LOT 11

| I. | TissueLyser III with TissueLyser Adapter set (2*24) |
| II. | Locator™ Plus Rack and Box Systems with level alarm |

Only brands from Europe, North America, or Japan are acceptable.

I. TissueLyser III with TissueLyser Adapter set (2*24)

Features

- Bead mill - intended for molecular biology applications
- Benchtop
- Simultaneously disrupts multiple biological samples through high-speed shaking in tubes or 96-well plates
- Easy to run and customize disruption protocols
- 7 pre-programmed protocols and 5 customizable protocols for maximum sample versatility
- Allows end user to create custom program cycles to conveniently set the disruption parameters
- Suited for high-throughput disruption of animal and plant tissues, bacteria and yeast
- Touch screen for ease of use
- Integrated software for pre-programmed and customizable protocols
- Wide range of accessories to process versatile sample volumes
- Reproducible results for difficult-to-lyse samples (e.g., cells, tissues, bones, etc.)
- Can also disrupt and homogenize large samples
- 220–240 V, 50/60Hz; variable speeds from 3 to 30 Hz (180–1800 oscillations/minute)
- Convenient and secure disruption process.

Specifications:

- Dimensions Height: 350 mm (up to 640 mm with the hood raised)
- Width: 385 mm
- Depth: 470 mm
- Disruption principle   High-speed shaking of samples with different bead types
- Protocol   7 pre-programmed protocols and 5 customizable protocols
- Technical data   100–120/220–240V, 50HZ; variable speeds from 3 to 30 Hz (180–1800 oscillations/minute)
- Compatible kits   All kits for purification of DNA and RNA
- Throughput   2 x 24 tubes (2 mL)
- Technology   Bead Mill

II. Locator™ Plus Rack and Box Systems with level alarm

Features:

- Compact design to minimize space requirements while maximizing storage capacity
- Suited for both manual and computerized inventory record-keeping methods
- Outstanding temperature uniformity: samples are stored below -180°C, even when less than 2 in. (5cm) of liquid nitrogen remains in the vessel
- Audible alarm that sounds when nitrogen level falls below safe range; dry remote alarm contact for remote monitoring

• Advanced vacuum insulation to minimize liquid nitrogen evaporation and reduces operating costs	
• Secure locking to prevent unauthorized entry	
Specifications:	
• Diameter (Metric)	55.9 cm
• Diameter (Metric) Inside Neck	20-22 cm Inside Neck Diameter
• Electrical Requirements	220 V 50 Hz
• Weight	40-45 kg weight
• Height (Metric) Exterior	67.9 cm
• Holds	2000 vial capacity
• Includes	Level Monitor
• Insulation	Advanced vacuum insulation
• Secure locking	
• Model	Locator Jr. Plus
• Rack Capacity	Four Rack Capacity
• Type	Manual Fill LN2 Dewar
• Capacity (Metric)	71 L
• Monitoring Options	Ultrasonic Level
• Temperature Range	Below -180°C
• Static Holding Time	80-83 Days
• Static Evaporation Rate	0.85L
• Compliance	CE, CSA compliance

LOT 12

I.	**Artificial Intelligence Workstation**
Components	Technical Details
Processor	Sufficient no. of CPUs to match the below technical specifications: • Minimum 128 Physical Cores • Minimum 240 Threads • Base Clock Speed of minimum 2.4 GHz • Minimum 2 MB L3 Cache for each CPU Core • Combined TDP of the CPU's less than 600 Watts
Motherboard	• 12-Channel DDR5 RDIMM • Up to 512MB L3 cache
Memory	• Minimum 384GB Ram • DDR5-SDRAM • ECC Server Memory • Minimum Bandwidth 55GB/s • Minimum of MT/s 5200
Hard Disk	• Minimum Storage 64TB • Nvme Pcie Generation 4 SSD • Minimum Read of 7GB/s • Minimum Write of 6.1GB/s
Raid	• H/W RAID Controller Supporting at least Raid 0/1/5/6/10 (1 GB onboard cache)
Graphics	Graphics Card to match following technical specification: • CUDA Cores Minimum 13,824☐ • Tensor Cores Third-generation Minimum 864 • Memory bandwidth Minimum 3.2 TB/s☐ • Total 160 GB GDDR6 GPU Memory • Single-precision performance Minimum 27.8 TFLOPS☐ • System interface Minimum PCI Express 4.0 x16☐ • Total board power Minimum 600 W☐ • Thermal solution: Passive • FP64 Minimum 19.4 TFLOPS • FP64 Tensor Core Minimum 29 TFLOPS • FP32 Minimum 29 TFLOPS • TF32 Tensor Core Minimum 624 TFLOPS • BFLOAT16 Tensor Core Minimum 1248 TFLOPS • FP16 Minimum 1248 TFLOPS • INT8 Minimum 2496TFLOPS • INT4 Minimum 4992 TFLOPS • Up to 7 MIGs at 10GB • NVLink Available 600 GB/s

	• Display connectors= 4x DisplayPort 1.4a☐ • Max simultaneous displays: • 4x 4096 x 2160 @ 120 Hz • 4x 5120 x 2880 @ 60 Hz • 2x 7680 x 4320 @ 60 Hz • Encode/decode engines= 1x encode, 2x decode (+AV1 decode) • Supported APIs= DirectX 12 Ultimate, OpenGL 4.68, Vulkan 1.3
Network	• 10Gb Speed • Dual SPF+ Ports Network Adapter • Fiber Optics
CD/DVD	• None Slim Aluminum 8x DVD Writer External Optical Drive
Ports	• 4 x USB 3.0 ports • 4 x DP ports • 2 x USB 3.2 ports
Power	• 1600W High-Efficiency Platinum Level Certified Dual Power Supply
Chassis	• Full Tower, Wisper Quite Chassis with sufficient cooling fans • 16 x 2.5" Genenation 4 NVMe/SATA/SAS-4 hot-swap bays • 2 x M.2 slots with PCIe Gen3 x4 interface
Preloaded Software	
Operating System	Open-Source Linux
Library and Compilers Preloaded	GCC, Compilation Environment Setup
AI Frameworks Preloaded	CPU Optimized Tensor Flow, Pytorch, Theano, Caffe, Text2speech, Mxnet, CuDNN, Containerizing Different Framework, Keras GPU Accelerator Optimized Tensor Flow, Pytorch, Theano, Caffe, Text2speech, Mxnet, CuDNN

Qualifying Criteria:
• Bidder/OEM should attach the ISO 27001:1300 along with bid.
• Bidder/OEM should attach BIS license document of the system.
• Bidder/OEM should attach the E-waste Regulation certificate along with the bid.
• Bidder should submit PO Copies of similar or higher configuration supplied to other Higher Educations Institutions like IIT's, IISER's, CDAC's along with Completion / Installation Reports. Failure to submit Installation Reports will lead to rejection of the submitted bid.
• Bidder should have the required expertise of installing various frameworks and bidder will have to install all the applications needed by the user department. Self-declaration in this regard needs to be submitted by the bidder.
• Bidder should have the required expertise of installing various scientific applications used in the HPC Community. End user certificates in this regard have to be submitted.
• Bidder need to submit Service Level Agreement (SLA Escalation Matrix) with names and details of Support Person on every stage.
• After the submitted bids are opened, bidders will be asked to give Technical Presentation of the quoted solution. This technical presentation will be mandatory and an essential part of the evaluation process.

- Scope of work for the supplier (winning bidder) will include Supply, installation & commissioning of all systems including OS and Scientific Application installation. Required applications to be installed and optimized / fine-tuned will be confirmed to the supplier.
- Bidders should not be blacklisted by any Central/State Govt. Bodies and Academic/Research Institutes in the last 5 Years.
- Bidders not quoting for Containerized Platform from same OEM will be rejected. This will be checked / tested at the time of installation.

LOT 13

Dental Materials Testing
1- Universal Testing Machine 2- Sample grinder 3- Thermocycling machine 4- Roughness testing machine 5- Chewing machine 6- Toothbrush wear simulator 7- Stereomicroscope + Camera 8- Vickers /micro-vichers
1. Universal testing machines:
The Universal Testing Machine must have a load capacity between 1 kN and 10 kN, with 5 kN preferred for most dental material applications. It should offer a crosshead speed range from 0.001 mm/min to at least 500 mm/min, allowing precise control for various testing protocols. The system must support multiple test modes, including tension, compression, 3-point and 4-point bending, shear, and peel testing t The system should support interchangeable fixtures, including bending jigs, shear bond test assemblies The system should support interchangeable fixtures, including bending jigs, shear bond test assemblies The machine must include safety features
2. Sample grinder:

The sample grinder should be able to achieve grinding and polishing
The rotation direction of the grinding disc should be two forward and reverse
Rotation speed of the grinding and polishing plate
   Stepless speed regulation 100-1000r/min
   Four-speed speed regulation 300 500
800 00r/min
The Rotating speed of the grinding head 0—120r/min
Grinding head motor, Stepping motor 200W
Timing adjustable time 0-99min
Pressurized pressure 0-0.5Mpa (usually 0.2-0.3Mpa)
power supply 220V 50Hz

3. Thermocycling device
- It should have two tanks: cold bath 1-20°C, intermediate 20-60°C, or cold and hot 20-60°C) - The temperature control should be independent for each tank - The tanks should be in stainless steel - It should include a tank waste collector on the machine itself or directly into the sewage - The voltage: 220V 60Hz - It should protect against power overload. - It should have independent temperature control in each tank (adjustable) - It should provide adjustable immersion times and adjustable numbers of cycles.

-	It should have a container to hold specimens (stainless steel)
-	It should provide an emergency button
-	Automatic tank filling with level control

4. Roughness testing machine

The measurement range should be at least **Ra 0.005 μm to 10 μm** to cover smooth to moderately rough dental surfaces.

Resolution: minimum **0.001 μm (1 nm) vertical resolution for detecting fine surface irregularities.

The accuracy: ±5% or better to ensure reliable comparisons between materials or surface treatments.

Should be a stylus type: Diamond-tipped stylus**, radius \~2 μm, with a vertical force of 0.7–1.0 mN for precise, non-destructive scanning.

Must support selectable cut-off lengths (e.g., **0.25 mm, 0.8 mm, 2.5 mm**) and multiple evaluation lengths.

The parameters measured should at least Ra, Rz, Rq, and Rt, with optional advanced 3D parameters if needed.

It must include a USB or Bluetooth connectivity with software for data logging, graphing, and report generation.

5. Chewing machine

Must simulate masticatory forces with adjustable loads, typically between 10 N to 250 N, to replicate light and heavy chewing conditions.

Should have at least 2–6 independent chambers, allowing simultaneous testing of multiple samples for reproducibility and efficiency.

Programmable cycle count up to 1,200,000 cycles with adjustable frequency between 0.5 to 2 Hz, simulating long-term fatigue and wear.

Must provide vertical (axial) and horizontal (lateral) movements, ideally with a thermocycling option, to mimic real oral conditions.

Should include temperature control for alternating baths (e.g., 5°C to 55°C), with customizable dwell and transfer times.

Should support different specimen types (teeth, crowns, inlays, composite blocks), with easy-to-adjust fixtures and waterproof chambers.

6. Toothbrush wear simulator

It should provide an electricity overload protections
It should secure a resumption of test after power failure
It should have an automatic stop after the end of test
Should have an adjustable number of cycles
With 6 or 8 independent brushing stations
Movement: XY axis with stroke control for each movement (precision 1 mm)
It should provide a nine brushing movement options (5 linear; 2 circular; 2 combined)
The brushing speeds: 0,5 to 2,5 Hz
Should provide a useful stroke: Y: 50 mm X: 35 mm
Colorless acrylic protective cap with cap sensor
It should provide an adjustable weight (load) on brushes (springs): 0 to 350 g
Rubberized feet that allow for level adjustment and vibration absorption
Electrostatic painting in white color
Supply voltage: 110/220 V 50/60 Hz

Should have an international standard electrical protection
All machine NR 10 and NR 12 standards

7. Stereomicroscope + Camera

The trinocular:
3.5X-90X zoom magnification power with crisp sharp images
Super widefield high-eyepoint optics
8" (200mm) working distance
Ocular Port Diameter: 30mm
Eyepieces: WF10X/20 10X super-widefield, high-eyepoint with 20mm field-number
Zoom Range: 0.7X-4.5X
Interpupillary Distance: 2-3/16" - 2-15/16"(55-75mm)
Working Distance with 0.5X Barlow: 8" (200mm)
Stand: 10" x 7-7/8" x 7/8"
Round Plate: 3-3/4" (95mm) in diameter
Accessories: Paired eye-caps
The Camera:
AF Series 1080p 60fps HDMI + Wi-Fi Color CMOS Auto-focus C-mount Microscope Camera with >= 20.0MP Photo-capture for Stand-alone and PC Imaging

8. Vickers /micro-Vickers

Model HV(S)-1000Z
Test Force: 10gf (0.098N), 25gf (0.245N), 50gf (0.49N), 100gf (0.98N), 200gf (1.96N), 300gf (2.94N), 500gf(4.9N), 1kgf (9.8N)
- Minimum test unit: 0.0025μm
- Conversion scale : HRA, HRB, HRC, HRD, HRF, HV, HK, HBW, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T
-Hardness test range: 5~3000HV and test force applying method
Automatic (loading, holding load, unloading)
Optical system
1, manual micrometer eyepiece;
2, total magnification (μm): 100 × (observation), 400 × (measurement);
3, measuring range (μm): 200;
4, resolution (μm): 0.01
Light channel : Double light channel (eyepiece and CCD camera channel)
Test force holding time 1-90s
Executive Standard: ISO 6507, ASTM E384, JIS Z2244, GB/T 4340.2.

LOT 14

i. SL 8 Small Benchtop Centrifuge Refrigerated
ii. SL 8 Small Benchtop Centrifuge Ventilated

Only brands from Europe, North America, or Japan are acceptable.

i. SL 8 Small Benchtop Centrifuge Refrigerated

Perform high-capacity work in a compact design. SL 8 Small Benchtop Centrifuge features innovative technologies with a smart, simple interface and the flexibility to meet your clinical and research processes and protocols

Key Innovation:
- Secure, push-button Auto-Lock rotor exchange in as little as 3 seconds delivers trouble-free rotor installation and removal and clear chamber access for cleaning convenience
- Biocontainment sealing options, including certified Click Seal lids for glove-friendly, one-handed operation
- Maximized swing-out capacity up to 8 x 50mL conical tubes, 24 x 5/7mL blood tubes, microplates and microtubes, all in one versatile centrifuge
- Fixed angle flexibility to spin 50mL conical tubes at over 12,000 x g or a wide range of microtubes at speeds up to 30,279 x g

Research Applications:
- 8 x 50mL swinging bucket rotor capacity, 4 microplates, or 30 filtration columns for research needs
- Auto-Lock rotor exchange for application flexibility—go from 50mL tube to a microplate to microtubes effortlessly

This Centrifuge also features:
- Ensure a peaceful laboratory with low noise levels, including just 52 dBA at performance of 17,850rpm/ 30,279 x g (with SL 8R centrifuge)
- One-touch operation with pre-saved protocols, glove- and detergent-friendly interface
- Highly visible backlit display for easy reading of parameters across the lab
- Multilingual instructions—English, Dutch, French, German, Italian, Russian and Spanish—on programming, run conditions, alerts and service messages conforms to the latest clinical and safety standards, such as UL, CE and IVD

Specifications :

Certifications/Compliance	IEC 61010-1,
	IEC 61010-2-020,
	IEC 61010-2-101,
	EN 61326-1;
	UL Listed / CE marked /IVD compliant / Biocontainment certified by the Public Health England, Porton Down, UK
Controller Type	Microprocessor
Dimensions (HWD)	12.6 x 18.1 x 26.4 in. (32 x 46 x 67 cm)
Drive System	Direct Brushless Induction
Electrical Requirements	230 V 50/60 Hz
Frequency	50/60 Hz
Height (English) Exterior	12.6 in.
Height (English) Exterior Lid Open	27.5 in.

Height (Metric) Exterior	32 cm
Height (Metric) Exterior Lid Open	70 cm
Length (English) Exterior	26.4 in.
Length (Metric) Exterior	67 cm
Noise Level	<52 dB(A) (with MicroClick 24 x 2 rotor); <56 dB(A) with all rotors
Profile (Acceleration/Braking)	2 (standard and soft)
Program Storage	3 direct program buttons, plus 96 additional programs accessible via folder, all with alphanumeric program naming
Rotor	TX-150
Run Time	99 hr. 59 min., continuous
Safety Features	Auto-Lock rotor exchange system, SMARTSpin imbalance detection system, certified ClickSeal biocontainment lids
Temperature Range	-10°C to +40°C
Capacity	4 x 145 mL (TX-150), 6 x 50 mL (HIGHConic III)
Max. RCF	3,260 x g (TX-150 Rotor); 30,279 x g (MicroClick 24 x 2 Rotor)
Max. Speed	4,500 rpm (TX-150 rotor), 17,850 rpm (MicroClick 24 x 2 rotor)
Refrigerated	Yes

ii. SL 8 Small Benchtop Centrifuge Ventilated

Perform high-capacity work in a compact design. SL 8 Small Benchtop Centrifuge, available in both ventilated and refrigerated models, features innovative technologies with a smart, simple interface and the flexibility to meet your clinical and research processes and protocols

Key Innovation:

- Secure, push-button Auto-Lock rotor exchange in as little as 3 seconds delivers trouble-free rotor installation and removal and clear chamber access for cleaning convenience
- Biocontainment sealing options, including certified Click Seal lids for glove-friendly, one-handed operation
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- Ensure a peaceful laboratory with low noise levels, including just 52 dBA at performance of 17,850rpm/ 30,279 x g (with SL 8R centrifuge)
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standards, such as UL, CE and IVD	

Specifications

Certifications/Compliance IEC 61010-1, IEC 61010-2-020, IEC 61010-2-101, EN 61326-1; UL Listed / CE marked /IVD compliant / Biocontainment certified by the Public Health England, Porton Down, UK

Controller Type	Microprocessor
Dimensions (HWD)	12.2 x 14.6 x 18.9 in. (31 x 37 x 48 cm)
Drive System	Direct Brushless Induction
Noise Level	<58 dB(A) (with TX-150 rotor); <61 dB(A) (with MicroClick 24 x 2 rotor)
Profile (Acceleration/Braking)	2 (standard and soft)
Program Storage	4 protocols via direct access key, with naming option and password protection available
Rotor	TX-150
Run Time	99 hr. 59 min., continuous
Safety Features	Auto-Lock rotor exchange system, SMARTSpin imbalance detection system, certified ClickSeal biocontainment lids
Capacity	4 x 145 mL (TX-150), 6 x 50 mL (HIGHConic III)
Max. RCF	3,260 x g (TX-150 Rotor); 24,328 x g (MicroClick 24 x 2 Rotor)
Max. Speed	4,500 rpm (TX-150 rotor), 16,000 rpm (MicroClick 24 x 2 rotor)
Refrigerated	No