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PREBID REPORT

The online meeting for Pre-bid discussion will be held at **IIT-Indore through online channel on 03/12/2025 at 03.00 PM onwards** for **Supply and Installation of Scanning Electron Microscopy with Energy-dispersive X-ray Spectroscopy (SEM-EDS).**

Please find below the queries received and their responses.

Sl. No.	Reference of the Clause/ Page No. of the Tender Document	Query raised	Query Raised by	Response from IITI
1.	**TYEP-1: SEM-EDS** **Page No. 19, Sr. No. 1** **Resolution:** b) Less than or equal to 1.0 nm at 1kV	Please change as 1.3 nm@ 1 kV or better	**M/s. JEOL India Pvt. Ltd.**	The System-1 instrument will be used under a multi-institutional collaborative project that involves a wide range of samples, including soft polymers, organic/hybrid materials, and hard ceramics. High resolution at low accelerating voltages is essential for such work, particularly to image soft or non-conductive specimens without causing beam-induced damage. All OEMs participating in the pre-bid meeting have at least one model publicly listed that complies with the stated resolution requirement. In view of the diverse nature of technical needs that this instrument would cater to, **this specification will be retained.**
2.	**TYEP-1: SEM-EDS** **Page No. 19, Sr. No. 7** **Specimen chamber:** a) Suitable large chamber: Suitable chamber for accommodating a minimum sample diameter of 100 mm or more. (Guideline	Please change as Suitable Large Chamber: Suitable chamber for accommodating a minimum sample diameter of 100 mm or more.		**The specification will be retained.** The chamber dimensions provided in the tender serve as indicative guidelines. Any offered model of System-1 that M/s JEOL India Pvt. Ltd would bid-for will

	dimensions: Inner Diameter 360 mm; Height: 270 mm)		M/s. JEOL India Pvt. Ltd.	be accepted as long as it can accommodate samples of at least 100 mm diameter, which is the essential functional requirement.
3.	**TYEP-1: SEM-EDS** **Page No. 20, Sr. No. 9** **Specimen Stage:** e) Tilt = - 10° to + 90°	Please change as Tilt = - 4° to 70°		**The specification will be revised to** (e) Tilt = - 4° to + 70° or better.
4.	**TYEP-2: SEM-EDS** **Page No. 23, Sr. No. 26** **Magnification:** b) Upper Limit: 10,00,000 X or higher.	Please change as 8,00,000 X or better.		**The specification will be revised to** b) Upper Limit: 8,00,000 X or higher.
5.	**TYEP-2: SEM-EDS** **Page No. 23, Sr. No. 27** **Electron gun:** a) Gun type: High-performance thermal emission SEM column with tetrode source emission geometry	Please change as High Performance thermal emission SEM Column.		**The specification will be revised to** a) Gun type: High-performance thermal emission SEM column with W filament or tetrode source emission geometry or equivalent technology.
6.	**TYEP-2: SEM-EDS** **Page No. 23, Sr. No. 29** **Probe Current:** f) Up to 2μA or better, continuously adjustable	Please change as 1 μA or better, continuously adjustable.		**The specification will be revised to** f) Up to 1μA or better, continuously adjustable
7.	**TYEP-2: SEM-EDS** **Page No. 23, Sr. No. 30** **Electron Optics:** a) Beam Deceleration or equivalent for high resolution imaging at low KV. b) High Performance thermal emission SEM Column with tetrode source emission geometry.	a) Please remove. b) Please change as High Performance thermal emission SEM Column.		We need beam deceleration or equivalent technology in System-2 to achieve high resolution at low landing energies particularly for soft or beam-sensitive samples. Any alternative technology/method such as stage-biasing or sample biasing to reduce the landing energy on samples will be acceptable (hence the wording "or equivalent"). **Therefore point (a) on Page 23, Sr. No. 30 will be retained.**

				The point (b) will be revised to (b) High-performance thermal emission SEM column with W filament or tetrode source emission geometry or equivalent technology.
8.	**TYEP-2: SEM-EDS** **Page No. 23, Sr. No. 31** **Specimen:** a) Inner width: 280 mm	Please change as suitable inner width.		**The specification will be revised to,** a) Suitable inner width
9.	**TYEP-2: SEM-EDS** **Page No. 24, Sr. No. 33** **Specimen Stage:** g) Removable ZTR stage axes, enabling tall (>12 cm) and heavy (10 kg) samples.	Please change Removable ZTR stage axes.		**The specification will be revised to** g) Removable ZTR stage axes, enabling tall (>100 mm) and heavy (> 2 kg) samples.
10.	**TYEP-1: SEM-EDS** **Page No. 19, Sr. No. 1** **Resolution:** Less than or equal to 1.0 nm at 1kV	b) Less than or equal to 1.3 nm at 1kV. All resolutions to be achieved without any condition like sample/stage bias. **Remarks:** Some OEMs rely on tedious and indirect techniques, such as stage biasing, to achieve these resolution figures. Such methods require trial and error adjustments and do not provide a straightforward or consistent approach.	**M/s. Carl Zeiss India (Bangalore) Pvt. Ltd.**	The System-1 instrument will be used under a multi-institutional collaborative project that involves a wide range of samples, including soft polymers, organic/hybrid materials, and hard ceramics. High resolution at low accelerating voltages is essential for such work, particularly to image soft or non-conductive specimens without causing beam-induced damage. All OEMs participating in the pre-bid meeting have at least one model publicly listed that complies with the stated resolution requirement. In view of the diverse nature of technical needs that this instrument would cater to, **this specification will be retained.**
11.	**TYEP-1: SEM-EDS** **Page No. 19, Sr. No. 6** **Electron Optics:** b). System should consist of a dual condenser lens;	b) System should consist of single/dual condenser lens; hybrid objective lens/ electrostatic lens & electro-magnetic lenses or equivalent to		System-1 will be used extensively for SEM-EDS analysis and elemental mapping. Dual-condenser lens systems provide higher probe currents without significant loss of spatial resolution,

	hybrid objective lens / electrostatic lens & electro-magnetic lenses or equivalent to give high resolution and high magnification images for magnetic samples with lower working distances. Guideline: High resolution imaging of ferromagnetic samples e.g. ferromagnetic steel @ WD = 3 mm; AV = 1 kV	give high resolution and high magnification images for magnetic samples with lower working distances. Guideline: High resolution imaging of ferromagnetic samples e.g. ferromagnetic steel @ WO= 3 mm; AV= 1 kV. **Remarks:** The proposed system is a single condenser-based system. Gemini 1 column is optimized for high resolution imaging and analytical performance. In applications requiring high throughput or routine imaging, the single condenser design is more efficient and practical. A single condenser design minimizes aberrations and ensures precise electron beam control.	**M/s. Carl Zeiss India (Bangalore) Pvt. Ltd.**	enabling superior X-ray generation for EDS - particularly beneficial for nanostructures, low-Z materials, and soft/beam-sensitive samples. To ensure analytical performance and compatibility with stated EDS requirements, **the specification will be retained.**
12.	**TYEP-1: SEM-EDS Page No. 19-20, Sr. No. 8 Vacuum system and gauges:** c). Two Ion Getter Pump or sputter ion pump for Electron gun section, Turbo Molecular Pump and Oil free scroll Pump for Specimen chamber and electron column. High vacuum in the chamber must be better than 10^{-4} Pa.	c) Ion Getter Pump or sputter ion pump for Electron gun section, Turbo Molecular Pump and Oil free scroll Pump for Specimen chamber and electron column. High vacuum in the chamber must be better than 10-4 Pa. **Remarks:** Different system has different pumping arrangement and cooling mechanisms. The quoted system has one Ion Getter Pump. It is important to maintain the final vacuum level in the chamber. A single IGP reduces system complexity, leading to fewer potential points of failure		Two ion-getter pumps help maintain a cleaner and more stable ultra-high-vacuum environment around the electron source and upper column. This contributes to improved beam stability, longer emitter lifetime. and enhanced analytical performance (For instance two ion-getter pumps help in achieving superior high-current performance for EDS, minimizing contamination and noise so that both imaging and analytical results remain consistent over long operating periods.) Therefore, to meet the performance parameters specified elsewhere in the tender, two ion-getter pumps are required.

		compared to double IGP systems.		**The specification will be retained.**
13.	**TYEP-1: SEM-EDS** **Page No. 20, Sr. No. 9** **Specimen Stage:** a) Stage type: 5 (five) axes eucentric stage with motorized movements:	a) Stage type: 5 (five) axes eucentric/compucentric stage with motorized movements. **Remarks:** Both compucentric and eucentric stages serve a similar purpose. The Cartesian compucentric stage offers the most stable and precise XYZ movement, ensures smooth movement during large-area mapping, montaging, and analytical workflows. Both systems can maintain the same field of view during tilt, but the underlying mechanisms they use to achieve this are different.	**M/s. Carl Zeiss India (Bangalore) Pvt. Ltd.**	A eucentric stage ensures that the region of interest remains centered and in-focus during tilting, providing greater geometric stability than software-corrected compucentric motion. This is essential for accurate surface analysis, cross-section imaging, and consistent EDS mapping where tilt or working-distance adjustments are required. It also minimizes drift and refocusing, enabling faster, more reliable data acquisition across a wide variety of sample types. **The specification will be retained.**
14.	**TYEP-1: SEM-EDS** **Page No. 20, Sr. No. 10** **Electron Detectors:** c) Dedicated In-lens BSE detector for compositional imaging.	c) Dedicated In-Les BSE/ Chamber mounted BSE detector with up to 4 parallel channels for fast compositional and topographical contrast imaging at low voltage. **Remarks:** We will offer you a highly advanced and sensitive five segment diode BSE detector. The detector is positioned directly below the objective lens. By selecting and combining different diode segments, you can obtain images with both topographical and compositional contrast.		**The specification will be revised to** c) Dedicated In-Lens BSE or Chamber mounted BSE detector with up to 4 parallel channels for fast compositional and topographical contrast imaging at low voltage.
15.	**TYEP-1: SEM-EDS** **Page No. 22, Sr. No. 18** **Workstation / Computers:**	a). 24" LED touch screen/TFT monitors with suitable, factory tested computer workstation. **Remarks:**		**The specification will be revised to**

	a) 24" LED touch screen monitors with suitable, factory tested computer workstation.	Minor modification request on screen (TFT, which is robust and better) These changes will not impact the overall performance of the system.		a) 24" LED touch screen/TFT monitors with suitable, factory tested computer workstation.
16.	**TYEP-2: SEM-EDS** **Page No. 23, Sr. No. 25** **Resolution:** a) Less than or equal to 3 nm at 30 kV(SE) at HV and LV mode.	a) Less than or equal to 2.5 nm at 30 kV(SE) at HV and Less than or equal to 3.4 nm LV mode **Remarks:** We provide 3.4 nm resolution at 30 kV LV mode. We don't have this specification specified in our brochure.	**M/s. Carl Zeiss India (Bangalore) Pvt. Ltd.**	**The specification will be revised to** (a) Less than or equal to 3 nm at 30 kV(SE) at HV **and** less than or equal to 3.4 nm at 30kV(SE) LV mode.
17.	**TYEP-2: SEM-EDS** **Page No. 23, Sr. No. 27** **Electron Gun:** a) Gun type: High-performance thermal emission SEM column with tetrode source emission geometry.	a) Gun type: High-performance thermal emission SEM column with W filament. **Remarks:** ZEISS does not use a tetrode source emission geometry in its thermal emission SEM columns.		**The specification will be revised to** a) Gun type: High-performance thermal emission SEM column with W filament or tetrode source emission geometry or equivalent technology.
18.	**TYEP-2: SEM-EDS** **Page No. 23, Sr. No. 30** **Electron Optics:** b) High-performance thermal emission SEM column with tetrode source emission geometry.	b) High-performance thermal emission SEM column with W source. **Remarks:** ZEISS does not use a tetrode source emission geometry in its thermal emission SEM columns.		**The specification will be revised to** b) Gun type: High-performance thermal emission SEM column with W filament or tetrode source emission geometry or equivalent technology.
19.	**TYEP-2: SEM-EDS** **Page No. 23, Sr. No. 31** **Specimen:** a). Inner width: 280 mm	No deviation. **Remarks:** a) Inner width: 280 mm or better		**The specification will be revised to,** a) Suitable Inner width
20.	**TYEP-2: SEM-EDS** **Page No. 26, Sr. No. 42** **Workstation / Computers:** a) 24" LED touch screen monitors with suitable, factory tested computer workstation.	a) 24" TFT/LED touch screen monitors with suitable, factory tested computer workstation.		**The specification will be revised to,** a) 24" TFT/LED touch screen monitors with suitable, factory tested computer workstation.

21.	**Incoterms**	With reference to the subject tender, we have observed that two different delivery site addresses have been mentioned for two items. We intend to submit our quotation in foreign currency under the **CIP Mumbai Airport** Incoterm. In this context, we understand that **IIT Indore will be responsible for all activities beyond CIP Mumbai**, including insurance (beyond airport), customs duty, clearance, GST, and local transportation to the respective delivery site etc. as applicable.	**M/s. Thermo Fisher Scientific India Pvt. Ltd.**	**Please refer to the tender page no. 14, Section-IV, Special terms & conditions (Point no. 02 & 03)**

All prospective/willing bidders are requested to take note of this report as part of the Tender document. All other terms and conditions of the tender remain unchanged.

Assistant Registrar (MMS)

सहायक कुलसचिव
(सामग्री प्रबंधन विभाग)
Assistant Registrar
(Materials Management Section)