



BHATTADEV UNIVERSITY

BAJALI, PATHSALA-781325, ASSAM

www.bhattadevuniversity.ac.in

NIQ No.: Bhatt.U/E&A Sec./187/02/2021/667

Date: 18/01/2021

Notice Inviting Quotations

Sealed quotations are invited from reputed manufacturers/authorized dealers for the supply, installation and commissioning etc. of scientific equipments, computers, software and accessories required by the science departments of Bhattadev University.

Please read this NIQ document carefully before participating because offers by the bidders shall be understood to have been prepared and submitted with full understanding of the NIQ terms and conditions. Any lack of information / understanding shall not in any way relieve the bidder of responsibilities to be fulfilled its obligations under the bid.

The University shall reject a proposal for award / purchase order if it determines that the bidder recommended for the award/order had engaged in corrupt or fraudulent practices while competing for, or in executing the purchase order. Fraudulent practice means a misrepresentation of facts in order to influence a procurement process and it includes collusive practices among bidders with a view to establishing bid prices at non-competitive levels and hence depriving Bhattadev University of benefits of free and fair competition. Corrupt practice means offering, giving, receiving or soliciting of anything of value, pressurizing to influence the action of a public official (including those associated with Bhattadev University) in the process of this purchase execution. Further, the Vice-Chancellor of Bhattadev University reserves the right to impose any other form of penalty, including blacklisting of the vendor, if deemed fit.

Bids submitted by vendors who are blacklisted by reputed universities/institutes/PSUs/Govt. Organizations will not be considered. Every vendor must submit a certificate of undertaking to this effect at the time of submitting the bid.

All communications must be addressed to the Registrar, Bhattadev University, Bajali, Pathsala - 781325, Assam, India and/or registrar@bhattadevuniversity.ac.in.

The following general terms and conditions, in brief, will be applicable:

- Two Bid Procedure:** The quotation must be in a two-bid system. All technical documents along with the supporting documents in conformity with the terms and conditions are to be placed in a sealed envelope to be marked as "Technical Bid". Price quotations for various components clearly indicating the amount including various tax components etc. must be in the second envelope to be marked as "Price Quotation". Both the envelopes are to be put in a single envelope and to be sealed and submitted to the **Working Registrar, Bhattadev University, Bajali, Pathsala-781325, Assam.**
- No separate tender/quotation paper will be issued from the office; one should only download the List of Equipments along with Specifications from the university website: <https://www.bhattadevuniversity.ac.in/> (i.e., by downloading this document).
- At least one similar work/supply completion with successful implementation and completion certificate from the customer must be produced, the value of which should not be below 60% of the currently quoted value. Firms not fulfilling this condition shall not be considered.


Working Registrar
Bhattadev University, Bajali



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4. The rates should be quoted in Indian Rupees on FOR Bhattadev University, Pathsala, Assam, Door Delivery Basis for all items. The basic rates should be exclusive of GST and rate of applicable GST in % should be clearly indicated and total price quoted for any given piece of equipments is desired to be within budgeted total expenditure for each piece of equipment.
5. A non-refundable processing fee of **Rs. 2000/- (Two Thousand)** only in the form of a DD/Banker's Cheque drawn in favour of Registrar, Bhattadev University, payable at Canara Bank, Pathsala Branch should be submitted.
6. Quotations should be accompanied by a refundable Earnest Money Deposit (EMD) of Rs. 20,000/- (Rupees Twenty Thousand) only in the form of a DD/Banker's Cheque drawn in favour of Registrar, Bhattadev University, payable at Canara Bank, Pathsala Branch. The quotation/tender shall be summarily rejected in the absence of EMD. No interest on the Earnest Money shall be paid.
7. The original copies of the instruments processing fee / EMD should be deposited/ submitted or reach along with the bids.
8. Any given equipment/apparatus and/or the total number of each type of equipment/apparatus to be purchased shall depend on fund availability; and, the university may decide not to purchase any given type of equipment without giving any reason.
9. Charges for customs clearance (if required) and transportation to the place of installation (i.e., Pathsala) are to be borne by the supplier.
10. Applicable levies, surcharge and discounts should be clearly indicated item-wise.
11. Quoted rates should be valid at least for a period of sixty days.
12. The rates should be quoted along with supporting documents of specifications and technical features, and lists of users, wherever applicable.
13. The equipments must be installed at the premises of Bhattadev University, Pathsala, Assam and after installation a basic training must also be provided by the supplier without any additional cost.
14. Warranty/ Guarantee period should be specifically mentioned in the quotation against each item.
15. Details of availability of after sales support and spare parts will have to be furnished. After sales support, directly from manufacturer will be preferred.
16. Product demonstration / on-site discussion may be sought from the vendors for authentication of quoted specifications and pricing.
17. Rates must be quoted item wise. Quotations for a selection of equipments from the full list of equipments are also acceptable. PAN/GSTN wherever applicable, must be mentioned.
18. AMC policy including rate and other terms and conditions is required to be clearly stated along with the proposal for maintenance after the expiry of warranty period. This may be weighed as part of the total package value of the contract at the discretion of the Bhattadev University.


Working Registrar
Bhattadev University, Bajali



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19. Bidders should clearly mention the detailed address, contact number, e-mail address of 'after sales service provider', preferably in Guwahati or places close to Pathsala, Assam without which their offers are liable to be rejected.
20. All quotations must be supported with technical leaflet/literature and the specifications mentioned in the quotation must be reflected / supported by such technical literature.
21. Lowest rate may or may not be the sole selection criterion for award of the supply order. However, the negotiations, if necessary, to be made by Bhattadev University with bidders of technically qualified offers may be held for finalizing the order.
22. Suppliers must provide valid authorized dealership documents from original equipment manufacturer (OEM) along with quotations. In addition, bidders also are required to provide valid certificate(s) to prove that the products are genuine and of international / national standard and for the purpose, manufacturer's certificate and / or ISO/ISI certificate etc. need to be submitted.
23. Annual turnover of the bidder for last 3 years must be submitted.
24. Performance Bank Guarantee (PBG): In the Purchase Order (PO) value is above Rs. 5 lakhs, the successful bidder, with whom the PO is placed, shall furnish an unconditional PBG from a scheduled bank in India for 10% of the PO, along with Bill/Invoice. Validity period of the PBG, which shall be mentioned therein, shall be warranty period + 2 months before and 3 months after the warranty period.

By submitting the PBG, the vendor will be understood to have guaranteed the following.

- (i) The PO shall be executed as per terms and conditions mentioned therein.
- (ii) The vendor shall at its own cost rectify/replace defects / defective items, if any, during the guarantee period.

In case of failure to comply with the above guarantees, Bhattadev University, at its discretion, shall procure goods similar to those ordered for, and the defaulting supplier/vendor shall be liable to compensate for the extra expenditure incurred by Bhattadev University for the purpose.

25. The vendor is to ensure that the quoted price is not more than the price offered to any other customer, particularly universities/institutes/government organizations, in India to whom this particular item has been sold.
26. All other terms and conditions will be as per the Bhattadev University rules and regulations.
27. Bhattadev University reserves the right of modifications, cancellations and decisions in regard to the entire process.
28. The University shall make the payment against the supply after successful deliver, installation, commissioning and acceptance by the users. It may please be noted that under no circumstances Bhattadev University shall make any advance payment for the purchases to be made presently. The vendor should strictly adhere to the stated date of delivery and in the event of delayed delivery, installation and commissioning the vendor shall be liable to penalty deductions as per standard norms.


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29. **Evaluation of Bids:** Technical merit of the offered items will be evaluated and ranked by the award of ACCEPT and/or REJECT. Only the bids for ACCEPTED items will be considered for price bid.
30. Queries regarding details of items for the bid should be directed to info@bhattadevuniversity.ac.in on or before 31/01/2021. Answers to relevant queries may also be sought over phone calls made to the number 9864623699 during office hours on 28th, 29th and the 30th of January, 2021.
31. **The last date of submission of quotations is 06/02/2021 at 12.00 noon.** The quotations will be opened on 08/02/2021 or on a date to be announced through the university website. Representatives of the bidders may attend the quotation opening meeting to be held in the office of the Registrar, Bhattadev University.

A. Supply of equipments for Science Departments

Approximate value: Rs. 70 lakhs

Sl. No.	Details of Equipments /Items Names	Specifications/Descriptions
1.	Fume Hood	Fume hood with inner working space: 5'×2'×3' min. Vertical Sash. Chemical Resistant Body.
2.	FT-IR Spectrometer	Fourier Transform infrared spectrometer working in transmission / ATR mode in the mid-IR region (specific wavenumber range in cm^{-1} to be indicated) with all required essential and appropriate optional accessories. Charges for additional two years' comprehensive warranty also to be shown as an option.
3.	Digital Storage Oscilloscope (DSO 50MHz)	150/100/70MHz Bandwidths 1GSa/s Real-Time Sampling rate Maximum, 25GSa/s Equivalent-Time, 2Mega Points Record Length 2mV~10V Vertical Scale 1ns~50s Horizontal Range
4.	Digital Signal Generator (200 MHz signal generator with. Function Generator)	20 MHz sine and square waveforms; Ramp, triangle, noise, and DC waveforms; Pulse generation with variable edge; 14-bit, 50 MSa/s, 64 K point arbitrary waveforms; AM, FM, PM, FSK, and PWM modulation types
5.	Planck's law for Black Body radiation with Raleigh-Jeans	1x Prism Spectrophotometer Kit (OS-8544) 1x Optics Benches (60 cm) (OS-8541) 1x Educational Spectrophotometer Accessory Kit (OS-8537)
6.	Law at high temperature and low temperature setup. Blackbody Radiation Experiment	1x Aperture Bracket (OS-8534A) 1x PASPORT Broad Spectrum Light Sensor (PS-2150) 1x PASPORT Rotary Motion Sensor (PS-2120A) 1x Voltage Sensor (unshrouded) (UI-5100) 10x Replacement Light Bulbs (10) (SE-8509) 5x Banana Plug Cord-Black (5 Pack) (SE-9751)


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Bhattadev University, Bajali



BHATTADEV UNIVERSITY

BAJALI, PATHSALA-781325, ASSAM

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7.	Boltzmann constant using V-I characteristics of P N junction diode setup. Boltzmann Constant Kit	Digital DC Voltmeter to measure the voltage across the diode. Highly stabilized variable D.C. power supply (0-2 V). Digital milli-ammeter to measure forward bias current in diode. Silicon Diode mounted inside the cabinet. Temperature controlled oven 70 °C to heat the diode for different set of readings. Digital temperature indicator to measure temperature directly.
8.	Polarization and double slit interference in microwaves setup. Advanced Microwave Optics System	1x Microwave Optics: Basic System (WA-9314C) 1x Microwave Accessory Package (WA-9315)
9.	Diffraction through ultrasonic grating setup. Interference and Diffraction of Light Experiment System	1x 1.2 m Optics Track (OS-8508)1x Precision Diffraction Slits (OS-8453)1x Red Diode Laser (OS-8525A)1x Aperture Bracket (OS-8534A)1x Linear Translator (OS-8535A)1x PASPORT High Sensitivity Light Sensor (PS-2176)1x PASPORT Rotary Motion Sensor (PS-2120A)
10.	Analyzing elliptically polarized Light by using a Babinet's compensator setup. Babinet Compensator	Material: Polaroid sheet Accuracy: 0.005 mm Least count: 1/10 degree Fringed width: 6 mm
11.	Dipole Antenna	Frequency 700-2700 Mhz Connector N Type/SMA/TNC/Customized Material ABS, Horizontal Beam width 3dB (65 Degree) VSWR Less Than 1.5, Working temperature -40 Degree C~+70 Degree C, Lightning Protection DC ground Connector Type N-Female
12.	Coupling Coefficient of a Piezoelectric crystal setup.	Frequency source, digital current meter, digital multimeter, inductance , resistance, capacitance, piezoelectric crystal
13.	Setup for Measurement of Paramagnetic Susceptibility of solution by Quincke's method	Quincke's tube, Quincke Tube Stand Standard Sample, Electromagnet, Constant Current Power Supply, Digital Gaussmeter, Travelling Microscope
14.	Magnetic susceptibility of Solids measurement setup.	Suitable apparatus for teaching purposes in Physics laboratory
15.	Tunneling effect in tunnel diode using I-V characteristics setup	Instrument comprises of DC Regulated Power Supply of 0-600mV, two round meter for voltage & current measurement.
16.	The ionization potential of mercury setup	Instrument comprises of DC Regulated Power Supply 0-15VDC/150mA & AC Power Supply 6.3 VAC/1Amp, two round meters for voltage & current measurement, valve diagram is Printed on Front panel, connections of supplies & valve brought out at 4 mm Sockets
17.	The Planck's constant using LEDs of at least 4 different colours setup	Wavelengths: 465 nm, 560 nm, 585 nm, 635 nm, 660 nm, 950 nm Series resistor: 100 Ω, Max. voltage: 6 V
18.	Work function of material of filament of directly heated vacuum diode setup.	Ideal diode pure Tungsten filament filament current: 0.400 - 0.800 A; accuracy: 1.0 mA anode voltage: DC 0 ~120 V; accuracy: 0.1 V Parameters of coil inner radius: r1=24.0 mm outer radius: r2=36.0 mm length: L=18.0 mm number of turns: N=800Magnetization current 0 ~ 0.800 A


Working Registrar
Bhattadev University, Bajali



BHATTADEV UNIVERSITY

BAJALI, PATHSALA-781325, ASSAM

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19.	4-bit Shift Register (serial and parallel) using D-type/JK Flip-Flop setup	Instrument comprises of DC Regulated Power Supply 5VDC/150mA, 4 SPDT switches provided for selecting logic '1' & logic '0', 1Hz monoshot clock pulse, four output indicators, Circuit diagram for IC 7495 printed and two switches for serial input & Mode control.
20.	4-bit Counter using D-type/JK Flip-Flop Ics setup	instrument comprises of dc regulated power supply 5vdc/150ma, 1Hz monoshot clock pulse, two output indicators, symbolic diagram for 4 jk flip-flops printed & connections for inputs & outputs brought out at sockets on the front panel.
21.	Half Subtractor, Full Subtractor, Adder-Subtractor using Full Adder IC setup	1) Half Adder Using TTL Gates 2) Full Adder Using TTL Gates. 3) Half Subtractor Using TTL Gates 4) Full Subtractor Using TTL Gates 5) 4 Bit Binary Adder Using 7483 IC 6) 4 Bit Binary Parallel Adder Using 7483 IC.
22.	Flip-Flop (RS, Clocked RS, D-type and JK) circuits using NAND gates setup	A. Built-in power supply DC +5 V @ 500 mA B. Master slave JK flip flops using ICS C. 4 Logic input switches with green LED display D. 3 Logic output red LED display
23.	JK Master-slave flip-flop using Flip-Flop Ics setup	A. Built-in power supply DC +5 V @ 500 mA B. Master slave JK flip flops using ICS C. 4 Logic input switches with green LED display D. 3 Logic output red LED display
24.	Temperature Coefficient of Resistance by Platinum Resistance Thermometer (PRT) setup	Calendar and Grifith Bridge/ Platinum Resistance Thermometer Setup
25.	Coefficient of Thermal Conductivity of a bad conductor by Lee and Charlton's disc method setup	Lees Disc Control Unit Input:230V 5Amp AC Heating Unit with Disc Operating Voltage Manual Model:50 V Brass Disc Material: Cartridge Brass Diameter:76.2 mm Height:23.1 mm Material: Borofloat glass, Teflon, Plywood Test Samples Heat Sink Compound
26.	Coefficient of Thermal Conductivity of Cu by Angstrom's Method setup	
27.	Coefficient of Thermal Conductivity of Cu by Searle's Apparatus setup	
28.	Mechanical Equivalent of Heat, J, by Callender and Barne's constant flow method setup	
29.	Diffraction Grating 1. 20000 line/cm 2. 15000 line/cm	1. 20000 line/cm 2. 15000 line/cm
30.	Newton's ring Apparatus	
31.	Melde's Apparatus	
32.	Voltmeter	1. 0-1 Volts 2. 0-10 Volts
33.	5A Regulated power supply	Output: 30V, Input: 230V, Compact with Digital Display


Working Registrar
Bhattadev University, Bajali



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BAJALI, PATHSALA-781325, ASSAM

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34.	Spectrum Tube:	1. hydrogen 2. helium
35.	Electric Heater Hot Plate	
36.	Ammeter (0-5A)	Ammeter (0-5A)
37.	Milli-ammeter	1. 0-100 mA 2. 0-500 mA
38.	Micro-ammeter	Micro-ammeter (0-500 μ A) Digital
39.	Thevenin & Norton theorem	Thevenin& Norton theorem (Box Apparatus)
40.	LCR circuit	LCR circuit
41.	De'Sauty's bridge	De'Sauty's bridge.
42.	Carey Foster's Bridge	Carey Foster's Bridge.
43.	Potentiometer	Potentiometer.
44.	Multimeter	Multimeter
45.	Dual power supply	Dual power supply (+20v to -20v with output +20 0 -20)
46.	Sextant	
47.	Modulus of Rigidity of a Wire Static method	Modulus of Rigidity of a Wire Static method
48.	Moment of Inertia calculation by torsional oscillation method	Moment of Inertia calculation by torsional oscillation method
49.	Motion of Spring to calculate	Motion of Spring to calculate (a) Spring constant and (b) Rigidity modulus
50.	Travelling Microscope	Travelling Microscope
51.	Constant deviation spectrograph	Constant deviation spectrograph
52.	CCD Spectrophotometer	Wavelength Range 200-1000 nm, Resolution: 1 nm with USB 2.0 connectivity, software, computer and essential accessories
53.	Rotary Evaporator with Chiller and Vacuum Pump	With water bath and digital temperature controller; vertical cooling condenser; mechanical lift, adjustable immersion angle.
54.	Weighing Balance (3 decimal)	Readability from 0.001 g
55.	Weighing Balance (4 decimal)	Readability from 0.0001 g
56.	Polarimeter Set	Half Shade Polarimeter with sodium lamp and stabilizer
57.	pH meter	Digital pH meter; Range 0-14pH; Accuracy ± 0.01 pH; Calibration- Auto/Manual
58.	Conductivity meter for solution conductivity measurement	Digital Conductivity meter; Power 230V $\pm 10\%$ 50Hz; Temperature 0° C to 100° C (Auto/ Manual); Range: 0-20 μ s, 200 μ s, 2ms & 200ms/cms, Measuring ; Accuracy - $\pm 1\%$
59.	Drying Oven (28 Litre)	28 L Hot air Oven; Double-walled; Temperature 25° C ambient to 250° C
60.	Magnetic Stirrer	Without hot plate; Capacity 3litre
61.	Magnetic Stirrer	With hot plate; Capacity 3litre
62.	Ice flaker	Production 30 Kg in a day
63.	Water Distillation Apparatus	Double stage, Output ~ 2 L h^{-1} with cutoff device Glassware) (Glass)
64.	Deionizer	Laboratory Deionizer Apparatus; Capacity: 50 L



BHATTADEV UNIVERSITY

BAJALI, PATHSALA-781325, ASSAM

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65.	Vacuum Pump	Oil Free, maximum pressure 1 torr, low noise
66.	High Vacuum Pump	Double Stage; Ideal pressure 10-3 Torr, voltage: 220V, low noise
67.	Melting point Apparatus	Temperature range: 0-300 °C
68.	Micropipette (5000 µL)	Measurable up to 500 to 5000 µL
69.	Micropipette (1000 µL)	Measurable up to 100 to 1000 µL
70.	Micropipette (200 µL)	Measurable up to 20 to 200 µL
71.	UV Chamber for TLC plate	UV: light source: short wave (254 nm); long wave (365nm); and visible light, with individual toggle switch, closed chamber with eye protected viewing glass window, size approx 15"×12"×10"
72.	Thermostat (temperature controller)	Single display, single set point, temperature controller with relay/ssr output, 90 to 270 volt AC/DC size 72/72mm
73.	Centrifuge with different probes	With different probes and maximum RPM 60000
74.	Rotary shaker machine	Rotary Shaker (platform type); Speed Range 50 to 250 RPM; Automatic; 20-flask capacity
75.	Nitrogen Cylinder	With good quality regulator. Size suitable for use in research laboratory.
76.	Compact Magnetic susceptibility balance (Room Temperature)	Output: Digital display; Magnetic Field Strength: 3.5 kGauss; Measurement Range: $\pm 2 \times 10^{-5}$ to $\pm 5 \times 10^{-8}$ arbitrary units
77.	Muffle furnace	Size 10"×5"×5" ; Temp Range: up to 900 °C
78.	Air bubble compressor	Power : 735 W or 1 H.P.; Max Pressure : 115 PS
79.	Electrochemical Workstation	Potentiostat/Galvanostat, Windows based Software with provision for free upgrade, Computer, GC Working, Ag/AgCl (aq. & non-aq.) Reference and auxiliary electrodes and all other necessary accessories required for doing the following experiments, among others: (i) Cyclic Voltammetry (CV), (ii) Linear Sweep Voltammetry (LSV), (iii) Chrono Amperometry (CA), (iv) Chrono Coulometry (CC), (v) Bulk Electrolysis with Coulometry (BE). Optional items: Pt working and auxiliary electrodes, Saturated Calomel Reference electrode, 2 years additional comprehensive warranty.
80.	Vortex Shaker	With speed regulator
81.	Ultrasonicator	Digital ultrasonic machine, Electronic Parts 40 KHz 35/50 W
82.	Hand-Held GPS	GPS accuracy: Less than 35 feet, Water Proof, IPX7 compatible, High-sensitivity receiver, Waypoints, tracks saving facility
83.	Digital Compass with Barometer and Altimeter	Incorporates altimeter barometer compass functions etc. Thermometer hygrometer time date alarm clock LED torch. Built-in rechargeable battery. LCD backlit. IPX 4 waterproof
84.	Digital Soil and water analysis kit	Microprocessor Water and Soil Analysis Kit for measurement of pH, conductivity, TDS, Salinity, D.O. & temperature Data storage facility up to 500 samples
85.	Digital Planimeter	Measuring range = Maximum vertical width 325mm, Horizontal roller rotating length: 30m Accuracy = within +/- 0.2%

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86.	Mirror Stereoscope	Maximum picture format 300 x 300 mm Eye datum 54-76 mm
87.	Digital Water Velocity Meter	Range: 0.3-15 FPS (0.1-4.5 MPS) Accuracy: 0.1 FPS
88.	Digital Prismatic Compass	360 degree digital reading - 8 point directional signal - External magnetic field calibration - Magnetic declination setting - Resolution: 1 degree
89.	Digital Dumpy Level	Telescope Magnification 20x Leveling Accuracy $\hat{A}\pm 2.5\text{mm}$
90.	Digital Theodolite	Telescope Length 149 mm Objective lens 45 mm Magnification 30x power Field of view $1^{\circ}30\text{'}$; Electronic Angle Measurement Method Absolute Reading Detecting 2 horizontal sides, 1 vertical sides Minimum reading $1^{\circ}/5^{\circ}$ arc seconds, 0.2mgon/1mgon
91.	Sieving set with machine	Capacity: 1 to 5kg
92.	Pipetting set with Electric Oven	
93.	Digital Balance	Capacity :500 Gram Least Count : 0.01 gm
94.	Large format Scanner	1200 x 1200 DPI Scanner Resolution Scans 48 inch widths, nearly unlimited length
95.	Vertical Laminar Air flow Hood	Cleanliness: class 100; Velocity: 90 FPM $\pm 20\%$; Hepa Filter: 99.999 % efficiency for particles $>0.3 \mu\text{m}$; Pre-Filter: 85 % efficiency for particles $>0.5 \mu\text{m}$ (Washable); Cabinet: Laminated High Quality Wooden Board; Work Table: Stainless Steel; Noise Level: $<55 \text{ dBA}$; Standard Accessories: Air/gas cock and mains power socket; Power Supply: 220-230 V, 50 Hz.
96.	Autoclave	Internal Tank Capacity: 95 Liter Working Pressure: 1.2 kgf/cm sq.g (15 psi -17 psi) (Can be Upgraded up to 30 PSI); Sterilizing Temperature: 121°C to 134°C (150°C - Optional); Digital Timer: 0 to 99 min; Waste Container: Stainless Steel; Door / Lid: Foot lifted with safety and interlock device; Water Filling & Removal: Manua
97.	Hot Air Oven	Volume: 300 litres; Temperature capacity: 250°C ; Digital temperature controller; Precise and even heat distribution; Ventilation of gases
98.	Monocular Compound Microscope	Illumination System: LED 6V-20W illumination with variable illumination control; Universal input 100V-240VAC 50/60Hz built in voltage stabilizer.
99.	Micropipettes	Digital display clearly reads volume setting; Volume range: 0.5-10 μl Free micropipette tips: 500 pieces
100.	Micropipettes	Digital display clearly reads volume setting; Volume range: 5-50 μl Free micropipette tips: 500 pieces
101.	Micropipettes	Digital display clearly reads volume setting; Volume range: 100-1000 μl Free micropipette tips: 500 pieces
102.	Micropipettes	Digital display clearly reads volume setting; Volume range: 1-5ml Free micropipette tips: 500 pieces

Working Registrar
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103.	Microtome with refrigerated platform	Visual LCD display; Temperature:-45 °C. Range of section thickness: 1 –99µm; Microtome Knives of size 100-180mm
104.	Chromatographic Chamber	Cabinet Inside chamber 24'×12'×24' (630mm × 300 × 630mm), complete with one stainless steel trough and Six glass rods.
105.	Egg incubator	Microprocessor controlled Temperature range from ambient to 70°C
106.	Rectangular Hot Plate	Digitally Controlled For continuous heating up to 350° C. Size: 30(W) × 45(L) × 15(H) cm
107.	B.O.D. Incubator	Capacity: 280 litres Shelves: 3
108.	C.O.D. Reactor	Capacity: 15 samples
109.	Electronic Differential Blood Cell Counter	Three Digital Display with audio beep
110.	Digital Electronic Water Analyser Kit	(Portable for field use)Microprocessor based water/Soil Analyzer Kit: Eight parameters-for measurement of PH, Conductivity ORP, TDS ,Salinity, DO and Temperature,
111.	Photoelectric Colorimeter	Microprocessor based, Digitally Controlled Range: 400-700 nm, Provision for battery, 8 Filters
112.	Blood pressure apparatus	ISI mark.-A complete portable instrument for use in measuring blood pressure Scale calculated from 0 to 260mmcomplete with mercury: bomdage type cuff-in metal case
113.	UV-Vis Spectrophotometer	Wavelength Range: 175-900nm Grating:1200-1440 lines/mm Spectral Band Width:≤4nm Resolution:≤0.05 or better Wave length accuracy:±1-0.08nm Wave length reproducibility 0.08nm Photometric accuracy:±0.001-0.005A Detector: Photo Multiplier Tube)
114.	PAGE-Polyacrylamide Gel Electrophoresis	With accessories
115.	Agarose Gel Electrophoresis Kit	
116.	Simple Microscope	Entomological Dissecting Microscope Superior Brass parts and superior lenses, CAROLINA USA Type
117.	Binocular Dissecting Microscope	Built in the base of halogen illumination; System 6V-20W Electrical system and regulators Concave reflecting mirror Attachment for day and light use Acromatic Objectives(5x,10x,45x,100x) Eye piece 5x,10x
118.	Stereozoom Microscope	With photographic attachment and Necessary Software. Zoom Range : 7.8x - 120x, Resolution (max): 960 lp/mm, Optical System: 100 % apochromatic, CMO, lead-free
119.	Bomb Calorimeter	Digital, SS, Temp. resolution: 0.001 K
120.	Tissue Homogenizers electrically operated	Capacity 100ml(with drill chuck), With optional accessories
121.	Glassware Dryer	Powerful and heavy-duty electrically operated blower


Working Registrar
Bhattadev University, Bajali



BHATTADEV UNIVERSITY

BAJALI, PATHSALA-781325, ASSAM

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122.	Soxhlet apparatus	For common laboratory use
123.	Deep Freezer	Temperature range: up to -20°C
124.	Water Bath Incubator	Ambient to 95°C
125.	Liquid Nitrogen Container	~30 L capacity, suitable for transportation short-term storage
126.	Trinocular Microscope with camera	Optical Tube: Trinocular; Magnification: 40x-1500x; Illumination; LED; 2 Buttons, 8 Magnification Settings: 40X, 60X, 100X, 150X, 400X, 600X, 1000X, 1500X. Anti-Fungal. Anti-Reflection Coated Eye-Pieces

B. Supply of Computers, Software & other items for Science Departments

Approximate value: Rs. 30 lakhs

Sl. No.	Name of items*	Specifications/ Descriptions
1	Server	2 Population & 4 CPU (Annexure 1)
2	Desktop PC	4GB RAM minimum, Windows 10 license, Onsite warranty(3 years)
3	10KVA UPS	On-Line UPS with inbuilt isolation transformer AC Input: 160-280V & AC Output: 230V Input Frequency: Suitable for generator Required VAH: 11700 VAH for 1 hour battery backup
4	5KVA UPS	On-Line UPS with inbuilt isolation transformer AC Input : 160-280V & AC Output : 230V Input Frequency : Suitable for generator Required VAH: 4000 VAH for 30min battery backup
5	2KVA UPS	Offline
6	1KVA UPS	Offline
7	Gaussian16	Gaussian 16 Site license for LINUX for Single Machine Type 32 / 64 Bit
8	Mathematica Software	Wolfram Unlimited Mathematica Program Node Lock (Standalone / Installed in one system)
9	MATLAB	Latest version with Perpetual license, Academic Version Windows/ Linux/ Mac Platform
10	MS Office	Single user license
11	Origin Software	Perpetual license/ Single User
12	Short-throw Projector	5000 lumens 3000 lumens


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13	Laser Printer	With Scanner and Copier
14	Projection Screen	Calendar Type, size 8ft x 4ft (motorized)
		Stand Type, 6ft x 4ft
15	Electronic Calculator	8 or 10 digits (Scientific)

*Bids for items of reputed brands only will be evaluated.

S. Mahanta
18-07-2021

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Annexure 1:

Item	Specifications/Descriptions
Chassis	2 U Rack Mountable
CPU	2 x Intel Xeon-Gold 5218 (2.3GHz/16-core/125W) processors and 2 processor slots empty for future expansion
Memory	48DIMM slots. 128 GB DDR4 RDIMM RAM expandable up to 3 TB@2933MHz , Adv. ECC , memory mirroring
Memory Protection	Advanced ECC with multi-bit error protection, Online spare, mirrored memory and fast fault tolerance
HDD Bays	2 x 480GB SATA 6G Read Intensive SFF SC SSD, 3 x 2TB 7.2K RPM SAS Server should support up to 24 SFF HDD/SSD The drive carrier should have intuitive icon based display along with "DO NOT REMOVE" caution indicator that gets activated automatically in order to avoid data loss/downtime due to wrong drive removal.
Hard disk drive support	Hot Plug SFF or LFF SATA/SAS/SATA SSD/SAS SSD and NVMe drives
Controller	Server should support Onboard SATA software RAID controller supporting SSD/HDD and at least two M.2 drives. In addition, server should support one of the below controllers supporting Mixed Mode which combines RAID and HBA mode, PCIe 3.0 based 12Gb/s SAS Raid Controller with RAID 0/1/1+0/5/50/6/60/1 Advanced Data Mirroring/10 Advanced Data Mirroring (onboard or on a PCI Express slot) or PCIe 3.0 based 12Gb/s SAS Raid Controller with RAID 0/1/1+0/5/50/6/60/1 Advanced Data Mirroring/10 Advanced Data Mirroring with 4GB battery backed write cache (onboard or on a PCI Express slot). Storage controller should support Secure encryption/data at rest Encryption
Networking features	Server should be configured with 1Gb 4-port network adaptors. Also Server should support below networking cards for future upgradation: 1. 10Gb 2-port Ethernet adaptor 2. 10GBaseT 4-port Ethernet adaptor 3. 4x25Gb Ethernet adaptor 4. 10/25Gb 2-port Ethernet adaptor 5. 100Gb Ethernet Infiniband Options: 40Gb dual port or 100Gb Single or Dual port Adapter 100Gb Single port Omni path adaptor
Interfaces	Serial – 1 Micro SD slot – 1 USB 2.0 support with 4 total: 2 front (optional); 2 rear USB 3.0 support with Up to 5 total: 1 front, 2 rear, 2 internal
Bus Slots	Upto Eight PCI-Express 3.0 slots
Power Supply	Should support hot plug redundant low halogen power supplies with minimum 94% efficiency(Minimum 800Watt)
Fans	Redundant hot-plug system fans
Industry Standard Compliance	ACPI 6.1 Compliant PCIe 3.0 Compliant PXE Support Energy Star ASHRAE A3/A4 UEFI 2.6 SMBIOS Redfish APIS NMP v3 TLS 1.2 DMTF Systems Management Architecture
System Security	UEFI Secure Boot and Secure Start support Security feature to ensure servers do not execute compromised firmware code FIPS 140-2 validation Common Criteria certification. Configurable for PCI DSS compliance Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser Tamper-free updates - components digitally signed and verified. Secure Recovery - recover critical


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	firmware to known good state on detection of compromised firmware. Ability to rollback firmware Secure erase of NAND/User data TPM (Trusted Platform Module) 1.2 TPM (Trusted Platform Module) 2.0 Smart card (PIV/CAC) and Kerberos based 2-factor Authentication Configurable for PCI DSS compliance Secure erase of NAND Chassis Intrusion detection
Operating Systems and Virtualization Software Support	Windows Server VMware ESXi Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) CentOS
GPU support	System should support NVIDIA's latest computational accelerators and graphics accelerators
System tuning for performance	1. System should support feature for improved workload throughput for applications sensitive to frequency fluctuations. This feature should allow processor operations in turbo mode without the frequency fluctuations associated with running in turbo mode 2. System should support workload Profiles for simple performance optimization
Secure encryption	System should support Encryption of the data (Data at rest) on both the internal storage and cache module of the array controllers using encryption keys. Should support local key management for single server and remote key management for central management for enterprise-wide data encryption deployment.
Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.
Provisioning	1. Should support tool to provision server using RESTful API to discover and deploy servers at scale 2, Provision one to many servers using own scripts to discover and deploy with Scripting Tool (STK) for Windows and Linux or Scripting Tools for Windows PowerShell
Firmware security	1. For firmware security, system should support remote management chip creating a fingerprint in the silicon, preventing servers from booting up unless the firmware matches the fingerprint. This feature should be immutable.2. Should maintain repository for firmware and drivers recipes to aid rollback or patching of compromised firmware. Should also store Factory Recovery recipe preloaded to rollback to factory tested secured firmware
Embedded Remote Management and firmware security	1. System remote management should support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Drive. It should be capable of offering upgrade of software and patches from a remote client using Media/image/folder; It should support server power capping and historical reporting and should have support for multifactor authentication 2. Server should have dedicated 1Gbps remote management port 3. Remote management port should have storage space earmarked to be used as a repository for firmware, drivers and software components. The components can be organized in to install sets and can be used to rollback/patch faulty firmware 3. Server should support agentless management using the out-of-band remote management port 4. The server should support monitoring and recording changes in the server hardware and system configuration. It assists in diagnosing problems and delivering rapid resolution when system failures occur 5. Applications to access the server remotely using popular handheld devices based on Android or Apple IOS should be available 6. Remote console sharing upto 6 users simultaneously during pre-OS and OS runtime operation, Console replay - Console Replay captures and stores for replay the console video during a server's last major fault or boot sequence. Microsoft Terminal Services Integration, 128 bit SSL encryption and Secure Shell Version 2 support. Should provide support for AES and 3DES on browser. Should provide remote

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	firmware update functionality. Should provide support for Java free graphical remote console. 7. Should support managing multiple servers as one via Group Power Control Group Power Capping Group Firmware Update Group Configuration Group Virtual Media Group License Activation 8. Should support RESTful API integration 9. System should support embedded remote support to transmit hardware events directly to OEM or an authorized partner for automated phone home support
Server Management	Software should support dashboard view to quickly scan the managed resources to assess the overall health of the data center. It should provide an at-a-glance visual health summary of the resources user is authorized to view.
	The Dashboard minimum should display a health summary of the following: <ul style="list-style-type: none">• Server Profiles• Server Hardware • Appliance alerts
	The Systems Management software should provide Role-based access control
	Management software should support integration with popular virtualization platform management software like vCenter, and SCVMM
	Should help provide proactive notification of actual or impending component failure alerts on critical components like CPU, Memory and HDD.
	Should provide an online portal that can be accessible from anywhere. The portal should provide one stop, online access to the product, support information and provide information to track warranties, support contracts and status. The Portal should also provide a Personalised dashboard to monitor device health, hardware events, and contract and warranty status. Should provide a visual status of individual devices and device groups. The Portal should be available on premise (at our location - console based) or off premise (in the cloud).
	Should help to proactively identify out-of-date BIOS, drivers, and Server Management agents and enable the remote update of system software/firmware components.
The Server Management Software should be of the same brand as of the server supplier.	
Cloud Enabled Monitoring and Analytics	<ol style="list-style-type: none">1. Offered servers shall have cloud enabled monitoring and analytics engine for proactive management. All required licenses for same to be included.2. Cloud Enabled Monitoring and analytics engine capable of:<ol style="list-style-type: none">a. Providing Firmware upgrade and patch upgrade recommendations proactively.b. Providing power and support entitlement status.c. Recommendations to eliminate performance bottlenecks and critical events, based on Analytics engine having capability of proactive recommendation for arresting the issues / problems.


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