|  |  |
| --- | --- |
|  | **«dAiÀÄ£ÀUÀgÀ ²æÃPÀÈµÀÚzÉÃªÀgÁAiÀÄ «±Àé«zÁå®AiÀÄ****eÁÕ£À¸ÁUÀgÀDªÀgÀt, «£ÁAiÀÄPÀ£ÀUÀgÀ, PÀAmÉÆÃ£ïªÉÄAmï, §¼Áîj-583 105** |
| **ªÀÄÄRå¸ÀÜgÀÄ,****gÀ¸ÁAiÀÄ£À±Á¸ÀÛç «¨sÁUÀ**   | **zÀÆ: 08392-242905****ªÉÆÃ : 9035500208** |

**¸ÀASÉå: «.²æÃ.PÀÈ.«/gÀ.±Á/2024-25/ ¢£ÁAPÀ: 22.04.2024**

**¥ÀæPÀluÉ**

 **«µÀAiÀÄ:** gÀ¸ÁAiÀÄ£À±Á¸ÀÛç «¨sÁUÀzÀ°è SÁ° EgÀÄªÀ ¥ÀÆtðPÁ°PÀCwyG¥À£Áå¸ÀPÀgÀ

 ºÀÄzÉÝUÉCfðDºÁé¤¸ÀÄªÀ PÀÄjvÀÄ.

\*\*\*\*\*

ªÉÄÃ®ÌAqÀ «µÀAiÀÄPÉÌ¸ÀA§A¢ü¹zÀAvÉ, gÀ¸ÁAiÀÄ£À±Á¸ÀÛçCzsÀåAiÀÄ£À «¨sÁUÀ, ªÀÄÄRåDªÀgÀtzÀ°è 2023-24£ÉÃ ±ÉÊPÀëtÂPÀ ¸Á°UÉ M§â ¥ÀÆtðPÁ°PÀCwyG¥À£Áå¸ÀPÀgÀ ºÀÄzÉÝ SÁ° EgÀÄvÀÛzÉ, DzÀÝjAzÀ ¸ÀzÀj ºÀÄzÉÝUÉCºÀð C¨sÀåyðUÀ½AzÀ (CºÀðvÉ: gÀ¸ÁAiÀÄ£À±Á¸ÀÛçzÀ°èNET/SET/Ph.D./M.Sc.) CfðDºÁé¤¸À¯ÁVzÀÄÝ, ¢£ÁAPÀ: 30.04.2024gÀ M¼ÀUÁVgÀ¸ÁAiÀÄ£À±Á¸ÀÛçCzsÀåAiÀÄ£À «¨sÁUÀ, ªÀÄÄRåDªÀgÀt, «²æÃPÀÈ «±Àé«zÁå®AiÀÄ, §¼Áîj EªÀjUÉCfð ¸À°è¸À®Ä F ªÀÄÆ®PÀ¸ÀÆa¸À¯ÁVzÉ.

¥ÀæwUÀ¼ÀÄ:

1. DqÀ½vÀ/«¨sÁUÀzÀ ¸ÀÆZÀ£À ¥sÀ®PÀPÉÌ.
2. «²æÃPÀÈ «±Àé«zÁå®AiÀÄ, §¼ÁîjAiÀÄ ªÉ¨ï¸ÉÊmï.
3. PÀbÉÃj ¥Àæw.

|  |  |
| --- | --- |
|  | **«dAiÀÄ£ÀUÀgÀ ²æÃPÀÈµÀÚzÉÃªÀgÁAiÀÄ «±Àé«zÁå®AiÀÄ****eÁÕ£À¸ÁUÀgÀDªÀgÀt, «£ÁAiÀÄPÀ£ÀUÀgÀ, PÀAmÉÆÃ£ïªÉÄAmï, §¼Áîj-583 105** |
| **¤zÉÃð±ÀPÀgÀÄ****CEMARF «¨sÁUÀ**   | **zÀÆ: 08392-242905****ªÉÆÃ : 9035500208** |

**¸ÀASÉå: «.²æÃ.PÀÈ.«/ CEMARF/2024-25/ ¢£ÁAPÀ:**

**¥ÀæPÀluÉ**

**«µÀAiÀÄ:** CEMARF PÉÃAzÀæPÉÌ KMERC C£ÀÄzÁ£ÀzÀ°è G¥ÀPÀgÀtUÀ¼À£ÀÄß RjÃ¢¸À®Ä Quotation/Estimation DºÁé¤¸ÀÄªÀ PÀÄjvÀÄ.

\*\*\*\*\*

ªÉÄÃ®ÌAqÀ «µÀAiÀÄPÉÌ ¸ÀA§A¢ü¹zÀAvÉ, ªÀÄÄRå DªÀgÀtzÀ CEMARF PÉÃAzÀæPÉÌ KMERC C£ÀÄzÁ£ÀzÀ°è G¥ÀPÀgÀtUÀ¼À£ÀÄß RjÃ¢¸À®Ä Quotation/Estimation PÉ¼ÀPÀAqÀ G¥ÀPÀgÀtUÀ½UÉ DºÁé¤¸À¯ÁVzÉ, Quotation/Estimation UÀ¼À£ÀÄß Director, CEMARF ºÉ¸Àj£À°èzÀÄÝ ¢.10.07.2025 gÉÆ¼ÀUÉ Registrar VSK University gÀªÀjUÉ ªÀÄÄaÑzÀ ®PÉÆÃmÉ CxÀªÁ e-mail: registrarps@vskub.ac.in ªÀÄÆ®PÀ ¸À°è¸À®Ä ¸ÀÆa¸À¯ÁVzÉ.

|  |  |
| --- | --- |
| Sl No | Item Name and Specifications |
| 1. | **X-ray Diffractometer*** **X-ray Generator**: Tube load-500W or more, Tube voltage-30k V (Variable) or more, Tube current-15mA (Variable) or more, High voltage generation-High frequency method, Stability ±0.05% (for a ± 10% variation in line voltage), X-Ray shutter-Mechanical rotary shutter linked to Main door.
* X-ray tube-Cu 1.0kW or higher
* **Goniometer Details:** Type-Vertical Theta θ or 2θ , Radius minimum 140mm or more, Scanning method: θ-2θ coupling mode, Drive system-Pulse motor drive , Scanning range –at least -3 ~ +145° (2Theta) or more, Scanning Speed-atleast 0.01~ 100°/min (2Theta) or more, Minimum step width- atleast 0.005° (2Theta), Variable DS- Effective below 20°(2 θ) to limit measurement area 20mm width, Angular Accuracy Better than-0.02°, Variable Divergence-Slit, SS (Scattering slit)-1.5°or better, Soller slit-2.5° or better, K-Beta reduction-Ni-Filter
* **Sample Holder**-Standard sample holder for accommodating both solid (metallic) and powder samples.
* X-ray Detector Details-Fast 1D solid state multistrip detector.
* Peak Search Background calculation and subtraction; Profile smoothing, K-a2 calculation and removal, Peak Se
* Integrated Intensity calculation, Background calculation and subtraction, Profile Smoothening,K-a2 calculation and removal, Peak search, LPA calibration, Integrated calculation
* Multiple Recording Software: Software for Qualitative Analysis: Si Standard (NIST Traceable)
* **Chiller**: External , **Computer**: Computer and Suitable Software,
* A detailed system description document and operation manual should be provided along with the system. The document should include part details and allowable detachment/replacement procedures for all important components of the system.

Installation & training Installation of the instrument to be done at VSKU- Bellary, at free of cost. Operational training to be provided to respective group of instrument operators. |
| 2. | **Conventional Scanning Electron Microscope with EDX :*** Resolution SE: 4nm at 20 kV, 15nm at 1kV (WD=5mm, High vacuum mode)
* Resolution BSE: 5.0 nm at 20 kV (WD=5mm, Variable pressure mode)
* Magnification: x6 to x300,000 or better
* Low vacuum mode setting : 6 to 100 Pa or better
* Acceleration voltages: 0.3kV to 20 kV or better
* Maximum specimen size: 80 mm in diameter or better
* Specimen stage: 5-axis motorized
* X: 0-50 mm, Y: 0-40 mm, Z: 5-33 mm, R: 360o, T: -15 to +90o
* Observation Area: 64 mm in Diameter or better
* Electron gun: Pre-centred cartridge type,
* Objective- lens aperture: 4 Hole movable aperture,
* Source: tungsten hairpin filament, Detector: SED, Sensitive Semiconductor BSED, EDS Detector.
* Auto image adjustment function ( AFC, ASF, ABA, ABCC), Auto-axis alignment function, Image saving: 640\*480, 1280\*960, 2560\*1920, 5120\*3840 in pixels, Image format: BMP, TIFF, JPEG. Vapour Sputtering Unit: Gold
* Operational Auxiliary Function: Raster rotation, Dynamic focus, image improvement function, data input, preset magnification, Stage positioning navigation function (SEM MAP), beam making function.
* **Computer**: Computer and Suitable Software,
* **Optical function: \* hardware:** track ball, Joystick, Ultra sensitive low vacuum detector (UVD) **\*software:** SEM Data manager, External communication interface, 3D capture, Stage free mode, EDS integration.
* Application: Morphological analysis, topography, identification of crystal structure, Chemical Composition, Thin film analysis, Biological specimens and Zoological Specimens.
* Computer and Suitable Software,

Installation & training Installation of the instrument to be done at VSKU- Bellary, at free of cost. Operational training to be provided to respective group of instrument operators. |
| 3. | **Gas chromatography :**Automatic, computer-controlled Dual channel Gas Chromatograph Analyser, Auto liquid Injector min 15 vials capacity and FID. System to be supplied with test chromatograms, method set up parameters, * Large Graphical LCD or better based display to view Realtime Chromatogram and their parameters, An automatic computer controlled dual channel gas
* **chromatographic system**; capillary/ packed columns, gas sampling valve, auto liquid injector, oven, pressure &flow control systems, detectors, gas sampling devices with appropriate valves & fittings, and powerful and versatile software capable of analysing gases/liquidis required. The Valves must be fitted in separate enclosure box and not inside column oven.
* Should be equipped with Intelligent self-diagnostic functions for detailed diagnosis of the septum, glass insert usage status, temperature sensor error, gas supply pressure, status of each gas ignition function etc.
* Should be manufactured as per ISO 9001 and in full compliance with international regulatory, safety, and electromagnetic compatibility requirements
* **Column Oven:** Capacity; 15L or above**,** Temperature Range; Ambient + 10oC to 400oC**,** Temperature Program ramps; Minimum 20o or more**,** Max temperature program rate; Minimum 60oC/min or more**,** Cooling time; 300 °C to 50 °C within 6 min (at 25 °C ambient temperature) or faster
* Maximum run time; At least 9999 min or more
* Thermal Conductivity Detector (TCD): Max Operating temperature: 400oC or more
* Sensitivity: 200 pg tri-decane/mL or <10 microvolt per ppm or >40000mV x mL/mg (Decane), Dynamic range 105 or better
* Flame Ionisation Detector: Max operating temperature: 400oC or more, Sensitivity: 3 pg C/s (Dodecane) or better, Dynamic Range 107 or better
* Sample Injection: Channel1 - Suitable sample injection port to introduce sample through gas tight syringe.
* Channel2- Split/splitless type capillary column injector with pressure range up to 100psi and split ratio up to 9000:1
* Liquid Auto Injector & sampler; Auto Injector with sampler for 15 or more vials capacity should be provided with 10uL syringe. Variable injection speed separate was- waste vials should be available.
* Concentration Range: H2: 50ppm-1000ppm, O2: 50ppm-1000ppm
* Other items - Suitable sample loops, gas supply pipes & carrier gas triple filter kit should be included as standard supply.Suitable, Latest, compatible branded PC system with Windows 10 OS to be included& Suitable Printer
* 5KVA Online UPS with Suitable Backup

Installation & training Installation of the instrument to be done at VSKU- Bellary, at free of cost. Operational training to be provided to respective group of instrument operators. |

¥ÀæwUÀ¼ÀÄ:

1. DqÀ½vÀ/«¨sÁUÀzÀ ¸ÀÆZÀ£À ¥sÀ®PÀPÉÌ. ¤zÉÃð±ÀPÀgÀÄ, CEMARF
2. «²æÃPÀÈ «±Àé«zÁå®AiÀÄ, §¼ÁîjAiÀÄ ªÉ¨ï¸ÉÊmï.
3. PÀbÉÃj ¥Àæw.