UNIVERSITY OF NORTH BENGAL

Office of the Registrar

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Notice inviting e-Tender

Following e-Tenders are invited from reputed Vendors, for details please visit https://wbtenders.gov.in

SL.NO.	NIT NO.	TENDER ID
1.	400/R-2021	2021_DHE_327395_1
2.	401/R-2021	2021_DHE_327409_1

Registrar

University of North Bengal

P.O. Raja Rammohunpur
Dist Darjeeling
Pin 734013

Notice Inviting e-Tender- 400 /R-2021

e-Tenders are invited from reputed Vendors for supply and installation of equipments in the Biswa Banga Genome Centre ,University of North Bengal, Rajarammohunpur Campus. For details please visit https://wbtenders.gov.in

Sl. No.	Item	Earnest Money	Completion Time
1.	As Per Annexure-I	1,00,000/-	**30 days**

TERMS AND CONDITIONS :

1) The base price and GST shall be shown separately

2) Taxes will be deducted at source as per prevailing rules of Central and State Government.

3) The terms and conditions of payment shall be declared clearly.

4) Copy of current year Trade License, PAN card, GST registration certificate shall be accompanied with the technical bid documents. [Non Statutory Documents]

5) The vendor shall submit authorization certificate from OEM along with the technical bid.(Non Statutory documents).

6) The vendor shall provide Company details as per Annexure-II.

7) The vendor shall have credential of supply of similar equipments in any University / institution / Govt. Organization. Copy of credential certificate shall be submitted along with technical bid (Non Statutory documents).

8) The vendor shall clearly state the pre-installation requirements and take all responsibilities to arrange the same.

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10) The service engineer shall attend the call within 24 hrs for trouble shooting to be done on no wait basis.

11) The successful tenderer shall complete the installation of the equipment within 20 (Twenty) days from the date of issuance of the supply order.

12) A sum of Rs.1,00,000/- shall be deposited to the under noted account of the University through RTGS as earnest money and the copy of receipt challan of RTGS with UTR number shall be accompanied with the technical bid document (Statutory Documents) failing which the tender paper will be treated as cancelled. The earnest money of the unsuccessful quotationer (s) will be refunded without interest after one month of the opening of tender paper and the same of the successful candidate will be refunded without interest after three months of the satisfactory installation of the equipment subject to redressal of complaint, if any.

Name of the A/c: N.B.U (S/B).
Account Number: 10195736768
IFSC Code: SBIN0002096

13) The University authority reserves the right to accept or reject any/all quotations.

14) The quotation should be valid for at least 90 (ninety) days.

15) The brochure /catalogue of the equipment shall accompany the technical bid documents (Non Statutory documents).

16) Selection of the agency will be made on the basis of both technical and financial bids. Technical bids and financial bids shall be submitted by online only. Offline submission of tender paper will not be accepted.

17) 92% of the total order value shall be released after the successful installation / commissioning of the equipment against the submission of the test report duly certified by the concerned authority. The remaining 8% of the bill value shall be deducted and kept aside as security deposit which will be paid after 3(three) months from the date of satisfactory installation, subject redress of complaints, if any

18) The last date of submission of tender form is upto 05.03.2021 at 3.00 p..m. and to be opened on 08.03.2021 at 3.00 p.m.

19) The tenderers may remain present at the opening of tender.

20) All cases of disputes not covered under the terms & conditions of Tender will be referred to the Vice-Chancellor for a decision which shall be final and binding on both the parties.

21) For any clarification regarding tender please contact with the Prof. Arnab Sen, Coordinator, NBU Bioinformatics Facility (Tel no. 9434307487) email Id- senarnab_nbu@hotmail.com, University of North Bengal.

22) Date & Time Schedule

Sl NO	Particulars	Date & Time
1	Publishing of Tender	**18.02.2021**
2	Documents download/sell start date (Online)	**18.02.2021 FROM 6.00 P.M.**
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5	Technical Bid Opening	**08.03.2021 AT 3.00 P.M.**
6	Offline Submission	**NO OFFLINE SUBMISSION ACCEPTED**
7	Financial Bid Opening	**To be notified**

Sd/-

Registrar (Offg.)
University of North Bengal

ANNEXURE-II

BIDDERS DETAILS

(To be provided on company letter head)

NIT NO.:
TENDER ID:

1	NAME OF THE BIDDER	
2.	ADDRESS	
3.	CONTACT NUMBER	
4.	CONTACT PERSON	
4.	EMAIL ID	
5.	BANK DETAILS A/c Name A/c Number Name of the Bank Name of the Branch IFSC	

Authorized Signatory(with seal & Stamps)

ANNEXURE-I

Sl No.	Item	Specification	Quantity
1.	**-80°C Freezer**	• Storage capacity from 750 L or above • Easy-to-read, eye level, flush mounted LED control panel, password and alarm status should be there • Vacuum insulation panels to allow for increased internal capacity, up to 30 % more • Full stainless steel interior 304L • Door seals for optimal temperature uniformity • Inner doors to begasketed as well as Vacupor&trade insulated, creating 3 separate compartments; Inner doors can be quickly removed • 2 access ports: should be equipped with CO_2 / LN_2 backup systems • Alarm system and power monitor should be there • Air filter at the front of the freezer • Recyclable freezers locally should be available • Should be Equipped with reliable heavy-duty compressors (2-stage cascade cooling system) running 60 % of the time (40 % off) • Should be Energy-efficient	One (1)

Sl No.	Item	Specification		Quantity
2.	**Cooling Centrifuge**	Max. RCF	20,000 × g or above	One (1)
		Speed	Minimum 20,000 rpm	
		Max. capacity	4 × 750 mL/4 × 4 MTP	
		Rotors available	18	
		Acceleration/braking ramps	10/10	
		Number of programs	35 user-defined programs	
		Display	large, brightly lit LCD	
		Timer	1 min to 99 min, with continuous run function, short-spin	
		Noise level	<56 dB(A)	
		Volume range	3 L	
		Power supply	230 V, 50 – 60 Hz	

		Max. power consumption	1,650 W	
		Dimensions (W × D × H)	70.0 × 60.8 × 34.5 cm / 27.6 × 23.9 × 13.6 in	
		Footprint (dimensions w/o front panel, WxD)	70 × 54 cm	
		Height (with open lid)	80 cm / 31.5 in	
		Weight w/o accessories	99 kg / 218 lb	
		Cooling	refrigerated	
		Temperature control range	-9 °C to 40 °C	

Sl No.	Item	Specification	Quantity
3.	**Microscope (1)**	**<u>Microscope stand</u>** Upright stand. Transmitted light path with Infinite optical system. Full Kohler Stand. Transmitted-light illumination with white LED 10W, optional for HAL Microscope stand should have • ECO mode and light management control button • snap button supports on camera • Should be able to Snap images and record videos directly from microscope stand **<u>Nose piece</u>** Preferably Reverse Tilted with 5 position encoded nosepiece Light manager should be present for uniform brightness at all magnifications **<u>Reflector turret</u>** Preferably 4 position encoded reflector turret **<u>Evepiece</u>** 10x/FOV 22 **<u>Binocular phototube</u>** Binocular phototube 30°/23 (50:50), reversed image camera port with interface 60N **<u>Stage carrier and condenser carrier</u>** Stage carrier D/A; attachable and vertically adjustable for microscope, to accommodate screw-on stages. Condenser carrier with vertical adjustment on both sides for use with attachable microscope stage carriers, adjustable height stop. **<u>Mechanical stage and specimen holder</u>** Mechanical stage 75x30 R with hard coat	One (1)

		anodized surface Dual slide holder for one-hand operation. **Objectives** A-Plan 5x, 10X (ph1), 20X, 40x (Ph2) and 100x **Condenser** Condenser suitable for BF, Phase(ph 1 ph2 ph3), Dark field and Phase DIC applications. **Energy Saving** Microscope should have an ECO Mode **Camera** • Camera Sensor type CMOS image sensor mono, Global Shutter Sensor size Image diagonal 8.1 mm, equivalent to ½.1” • Pixel count 3840 (H) × 2160 (V) = 8.3 MP • Full HD • Pixel size 1.85 µm × 1.85 µm Frame rate HDMI: 30 fps or more Ethernet: 30fps • USB 3.0: 30fps • Cooling system Passive / Forced Air cooling should be there • Spectral sensitivity Approx. 400 nm – 1000 nm, protection glass (coated), peak QE>75% Interface HDMI, USB 3.0 Type C, Ethernet, Micro-D should be there • Wi-Fi compatibility Via USB Wi-Fi adapter and router should be there • Power supply External power supply provided, 9 W, compatible connectors to international sockets Operation system for Imaging Software: Windows 10 ×64 Prof. / Ultimate and higher should be there • for Windows 7/10 ×64 Prof. / Ultimate and iOS v11 and higher should be there • Software On Screen Display (OSD) for stand-alone operation and higher Image enhancement functions Active denoising, active sharpening • Automatic features Automatic exposure and gain regulation at ultra HD (4k) resolution (3840*2160) fast live image under low light conditions should be there. **Up gradation** Microscope should be upgradeable to Dark field, Fluorescence and Polarization in future. **Software** Image acquisition (SNAPs) and viewer. Panorama for acquisition of Tiles Images with manual stage and manual Extended Focus (EDF) capability.	

		Microscope and camera should be from same manufacturer for better integration **Schematic diagram of microscope to be provided**	

Sl No.	Item	Specification	Quantity
4.	**Microscope (2)**	**<u>Microscope stand</u>** Upright stand. Reflected and Transmitted light path with Infinite optical system. Full Kohler Stand. Transmitted-light illumination with white LED 10W Microscope stand should have • FL-LED reflected-light illumination with 3- position mount for LED modules and4-position reflector turret for P & C modules, coded • Z-drive with fine drive knob left and fine drive disk right, flat with scale • 15 mm Focus lift • ECO mode and light management control button • snap button supports on camera • Should be able to Snap images and record videos directly from microscope stand **<u>Nose piece</u>** Reverse Tilted with 5 position encoded nosepiece Light manager should be present for uniform brightness at all magnifications **<u>Reflector turret</u>** 4 position encoded reflector turret **<u>Eyepiece</u>** 10x/FOV 22 **<u>Binocular phototube</u>** Binocular phototube 30°/23 (100:0/0:100), reversed image **<u>Stage carrier and condenser carrier</u>** Stage carrier D/A; attachable and vertically adjustable for microscope, to accommodate screw-on stages. Condenser carrier with vertical adjustment on both sides for use with attachable microscope stage carriers, adjustable height stop. **<u>Mechanical stage and specimen holder</u>** Mechanical stage 75x30 R with hard coat anodized surface Dual slide holder for one-hand operation. **<u>Objectives</u>**	One (1)

		A-Plan 10x ,40x(Ph2) ,50x and EC-Plan Neofluar 100x/1.30 **Condenser** Condenser 0.9/1.25 H For objectives 5x-100x, compatible with low-power system for objectives 2.5x/4x, WD=0.8mm Modulator disk H, D 0.65, Ph 1,2,3PlasDIC for condenser 0.9/1.25 Alternative use of the slit-diaphragm for PlasDIC possible instead of the Ph/D stops. **Energy Saving** Microscope should have an ECO Mode **Fluorescence modules and Filter sets** LED module 470 nm Filter Set 38 HE with Reflector Module FL EC P&C (E) Filter Set 38 HE shift free consisting of filters EX BP 470/40, BS FT 495, EM BP 525/50 inserted in reflector module, reflection avoided through tilted mount for emission filters LED module 365 nm Filter Set 49 with Reflector Module FL EC P&C (E) Filter Set 49 shift free consisting of filters EX G 365, BS FT 395, EM BP 445/50 inserted in reflector module, reflection avoided through tilted mount for emission filters LED Module 565 nm Filter Set 43 with Reflector Module FL EC P&C (E) Filter Set 43 shift free consisting of filters EX BP 545/25, BS FT 570, EM BP 605/70 inserted in reflector module, reflection avoided through tilted mount for emission filters **Camera** Camera Sensor type CMOS image sensor mono, Global Shutter Sensor size Image diagonal 8.1 mm, equivalent to ½.1” Pixel count 3840 (H) × 2160 (V) = 8.3 MP Full HD Pixel size 1.85 µm × 1.85 µm Frame rate HDMI: 30 fps ormore Ethernet: 30fps USB 3.0: 30fps Cooling system Passive / Forced Air cooling Spectral sensitivity Approx. 400 nm – 1000 nm, protection glass (coated), peak QE>75% Interface HDMI, USB 3.0 Type C, Ethernet, Micro-D	

		Wi-Fi compatibility Via USB Wi-Fi adapter and router Power supply External power supply provided, 9 W, compatible connectors to international sockets Operation system for Imaging Software: Windows 10 ×64 Prof. / Ultimate and higher for Windows 7/10 ×64 Prof. / Ultimate and iOS v11 and higher Software On Screen Display (OSD) for stand-alone operation and higher Image enhancement functions Active denoising, active sharpening Automatic features Automatic exposure and gain regulation at ultra HD (4k) resolution (3840*2160) Fast live image under low light conditions **Software** Image acquisition and processing under Win 7 / 10 x64. User interface configurable, control of the microscope systems and components, extensive acquisition and analysis. The following modules are included: - Module Measurement - Module Multi Channel - Module Panorama - Module Manual Extended Focus - Module Connect Entry Contains Simple Movie Recorder **Microscope and camera should be from same manufacturer for better integration Schematic diagram of microscope to be provided**	

Sl No.	Item	Specification		Quantity
5.	**Thermal Cycler**	Sample capacity	96 x 0.2 ml tubes, 0.2 ml tube strips, or 1 x 96-well plate	One (1)
		Maximum ramp rate, °C/sec	4	
		Average ramp rate, °C/sec	2.5	
		Temperature range	4–100°C	
		Temperature accuracy	±0.5°C of programmed target	
		Temperature uniformity	±0.5°C well-to-well within 30 sec of arrival at target temperature	
		Input power	100–150 VAC, 50–60 Hz; 220–240 VAC, 50–60 Hz; 700 W	

			maximum	
		Display	5.7" VGA color touch screen	
		Port	1 USB A	
		Memory	500 typical programs; unlimited with USB flash drive expansion	
		Dimensions (W x D x H)	26 x 47 x 23 cm (10 x 18 x 9")	

Sl No.	Item	Specification		Quantity
6.	**Real Time PCR**	Maximum ramp rate, °C/sec	2.5	One (1)
		Average ramp rate, °C/sec	2	
		Heating and cooling method	Peltier	
		Lid, °C	Heats up to 105	
		Temperature		
		Range, °C	0–100	
		Accuracy, °C	±0.2 of programmed target at 90°C	
		Uniformity, °C	±0.4 well-to-well within 10 sec of arrival at 90°C	
		Gradient		
		Operational range, °C	30–100	
		Programmable span, °C	1–24	

		Optical Detection		
		Excitation	5 filtered LEDs	
		Detection	5 filtered photodiodes	
		Range of excitation/emission wavelengths, nm	450–690	
		Sensitivity	Detects 1 copy of target sequence in human genomic DNA	
		Dynamic range	10 orders of magnitude	
		Scan Time		
		All channels, sec	<20	
		FAM/SYBR® Green only, sec	8	
		Software		
		Operating systems	Windows 7, Windows 8, Windows 10	
		Multiplex analysis	Up to 4 targets per well	
		System		
		Licensed for real-time PCR	Yes	
		Sample capacity, wells	384	
		Sample size, µl	1–30 (5–20 recommended)	
		Communication interface	USB 2.0	
		Electrical approvals	IEC, CE	

		Dimensions (W x D x H), cm/in	33 x 46 x 36/13 x 18 x 14	
		Weight, kg/lb	21/47	

Sl No.	Item	Specification	Quantity
7.	**Double beam UV-VIS Scanning Spectrophotometer**	• Microprocessor preferably based on UV-Vis Spectrophotometer with high resolution touch screen display for operation on 220V/50Hz • Stand-alone operation or complete control through with Lab Solutions UV Software supplied as standard • True double beam optics with aberration corrected concave blazed holographic grating in Czerny – Turner mounting for high energy throughput and high quality monochromatic light should be there • Wide wavelength range of 1,100 nm to 190nm • High resolution 1 nm spectral bandwidth over entire wavelength range; Wavelength setting and display in steps of 0.1nm;Wavelength accuracy of **±0.1nm** for D_2 spectral line • Wavelength repeatability/reproducibility of ±0.1nm; Wavelength slew rate ≥ 29000m/invariable wavelength scanning speed:≥3000nm/min to 2nm/min should be there • Ultra low stray light of <0.02%T at 220 nm with NaI filter • Wide Photometric range of -4 to +4 Abs and 0 to 400%T; High Photometric Accuracy of ± 0.002 Abs at 0.5Abs;High Photometric Repeatability of <±0.0002 Abs at 0.5 Abs • Baseline stability/drift:<0.0003Abs/Hr.(700nm,one hour after light source turned ON) • High baseline flatness of ±0.0006 Abs over entire wavelength • Ultra low Photometric noise of**<0.00005Abs(700nm)** • Dual source –high intensity Tungsten-Halogen lamp and Deuterium lamp with automatic changeover • High sensitivity detector matched pair Silicon Photodiode detector • 5 USB Ports for high speed PC and printer connectivity, data storage and transfer through USB pen drive • Guaranteed compliance with all Pharmacopoeia requirements /Inspection	One (1)

		items compliant with USP & EP to validation function. • Built in functions validation program, diagnostic and security function • All operational modes as standard - Photometric; Spectrum; Quantization; Kinetics, Time Scan, DNA and Protein Quantization in standalone and PC mode. Additionally Multi-Component measurement available in stand-alone mode. • High visibility color touch panel with stylus	

Sl No.	Item	Specifications		Quantity
8.	**Linux server**	Processors	Up to two Quad-Core Intel Xeon 5300 sequence processors at up to 3.0GHz; Up to two Quad-Core Intel Low Volt Xeon 5300 sequence processors at up to 2.0 GHz; Up to two Dual-Core Intel Xeon 5100 sequence processors at up to 3.0GHz; Up to two Dual-Core Intel Low Volt Xeon 5100 sequence processors at 2.33GHz; or Up to two Dual-Core Intel Xeon 5000 sequence processors at up to 3.0GHz	One (1)
		Front side bus	Intel Xeon 5300 Sequence: Dual Independent 1066MHz or 1333MHz; Intel Xeon 5100 Sequence: Dual Independent 1066MHz or 1333MHz; Intel Xeon 5000 Sequence: Dual Independent 667MHz	
		Cache	Intel Xeon 5300 Sequence: 2x4MB; Intel Xeon 5100 Sequence: 4MB; Intel Xeon 5000 Sequence: 2x2MB	
		Chipset	Intel 5000X	
		Memory	Up to 32GB (8 FBD DIMM slots): 256MB/512MB/1GB/2GB/4GB Fully Buffered DIMMs (FBD) in matched pairs, 533MHz or 667MHz	

		I/O slots	Three PCI slots, either PCIe riser with three PCI Express slots (one x4 (x8 connector) and two x8) or two PCI-X 64-bit/133MHz and one PCI Express x8 slot	
		Drive controller	4 port SAS 5/i integrated SAS controller (no RAID)	
		RAID controller	Optional PERC 5/i integrated SAS/SATA daughter card controller with 256MB cache, PERC 4e/DC, PERC 5/e adapter	
		Drive bays	3 hard drive base options: 8 x 2.5” Hard Drive Option: 2.5” HD Option: up to 8 SAS HDs (10K); 4 x 3.5” Hard Drive Option: 3.5” HD Option: up to 4 SAS (10K/15K) or SATA (7.2K) drives; 6 x 3.5” Hard Drive Option: 3.5” HD Option: up to 6 SAS (10K/15K) or SATA (7.2K) drives; Peripheral bay options; Floppy Drive, DAT72 Tape Drive (not available with 6 x 3.5” hard drive base); Slim optical drive bay with choice of CD-ROM, DVD-ROM or Combo CD-RW/DVD-ROM	
		Maximum internal storage	Up to 4.5TB: six 750GB hot-plug SATA (7.2 K RPM)	
		Hard drives	2.5” SAS (10K RPM): 36GB, 73GB; or 3.5” SAS (10K RPM): 73GB, 146GB, 300GB, or 400GB; or 3.5” SAS (15K RPM): 36GB, 73GB, 146GB; or 3.5” SATA (7.2K RPM): 80GB, 160GB, 250GB, 500GB, 750GB SATAu	
		External storage	SAS, SCSI and fibre channel storage systems	
		Tape backup options	Internal: PV100T (DAT 72) with multibay External: Power Vault DAT 72, 110T, 114T, 122T, 124T, 132T, 136T, 160T and ML6000	
		Network interface card	Dual embedded Broadcom® Net Xtreme II™ 5708 Gigabit2 Ethernet NIC with fail-over and load balancing. TOE (TCPIP Offload Engine) supported on Microsoft Windows Server 2003, SP1 or higher with Scalable Networking Pack	
		Power supply	AC configuration with standard single or redundant 750W hot-plug auto-switching universal 110/220V	

			AC power supplies DC configuration with single or redundant hot plug -48 to -60 V20 A DC power supplies	
		Availability	ECC FBD memory, SDDC, Spare Bank; hot-plug hard drives; optional hot-plug redundant power supplies; dual embedded NICs with failover and load balancing support; optional PERC5/i integrated daughter card controller with battery-backed cache; hot-plug redundant cooling; tool-less chassis; fibre and SCSI cluster support	
		Video	Embedded ATI ES1000 with 16MB memory	
		Remote management	Standard Baseboard Management Controller with IMPI 2.0 support; optional DRAC5 for advanced capabilities	
		Rack support	4-post, 2-post and 3rd party Versa rails, sliding rails and Cable Management Arm	
		Operating systems	Microsoft® Windows Server 2003 R2, Standard, Enterprise and Web Edition, x64, Standard and Enterprise Edition; Microsoft® Windows® Storage Server 2003 R2, Workgroup, Standard, Enterprise Edition; Red Hat® Linux® Enterprise v4, ES and ES EM64T; SUSE Linux Enterprise Server 9 EM64T	

Sl No.	Item	Specifications		Quantity
9.	**Cold room**	Cold Room Dimensions (Internal) In inches	72” (L) X 96” (B) X 96” (H)	One (1)
		Room Temperature inside coldroom	15ºC to -40ºC	
		Ambient Temperature	35ºC	
		R.H Value	85-90%	
		Pull Down	24 hrs	
		Wall & Ceiling Insulation	60 mm thick PUF Panel	
		Floor Insulation	60 mm thick PUF panel with aluminum chequered plate	

		Hinging Door – 78”x34” with 60 mm Thick	1 Number	
		System Type	Air-Cooled	
		Refrigeration Unit Suggested	10000 BTU/hr X 2 No (RUAH-1012KP) one working and one standby	
		First charge of Refrigerant	Included in the price part	
		Display board all internal Electrical cabling and wiring etc .	Included in the price part	
		Refrigerant type	R 22/R407a/R32/R410a/134a	
		Humidifier	1 Number	
		Quantity	1(one) No.	

Sl No.	Item	Specification	Quantity
10.	**Gene Sequencer**	MiSeq System Integrated system for automated generation of DNA clonal clusters by bridge amplification, sequencing, primary and secondary analysis. System includes embedded touch screen monitor and on instrument computer, dual surface imaging capability, MiSeq Software Suite, installation kits and standards, installation and training, and 12 months warranty (including parts and labor).	One (1)

Sd/-
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University of North Bengal

P.O. Raja Rammohunpur
Dist Darjeeling
Pin 734013

Notice Inviting e-Tender- 401 /R-2021

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Name of the A/c: N.B.U (S/B).
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21) For any clarification regarding tender please contact with the Dr. Kriti Ghatani, Asstt. Prof., Department of Food Technology (Tel no. 7679409158) email Id- ghatanik@nbu.ac.in, University of North Bengal.

22) Date & Time Schedule

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Sd/-

Registrar (Offg.)
University of North Bengal

ANNEXURE-II

BIDDERS DETAILS

(To be provided on company letter head)

NIT NO.:
TENDER ID:

1	NAME OF THE BIDDER	
2.	ADDRESS	
3.	CONTACT NUMBER	
4.	CONTACT PERSON	
4.	EMAIL ID	
5.	BANK DETAILS A/c Name A/c Number Name of the Bank Name of the Branch IFSC	

Authorized Signatory(with seal & Stamps)

ANNEXURE-I

List of items to be procure with specifications:

Sl. No.	Items Name	Item Specifications	Quantity
1.	***Fermenter***	• The system should be a compact benchtop bioreactor, with Volume of 1L and capable of batch, fed-batch, continuous and perfusion processes. It should be possible to use the same system for both fermentation as well as Mammalian cell culture • System should be scalable from 250 mL to 40 L on a wide variety of autoclavable and Single-Use Vessels • System should support 5lit working volume with bacterial culture with direct drive vessel with Heat Blacket. • System should be compatible with twenty four (24) interchangeable autoclavable vessels, of heat blanketed and water jacketed vessel types as well as Single use solid-rigid wall stirred tank vessels including cell culture, packed bed, and fermentation 1L TO 50L variants. • Vessel should have hemispherical vessel nest design for minimum footprint. • Controller should be with a minimal footprint, about 10 in (25 cm) wide or less. • The autoclavable glass vessels should have about 10 headplate ports. • System should have built in Process modes offer process control for microbial and cell culture applications at the touch of a button. • The system should be provided with two flexible universal connections for analog or digital Mettler Toledo sensors of ISM type (Intelligent Sensor Management) • System should be supplied with pH sensor and Optical DO sensor. • pH control range should be from 2 – 12. • DO control range should be from 0 – 200%. • It should be possible to control the temperature from 5°C above coolant temperature to 65°C above ambient (0°C - 80°C maximum). • Redox sensor with a control range from -2000mV to + 2000mV should be available as an option. • CO_2 sensor with a control range of 0 – 100% should be available as an option. • System should be equipped to view the entire process on system controller screen with expanded trend screen for up to 8 values /parameters. • The system should be provided with	**1**

		connections for interchangeable direct- and magnetic-drive motors; magnetic drive capable of clockwise and counterclockwise rotation for simplified impeller selection. The motor speed should be in the range of 25 – 1200 rpm for direct drive. • System should have two flexible universal connections for analog or digital Mettler Toledo sensors of ISM type (Intelligent Sensor Management) • The system should be supplied with Rotameter (1 – 10 SLPM). • System should be built in with three user-defined analog input/output connections to select between 0-5V, 0-10V, and 4-20 mA depending on the device. • The system should be supplied with minimum 2 USB ports; 3 Analog Input / Output modules and ethernet connectivity for simultaneous control of up to 8 systems via SCADA software and IP network for remote monitoring. • Every system should be with it's own Operators' Interface Terminal (OIT) • Easy-to-read 7" integrated touchscreen monitor should be there. • System should come with IP21 rated enclosure for protection of sensitive electronics and cleanability. • System should be supplied with three front-mounted fixed-speed pumps with industry-standard easy Iload pump heads for convenient liquid addition/ removal, could be used in fixed speed & % Pulse Width Mode (PWM) mode. (30 RPM) • System should additionally have a provision to accommodate up to 3 more variable speed drive pumps externally.	
2.	***FT- IR***	• Spectral range should be 6000- 500 cm^{-1} or better o Spectral resolution: 2cm-1 or better freely adjustable, Wave number precision: Repeatability <0.0005 cm-1 @ 2,000 cm-1, Wave number accuracy: <0.05 cm-1 @ 2,000 cm-1or better, Photometric accuracy: Better than 0.1% T o Signal to noise ratio should be better than 55,000:1 for 1 minute peak to peak or higher o Detector should be room temperature DLATGS/DTGS or better o Optical design should have gold coated mirrors not requiring re-alignment of interferometer and optics with capability to withstand high humidity having ZnSe beam splitter and ZnSe	**1**

		windows o Accessory recognition should have continuous monitoring of spectrophotometer components like source, laser, detector, interferometer, sampling modules must be automatically identified and spectral test routines must automatically start to verify accessory performance o Long life IR Source with continuously optimized light flux having minimum 05 years warranty. o Accessory: Transmission Unit and also Universal Diamond ATR for direct analysis of solid, liquid, paste, powder and gel samples without sample preparation. o Software specifications: Software for data measurement, manipulation and evaluation with a step by step assistance. Should include a starter library and also include possibility to create user own libraries. o Instrument must have minimum 01year standard warranty. Special 10 years warranty for Laser, Interferometer should be included in offer. o System should not require inert gas purging. o Sample preparation Accessories to be supplied: All necessary sample preparation accessories are to be supplied from local source for Transmission unit such as 15 Ton Hydraulic Press, Agate Mortar Pestle, KBr Die set, IR grade KBr Powder. o All necessary installation pre-requisites are to be offered under separate head to make the system functional. o The equipment has to be provided with a Branded computer system (i5) of standard configuration with licensed version Operating Software along with Branded B/W laser jet printer and suitable online UPS with 15 minutes back-up to run the instrument and computer. o Instrument should have facility for up-gradation to diffuse reflectance having Gold coated optics for high light throughput, Measurement spot: Ø 2mm, having two sample cups and alignment mirror, Two-position slider mechanism for easy loading and measuring of the sample. o The offered instrument manufacturer should have valid CE/EU, ISO certificates and the system should have cGMP and GLP certification and having 21 CFR compliance software.	
3.	***ELISA Reader***	• Wavelength - range 400–750 nm • Photometric - range 0.0–3.5 OD • Linearity - ≤1.0% from 0.0–2.0 OD; ≤2.0%	

		from0.0–3.0 OD • Accuracy - ±1.0% or 0.010 from 0.000–3.000 OD at 490 nm • Precision -1.0% or 0.005 OD from 0.0–2.0 OD; 1.5% from 2.0–3.0 OD • Resolution - 0.001 OD • Filter wheel capacity - 8 Wheel with 6 preinstalled filters with 415, 450, 490, 595, 655, and 750 nm • Plate shaking - 3 speeds: low, mid, high; duration: 0–999 sec • Read time - 6 sec at single wavelength, 10 sec at dual wavelengths • Data output Onboard graphical thermal printer and USB2 interface with PC or Mac data stations • Data storage- Calendar/clock function; 64 assay Protocols • Flexible configurations with ability to read flat-, U-, or V-bottom microplates or 8- or 12-well strip plates Automatic calibration before each reading • Variable-speed plate-shaking capability Easy-access 8-position filter wheel with 6 standard filters USB2 port for external computer control Data and protocol presentation on LCD display Onboard data storage of protocols, standard curves, and graphs Self-diagnostic capabilities to detect lamp burnout at start-up • Motorized door for plate loading • Software specification: • Microplate Manager for High-Throughput Analysis and Reporting • Running of 12 separate assays on the same plate • Optional automatic printing upon completion of measurement • Multiple-plate processing with automated data export • Custom reporting function that provides one-button screening for predefined assays, such as for TSE Comprehensive Curve-Fit Analyses • Linear, quadratic, cubic, Log-Log, Zero-Intercept Linear, Semi-Log, Logit Log, • Point to Point or logistic (4-parameter, 5-parameter) fit types • Linear or logarithmic automatic axis scaling • External standard curves for multiple plates • Curve-fit graph overlay for comparison • Performance verification parameters include: Accuracy, Precision, Linearity, Spectral blocking • Complex Kinetic Analyses	

		• Choice of number of calculation points for Vmax • Simple velocity calculation • Negative or positive slope calculation • Absorbance limit selection • Kinetic correlation coefficient display and calculation for fit (r value) • Real-time data acquisition display and ability to zoom in on a well • Automatic scaling and real-time monitoring	
4.	***Rotary evaporator***	• Rotary Evaporator with central operation unit to view and control RPM, waterbath temperature, lowering and raising of evaporation flask, memory function. • Digital display of all the parameters on operation unit • Evaporation flask size 50 – 3000ml • Evaporation flask automatically lifted from the water bath during power failure. • Collection flask size 100 -3000ml • Rotation Speed 25 – 250 rpm • Angle of inclination 12 -45° • Water bath cordless with pour spout • Water bath volume 5000ml • Water bath fill quantity 4000 ml • Water bath heating temperature 20 -180°C • Water bath pull out length 70 mm • Protection against overheating of water bath with o Thermal protection switch, o Electronic temperature limitation, o Electronic switch off at insufficient water quantity. • Tube guides on the tower tidy and safe with tube no longer an obstruction. • Fully adjustable flask angle set via control knob. Vertical condenser plastic coated with surface area of 1230 cm2 Vertical condenser plastic coated with secondary appendage for better solvent recovery. • Double head chemically resistant diaphragm vacuum pump. • 100% oil-free transfer ñ thereby pure transferring, evacuation and compression of gases. • TFM PTFE pump head and PTFE-coated diaphragm are ideal for extremely aggressive/corrosive gases and vapors • Structured moulded diaphragm. • Motor protection IP 44. • Power 90W. • Flow rate 10 l/min. • Ultimate vacuum 8 mbar abs. • Can be used with series and parallel	**1**

		connections.	
5.	***Milli- Q Type 1 Ultrapure water system***	• System should contain inbuilt prefiltration containing 0.5um filter, silver impregnated activated carbon (to avoid bacterial growth) and polyphosphate granules anti-scaling compound for removal of hardness from feed water. • Reverse osmosis with conductivity sensors before and after the membrane to ensure the quality of purification. Reverse osmosis should have a maximum water recovery of upto 20%. • Total no. of Conductivity Cells in the system: Four units • 3 – way solenoid valve: 2 units • RO reject recovery loop available to minimize tap water usage. Recovery upto 66%. • RFID tag for automatic traceability of new consumables in the system's memory • Type III Product water quality: Ions Rejection: 97 to 98 % with new RO cartridge.Organics Rejection :> 99 % for MW > 200 Dalton, Particulates &Bacteria Rejection : > 99 %. Flow Rate : 8 Lt/hr. • The System should be quoted with proper prefilter& Iron Removal Filter. Both of these have to be provided by the same company who manufactures the water System. • Prefiltration System: A Two-stage purification 5 micron and 1 micron polypropylene graded density wrapped type depth filter with low voltage 20 watts powered DC pump with noise levels of 50 Db prefilter should be attached with tap water. And • The unit shall comprise of Diaphragm pump with inter connections and built-in pressure sensor ensuring continuous monitoring of cartridge life. • System shall operate at minimum inlet pressure of 0.5 bar and maximum of 1 bar. • System shall deliver water at the outlet at a minimum Pressure of 2.6 bar till a maximum of 2.8 bar. • System can handle Feed water with TDS as high as 5000 ppm and SDI upto 50. • It protects the water purification system Downstream. Iron Removal Filter: The system is connected with back wash able Iron removal filter to deliver 0.1 ppm output. Feed Water Quality: - Potable Tap Water	**1**

		Conductivity : < 2000 µs/Cm. PH : 4-10 Total Chlorine : < 3ppm. Fouling Index : < 12.	
6.	***Soxhlet extraction system***	• Extraction heating unit (Soxhlet), 6-place, 230 V, 50-60Hz • Max. Temperature [°C] 425 • Heating places 6 • Size of flasks [ml] 250, 500 • Dimensions W / D / H [mm] 900 / 225 / 650 • Weight [kg] 14 • Nominal voltage [V] 230, 115 • Frequency [Hz] 50 - 601) • Nominal wattage [W] 2700	**1**
7.	***Horizontal Gel electrophoresis system with power pack***	• Wide horizontal electrophoresis system. Includes 15- and 20-well combs, gel caster, 15 x 10 cm UV-transparent tray, and basic power supply. The redesigned wide Mini-Sub cell GT electrophoresis cell offers updated features that make electrophoresis even easier. The wide Mini-Sub cell GT cell is suited for multiple-sample, rapid-screening applications. This popular system has a wide platform that can separate 30 samples per comb. The wide Mini-Sub cell GT cell is the same width as the Sub-Cell GT cell, so the comb holder, combs, and 15 x 20 cm gel trays are interchangeable with the larger Sub-Cell GT units. All wide Mini-Sub cell GT systems accommodate Ready Agarose precast gels to save time and allow highly reproducible separations. The cells include a buffer tank, a safety lid with cables, and a levelling bubble. Features include: (1) Quick Snap* electrodes are easy to remove, simplifying cleaning; (2) Arrow on the side of the base indicates the direction of the run and ensures proper orientation of the gel; (3) Colour-coded, labelled electrodes and labelled base guarantee correct positioning of the lid on the base; (4) Tabs on the base permit easy removal of the lid, reducing buffer spillage, and also prevent incorrect lid positioning; (5) Reverse-compatible design allows the cells to be used with components from older models; (6) Clear plastic construction for easy sample visualization; (7) UV-transparent gel trays with fluorescent ruler; (8) Gel-casting gates to cast your own gels right in the cell, or optional caster for tape-free casting;	**1**

		(9) Combs to fit every need (multichannel pipet-compatible combs, fixed-height drop-in combs, adjustable-height combs, and preparative combs). <u>POWER PACK</u> Output specifications: 10–300 V, fully adjustable in 1 V Steps 4–400 mA, fully adjustable in 1 mA steps 75 W (maximum) Type of output : Constant voltage or constant current with automatic crossover Output terminals : 4 pair recessed banana jacks in parallel Timer control : 1 min–99 hr 59 min, fully adjustable Pause/resume function : Yes Display : 3-digit LED Operating conditions : 0–40°C; 0–95% humidity in absence of Condensation Safety compliance : EN61010 Safety features : No-load detection; rapid resistance change detection, ground leak detection, overload/short circuit detection, overvoltage protection, over-temperature protection Input protection : Fuse on hot and neutral Dimensions (W x D x H), cm/in : 21 x 24.5 x 6.5/8.3 x 9.6 x 2.6 • Weight, kg/lb : 1.1/2.4	
8.	***Laminar air flow***	Chamber Material:Back and side walls: cold-rolled steel; Work table: Stainless Steel 304 HEPA Filter:H14.99.999% efficiency at 0.3 µm HEPA Filter Efficiency:99.999% efficiency at 0.3 µm Average Air Flow Velocity:0.3 m/s ~ 0.5 m/s Air Cleanliness:Class 100 Vibration Half Peak:≤ 5 µm Illumination:≥350 Lux Fluorescent Lamp:28W×1 UV Lamp:30W×1 Display:LED Control System: Microprocessor control Work Surface Height:730 mm Front Window:5mm toughened glass, anti-ultra violet radiation Noise Level:≤60 dB(A) Max Opening:350 mm Caster:Universal wheel with levelling feet Standard Accessory:Fluorescent Lamp, UV Lamp×2, Base Stand HEPA Dimension:- Inner Dimension:1340×630×540 mm	**2**

		Overall Dimension:1440×630×1730 mm Weight:260 kg Power:600 W Power Supply:220 V, 60 Hz (WITH EUROPION CE CERTIFICATE, GMP CERTIFICATE & ISO 9001 Certificate)	
9.	***BOD incubator***	Capacity:150 L Temp. Range:0-60°C Temp. Accuracy:±0.5°C Temp. Fluctuation:±1°C Temp. Uniformity:±1°C Temp. Resolution:±0.5°C Timer Range:0-999 min Shelves:2 Load per Shelf:15 kg Inner Dimension:800×500×380 mm Overall Dimension:1350×640×660 mm Power:450 W Power Supply:220V, 60Hz Weight (Net/Gross):102/145 kg Catalog No.:934119930	**2**

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