Annexure - I

Technical specification for a GPU-based high-computation machine	
Processor	2 x Intel Xeon Platinum 6530P Processors (or equivalent) with 32 Cores and 64 threads, 2.3 GHz (Base), 4.1 GHz (Max turbo freq) or better
Memory	At least 8 × 64GB = 512GB (DDR5-6400 or better) and should have a minimum of 32 DIMM slots
SSD	NS204i-u v2 480GB (or more) NVMe Hot Plug (or equivalent like M.2 with RAID-1) SSD for Boot Optimised Storage Device,
Storage	Minimum of 5 × 3.84TB = 19.2TB NVMe GEN4 U.3 for Storage, expandable up to 30.72TB at least
GPU Card	At least 2 x NVIDIA H200 NVL (141GB each) with NVLink bridge or equivalent; should be expandable up to a minimum of 4 such GPUs or more
Network Interface	2 × 10GbE BASE-T OCP3 or better
Slots and ports	Minimum 6 Gen 5 PCIe x16 Full Length, at least 2 OCP 3.0 Slots, USB 3.0 ports or better, VGA port
Power Supply Units	At least 5 x 2400W M-CRPS Titanium Hot Plug Power Supplies or equivalent with suitable redundancy; should be scalable depending on GPU upgrade
Wireless connectivity	Optional but desired (preferably built-in or through PCIe)
OS	Open Source
Software and Management	**Remote server management:** with features like virtual media, remote graphical console, health monitoring, security features, supporting remote firmware updates, server configuration management, etc. **Cloud management:** for Cloud-based centralised monitoring and fleet management **Compute management:** for operational efficiency, updates, Compliance checks, monitoring and analytics **Cluster management:** command-line and web-based interface with options such as node provisioning, real-time cluster monitoring and automation; support for MPI Libraries & NVIDIA CUDA (or equivalent) for parallel computing, role-based access control, and user management. A minimum of 5 years of software subscription (if any) should be included. All AI-based subscriptions should be enabled and installed.
Security	Silicon Root of Trust (SRoT), Secure Boot, Secure Start, TPM V2, Intrusion Detection kit.
Certification	The system should be certified by Canonical Ubuntu Server LTS 24.04 and Red Hat Enterprise Linux 10.0. This should be visible on the respective website. The system should be certified or qualified by Nvidia (or an equivalent OEM), and this certification should be listed on their website.
Warranty and service	Minimum 5 years Part, Labour, Onsite Service, Next Business Day by OEM. For any service request (hardware or software), the support team must respond via email or phone within 12 hours of receiving the query. If the issue requires on-site assistance, an engineer should be dispatched to the location within 48 hours of lodging the complaint.

Monitor	IPS, more than 34 inches, 4K resolution or better
Keyboard and mouse	Wired noiseless keyboard and wired mouse with optical scroll
Accessories	All other necessary hardware and software that are needed for the smooth operation of the machine
Performance criteria	As the product is intended for advanced AI/ML applications, it must meet the following performance criteria: The user should be able to fine-tune a large (8 billion or more) LLM model using LoRA and/or QLoRA techniques on a standard NLP dataset of an appropriate size. The bidder is required to demonstrate this capability during the delivery process. Further, the vendor should install all software tools and applications required for the department to run AI/ML-related tasks smoothly. There should be job schedulers so that partitioned GPUs can be effectively utilized. There should be a script to check the availability of free CPUs, memory, and GPUs before any user submits the job(s).
Additional Condition	- The bidder should be an authorized partner with the OEM, and the bidder should submit the authorization letter from the OEM. - OEM Support: The OEM should have a website/portal to log complaints, download the latest drivers, check the serial number against the warranty, and list of factory-integrated components. The OEM should have a 24/7 toll-free support number. - The bidder should have executed at least one order of a similar nature (workstation + GPUs) in CFTIs, such as IITs, IISc, or any other central government institute/organization, within the last year. - The bid should include a suitable server rack (42U, 1000 mm x 1000 mm with 4 vertical PDUs) to house the machine. The bidder must include the rack specifications in the bid. - Additionally, the bid should **include a UPS facility** to ensure the uninterrupted operation of the machine (please refer to Annexure-II for details). The bidder must provide the specifications of the UPS in the bid.

Annexure - II

Technical specifications of online UPS

Feature	Specifications
Technology	Online, double conversion, VFI-SS-111, preferably modular
Architecture Rack/Tower	Rack/Tower
Configuration	Three-Phase Input & Single-Phase Output (or better)
Capacity	20 KVA (minimum)
Input voltage range	covering 230 V (Line-Neutral), 400 V (Line-Line)
Input frequency	40-70 Hz (preferable)
Input power factor	≥ 0.99 (with full linear load)

Output voltage	230 V (adjustable to 220/230/240)
Output frequency	50 / 60 Hz ± 0.1% (preferable)
Output Waveform	Pure sine wave
Current Crest Ratio	3:1 or better
Total Harmonic Distortion	≤3% (linear load); ≤5 % (Non-Linear Load)
Efficiency	At least 96%
Overload Capacity	Preferably 105% (60 min), 125% (5 min), 150% (1 min), > 150% (200 ms)
Battery bank	Type: VRLA-SMF, 12V with 120AH or compatible, Qty: 20 or more (or suitable configuration) to give backup of at least 1 hour on full load, along with an MS fabricated battery rack to accommodate the battery system and required accessories like battery interlinks, battery-to-UPS cable, lugs, glands, cables for the incomer panel to the UPS, UPS to the distribution panel, etc., should be provided.
Protection Index	IP20 or better
Noise at 1 m (dBA)	≤58
Compliance Standards	EN/IEC/BS 62040-1, EN/IEC/AS/BS 62040-2, EN/IEC/BS 62040-4 (preferable)
Display	LCD display indicating all important parameters.
Communications ports	Yes
Warranty	Minimum of 5 years with annual maintenance and service support for UPS, and at least 2 years for batteries. For any service request, the support team must respond via email or phone within 12 hours of receiving the query. If the issue requires on-site assistance, an engineer should be dispatched to the location within 48 hours of lodging the complaint.
Recommended make	Legarnd/Schneider/Verttiv/