University of Calcutta
87/1, College Street, Kolkata-700 073

E-Tender No: DBT/Builder/Equipment/22-23 **Date: 02.11.2022**

University of Calcutta invites e-tender (Item wise and Item rate) for supplying, fitting, fixing and commissioning the following equipment which to be installed in the DBT BUILDER facilities in Botany, Biochemistry and other participating departments in Ballygunge Science College Campus under the University of Calcutta.

- **Name of the Work :** Item wise item rate tender for Supplying, fitting, fixing and commissioning of following equipment which to be installed in the DBT BUILDER facilities in Botany, Biochemistry and other participating departments in Ballygunge Science College Campus under the University of Calcutta.
- **Earnest Money (EMD)** : **Rs. 1,00,000 /- (To be deposited Online). For exemption of EMD see details.**
- **Completion time of the work**: 60 (sixty) days from the date of issuing work order.
- **Bid Validity Days**: 90 days.
- **Name of the Tender Inviting Authority:** Office of the Department of Botany and Biochemistry at Ballygunge Science College Campus, University of Calcutta.
- **Time Extension:** Time is the essence of the contract, generally no time extension will be allowed. But, in case of Force Majeures, the extension of time may be considered on the basis of actual situation and subject to consideration of the Tender Inviting Authority.
- **Penalty Charges:** Penalty charges will be imposed @ 0.1 % per week on the tendered amount subject to Maximum @ 10% of the tendered amount, if the work will not be completed within stipulated time period of the tender.
- **Defect & Liability Period: 1 Year**
- **No extra payment to be paid beyond the tendered amount.**
- The Tender Inviting Authority reserves the right to accept or reject any tender without assuring any reasons.

- **The intending bidder must quote for the items of work in BOQ as per the rule of the Item wise Tender on the basis of their relevant Trade license and credentials for similar nature of works @ 50% of the Tendered value (At least) within last three years in any State University/Govt./Semi-Govt./Autonomous Institutions**

Technical Specifications

Reference No. DBT/Builder/22-23/equip/1

Liquid Chromatography – High-Resolution Mass Spectrometer System (LC-HRMS)

Core Specifications

Item	Specifications	Description
1	One Vendor Solution	Both the Liquid Chromatograph and HRMS mass spectrometer must be manufactured, supplied, and installed by a single vendor to provide seamless integration between the LC and MS.
2	Service and Support	Both the Liquid Chromatograph and High-Resolution Mass Spectrometer must be fully supported by the supplier to provide a seamless instrument diagnostic between the LC and MS. Should be able to resolve small molecule to proteins. At least 10 years of spares support need to be provided.

Quadrupole ToF Specifications

Item	Specifications
1	**Ion Source :** Must have ESI probe which should have a dual inlet to pass Reference standard and test samples together to produce maximum accuracy. It should be of an orthogonal design to tolerate high matrix compounds. APCI sources should be quoted individually. This source should be easily interchangeable without the use of any tool or breaking instrument vacuum.
2	**Mass Range :** Mass range for the instrument should **be 100 - 20,000 m/z or higher (small molecule to proteins)**
3	**Analyzer Geometry :** The analyzer should be a Quadrupole followed by High-Resolution Mass Analyzer separated by a Collision Cell.
4	**Resolution:** The resolution for the Q-ToF should be greater than 20,000 FWHM. The Resolution should be mentioned in the datasheet of the vendor.
5	**Mass Accuracy :** Minimum mass accuracy in MS mode must be better than 2 ppm measured from 10 repeat injections.
6	**Mass Acquisition Mode:** Must be capable to do all analysis including MS, MSMS together in single analysis
7	**Polarity Switching :** Positive Negative switching facility needs to be there in a single run

8	**Sensitivity :** The instrument should have picogram level sensitivity in both Positive and negative modes and need to mention the sensitivity based on 1pg reserpine in MS and MSMS mode at its highest resolution with a proper document from the company. (sensitivity must be mentioned in S/N units)
9	**Linear Dynamic Range :** In spectrum dynamic range on coeluting components while maintaining maximum mass resolution must be 5 orders or better.
10	**Temperature Stability :** Need to maintain 1ppm mass accuracy even at a temperature of 15-35 deg centigrade
11	**Spectral Acquisition rate :** Must be 50 spectra/sec or higher in MS and MSMS mode
12	**Vacuum System :** Single foreline pump with dual split-flow turbo pumps capable of reaching flight tube vacuum of 10^{-8} torr under standard operating conditions to maintain data quality across multiple runs.
13	**Calibration and Tuning:** Automated delivery of calibrant for tuning and mass calibration without the requirement of any external syringe pump etc. The tuning process should be automated, and software controlled.
14	**Auto Tuning :** The auto-tuning of the system should be carried out with a sophisticated algorithm to multidimensionally optimize up to 21 parameters simultaneously to allow for more ion transmission, more speed, and improved performance of fragile ions.

Liquid Chromatograph Specifications

Item	Specification	Description
1	Pump	Must be a Binary pump with Dual-piston in series pump with servo-controlled variable stroke drive, power transmission by gears and ball screws, and floating pistons. It should be capable of high pressure mixing and delivering solvents at a min 18,000psi pressure
2	Flow Rate	0.001 – 5 mL/min, in 0.001 mL/min increments
4	Flow Precision	Must be less than 0.07% RSD
5	Flow Accuracy	Must be better than 1%
6	Composition Precision	< 0.2 % RSD or better
7	Composition	The settable range should be 0-100%

	Range	
8	Auto Sampler	Must be capable of holding at least 120 sample vials or more of 1.5ml or higher volume. Sample cooling facility should be there in the system.
9	Column Oven	Column oven should go up to 80 deg C and should have a capacity of at least 2 columns
10	PDA Detector	A 1024-element photodiode array Detector, with a maximum data rate of 120 Hz covering a wavelength of 190- 600 nm or more. The flow cell volume should be 1.0 µL volume, 10 mm cell path length, or better.

Data Management System

Item	Specifications with Description
1	Computer to be supplied along with the instrument. Intel Xeon W-2123 (3.6 GHz, 8.25 MB cache, 4 cores) with Windows 10 operating system and 16 GB RAM or higher. The monitor of 24-inch IPS Micro Edge, LED Backlit, Resolution: 1920 x 1080 @ 60 Hz. All Software modules required for the running of the system should be compatible to the provided PC
2	Integrated software to control MS and LC together. The Software should be capable to generate chemical formulas and structures of unknown compounds. All required software for unknown structure identification of organometallic compounds should be quoted. The deconvolution facility is to be quoted along with the software to deconvolute the high masses when analyzed with the ESI source. A tool for screening analytes in of various biological and non-biological origins should be available, capable of compound confirmation and quantitation. It should be featuring the following: • Unique co-elution score of diagnostic fragment ion used to verify hits • Ability to expand user's own library of compounds • Full spectrum of molecular ions and daughter ions are collected to reinvestigate data when new targets are added. • Rapid curation of quantitative methods which automatically selects two high-quality Daughter ions for each compound. Software for complete omics workflow should be quoted. It should utilize a combination of

	advanced processing capabilities and powerful statistical and visualization tools to analyze complex MS data sets. • The omics software should have all statistical features (ANOVA, PCA etc.) inbuilt. • It should provide targeted and untargeted batch feature extraction for mass spectrometric data. • A tool to generate fast in silico spectral matches to accurately annotate lipid MS/MS spectra. A Metabolomics Database with a spectral Library that can enable streamlined metabolite identification to facilitate understanding of global metabolic changes that can occur in a biological system. Software for Pathway analysis is to be provided with the system.
4	All necessary gases including nitrogen generator need to be supplied with the instrument 10 KVA UPS to be provided with 1hr backup.
5	**Warranty—At least 5yrs on the instrument.**
6	The manufacturer should arrange for satisfactory on-site training for users.
7	A Nitrogen generator from a reputed Company is compatible with the system.

Extra Consumables

Sl. No.	Item
1	Vials, 1.5-2ml – 4000 No.
2	Capillary Tube – 1 No.
3	Syringe PTFE Filter, 13mm – 2000 No. s
4	Columns: C18 & C8 (3 No. s) with a Guard column.
5	Vial Insert, 250 uL – 250 No. s
6	Nitrogen Filters – 2 No. s
7	Nitrogen Cylinders – 2 No. s
8	Lint-free cloth
9	ESI tuning Solution
10	Vacuum Pump Oil.

The vendor must have supplied the instrument atleast in 10 state/central university/institutes.

Reference No. DBT/Builder/22-23/equip/2

Confocal Microscope

A state-of-the-art Laser Scanning Confocal Microscope based on motorized inverted fluorescence microscope for high-resolution, high-Speed imaging applications with option for macro to microscopic imaging.

Built in features for multidimensional imaging with the below specification details.

The system should be facilitated with wider applications which must include modules for FRET, FRAP and Photo- activation experiments along with co-localization, 3-D reconstruction and 3D De-convolution capabilities. The system should be onsite upgraded for NIR imaging (with dedicated IR sensitive detectors of 800-900nm), FLIM and FCS.

MICROSCOPE

FRAME: The system should have fully motorized rugged microscope body with a built in Z motor with minimum 10 nm or lower step size. The motorized nosepiece should accommodate at least 6 objectives. All the microscope conditions should be displayed on a dedicated LED /LCD touch Panel display preferably kept away from the main body to avoid minor vibrations during image acquisition. The system should have left side port for camera attachment. The light path selection should be 100/0, 0/100 and 50/50 between Eye piece and camera port. The frame should be equipped with an infinity space/stratum structure for future applications / upgrades. The frame should support onside up gradation of IR LED/Laser based drift compensators or equivalent system for long term drift free time lapse imaging.

MICROSCOPE

TRANSMITTED LIGHT: Bright LED / Halogen Light for DIC and BF applications.

EYEPIECES: A suitable binocular observation tube with two 10X eyepieces with a minimum 22 FN or better.

CONDENSER: A motorized 6-7 position long working distance condenser with dedicated slots for DIC prisms for 10X, 20X, 40X, 60X and 100X Objectives. It should have a motorized polarizer in the DIC optical path. The condenser should have also motorized mechanisms to disengage the mirrors/prisms from the optical path to avoid any reflection of lasers during confocal imaging.

STAGE:Mechanical X-Y Sample Stage with holders for Petri plates, multi-well plates and Slides. The system should be upgradable to motorized X-Y stage and should be able to accommodate stage top CO_2 incubation system in future to meet live cell imaging applications.

OBJECTIVES: Confocal Grade Plan Apochromatic objectives 4X , 20X / 0.75 NA or better, 40X / 0.95 NA or better with correction collar, 60X / 1.40 NA or better and 100X / 1.45 NA or better. DIC facility on 40X/60X & 100X objectives.

FLUORESCENCE: A suitable fibre coupled mercury/metalhalide light source (120 Watt or better)for fluorescence imaging with working lifetime of minimum 2000 hrs. The light source should have a built in attenuator to modulate the intensity. The motorized fluorescence filter cube turret with automatic shutter should have 6-8 slots to accommodate Fluorescence filters. The system should be supplied with minimum 4 filters for imaging in DAPI/Hoechst, GFP/FITC, TRITC/RFP/Cy3, Cy5and an analyser mounted on filter cube. There should provision for accommodatingat least2 more fluorescence filters in case of future upgradation without compromising the current system configuration.

DETECTOR: The system should be equipped with minimum 2PMT detectors with spectral scanning and detection capabilities. It should be able to simultaneously detectat least 2 fluorophores and sequentially up to 8 fluorophores during a single acquisition. The system should be onsite upgradeable to 2 additional high Sensitive (GaAsP/HyD) spectral detector for 4 colour simultaneous detection in future.All the detectors should be true spectral in nature with dispersion mechanism through diffraction grating or prism with an ability to freely choose the bandwidth on both side of the spectrum down to 5 nm or lesser without using any variable dichroic mirrors and/or emission filters.

LASERS AND COMBINER: The system should be supplied with minimum 4 high power (minimum 20mW or better)laser lines - 405nm, 488nm,561nm, and 640nm.All lasers should have minimum average lifetime of more than 8,000 Hours each.All the lasers should be stable diode/solid state laser controlled by AOTF for precise switching and swift selection of the desired laser lines. The same should be onsite upgradable to additional 4 lasers namely 445, 514, 594 and 735/785nm. OR a white light laser to cover entire range. (400-750nm)

SCANNER: XY galvo scanner with FOV 18 to 22 mm or better, with scanning resolution of 4K x 4K to 8Kx 8K or better with a scanning speed of up to 10fps @512x512 resolutions or better with FOV/FN not less than 16 mm diameter at 1X. The system should also have a dedicated resonant /dedicated high speed scanner for high-speed imaging with frame rates of 25-30 or better fps @512x512 or better resolution and 420fps or better @512x16 or more at 1X zoom without compromising the FOV (at least 13mm or above). Scanning zoom of 1-40 times or better with ROI Scan should be achieved. The scanner should have ability to scan with200 degrees of scan rotation and various scan areas modes such as rectangle, clip,polygon, free area, line, circular and multi-dimensional scanning modes of PT(point), XT, XZ, XY, XZT, XYλ, XYT, XYZ, XYZT, XYλT, XYλZ, XYλZT, along with 3D reconstruction.

DETECTORS:

The system should be equipped with 2 filter free spectral detectors with minimum and should have independent gain, offset and voltage control for simultaneous imaging of 2 fluorophores. All the detectors should be able to perform spectral un-mixing simultaneously from 400 to 800 nm. The spectral resolution should at least be 2-5 nm throughout the spectral range.All the detectors should have the capability of variable barrier filter image acquisition mode and multi-channel parallel lambda scan mode. The spectral type detectors should be built inside the scan head for better sensitivity and to prevent loss of signal. A dedicated transmitted light detector should be provided for DICimaging.

SOFTWARE:

Basic image acquisition and processing, complete microscope control, Scan head control and Laser control software, all of these should be taken care through the software. Saving of all instrument parameters along with the image for repeatable/reproducible imaging. Z-Stack, Frame/line/lambda capturing, Time series imaging capabilities. FRAP, FRET Imaging, Calcium imaging and analysis module deep tissue imaging module should be included. Co- localization analysis and volume rendering. Real time ratio-display and Real time spectral Unmixing. 2D and 3D image deconvolution. The GPU enabled 3D Deconvolution modules should support wide-field and confocal images and should be able to import, calibrate and deconvolve 3rd party images. It should also enable importing actual PSF for precise deconvolution. Diverse measurement and statistical processing.The software should have acquisition & analysis function such as intensity measurement (online & offline) over time, over depth and over lambda, co-localization, 3D& 4D rendering of time lapse imaging, Measurements, 2D & 3D deconvolution, Dynamic ROI, EFI/EDF, Background subtraction/correction, bleaching correction, etc.

COMPUTER WORKSTATION:

The System must be controlled with computer control unit having the latest 64 bit control computer with Intel Xeon 6 Core Processor, DDR4 RAM 64 GB or better, HDD: 512 GB SSD and additional 4TB SATA upgradable to 8 TB or better, Graphics: NVIDIAQuadro K620 4GB or better, Gigabit Ethernet, Win 10 Ultimate, USB 2.0, 3.1, Fire wire. Large 32 inch or bigger LED monitor.

ANTI VIBRATION TABLE:A suitable anti vibration table 4 ft x 3ftwith active air compressor control with M6 holes to fix the microscope and confocal microscope should be part of standard supply. Suitable 5KVA Online UPS with backup of minimum 20 minutes should be supplied with the system.

Warranty for the equipment should be 5 years and trained Man Power to operate the above system for 12 months should be provided.

Warranty: 3 years comprehensive on the entire instrument.

The vendor must have supplied the instrument atleast in 10 state/central university/institutes.

Reference No. DBT/Builder/22-23/equip/3

Preparative HPLC with fraction collector

HPLC Pump (or Solvent Delivery System) - 2 NO.'s

2 Nos. of integrated HPLC pumps with dual reciprocating pistons and non-circular gear driven, free standing pump should be provided to work in Isocratic, Binary Gradient and semi preparative mode. The pumps should be able to work on fully analytical & semi-preparative mode separately with different pump heads for Analytical & Semi-preparative applications. A pump drawing / design must be shared in the Bid.

Programmable flow range: 0.000 to more than 22.000 ml/min per pump with 0.01 ml/min increment or better for allkinds of Semi-Preparative application.

The system should be capable of delivering precise volumes of mobile phase with minimum

48 step/µl or better.Flow Precision: 0.1% RSD or better.

Maximum Pressure: 6000 psi throughout entire Flow rate.

The system delay volume should be lesser than 200 µl for sensitivity. Data Sheets must be

properly mentioned.Flow accuracy: + 1% or better

The system should be capable to withstand the retention time variations of less than 0.1% for highly reproduciblepeak performance.

Should have the capability to operate in at least 10 or more various gradient curve mode including Linear, Step,Concave, Convex. Exponential etc.

Manual Injector for both Analytical & Semi-Preparative/Preparative mode:

Should be Rheodyne injector having dual injector facility of Analytical & Semi-Preparative/Preparative mode separately in the same panel. Proper Design must be mentioned / submitted. The Preparative mode must be providedwith a 5 ml loop.

Photo Diode Array Detector with Analytical & Preparative Flow Cell

Wavelength range: 190-800 nm or

better. Wavelength repeatability: ±

0.1 nm or better.Wavelength

Accuracy: ± 1 nm or better.

Optical resolution: 1.2 nm or

better. Date Acquisition: Up to 80

Hz or higher.

Light Source: Deuterium Arc lamp which should cover the entire range with minimum noise; Lamp should the guaranteed for a minimum of 2000 hrs of operation without drop in the energy level with appropriate backup from software and hardware. It should be associated with Lamp optimization software to ensure consistent high sensitivity applications & reproducible integration to new lamp or old lamp.

Flow cell Design: Taper Slit design only to avoid total internal reflection. (Document must

be submitted)Cell Volume: 8.5 ul for analytical cell & 16.3 ul for semi-preparative cell.

Spectral Resolution/Optical Band pass: 1.2nm per photodiode with a total of 512 photodiodes, digital and optical(3D mode)

RI Detector with Analytical & Preparative Flow Cell

Fraction Collector

The Fraction Collector should have a durable X-Y movement mechanism and 3-way diverter valve to manage the collection of purified peak fractions into Test Tubes, microtiter plates, Eppendorf tubes, scintillation vials , bottles &flasks. It should be controlled by the software.

It should be Universal Fraction Collector for Analytical and Preparative HPLC with standard rack for 120 tubes up to 180 mm height & diverter valve for standard-applications (should be compatible with all racks). The maximum flow should be 0.5 ml/min to 300 ml/min.

Column Oven

Should have provision for housing at least three or

more columnsTemperature setting range: Ambient to

150 ºC or better.

Operating temperature: Ambient to 150 ºC or better.

Peltier heating facility to available to have maximum temperature accuracy and quick heating.

Original Manufacturer Chromatography Software

Chromatography software with integrated Oracle & secured database must be present.

Columns& Accessories:

Reversed PhaseAnalytical C18 Column, 4.6 mm X 250 mm, 5 um - 1 No. Reversed Phase Preparative C18 Column 10 mm X 250 mm, 5 um – 1 No. Column for IEX Chromatography, Size exclusion chromatography and Affinity chromatography.

UPS 2 KVA with 30 mins Backup must be supplied along with the instrument. Desktop Computer with minimum 16GB RAM, Windows 10 Professional Original 64 BIT, 500 GB Hard-Disk. Laser jet Printer.

Instrument & Software Qualification Service & Certification: The instrument must be Qualified along with the Software. Necessary reagents along with Documents must be provided for valid Instrument Qualification. The vendors must quote the Qualification kits with defined list of items along with valid Cat. No./Cas No/Product ID etc.

The Quoted Model must be upgradable / attached with Different Detectors in the near future without any upgradation on the rest of the system. The Vendors must declare in their Bid.

Warranty: 5 years comprehensive on the entire instrument.

The vendor must have supplied the instrument at least in 10 state/central university/institutes.

Reference No. DBT/Builder/22-23/equip/4

Elemental (C,H,N & S) Analyser
Analyzer Fully automated PC-controlled
Sample type Solid, liquid, semi solid
Operating modes CHNS, CHN, CNS, S,
O-TCDSample weight range 0.1-1000
mg
Detection range 0.01-100 %
(CHNSO)LOD 50 ppm or
better
S.D <0.1 %

Analysis time CHNOS simultaneously within 10 min

Associated electronics Mass flow controller/ electronic flow for constant supply of carrier gas. Fully digitalelectronics integrated in one unit

Furnace system Two zone furnace system separate for combustion and reduction with independent temperaturecontrol. 1100 C temperature.

Separation system Advanced chromatographic separation of gases

Complete instrumental control on elution process with autozero of baseline after each element elution Fullseparation of analytes with no peak tailing or overlap Higher column temparature for sulphur

Detection system TCD (Oxygen intrusion free thermister

technology) Autosampler system Electromechanical autosampler

with more than 100 positions

Should be zero blank and ensure complete removal of atmospheric gases before

sample injectionCarrier gas Argon or helium or both

Software Windows 10 professional based

Warranty: 5 years comprehensive on the entire instrument.

The vendor must have supplied the instrument atleast in 10 state/central university/institutes.

Reference No. DBT/Builder/22-23/equip/5

Fully Microprocessor controlled -86ºC Upright Ultra Freezer

Temperature range : -50ºC to -86 ºC

Ambient temp range : 15 ºC to 32 ºC

Capacity (L) : 597 Lit (Minimum)

Compressor : 2 x 1 HP

Condenser : Enhanced finned tube, forced air cooled

condenserRefrigerant type : Environment friendly HFC refrigerant

Temperature controller :

Digital typeNo of outer/inner

door : 1/3

Shelves Material : SS304 , adjustable, 4 shelves

Key lock provided with every unit to prevent unauthorized access

3 individual inner doors can be opened independently to minimize sample exposure

Warranty: 5 years comprehensive on the entire instrument.

The vendor must have supplied the instrument atleast in 10 state/central university/institutes.

Reference No. DBT/Builder/22-23/equip/6a

UV-Vis Spectrophotometer

Photometric system: Monitor double beam optics

Monochromator: Uses an aberration correcting concave

holographic gratingWavelength range: 190.0 to 1100.0 nm

Spectral bandwidth Detector: 2 nm

Light source: Silicon photodiode 20 W halogen lamp,

Deuterium lampOutput device: USB memory

PC control: Should be

providedSoftware mode:

1.Photometric

mode2.Spectrum

mode

3.Quantitation

mode4.Kinetics

mode 5.Time

scan mode

6.Multi-component

quantitation mode7.Biomethod

mode

Warranty: 5 years comprehensive on the entire instrument.

The vendor must have supplied the instrument atleast in 10 state/central university/institutes.

Reference No. DBT/Builder/22-23/equip/6b

Low Volume- UV-Vis Spectrophotometer

Precise readings from 6 to 384-well microplate in

increments of 1nmMinimum maintenance utilizing

semipermanent Xenon lamp Detection Mode :

Absorbance

Reading Methods : End-Point, Kinetic, Spectral Scanning, Well-

Area ScanningMicroplate Types : 6 to 384 well Microplate

Incubator : Temperature Control and

ShakingMicrovolume Plate: Optional (2ul, 16

plate)

Light Source : Xenon Flash Lamp

Detector : Photodiode

Wavelength Selection :

Monochromator

Wavelength Range : 200 – 1000 nm (1nm

increments)Monochromator Bandwidth : 5 nm

Dynamic Range : 0 – 4.0 OD

Resolution : 0.0001

ODWavelength Accuracy : ±

1.0 nm Wavelength

Repeatability : ± 0.1 nm

Pathlength Correction :

Available

OD Accuracy : ± 1% at 2.0 OD, 3% at 2.5 OD

OD Repeatability : ± 1% at 2.0 OD, 3% at 2.5 OD

OD Linearity : ± 1% at 2.0 OD, 3% at 2.5 OD

System can to run in stand-alone mode using 7 inch or more touch screen for quick usage.

·The instrument should have a memory of 99 inbuilt protocols in stand-alone mode

·Communication : USB ports to PC , wi fi dongle and data transfer devices , 1 ethernet port

· System should have Power Save function for reduced energy consumption when the instrument is 'on' but not inuse.

· Visualize data in both numerical mode and heat-map/virtual image of plate.

Data Analysis Software :

- Convenient operation with either PC or tablet software and aanalysis Software should be supplied with unlimited user license.
- Software should allow multiple absorbance /photometry steps in a single program for differentially analysis assays, including plate out option during the program to add required compounds and then continue the program for further analysis .
- Allow multiple absorbance reading steps within the same program i.e. in case of two sets of reading before and after adding the compounds .
- Database based software to run backups of all data, restore back up data (in case of hardware failure of original computer).
- Should have area selection option , for different measuring parameters for different area in a same plate.
- Spectral scanning of all 96 samples or 384 samples should be able to view in single graph plot.
- Data export can be .pdf,, excel ,xml and note format.

Warranty: 5 years comprehensive on the entire instrument.

The vendor must have supplied the instrument atleast in 10 state/central university/institutes.

Reference No. DBT/Builder/22-23/equip/7

Completely integrated –all-in-one‖ inverted cell imaging system

Seident of Trinocular Viewing Head, Inclined at 30°, 360° Rotatable, Interpupillary 48-75mm,

Light Distribution: 20:80 (eyepiece: trinocular tube) Eyepiece WF10×/20mmInfinite Achromatic Objectiv eE-Plan 4×, 10×, 40× (S), 100× (Oil) (S) Nosepiece Backward Quadruple Nosepiece Focusing Coaxial Coarse & Fine Focusing knobs,

Travel Range: 26mm, Scale:2um Focusing Coaxial Coarse & Fine Focusing knobs, Travel Range: 26mm, Scale:2um StageDouble Layers Mechanical Stage, Size: 145×140mm, Cross Travel 76×52mm, Scale 0.1mm, Two Slide Holder

· Single compact unit including: inverted microscope, digital color camera and LCD display

· Long life LED illumination (up to 50,000 hours)

· 4-position objective turret

· User defined Phase-contrast LWD objectives options

· Compact footprint; the entire system can be easily moved into a cell culture hood

· Low power consumption (less than 20 Watts/hr)

· Two USB output ports

· Direct output to USB storage device

· Supported output file formats: .jpg, .bmp and .tif

Warranty: 5 years comprehensive on the entire instrument.

The vendor must have supplied the instrument atleast in 10 state/central university/institutes.

Reference No. DBT/Builder/22-23/equip/8

Microtome

Section thickness setting range: 1 - 60 µm

Trimming section thickness setting range: 10 µm, 30 µm Specimen feed: Approx. 24 mm ±2 mmVertical stroke: 70 mm ±1 mm

Maximum specimen size (H x W x D): Large standard clamp: 55 x 50 x 30 mmSuper Cassette clamp: 68 x 48 x 15 mm

Unique force balance system Yes

Specimen retraction: Approx. 40 µm; can be turned off Personalized coarse feed wheel user selectableSpecimen orientation with zero postion horizontal / vertical rotation: ± 8°/ ± 8°

Waste tray Choice of standard or antistatic

Warranty: 5 years comprehensive on the entire instrument.

The vendor must have supplied the instrument atleast in 10 state/central university/institutes.

Reference No. DBT/Builder/22-23/equip/9

Spectrophotometer with temp ramping

UV Vis Optical Design: Double Beam with sample & reference cuvette positions; Czerny-Turner Monochromator, Spectral Bandwidth: 1 nm Light Source: Xenon flash lamp,5-year warranty, Detector:

Dual Silicon Photodiodes

Wavelength Range: 190 –1100 nm Wavelength Accuracy: ± 0.8 nm (full range) ± 0.5 nm (546.11 nm mercury line)Wavelength Reproducibility: <0.1 nm (546.11 nm mercury line, SD of 10 measurements)

Scanning Speed: <1- 6000 nm/min; continuously variable; Slew Speed 31,000nm/minData Intervals: 10, 5, 2, 1, 0.5, 0.2, 0.1 nm

Photometric Range: > 3.5 Abs

Photometric Accuracy: 0.5 A: ± 0.004A; 1A: ± 0.006A; 2A: ± 0.010A; (440 nm; traceable neutral density filters)Noise: 0A: less than 0.00015 A; 1A: less than 0.00050 A; 2A: less than 0.00080 A; (260 nm, RMS)

Drift: < 0.0005 A/hr (500 nm, 1 hour warm-up)

Stray light: less than 1% T at 198 nm (KCl), less than 0.05% T at 220 nm (NaI), less than 0.05% T at 340 nm(NaNO2)

Baseline flatness: ±0.0010 A (200-800 nm; smoothing)

Software Features: Should fully support the instrument and all its operations.

- Should be User friendly
- Quantification and quantitative analysis tools
- Advanced analysis with graphical data display and user defined limits
- Integrated calculations for measurement of in Scan, Fixed and Quant
- Wavelength scanning application with advanced tools for peak analysis and spectral processing
- Advanced kinetics features including multistage measurement, temperature ramping and comprehensive datafitting options.

• Automated file export and e-mailing of data

Single Cell Peltier System compatible with the instrument and with all the necessary hardware and software support.

Warranty: 5 years comprehensive on the entire instrument.

Reference No. DBT/Builder/22-23/equip/10

- **Gradient THERMAL CYCLER**

- Sample Capacity: 96 well PCR plates / 8 x 12 PCR Strips /96 x 0.2ml tubes.
- 96 well Thermal Cycler with 3 separate Peltier blocks to provide independent temp zones to run – 6 different assays with varying annealing temp at the same time.
- Sample Volumes: The system should support volumes ranging from 10 – 100 µl / tube.
- Thermal Optimizations: The System to have minimum 3 temperatures to set for the PCR optimization. Runupto 3 separate temperatures in one run to determine optimal annealing temperature and system should maintain thermal characteristics between optimization and isothermal condition to eliminate further optimizations.
- Each peltier block to have the ability to set up PCR with a specific temp differential of up to 10 °C.
- Programmable Heat Cover: Heated lid should be programmable for oil free PCR.
- The system should have a ramp rate of minimum 3.50°C/sec.
- The system should have a sample ramp rate of minimum 2.70°C/sec
- The system to support temperature range starting from 0°C – 100°C.
- The system to have a
  - Temperature Accuracy ± 0.25 °C at 35°C – 99.9°C.
  - Temperature Uniformity < 0.5°C 20 Sec's after reaching 95°C.
- **Programming:** In built minimum 5-inch color TFT LCD with touch screen programming panel, allowing for easy intuitive graphical user interface. The instrument to support Mouse or stylus free programming & navigation capability.
- **Memory**: Provision to save protocols more than 800 in the instrument. System to be open to expansion of memory via USB memory stick. The system should allow easy product / software updates via USB port.
- Security: The system to have provision to create separate user profiles protected by passwords.
- Portability: USB port to transfer methods from one machine to another with option of cloud/WiFi connectivity.
  - **Warranty: 5 years comprehensive on the entire instrument.**
- **The vendor must have supplied the instrument atleast in 10 state/central university/institutes.**

Reference No. DBT/Builder/22-23/equip/11

BOD Shaker Incubator

Heating	**:** Forced Air Convection
Cooling	**:** CFC Free air cooled hermetically sealed compressor
Temp. Range	**:** + 5°C ~ 70°C
Accuracy	**:** ± 0.2°C at 25.0°C (JSSI-200C)
Uniformity	**:** ± 1.0°C at 25.0°C (JSSI-200C)
Shaking Motion	**:** Orbital or Reciprocal
Speed Range	**:** 20 ~ 350 rpm (orbital)
Control	**:** Integrated Microprocessor PID Control , Auto STOP Timer
	: Photoperiodic Light Control (JSSI-200CL)
Sensor	**:** Class A Pt-100 Ω Sensor
Safety	**:** Over-Temperature Cut-Off / Over Current Cut-Off
Material	**:** Body - Epoxy Powder Coated Steel
	: Chamber – Stainless Steel 304
	: Tempered Safety Glass Window
	: Stacking bracket and height adjustable level feet for balancing and anti-vibration
Electric	**:** 220±10% VAC 50/60Hz 1-Phase
Plug config.	**:** CEE 7/7 Schuko or BS 1363
Illumination	**:** 2 ea x 36 Watt FPL
Light Control	**:** 24 hr Timer
Heater Capacity	**:** 700 Watt
Power Rating	**: 6.3amp**
Chamber Volume	**: 190 L**

FLASK HOLDER : 100 ml , 250 ml , 500 ml

Warranty: 5 years comprehensive on the entire instrument.

The vendor must have supplied the instrument atleast in 10 state/central university/institutes.

Reference No. DBT/Builder/22-23/equip/12

REFRIGERATED HIGH-SPEED TABLE TOP CENTRIFUGE

Max. speed: 18000

rpmMax RCF:

23545 x g

Max. volume : 4 x 200

ml Speed range: 200 -

18000 rpm

Temp. range : -20°C to 40°C with 1°C increments

Angle Rotor for 6 x 50 ml

Max. speed: 12000 rpm

Max RCF : 13522xg

Fixed Angle Rotor for 24 x1.5/2.0 ml. Tubes , Max. Speed : 15,000 rpm

Max. RCF : 21,379 x g.

Swing bucket rotor to be included

Bottle rotor

Warranty: 5 years comprehensive on the entire instrument.

The vendor must have supplied the instrument atleast in 10 state/central university/institutes.

Reference No. DBT/Builder/22-23/equip/13

Multitemp

Temperature control from 0 to 100°C

Precision contoured wells for uniform thermal transfer Sequence link function for linking or repeating programs(HC model only)

Speed: Variable, 200 to 1500 rpm (or off) Orbit: 3mm

Temp. Range (H5000-HC): Ambient -20 to 100°C Temperature Increment: 0.1°C

Temp. Accuracy: +/- 1.0°CCapacity: Block,35 x 1.5ml

Speed Increment: 10 rpm Heating Rate:

5.0°C per. min.Cooling Rate: 2.5°C per.

min.

Timer: 1 min. to 99 hours 99min. / continuous Electrical: 115 or 230V, 50-60Hz, 500W

Warranty: 5 years comprehensive on the entire instrument.

The vendor must have supplied the instrument atleast in 10 state/central university/institutes.

Reference No. DBT/Builder/22-23/equip/14

Sonicator

26kHz; for handheld and stand-mounted use;

automatic frequency tuning, amplitude adjustable from 20 to 100%,pulse adjustable from 0 to 100%, with coloredtouch-screen & digital control, operation and control via LAN, automatic data recording, dry

running protected, IP41 grade, titanium horn Ø 10mm, amplitude at horn

70µm, in portable case Probe (tip diameter 2mm, 7mm and 14mm) Stand and

Sound Protection Box made from acryl glass

Warranty: 5 years comprehensive on the entire instrument.

The vendor must have supplied the instrument atleast in 10 state/central university/institutes.

Earnest Money (EMD):- **Intending bidders are requested to deposit Rs. 1,00,000/- (to be deposited online) by each bidder only to be deposited by the bidder concerned electronically: online – through his net banking enabled bank account, maintained at any bank or: offline – through any bank generating NEFT/RTGS challan from the e–tendering portal. Intending bidder will get the beneficiary details from e–tender portal with the help of Digital Signature Certificate and may transfer the EMD from their respective Bank as per the Beneficiary Name & Account No., Amount, Beneficiary Bank name (ICICI Bank) & IFSC Code and e–Proc Ref No. Intending bidder who wants to transfer EMD through NEFT/RTGS must read the instruction of the Challan generated from E–Procurement site.**

Bidders are also advised to submit EMD of their bid, at least 3 working days before the bid submission closing date as it requires considerable time for processing of Payment of EMD.

For getting exemption of EMD: - Bidders are requested to upload the relevant NSIC / MSME Registered Certificate against each item work for getting exemption of EMD, failing which their Tender will be rejected. For that they need to select the EMD page as Yes and provide the exemption type as fixed and put the actual EMD amount in Rupees and upload the exemption document.

N.B.: During evaluation, the bidders may be invited and clarification/ information or additional documents or original hard copy of any of the documents already submitted may be sought from them & if these are not produced within the stipulated time frame, their bid will be liable to rejection.

Important Dates:

Sl. No.	Items	Publishing Date (s)
1	Date of uploading of N.I.T. & Tender documents (online) from this end	02/11/2022 ; 05:00 pm
2	Documents downloading, Starting date (online)	02/11/2022 ; 05:00 pm
3	Bid submission, starting date (online)	02/11/2022 ; 05:00 pm
4	Bid submission, closing date (online)	15/11/2022 ; 01:00 pm
5	Bid opening date for Technical Proposal (online)	17/11/2022 ; 01:00 pm
6	Date of uploading of the list of Technically qualified Bidder (online)	To be communicated later
7	Date and Place for opening of Financial Proposal (online)	To be communicated later
8	Date of uploading of the list of bidders along with the approved rate	To be communicated later

INSTRUCTIONS TO BIDDERS

Instructions / guidelines for electronic submission of tenders have been annexed for assisting the contractors to participate in e- tendering.

I. **Registration of Bidder:** - Any bidder willing to take part in the process of e –tendering will have to be enrolled & registered with the Government e – Procurement system through logging on to **https://wbtenders.gov.in.**The bidder is to click on the link for e – Tendering site as given on the web portal.

II. **Digital Signature Certificate (DSC): -** Each bidder is required to obtain a class - II or class – III Digital Signature Certificate (DSC) for submission of tenders from the approved service provider.

III. **Collection of Tender documents: -** The bidder can search & download NIT & Tender documents electronically from computer once he/she logs on to the website mentioned in Clause 1 using the Digital Signature Certificate. This is the only mode of collection of Tender documents.

IV. Cost of Earnest Money (EMD)

Description of Items	Earnest Money (EMD) Quoted INR
supplying, fitting, fixing and commissioning the following equipment which to be installed in the DBT BUILDER facilities in Botany, Biochemistry and other participating departments in Ballygunge Science College Campus under the University of Calcutta.	Rs. 1,00,000 /- (To be deposited Online)

V. Submission of Tenders:-

a. **General process of submission: -** Tenders are to be submitted through online to the website **https://wbtenders.gov.in** in two folders at a time for each work, one is Technical bid and other is Financial Bid, before the prescribed date and time using the Digital Signature Certificates.

b. **Technical Bid:-** Technical Bid contains scanned copies of the followings further in two covers (folder):

- NIT
- EMD or exemption of EMD Certificate (NSIC / MSME Registered Certificate)
- Credential
- GST, PAN
- P-Tax
- Relevant trade license
- For Exemption of EMD, relevant MSME/NSIC Registered Certificate.

c. **Online bid submission (Bidder/Contractor) process in https://wbtenders.gov.in portal, download the pdf file.**

https://wbtenders.gov.in/nicgep/app?component=%24DirectLink&page=BiddersManualKit&service=direct&session=T&sp=SfUVGgFbsFY0A3Fp2KziwO2%2FVowZwVnRXQfMmjoH%2Fn%2BINAT7PO%2BHMgQI5FFHZ3RkV1XPd8Y04M8ue%0ADA0V3WhnuA%3D%3D

VI. Statutory Cover Containing

i) For NIT and Corrigendum if any (Download the NIT and upload the same by through digital signature).

VII. NON-STATUTORY/MY DOCUMENTS containing the following documents:

Sl.No.	Category	Sub Category	Sub-Category Description
A.	Certificates	Certificates	1. PAN Card
			2. Professional Tax Registration Certificate
			3. GST Registration Certificate
			4. Valid Trade License
			5. ISO Certificate
			6. *NSIC / MSME Registered Certificate for getting Exemption of EMD.*
			7 For non-registered organizations under NSIC/MSME, EMD documents are to be enclosed.
B.	Credential	50% of the total amount of work in government, autonomous organization, state universities.	

Rejection of Bid:

Tender Committee reserves the right to accept or reject any Bid and to cancel the Bidding processes & reject all Bids at any time prior to the award of Contract without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the ground for Tender Committee's action.

Note: Failure of submission of any of the above mentioned documents will render the tender liable to be summarily rejected for both statutory & non statutory cover.

VIII. Financial Bid:- BOQ in INR (in excel sheet)

i) The financial bid should contain the following documents in one cover (folder) i.e. Bill of Quantities (BOQ). The contractor is to quote the rate through online in the space marked for quoting rate in the BOQ.

ii) Only downloaded copies of the above documents are to be uploaded, virus scanned & digitally signed by the contractor.

IX. Opening & Evaluation of Tender:-

Opening of Technical Bid:

i) Technical bid will be opened by the University of Calcutta Officials. Intending bidders may remain present if they so desire. Statutory Cover (folder) would be opened first & if found in order and correct Non Statutory Cover (folder) will be opened. If there is any deficiency in the Statutory & Non statutory documents the tender will summarily be rejected.

ii) Decrypted (transformed in to readable formats) documents of the non statutory cover will be downloaded & handed over to the evaluation committee.

iii) List of technically qualified bidders would be uploaded.

NB: While evaluation, the committee may invite the bidders & seek clarification/ information or additional documents or original hard copy of any of the documents already submitted & if they are not produced within the stipulated time frame, their bid will liable for rejection.

X. Opening and evaluation of Financial Bid:

Financial bid of bidders declared technically eligible by the Committee will be opened electronically from the web portal on the prescribed date and time.

XI. Penalty for suppression / distortion of facts:

Submission of false document by bidder is strictly prohibited and will be liable for rejection of the tender.

Sd/-
Prof. Binay Chaubey
H.O.D
Department of Botany
University of Calcutta