of 100°/min, no of channels/ semiconductor strips 250 or better, 99% efficiency for Cu K α or better and dynamic range 1 x 10⁶cps/line(minimum). The special resolution (pitch) of the Detector chip must be 75 μ m or better. The High Speed Detector should work either in 0-D mode or in 1-D mode and the same detector should also work in normal mode or in fluorescence reduction mode (without using diffracted beam monochromator).

High Resolution Thin film attachment:

Automatic sample stage which should be included with auto alignment for auto Z- axis alignment for height adjustment and ϕ axis for free rotation of sample with automatic alignment procedure for measurement of thickness, density and roughness (XRR) of thin film sample using reflectivity software.

Small Angle Scattering X-Ray (SAXS) attachment:

SAXS Unit for Particle and Pore Size Distribution of both solid & liquid samples with measuring range from 0.1 to 5° must include SAXS unit with Vacuum Path and suitable nano material software for particle size ranging from 1nm to 100nm or more. Provided a Certified Standard sample for calibration purpose for SAXS measurement. Suitable software for pore size and distribution analysis and long periodicity analysis must be included.

Capillary spinner with capillary tube with different dimension.

Capillary attachment

Standard Software:

The system software engine must be on intelligence-based data collection platform which must select automatically and check right hardware configuration using hardware sensors to provide fully automatic optical & sample alignment, slit and scan condition setting and measurement.

The software should also contain the following features.

Peak search, integrated intensity calculation, Multiple recording of raw data files,, Measurement condition display and editing, Data conversion to ASCII and general TEXT format with powder diffraction pattern analysis based on ICDD database PDF-2.

Qualitative analysis software;

- Hybrid search / match algorithms which combines the features of peak based and profile based phase identification techniques. It offers improves qualitative analysis performance which makes identification of crystalline phase with preferred orientation or a complex lattice deformation.
- Smoothing, Background reduction, $K\alpha_2$ removal, peak search, customization ICDD access.
- Search Match for PDF-2.
- Rietvelt method, WPF (Whole Pattern Fitting) method with user friendly graphical interface for performing operations from Crystal Structure parameter from database to setting analysis condition and displaying crystal structures and quantitative analysis.

RADIATION ENCLOSURE:

Open & Close Door System (with a Pb-contained Acrylic Resin Windows)

Lead equivalent: 0.5mm Pb equivalent.

Fail Safe Function: With a CPU Controlled function.

Warning Light: Installed independently on the top of the Radiation Enclosure.

The DSC method used for the analysis of energetic effects such as:

- melting/crystallization behavior • solid-solid transitions • polymorphism • degree of crystallinity • glass transitions, Specific Heat determination (C_p) etc

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Differential Scanning Colorimeter (DSC)

Temperature range	- 70 °.C to 600°C with compressor cooling intracooler
DSC measuring Technique:	Heat flux principle
Sample atmospheres	Inert, Oxidizing with controlled flow rates,
Controlled heating rates:	0.001 to at least 500 °C/min

Controlled cooling rates:	0.01 to at least 500 °C/min
Temperature accuracy	0.1 °C
Temperature (°C) resolution	< 0.01 °C
Temperature (°C) isothermal stability	±0.005 °C
DSC measuring range	+/- 750 µW
DSC Resolution	0.25 µW
Enthalpy accuracy	< 1%
Sensor time constant w/o sample	0.8 sec
Height-width ratio	≥ 100 mW/K
Calibration standards	for temperature and enthalpy and sensitivity
Software features	<p>based on WINDOWS for data Acquisition and evaluation of routine features.</p> <p>Automatic correction for instrumental influences especially for the Temperature and heating rate dependency of DSC Signal.</p> <p>Automatic evaluation like glass transition, 1st and 2nd derivatives baseline subtraction, Melting, Crystallinity, solid-solid transitions, polymorphism etc to be provided.</p> <p>AutoCalibration</p> <p>Auto Cooling</p> <p>Auto Evaluation</p> <p>Baseline correction</p> <p>Specific Heat (Cp)</p>
Crucibles	The system comes with 1000 nos. of Alumina sample pans with lids and crimper press & calibration standards with test certificate.

		<u>Pre – installation requirement:</u>	Any items required for installation like Weighing, nitrogen gas cylinder, balance, Online UPS, Branded PC i3 processor , with windows 10 Prof OS must be supply by the vendor	
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3	Chem draw Software	Compatible to Windows operating system, for 10 user
4	Origin 6 Software	Compatible to Windows operating system, for 10 user
5	Gaussian 09 Software	Compatible to Windows operating system, for 2 user

Sd/-
Dr. Nachiketa Bandopadhyay
Registrar