



COOCH BEHAR PANCHANAN BARMA UNIVERSITY

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DEPARTMENT OF PHYSICS NOTICE INVITING E-TENDER

Online E-Tender is invited, by the Registrar, Cooch Behar Panchanan Barma University, for supplying the different Instruments/ Laboratory Equipments to the Department of Physics, by the eligible vendors. Interested vendors may follow the instructions as given below for submission of their tenders under online mode:

Sl. No.	Description of Items	Qty.
1	Measurement of the Hall coefficient of a given sample and calculation of its carrier concentration	1
1.01	The setup should consist of following units. a) Hall probe Ge crystal n type b) Hall probe Ge crystal p type c) Hall probe mount (for 10 mm x 10 mm sample) d) Hall probe mount (for 5 mm x 50 mm sample) e) Hall probe multipurpose stand, 2 nos. f) Digital micro voltmeter, g) Constant Current Power Supply, h) Electromagnet i) Constant Current Power Supply, Digital Gauss Meter.	
2	To design and construct a stabilized power supply (Constant Voltage Source) using discrete devices and to study the variation of load voltage with load current. Show also the variation of load voltage with load current using IC 78XX.	4
2.01	Power Supply Trainer Equipment required to fulfill Experiment- 1. Digital Multimeter 2. Digital Storage Oscilloscope (USB supported)	
3	To design and construct constant – K type (a) low pass (b) high pass (c) band pass filters (using π section) and to study the variation of attenuation and phase constants of these filters with input frequency. To determine the cut off frequencies and to compare with theoretical values.	2
3.01	K-Derived Low Pass & High Pass Filter Trainer Equipment required to fulfill Experiment- 1. Analog Circuit Development Platform with discrete element. 2. Digital Storage Oscilloscope(USB supported)	
4	To study the variation of output voltage with frequency and load resistance for a given class-B Push Pull amplifier and to obtain the variation of output power with frequency and load resistance.	2
4.01	Power & Differential Amplifier Trainer Equipment required to fulfill Experiment- 1. Digital Storage Oscilloscope(USB supported) 2. varying ac power source	

5	To design and construct clipping and clamping circuits using diodes and to study the variation of output amplitude and wave form using CRO.	2
5.01	Clipper and Clamper Trainer Equipment required to fulfill Experiment- 1. Digital Storage Oscilloscope(USB supported)	
6	To design an astable multivibrator using BJT and to study its output waveform and frequency for various RC values. To study how the output can be converted to a square wave using clipping circuit.	2
6.01	Astable Multivibrator Transistoried Equipment required to fulfill Experiment- 1. Digital Storage Oscilloscope(USB supported) 2. Varying dc voltage source (1 volt to 24 volt)	
7	To design a Uni-junction Transistor circuit and draw its characteristic curves for different values of supply voltage. Use it as a saw - tooth wave generator and determine the frequency of oscillation.	2
7.01	Understanding Characteristics of MOSFET, FET & UJT Equipment Required to fulfill Experiment- 1. Analog Circuit Development Platform 2. Digital Storage Oscilloscope(USB supported)	
8	To determine CMRR, input offset voltage, output offset voltage, input bias current and slew rate of an OP- AMP.	1
8.01	Equipment required to fulfill Experiment- 1. Digital Multimeter 2. Digital Storage Oscilloscope(USB supported)	
9	To design and construct a Wein-Bridge oscillator using OPAMP and to study its output waveform and frequency for various RC values.	1
9.01	Equipment required to fulfill Experiment- 1. Digital Multimeter 2. Digital Storage Oscilloscope(USB supported)	
10	To study OP-AMP as a function generator, i.e. as (a). square wave generator(b). triangular wave generator	2
10.01	Operational Amplifier Lab Equipment required to fulfill Experiment- 1. Digital multimeter 2. Digital Storage Oscilloscope(USB supported)	
11	To construct Half-Adder and Full-Adder circuits using logic gates and to perform some simple 2's complement Adder-Subtractor operations (Two decimal digits)	2
11.01	Adders and Subtractors Trainer(with 9 bit input and 5 bit output terminal)	
12	a) To construct X-OR gate using NAND gates and to verify truth table. (b) To convert two inputs NAND gate to two input OR gate. (c) To construct NOR gate by using other gates and hence verify the truth table.	2
12.01	Universal Gates Trainer (with 9 bit input and 5 bit output terminal)	
13	Determination of ultrasonic velocity in liquids using an ultrasonic interferometer.	2
13.01	The coated interferometer consists of : a) High Frequency Generator & Ultrasonic Oscillator Mains Voltage : 220 Volt, 50 Hz, Range : Single frequency, 2 MHz, accuracy 0.3%. Glow lamp / Pilot lamp 6.3V / 0.3A, Fuse 500 microA. b) Measuring cell containing precision micrometer on top side. Maximum displacement of the reflector 20 mm. Required quantity of liquid to be filled in the cell 1200 cc. Least count of micrometer 0.01 mm	

	c) RF cable length of cable between Generator & Cell 50 cms. approx.	
14	Study of absorption lines of a substance using a Spectrograph	2
14.01	The setup should consist of Constant Deviation Spectrograph (calibration range $4000 \text{ \AA}^0 - 7000 \text{ \AA}^0, \pm 10 \text{ \AA}^0$), Constant Deviation Spectrograph Prism (micro = 1.71) and Arc & Spark lamp with power supply.	
15	To study the spatial and temporal coherence of LASER using Michelson's Interferometer	2
15.01	a) To show Temporal Coherence : It should consist of Michelson Interferometer with least count 10^{-4} , Helium Neon Laser (Output Power 2.0 mW) with power supply, Stand for Laser b) Setup for Spatial Coherence.	
16	To study the characteristics curve of G.M. counter, and (a) to study the statistical fluctuation in cosmic ray background radiation, (b) to study the decay of activity of an artificially activated source, (c) to find out the gamma counting efficiency of G.M. tubes, (d) to study the gamma absorption in lead, (e) to study the beta absorption in Aluminum and hence to determine maximum beta energy.	4
16.01	It should consist of the following items : a) 6 digit GM Counter with built-in Power Supply b) End Window GM Detector (Halogen quenched) c) Stand for End Window GM Detector d) Aluminium absorber disc set. Experiment – to study the characteristics curve of GM Counter, to find out the gamma counting deficiency of GM tubes, to study the gamma absorption in lead, to study the data absorption in aluminium and hence to determine maximum data energy.	
17	To calibrate the given condenser and to determine the values of unknown resistance and capacitance	2
17.01	Requirement : a) Cathode Ray Oscilloscope(USB supported)	
18	To determine the excitation potential of a gas using Frank-Hertz tube.	2
18.01	Full set to run the experiment: The experiment should consist of the following : Argon filled tetrode Filament Power Supply, 3.6V to 4.3V continuously variable Power Supplies for V_{G1K} , V_{G2A} & V_{G2K} . Saw tooth waveform for CRO display Multirange Digital Ammeter	
19	Determination of Curie temperature of a ferromagnetic material	2
19.01	Setup for determination of Curie Temperature of a Ferroelectric material	
20	To study the optical absorption of a semiconductor and determination of its band gap.	2
20.01	Setup for the experiment	
21	Study of Zeeman Effect	1
21.01	Zeeman Experiment Setup, complete in all respect including 14" LCD Flat Panel Monitor and CCD Camera. The setup consists of the following : High Resolution Fabry Perot Etalon, FP-01 Mercury Discharge Tube, MT-01 Power Supply MTPS-01 Narrow Band Interference Filter, IF-01 Polarizer with Lens, PL-01 Optical Bench, OB-01	

	CCD Camera, CCD-01 Telescope with Focussing Lens, FL-01 Monitor 14", TV-14 Constant Current Power Supply, Digital Gaussmeter,	
22	Determination of e/m ratio using a magnetron	2
22.01	Make e/m Experiment Setup,. The experiment done by measurement of electron charge to mass ratio based upon Thomson's method. The e/m tube is bulb-like and contains a filament, a cathode, a grid, a pair of deflection plates and an anode.	
23	Nitrogen Gas Generator	1
23.01	Technology	Pressure Swing Adsorption (PSA) on carbon molecular sieve bed
	Nitrogen flow rate	1 L/min or higher at 5.5 bar
	Nitrogen purity	> 99.999%
	Noise level	< 55 dB
	Inlet /Outlet Connexion	¼ G (BSP) Female
	Special Features	(i) LCD display with indication of the model, inlet/outlet pressure, hours run meter and PC status LED (ii) Touch-screen LCD display to show output flow with purity level check (requires optional sensor) (iii) Need to work in auto run mode in which the generator can be programmed for auto-start and auto-stop (iv) Intelligent PLC controller to remind maintenance due and keep the service record
	Accessories	(i) Suitable oil free compressor, (ii) A set of coalescing filter, silencer and air intake compressor filter, (iii) including two suitable pressure guages and pipes to connect with JASCO 4700 FTIR and tube furnace, etc.
Warranty	Minimum two years (onsite comprehensive) warranty should be offered. Product support for period of minimum five years after warranty period to be ensured by vendor/supplier.	
24	Measurement of dielectric constant of a polar liquid as a function of temperature and determination of the dipole moment	2
24.01	Experiment Setup for Measurement of Dielectric Constant of Non-conducting Liquid. The setup consists of the following : Probes arrangement Sample – Benzene Digital Capacitance Meter The setup is complete in all respect.	
25	Measurement of the energy gaps of (i) silicon and (ii) germanium.	2

25.01	Experiment Setup for Study of Energy Band Gap and difuc, The setup consists of the following : 2 nos. 3 ½ digit DPM 2 nos. Fixed Frequency Oscillator Temperature Controlled Oven with Sensor, PNO-01 Sample – PNJ a) Cathode Ray Oscilloscope(USB supported)	
26	Measurement of the coercive field and saturation polarization of a ferroelectric sample	1
26.01	The kit consists of ac power supply – 15V AC, output selectable using pot, circuit diagram is printed on the front panel.	
27	Study of the characteristics of a photo-diode and calculation of its efficiency of energy conversion.	2
27.01	Photodiode Characteristics Apparatus.	
28	Determination of the concentration of color centers in an alkali halides crystal.	1
28.01	Experiment Setup for Determination of the concentration of color centers in an alkali halides crystal. The experiment setup should consist of the following : Sample KCL or KBr single crystal Thermoluminescence Temperature Meter, TL-02 Digital Thermometer with RTD sensor Oven Power Supply Sample Holder Thermoluminescence Oven, TLO-02 Black Box, TL-BBx Photomultiplier Tube 931A, TL-PMT High Voltage Power Supply, EHT-11 Digital Nanometer, DNM-121 The setup is complete with all respect except X-Ray Generator / Diffractometer.	
29	Function Generator	5
29.01	Function Generator 3 Hz to 3 MHz, microcontroller base Sine, Square and Triangular	
30	Desktop Computer Advanced	4
30.01	<ul style="list-style-type: none"> • Desktop Computer Advanced workstation <ul style="list-style-type: none"> ◦ Operating system:Windows 10 Pro for Workstation 64 ◦ Processor:Intel® Xeon® Silver 4216 (2.1 GHz base frequency, up to 3.2 GHz with Intel® Turbo Boost Technology, 22 MB cache, 16 cores) ◦ Number of processors:1 ◦ Graphics:Discrete: NVIDIA® Quadro® RTX 4000 (8 GB GDDR6 dedicated) ◦ Memory:64 GB DDR4-2933 SDRAM ◦ Memory slots:24 DIMM with 2 processors 	

	<ul style="list-style-type: none"> ◦ Internal storage:HP SD 4 Media Card Reader ◦ Hard drive: 512/1000 GB HP Z Turbo Drive PCIe® SSD, 4 TB SERIAL ATA III Hard drive; 6GB/sec. ◦ Optical drive: 9.5 mm Slim DVD-Writer ◦ ◦ External I/O Ports: Front:1 headset connector; 4 USB 3.1 (1 charging) Rear:6 USB 3.1 Gen 1; 2 RJ-45 (1 GbE); 1 audio-in; 1 audio-out; 1 PS/2 mouse port; 1 PS/2 keyboard port; 1 serial : ◦ Expansion slots: 2 PCIe x4; 3 PCIe x8; 4 PCIe x16 ◦ Energy efficiency:ENERGY STAR® certified ◦ Audio: Realtek HD ALC221 ◦ Display:32/34 inch Anti-Glare Touchscreen(optional), TN with LED backlight, IPS Full HD LED Display, 10-point Projected Capacitive Touchscreen, Full High Definition Display – Resolution: (3840x2160), Brightness - 300 nits and Aspect Ratio – 16:9; Colour Gamut – 72% ◦ Connectivity: Wired LAN - Integrated 10/100/1000 Gigabit Ethernet, Wireless LAN – Intel Dual Band Wireless – AC 3168 (802.11 ac) and PAN – Bluetooth 4.2 ◦ Input: Webcam - TrueVision HD camera ◦ Pointing device - Wireless Mouse (with nano dongle) ◦ Keyboard - Wireless Keyboard with volume control ◦ Pre-installed software: Microsoft Office Home and Student 2016 	
31	Laser Printer Monochrome	5
31.01	Laser Printer Monochrome <ul style="list-style-type: none"> • Print speed: Up to 20ppm • Print technology: Laser • Scanner and xerox supporting paper size Letter, Legal, Executive, A3,A4, A5, A6, B5 (JIS), B6(JIS), Postcard(JIS), Double Postcard(JIS), Envelope #10, Envelope Monarch, Envelope B5, Envelope C5, Envelope DL, A5-R • Connectivity: Hi-Speed USB 2.0 port 	

	<ul style="list-style-type: none"> • Memory: 2 MB • Supports duplex printing • supports wifi and mobile printing Warranty: 3 years	
32	Laser Printer Colour	4
32.01	Laser Printer Colour <ul style="list-style-type: none"> • Print speed black: Normal: Up to 20 ppm • Print speed color: Normal: Up to 20ppm • Print quality black (best): Up to 600 x 600 dpi • Print quality color (best): Up to 1200 x 1200 dpi • Print Resolution Technologies: ImageRET 3600 • Scanner plus auto-scanner with both side scanning ability • Duty cycle (monthly, A4): Up to 40,000 pages • Direct print : From USB – Supported file type Tiff,JPG,PDF& XPS • Print technology: Laser with network • Processor speed: 800 MHz • Display: 5" color graphic screen • Connectivity: Mobile printing capability, wireless capability, high speed USB port • Compatible operating systems: Windows® 10, 8.1, 8, 7: 32-bit or 64-bit, ubuntu 14.04,16.04,18.04. • Memory: 2 GB • Paper handling input, standard: 550-sheet input tray 1-sheet priority tray <ul style="list-style-type: none"> • Paper handling output, standard: 250-sheet output bin • Maximum output capacity (sheets): Up to 600 sheets (10 mm stack height) • Duplex printing: Yes • Media sizes supported: Letter, Legal, Executive, A3,A4, A5, A6, B5 (JIS), B6(JIS), Postcard(JIS), Double Postcard(JIS), Envelope #10, Envelope Monarch, Envelope B5, Envelope C5, Envelope DL, A5-R • Power consumption: 1.5kva • Energy efficiency: ENERGY STAR® certified 	
33	Over-head Projector	2
33.01	Complete set	
34	Regulated Power supply 30V and 3 Amp max	5
34.01	Complete set	
35	Temperature Controller going upto 400 ⁰ C	2
36	DC differential amplifier 4 inputs	2
36.01	Complete set	
37	Tubular furnace	1
37.01	1 inch diameter and can go upto 400 ⁰ C	
38	Multi-meter	20
38.01	Digital multi-meter (AC and DC): Voltmeter, ammeter, ohmmeter,frequency, capacitor, inductor	
39	To study the Compton effect using scintillator	1
39.01	Complete set up for the experiment	
40	Determination of resistivity of semiconductor using Four Probe method	1
40.01	Make: SES, Model: DFP - 02 or Make: Indosaw, Model: SK012 or any other better quality	

	(complete set). With three extra suitable samples.	
41	Febri-Perot Interferrometer	1
41.01	Make: Holmark Optomechanotronics Pvt. Ltd, Model: HO-ED-INT-10 (Complete set)	
42	Electron Spin Resonance Spectrometer	1
42.01	Make: SES, Model: ESR-105 or any other better quality (complete set)	
43	Detector for He-Ne laser	2
43.01	2 mW power [Make: Reputed branded]. Accessories: Suitable power meter	
44	Breadboard	30
44.01	Make: Reputed Brand. Specification: Size: 180 cm (L) x 120 cm (W), Top skin: 5 mm thick nonmagnetic SS - 304 grade with 0.25 mm thick aluminium honeycomb core, Bottom skin: 5 mm thick non-magnetic SS - 304 grade, Core cell size: 6 sq. cm (approx.) with Nylon cups under each tapped hole, Flatness of the top surface: +/- 0.1 mm over 30 cm x 30 cm area (non-cumulative error), Grid size: 25 mm (M6 tapped holes), Accessories: All the required accessories.	
45	Single channel analyzer based Gamma ray spectroscopy system	1
45.01	Manufacturer: Para Electronics, Mumbai or any other better quality (complete set). Accessories: Suitable radioactive sources and other related accessories including branded computer (with pre-loaded suitable software) to be supplied.	
46	Powder X-ray Diffractometer (XRD)	1
46.01	Make: Imported reputed brand. Specification: Goniometer: Geometry: Vertical Scanning Range -3° to 145° or better; Scanning Speed 0.01° to 100°/min or better; Minimum step width 0.005° or better; Incident side and receiving side soller slit 5.0° or 2.5°; Receiving soller slit User selectable from 5.0°, 2.5°, 0.5°; Hybrid incident slit 0.625°, 1.25°, None / continuous variable mode. The slit system should include optionally 0.1 mm, 0.5°, 1.0°, 2.0°; Anti scatter slit: Should be supplied with 1.25° as standard and the slit system should include optionally 0.5°, 0.625°, 1.0°, 2°, 4.2°, etc.; Receiving slit: 0.3 mm should be standard. Optionally 0.15 mm should be available. Accuracy: ± 0.020 or better; Diameter: Minimum diameter of 150 mm. Goniometer having higher diameter will be preferred. Angle positioning: Stepper motors with optical encoders for optimum scanning speed and positioning precision. Data quality guarantee: Manufacturer should submit data quality guarantee certificate from the factory. The supplier must provide an instrument alignment guarantee for selected configurations X-Ray Generator: Maximum continuous rated output 0.6 kW or higher; Maximum high voltage 40 kV or higher; Maximum current 15 mA or higher; Voltage increment 1 kV ; Current increment 1 mA; Stability for 10% input voltage variation Within ±0.01% ; Focal point adjustment ±1 mm or less, continuously variable; X-Ray Tube Copper with focus (1 x 10 mm ² or lower) with Ni-filter; Optionally Co, Fe and Cr to be offered; Input voltage range 208 – 240 V or higher; Frequency 50 Hz ± 1%; Cooling Air /Water cooled.	

	<p>Safety: The XRD system must be fully radiation protected as per the international radiation safety norms.</p> <p>Detector: Vendor should offer a 1dimensional solid-state fast detector.</p> <p>Software: PC based software packages to control all instrument parameters and should provide best algorithms for solving analytical tasks. Should enable both Qualitative and Semi quantitative analysis. Easy simulation and automatic refinement / smoothening of measured data. Integrated Intensity calculation, background calculation and subtraction, profile smoothing, Peak Search, LPA calibration, etc. Application Software should be offered optionally for Rietveld analysis, Crystallinity analysis, Lattice constant refinement and crystal size & lattice strain analysis. The ICDD database (licensed version) with single user license should be offered separately.</p> <p>Computer & Printer: Suitable computer (with latest configuration and pre-loaded software) and laser printer must be offered.</p> <p>Water Chiller: Suitable closed circuit chilling water system if required should be offered. If external chiller offered the same should be capable to work in ambient temperature of 40⁰ C. Servo Controlled Voltage Stabiliser: Single Phase with auto step down Transformer with Voltage Stabiliser should be offered.</p> <p>Spares: Commitments to supply spares for at least 10 years to be ensured. Separate Spare kits for the Diffractometer should be quoted as optional items.</p> <p>Accessories: All the necessary accessories to be offered.</p> <p>AFTER SALES SERVICE:</p> <p>1. Product support for period of minimum five years after warranty period to be ensured by vendor/supplier. 2. Relevant software/hardware information in case of updating of the model of the supplied system should be provided. 3. Minimum one year warranty should be offered.</p> <p>TRAINING: The supplier should provide the training on the site of installation. Vendor should take all necessary responsibility to quote for configuration to suit all the above applications.</p>	
47	Scanning Tunneling Microscope (STM)	1
47.01	<p>Make: Imported reputed brand.</p> <p>Specification:</p> <p>STM scan Head: 1um;</p> <p>Max scan range: 1 um;</p> <p>Max Z-range: 200 nm;</p> <p>Drive resolution Z: 3 pm;</p> <p>Drive resolution XY: 15 p;</p> <p>Current set point: 0.1 – 100 nA in 25 pA steps;</p> <p>Image mode: Constant current (Topography), Constant height (current);</p> <p>Spectroscopy modes: Current-voltage, Current-distance;</p> <p>Tip voltage: ±10 V in 5 mV steps Sample approach: Stick-slip motor Sample size: Max 10 mm diameter Power supply: 240 V AC, 50 Hz; Accessories: n-type single crystalline Si(100) or Si(111) single side polished wafer with resistivity of 1-10 m Ohm-cm of 4 inch diameter - 10 Nos, Au thin film, Au (111) single crystal, HOPG, MoS₂, etc samples, power controller, STM wires, sample supports, nanogrid calibration grating, Silver paint to attach samples to supports, suitable branded computer and laser printer, etc. Warranty: Minimum of one year warranty should be offered.</p>	
48	Distilling apparatus (Manesty type) for production of Pyrogen free distilled water	2
48.01	<p>Make: Reputed brand.</p> <p>Specification:</p>	

	Output capacity: 1.5 Liter per hour or above; Construction material: Stainless steel; Power supply: 230 V/AC; Accessories: Wall mounting clamp, Suitable plastic pipe of 10 mts, 10 No. of extra heating coils, plastic water reservoir 10 L size 2 Nos, and other accessories as required.	
49	Digital pH meter with electrode	1
49.01	Make: Imported reputed brand. Specification: pH Range: 0 to 14 pH. pH Accuracy: ± 0.01 pH or less. mV range: -1999 to 1999 mV. Temperature Range: 0 to 100 deg C with ± 1 deg C accuracy. Dimension: 210 mm x 205 mm x 65 mm. Accessories: Suitable temperature probe, stand and good quality KCl and HCl (one bottle each) to be supplied.	
50	Digital storage Oscilloscope-I	1
50.01	Make: Reputed brand. Specification: 2 channels / Dual trace: Zoom Function; 50 MHz bandwidth: Automated, extended data logging feature; Up to 1 GS/s sample rate on all channel: Autoset and auto-ranging functions; 2.5 k point record length on all channel Built-in context-sensitive help; Advance triggers including pulse and line-selectable video triggers Multiple-language user interface; 34 automated measurements: 7 inch WVGA (800X480) Active TFT Color Display; Dual window FFT, simultaneously monitors both the time and frequency domains: USB 2.0 host port on the front panel for quick and easy data storage; Built-in waveform limit and trend plot testing :USB 2.0 device port on rear panel for easy connection to a PC; Dual channel frequency counter Accessories: 50MHz passive probes, Power Cord, Open Choice Desktop Software, and other related accessories.	
51	Muffle furnace with Temperature Controller	1
51.01	Make: Reputed brand Furnace : Temperature range up to 1200 deg C Heating rate : 0 to 10 deg /min (variable type) Temperature resolution :1 deg C Temperature controller : Eurotherm EU 100 Stability : $\leq 1\%$ of range Heating element : SiC Power supply : Thyrester controlled Type of front loading size : 5 inch x 5 inch x 10 inch Overload protection : 100% Accessories: Alumina boat : Five (standard) Nos. Cup shaped Alumina Crucible : 50 mm size - 2 Nos and 100 mm size - 2 Nos Gas cylinder : Two in Nos. filled with Ar/N2 gas (standard large) including two suitable pressure guages and pipes. Others : In addition, furnace will have a gas flow system of diameter of 10 mm with inlet controlled by a solenoid at a particular temperature, and an automated timer connected to time and temperature. Also other necessary accessories to be provided.	

52	<ul style="list-style-type: none"> • Electromagnet 	1
52.01	<p>Magnetic field strength: up to 4 Tesla</p> <p>Accessories: All the necessary accessories to be provided for installation in the MOKE hysteresis loop tracer mention above.</p>	
53	UV Spectrometer	1
53.01	<p>UV/Vis Spectrophotometer :</p> <ul style="list-style-type: none"> • Technical description and specifications: • Range (nm) : 190–1100 nm • Double-Beam Operation • Bandwidth (nm) : 0.5–4 (variable) • Pre-Monochromator : Yes • Modes of Operation: Scanning, Wavelength Program, Timedrive, Rate, Quant, • Scanning Quant • Applications: Routine UV/Vis testing of Liquids, thin flim , Solids, pastes and • Transparent solids , Highly absorbing samples • Absorbance Range: 3.5A 	
54	Photo Luminescence spectroscope	1
54.1	<p>Specifications:</p> <ul style="list-style-type: none"> • Illumination Source • Xe Arc (150W) Lamp Source Lamp connector to lamp holder will be unique and available exclusively to PKI. • • Wavelength accuracy: 0.5 nm • Wavelength reproducibility: 0.2 nm • Wavelength scan speed : 60,000 nm/min • Response ≥ 0.002, seconds • Communication USB 2.0 • Display range 0 ~ 260000 • <p>Wavelength range : 200 - 1500 nm.</p>	

FOR ANY CLARIFICATION REGARDING TENDER PLEASE CONTACT WITH COOCH BEHAR PANCHANAN BARMA UNIVERSITY E-MAIL ID – INFO@CBPBU.AC.IN

**[TENDER FEE: RS.2000/- (RUPEES TWO THOUSAND ONLY),
NEFT DETAILS: NAME OF THE A/C: COOCH BEHAR PANCHANAN BARMA UNIVERSITY, SAVINGS ACCOUNT NUMBER: 32741316141, IFSC CODE: SBIN0000058]**

1. General Instructions:

In the event of e-tendering, intending bidder may download the tender documents from the website: <http://wbtenders.gov.in> directly with the help of Digital Signature Certificate (DSC) or from the Cooch Behar PanchananBarma University website www.cbpbu.ac.in.

2. Submission of bids:

Both Technical Bid and Financial Bid are to be submitted concurrently duly digitally signed by the Company personnel who is in the pay roll of the Company (having Authorization from the Company management) in the website [http:// wbtenders.gov.in](http://wbtenders.gov.in). All papers must be submitted in English language.

3. Time Schedules for thee-tender:

The Time Schedule for obtaining the Bid Documents, the submission of bids and other documents etc. will be as per the list provided in Clause No. 10 given below.

4. Eligibility for Quoting:

Manufacturers or Dealers/Distributors/Agents duly authorised by the manufacturers who are able to supply the assured quantities as per requirement & have requisite Annual Average Turnover, as per clause no. 5, are only eligible for quoting. Manufacturers not having the capability to supply the required quantity solely need not apply. Failure of submission of declaration of full supply will lead to cancellation of tender.

Further, vendors who were declared black listed and/or insolvent by any Govt. Concern/any Institutions in the Country for particular item or items are not eligible to participate in the current tender for that item or items.

5. Annual Turnover Requirements:

Vender having average annual Turn Over for last three financial years is more than Rs.30 lakh in India or equivalent foreign currency in the respective foreign country for the year 2016- 17, 2017-18, 2018-19 are eligible to participate in the Tender.

6. Submission of Tenders

6.1 General process of submission

Tenders are to be submitted online through the website stated in Clause 1. All the documents uploaded by the Tender Inviting Authority form an integral part of the contract. Venders are required to upload all the tender documents along with the other documents, as asked for in the tender, through the above website within the stipulated date and time as given in the Tender. Tenders are to be submitted in two folders at a time, one is Technical Bid and the other is Financial Bid. The vender shall carefully go through the documents and prepare the required documents and upload the scanned documents of originals in Portable Document Format (PDF) to the portal in the designated locations/folders of Technical Bid. He needs to fill up the BOQ in the designated cell and upload the same in designated location of Financial Bid. The documents uploaded are virus scanned and digitally signed using the Digital Signature Certificate (DSC). Venders should specially take note of all the addendum/corrigendum related to the tender till the bid submission ends. Venders should in general upload the latest documents as part of the tender, however, in case of failure in uploading such documents, it will be deemed that they (venders) have taken note of such latest documents including addendum/corrigendum, if published till the bid submission ends.

6.2 Technical Bid

The Technical Bid should contain scanned copies and/or declarations in the following standardised formats in two covers (folders):

I. Technical File (Statutory Cover) containing:

1. **Notice Inviting Tender (NIT)** – The NIT as published is to be downloaded and then uploaded the same digitally signed (*to be submitted in “NIT” folder*).
2. Annexure –
 - a) Basic Information (Vide Annexure I) (*to be submitted in “Annexure” folder*)
 - b) Application for Tender - (Vide Annexure II) (*to be submitted in “Annexure” folder*)
 - c) Authorization letter - (Vide Annexure III) (*to be submitted in “Annexure” folder*)
 - d) Affidavit Proforma - (Vide Annexure IV) (*to be submitted in “Annexure” folder*)
3. Technical details of the Items Quoted (Bidders must submit Technical specification along with Catalogue of the item quoted in **“Technical Details”** folders.
4. Bidder must submit Audited Balance Sheet and Profit and loss Account for last 3 (three) financial year namely 2015-16, 2016-17& 2017-18 in **“Accounts”** folder.

Note: Tenders will be summarily rejected if any item in the statutory cover is missing.

II. My Document (Non-Statutory Cover) containing as follows:

Sl. No.	Category	Sub-Category	Sub-Category Description
1	Certificates	Certificates	PAN Card of the Bidder
			VAT/ CST /GST Registration Certificate
			Exemption Certificate for paying EMD for the current financial year (if any)
2	Company Details	Company Details 1	Trade License / Enlistment Certificate
			Registration with Registrar of Companies
			Memorandum of Articles for Limited Companies.
3	Credential	Credential 1	a) Copy of the purchase order for supplying Similar nature of items at least for last 2 years in an Institute of Higher Learning
			b) Brief User List preferably for users in West Bengal in an Institute of Higher Learning
			Income Tax Returns submitted for the Assessment year 2016-17

4	Financial Information	Payment Certificate 1	Income Tax Returns submitted for the Assessment year 2017-18
			Income Tax Returns submitted for the Assessment year 2018-19
		Payment Certificate 2	VAT/CST/GST Returns (of the last quarter) for the year 2016-17
			VAT/CST/GST Returns (of the last quarter) for the year 2017-18
			VAT/CST/GST Returns (of the last quarter) for the year 2018-19

6.3 Financial Bid

The Financial Bid should contain the following document in one cover (folder):

Bill of Quantities (BOQ): The vender is to fill-up the designated cell as marked by the University in the BOQ under online mode through computer for preparing their quotation and thereafter vender will have to upload the same after digitally signed as submission of their quotation (Only downloaded copies of the BOQ as available in the web portal are to be uploaded without changing the name of the BOQ file after virus scanned and digitally signed by the vender)

7. The venders are not required to submit hard copies of Technical File (Statutory) or My documents (Non-Statutory). Submission of hard copy of Financial Bid is strictly prohibited and only be submitted through on line through NIC portal.

8. Evaluation of the tenders

During the tender evaluation process, the “Technical Bid” will be opened first. Those Bidders who have qualified in respect of the essential & other requirements in “Technical Bid” will be identified and their financial bid will be opened. The financial bid of those vender failing to meet the technical & other requirements laid down in the tender will not be opened and be rejected. The Tenderer offering the item found suitable and as per the tender specifications will only be selected. Final selection of the lowest bidder in respect of Financial Bid is subject to further verification. The Financial Bids of only those tenderers who have been considered as Technically Qualified will be opened. If found suitable in the context of above pre-qualification etc, the Tenderer quoting the lowest rate will be considered as successful.

9. TERMS & CONDITIONS REGARDING PURCHASE POLICY OF TENDERING AUTHORITY:

9.1 **Bid Information:**

- a) **Partial Quotation within the same item serial number as mentioned in BOQ and also in this NIT will not be accepted and tender will be liable for cancellation.**
- b) All duties, taxes and other levies payable by the contractor under the contract shall be included in the total price but should be indicated separately in the price bid.
- c) The rate quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
- d) Currency will be made either in INR or from any of the foreign currencies like USD, EURO and

JPY.

- 9.2 **Evaluation of Quotation:** The Purchaser will evaluate and compare the quotations determined to be substantially responsive stage wise. Firstly, Technical Bid will be evaluated based on and thereafter Price Bid for technically qualified bidders will be evaluated for selection of vendor.
- 9.3 **Award of Contract: The contract shall be made item wise as per Item Serial number of the List of Items as shown in Clause 15.** The purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive both technically and commercially. Purchaser reserves the right to reject any or all the tender, wholly or partly, without assigning any reason thereof and shall not be bound to accept the lowest bid.
- 9.4 **Warranty:** The vendor shall be fully responsible for the comprehensive onsite warranty (3/3/3-part/labour/onsite) in all respect of the equipment's, accessories etc. including spares and services for a period of three years from the date of installation. Warranty will be effective from the date of joint installation Report.
- 9.5 **Adequate support service facility:** The bidder/manufacturer should have adequate service support centre in Kolkata/Siliguri/Cooch Behar for any emergency breakdown/fault offering facility within 48 hours and should be agreeable to provide AMC facility after the warranty period.
- 9.6 **Training Facility:** User training regarding the operation of the equipment's shall be arranged by the supplier/vendor at no extra cost.
- 9.7 **Manufacturer's Authorisation:** Document in support of Manufacturer/Dealer and Service Provider has to be submitted along with the tender paper. If the bidder is not the manufacturer, proper manufacturer's authorization and warranty from manufacturer is required.
- 9.8 **Credentials:** Documents of previous experience of the job, at least 2 years, must be submitted along with the tender. Documents related to the previous supply of same types of items in at least (04) four recognized National Level Institutions.
- 9.9 **DSIR Certification:** The Cooch Behar Panchanan Barma University will provide the necessary certificate at the time of purchase.
- 9.10 **Make & Model:** Bidder must mention Make and Model in the Information Sheet as given vide Annexure-I and must send the product details/catalogue/brochure in the "**Technical Details**" folder.
- 9.11 **Time Schedule:** The supply and installation work must be completed within 45 days from the date of receipt of the purchase order.
- 9.12 **Validity of offer:** A bidder should spell out in the tender that it shall remain valid for a minimum period of three months from the date of opening of the tender and during this period, the bidder shall not be entitled to revoke or cancel its offer.
- 9.13 **Place of delivery: DEPARTMENT OF PHYSICS, COOCH BEHAR PANCHANAN**

BARMA UNIVERSITY, COOCH BEHAR -736101.

- 9.14 **Payment Schedule:** 100% of the bill value will be paid after satisfactory installation/delivery of the equipments.
- 9.15 **Performance Security:** Successful bidder should deposit Performance Security money equivalent to the 10% of the order value in the form of DD/Bank Guarantee immediately before issuing purchase order from the University. Such security will be refunded after completion of the warranty period in normal case without any accrued interest. University may forfeit the Security Money in the event of the following circumstances:
- i) Selected bidder withdraws the bid before expiry of its validity but after receipt of the Purchase Order.
 - ii) Selected bidder does not accept the order after issuing the same or fails to enter into a contract within validity period of offer.
 - iii) Selected bidder fails to supply the items within the scheduled time as specified in the Purchase Order
 - iv) If before expiry of the warranty period, the supplied items break down or do not function satisfactorily due to the cause related with the item itself or for its installation and not for any reason caused by the University Authority and the supplier denies to take the responsibility to make the supplied items in order.
 - v) In case of any false submission /statement by the bidder.
 - vi) In case of any refusal to abide by terms and conditions or refusal to enter into a written agreement as per prefixed terms and conditions.
- 9.16 **Quantity Changeability:** Quantity as stated in the tender document may subject to change at the time of issuing purchase order due to the fund crunch or for other valid reasons.
- 9.17 **Requisite Documents to be submitted:** Bidder must have adequate documents relating to Trade License and updated returns for Income Tax, VAT, GST Audited Statement of Accounts and other documents as sought for under Clause 6.2.II of this tender.
- 9.18 **Turnover Criterion:** Bidder must have average annual turnover of more than Rs.30 lakh in three financial year ending 2017-18.
- 9.19 **Disposal of Disputes/ Damage:** In case of any dispute/damage, the University's decision will be treated as the final and conclusive. All legal actions are subject to Kolkata/ Cooch Behar jurisdiction only.
- 9.20 **Conversion of FC Rate:** Generally, the West Bengal Government Portal is equipped enough for conversion of Foreign Currency (FC) rate into INR. In case of any problem arising out of the West Bengal Government Portal for e-tender regarding the conversion rate against foreign currencies quoted by the bidders in the BOQ, the conversion rate as existing in the official website of the Reserve Bank of India (RBI) as on the date of opening the Financial Bid will be considered for Financial Bid Evaluation.

Discretion of the University:

- 9.21 University may take decision about non-purchase of the said equipment even after selection of vendor due to its fund constraints.
- 9.22 University may seek documents from the bidder in addition to the scanned documents sent by them at the time of uploading technical bid for verification and evaluation of tender.
- 9.23 University reserves the right to relax any clause as stated herein above for selection of responsive vender.
- 9.24 The university reserves the right to accept or reject any or all the submitted quotations without

assigning any reason whatsoever even it comply all condition.

10. Dates & Information:

Sl. No.	Activities	Date & Time
1	Date of uploading of N.I.T. Documents in the e-tender portal of NIC: https://wbtenders.gov.in	26.12.2019
2	Documents download (online)	26.12.2019 (from 09.00 a.m.)
3	Bid Submission Start Date(on line)	26.12.2019 (from 09.00 a.m.)
4	Bid Submission Closing Date (Online)	17.01.2020 (up to 06.00 p.m.)
5	Bid Opening Date (Online) – Technical Bid	20.01.2020 (from 11.00 a.m.)
6	Date of uploading list for technically qualified bidder (online)	To be notified
7	Date of opening of Financial Bid	To be notified
8	Date of uploading of list of bidders along with the approved Rate	To be notified

11. Opening the financial bid as per schedule will BE NOTIFIED LATER ON.

Financial bid can be seen & accessed by the bidder through the NIC Portal on line after opening of financial bid on line. No objections raised by any Bidder in this respect will be entertained by the University. No informal tender will be entertained in the Bid further.

12. During the scrutiny, if it comes to the notice to tender inviting authority that the credential or any other paper found incorrect/manufactured/fabricated, that bidder would not allowed to participate in the tender and that application will be rejected outright without any prejudice.

13. The Tender Selection Committee reserves to right to cancel the N.I.T. due to unavoidable Circumstances and no claim in this respect will be entertained.

14. STEPS TO BE FOLLOWED FOR SUBMISSION OFE-TENDER

1. SEARCHING THE TENDER

After Login on www.wbtenders.gov.in with DSC Click on Search Active Tenders

In Keyword writes Tender Reference No./Tender memo. No. or put Tender ID and click on submit on NIC website.

2. DOWNLOADING THE TENDER DOCUMENTS

After searching the particular tender, you will find NIT & BOQ and other document, click on those to download and save the documents.

- Then fill the login Id and password which is written on top or your own login id and password; the same page will appear again click on NIT & BOQ to download.
- While downloading the BOQ please do not change the name of the BOQ and quote as per the exact Accounting Unit, as mentioned.

3. UPLOADING DOCUMENTS UNDER “MY DOCUMENTS” FOLDER

- First upload all the “My Documents” before starting the Bid Submission process.
- While starting the Bid submission process after the EMD payment you will find an option “Do you want to submit Other Important Documents”.
- Here click on YES to submit the MY DOCUMENTS and then tick mark the check boxes to tag those documents in that particular tender.

4. UPLOADING DOCUMENTS UNDER “STATUTORY COVER” FOLDER

- First upload Tender Document (Other than BOQ) with digital signature in **NIT Folder**. Thereafter, upload Scanned Copy of all Annexure in the **Annexure Folder**.

5. BOQ

- While first opening the BOQ there is an option at top of the rows. “Security warning Macros have been disabled” Click on Options.
- Select “Enable the content” then OK. This will enable you to visualize the BOQ.
- Select the Currency (INR, USD, JPY, EUR)** type from drop down list while quoting the amount against each item.
- Upload BOQ in the “BOQ Folder” under “Financial Cover” after filling up financial data in the appropriate columns

6. ITEM WISE DETAILS

- Select that item as Yes/No from drop down list which item bidder wants to quote the amount.



REGISTRAR
COOCH BEHAR PANCHANAN BARMA UNIVERSITY
VIVEKANANDA STREET, COOCH BEHAR – 736101

Annexure I

FURNISHING BASIC INFORMATION

(To be furnished in the Company's official letter pad)

1.	Name of the Bidder	
2	Address for Communication	
3	Contact Number(s)	
4	E-mail ID	
5	Trade Licence No. (Please enclose copy of Trade Licence)	
6	PAN (Please enclose copy of PAN Card)	
7	VAT No. (Please enclose copy of VAT)	
8	Do you have previous experience for supplying similar nature of Items at Educational Institute of Higher Learning? (Please enclose copy of Purchase order & user list, if yes)	Yes/No (Please put tick mark)
9	Annual Turnover as per Audited P/L ACCOUNTS & BALANCE SHEET	2014-15 :Rs..... 2015-16 :Rs..... 2016-17 :Rs..... Average Annual Turnover: Rs.....
10	Status of the bidder (Please enclose copy authenticating your status)	Manufacturer/Dealer/Distributor/Selling Agent/Stockiest (Please put tick mark)

I hereby declare that the above information is true and correct to the best of my knowledge and belief. In case of any false/wrong/misleading information, I shall be bound to take the decision taken by the University.

Signature of the Bidder

(With Seal)

Annexure II
APPLICATION FOR TENDER

(To be furnished in the Company's official letter pad with full address and contact no, Email address etc)

To

The Registrar
Cooch Behar Panchanan Barma University
Cooch Behar-736101
West Bengal

Sub: NIT for the Supply of **different Instruments** for the purpose of
Departmental requirement for Department of Physics

Ref:-_____N.I.T. Nodated.....

Sir,

Having examined the pre-qualification & other documents published in the N.I.T, I/we hereby submit all the necessary information and relevant documents for evaluation:

1. That the application is made by me/us on behalf of.....
.....in the capacity
..... duly authorized to submit the offer. The authorization letter from the Company is attached in Annexure II.
2. We accept the terms and conditions as laid down in the tender document vide **Clause 9** and declare that we shall abide by it throughout the tender period including its extensions, if any.
3. We have gone through the Tender Document thoroughly and quoted the tendered items keeping in mind all sorts of information as furnished in the tender document including Corrigendum/Addendum as published from time to time.
4. We are offering rate for the following item /items with manufacturing capacity and assured supply to the Cooch Behar Panchanan Barma University.

Sl. No.	Description of Items	Make	Model No.	Quantity	Offer Validity

4. In the event of being selected, I will make the supply within the stipulated period excepting the condition which is beyond our control.

Date:-

Signature of applicant including title
and capacity in which application is
made.

Contact no:

E-mail address

Postal Address:

Annexure III

(Authorization letter in favour of the applicant (other than Managing Director/
Proprietor/Partner) from the competent authority.)

FORMAT

(To be furnished in the Company's official letter pad with full address and contact
no, Email address etc)

(TO WHOM IT MAY CONCERN)

This is to certify that Mr.(Name),

employee of this Organisation as (Official Designation) is

hereby authorised to submit tender online, Vide NIT

No....., Dated on behalf of the

Organisation.

Signature of the competent authority with Seal

.....

(Signature of the Authorised Person)

Signature of Mr.....

.....is hereby attested.

Signature of the competent authority with Seal

ANNEXURE IV

(Affidavit Proforma)

(To be furnished in Non – Judicial Stamp paper of appropriate value duly notarized)

I, Sri/Smt.

The Managing Director/Proprietor (etc.) of the Firm,
.....(Name of the firm)

At (address).....

do hereby solemnly affirm and declare as follows:

1. That I have not ever been convicted of any offence making myself liable to be disqualified to supply of Chemicals / Equipments/other items to any Govt. or Govt. undertaking Organization /Institution in the State of West Bengal or other State or States.
2. That no case is pending against me or against my firm in any criminal court of law to supply of Chemicals, Lab. Chemicals & Laboratory Equipments and other items to the Govt. or Govt. undertaking Organization / Institution in the State of West Bengal or other State or States (If any case is pending, state the details).
3. That, I also declare that if any information subsequently found incorrect or false will it automatically render the tender submitted by me cancelled and make me liable for penal/legal action as per law of the country.
4. That my concern has not yet been declared bankrupt by any banking or money lending agency duly licensed by RBI nor has it been considered doubtful by any Government concern so far as the solvency of the organisation is concerned.
5. That I do further affirm that the statements made by me in this tender are true to the best of my knowledge and belief and all the documents attached are genuine & correct.

Deponent(s).