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Office of The Principal
Jhargram Raj College, Govt. of West Bengal
P.O. & Dist.-Jhargram, Pin-721507

Memo No: NIT/414/24-25/DBT

Date: 23.08.2024

NOTICE INVITING TENDER

Seal tenders are invited from the manufacturers, authorized distributors and/or suppliers for small equipments for the **Department of Physics** under the DBT star College grant (**San. No. 102/IFD/SAN/911/2024-2025 dated 11.06.2024**). The interested manufacturers, authorized distributors/suppliers/dealers may submit tenders in the prescribed proforma (**Annexure I**) to the office of the Principal, Jhargram Raj College, Jhargram latest by August 31, 2024. Tenders in any other format will not be entertained and will be rejected outrightly. The Principal, Jhargram Raj College reserves the right to select the items (in single or multiple units) or to reject any quotation without assigning any reason. Incomplete tenders, amendments and additions to tender after opening or late tenders are liable to be ignored and rejected. The envelope containing tender must clearly be **superscript the name of the Department and the memo number** of the tender notice.

For details, please visit College website- **www.jrc.ac.in**.

Terms and Conditions of Bid

1. Only manufacturer(s) or their sole authorized distributors/ agents are eligible to bid. Authorization letter in the prescribed format (**Annexure – II**) from original manufacturer in favour of authorized Agent to bid/conclude the order against this tender must be enclosed with the technical bid.
2. All offers should be made in English and should be written in both figures and words. All offers should be quoted in INR currency and comprehensive maintenance for three years for all the equipment. The rates once accepted will remain valid for the period up to 31st March, 2025 and will not be changed under any circumstances.
3. No advance payment must not be claimed against any work order before the delivery of the items at a time to the Office of the Coordinator, DBT star College scheme, Jhargram Raj College.
4. No installation charge and post-sale service will be claimed at any circumstances.
5. The Rate should be quoted as per specification excluding of All Taxes. **The L1 bidder will be selected based on the quoted price of the materials excluding taxes.**
6. **Any distortion in the technical specification indicated and also all terms & condition as indicated by the tender inviting authority for any of the items will reject the entire bid of the bidder.**
7. The bidders must have successfully completed at least 3 similar orders in the central and the state government agency/institution. Copy of the purchase order must be attached with Technical Bid.
8. Signed & stamped compliance sheet of the technical specification with make and model of the equipment with technical printed literature along with Bill of Material (BoM) mentioning all the terms & conditions clearly, must be enclosed with the bid.
9. Photocopy of the financial statements with net profit, duly audited/certified by the chartered accountant (CA) of the last three financial years along with the copies of income tax return (ITR), IGST certificate, PAN No., current trade license and a cancelled cheque must be enclosed with the tender (**Annexure III**).
10. The tenderer should not have been debarred or blacklisted by any Central/State Government Departments of India. Self-declaration in their letter head must be enclosed with the technical bid in prescribed format. The proforma of the self-declaration is attached with the tender as **Annexure –IV**.
11. The tender bid will be out rightly rejected if it comes to the notice of the tender inviting authority during scrutiny that the credential or any other paper of a tenderer is fabricated etc. and the tender inviting authority shall verify the abovementioned documents (In original) which are mandatory for the participation before issuance of the work order.
12. The tenderer viz. the Indian Agents and or the foreign firms should furnish a certificate that the rates quoted by the tenderer are not more than those quoted to any other Institution in India or abroad during the last one year, with supporting documents.
13. In case of any dispute, the College's decision will be treated as the final and conclusive. All legal actions are subject to Kolkata jurisdiction only.
14. The delivery should be made to the office of the coordinator, DBT Star College within seven (07) days from date of issuance of work order (**All the items at a time**). The supplied items will be physically verified and compared with the detail specification of individual items by the coordinator during delivery.

15. The violation of any of the conditions will entitle cancellation of the order.
16. Payment of bills on its production will be made after successful supply of the items within stipulated time, after the successful installation of each and every individual.
17. Any postal delay will not be entertained and bids reaches after 5.00 pm of the stipulated date (31th August, 2024) will not be accepted.

Itemised Detail Specification of the instruments

Sl. No	Name of Equipment	Technical Specifications
1	Set up to determine the Moment of Inertia of a Flywheel.(INCO)	<p>The total setup complete with flowing :</p> <ol style="list-style-type: none"> a. Fly wheel with counter: comprising of carefully machined and balanced cast iron wheel of about 20cm in dia and 4.4 cm thick, and steel spindle supported on the ball bearing in strong iron brackets. The sides of the wheel should be chrome plate and should be fixed to one of the brackets. Diametric hole should be drilled in the shaft to take as pin and cord. The base should be provided with four holes so that the apparatus can be fixed on a wall complete with cord & hook, with 500gm x 5 weight set complete with Revolution counter. b. Stop Watch- digital (Racer) c. Slide Caliper- Brass body
2	Newton's Rings Apparatus Model: Holmarc(HO-ED-INT-01)	<p>"Features</p> <p>Sodium vapor lamp and spectral LED's are used as light sources</p> <p>Traveling microscope with precision micrometer is used for accurate measurements</p> <p>The optics used in this device are of research quality</p> <p>All materials used in this setup are of laboratory grade and are corrosion resistant Experiment Possible To determine the wavelength of Sodium light and LEDs (Red, Blue, Green, and Yellow) Let D_m and D_{m+k} be the diameters of the mth and $(m+k)$th dark ring respectively. Then, $D_{2m} = 4 mR\lambda$ $D_{2m+k} = 4 (m+k) R\lambda$ $D_{2m+k} - D_{2m} = 4 kR\lambda$ $\lambda = [D_{2m+k} - D_{2m}] / 4kR$ where λ is the wavelength used and R is the radius of curvature of the lens. To find the refractive index of liquid Refractive index of liquid, $n = m\lambda R / r^2$ where, m order of the fringe, R Radius of curvature of the lens λ wave length of light, r radius of the ring To find the diameter of thin wire or thickness of a thin strip of paper using air wedge method The diameter or thickness of the wire, $d = l\lambda / 2\beta$ λ is the wavelength of the light β is the bandwidth l is the diameter of the wire or thickness of a thin strip of paper from the line of contact of the two plates of the air wedge.In this apparatus, light from a sodium lamp falls on the glass plate, inclined at 45 degree to the horizontal, get reflected, and then falls normally on the convex lens placed over the glass plate. A system of bright and dark concentric circular rings are observed through a microscope, arranged vertically above the glass plate. The microscope is properly focused so that alternate bright and dark concentric circular rings are observed more clearly. Measurements are taken from a micrometer driven traveling microscope, which is integrated with this apparatus. The two interfering beams, derived from a monochromatic source satisfy the coherence condition for interference. Ring shaped fringes are produced by the air film existing between the convex surface of a long focus planoconvex lens and the plane of glass plate.</p> <p>Specifications (Travelling Microscope)</p> <p>Magnification : 10 X</p> <p>Micrometer travel : 25 mm</p> <p>Least count : 0.01 mm Model No. : ED-INT-01-TMRB Model No. : ED-INT-01-LHRB</p>

		<p>Magnification : 10x Height : 180 mm Micrometer Travel : 25 mm Materia : Anodized Aluminum Least Count : 0.01 mm Alloy & SS Quantity : 1 No. Quantity : 1 No. LED Mount with Rigid Base Plano Convex Lens Model No. : ED-INT-01-LEDM Model No. : ED-INT-01-PCL1000 Height : 225 mm Material : Borofloat Material : Anodized Aluminum Diameter : 50 mm Alloy & SS Focal Length : 1000 mm Quantity : 1 No. Quantity : 1 No. Optical Flat Plano Convex Lens Model No. : ED-INT-01-OF Model No. : ED-INT-01-PCL750 Material : Borofloat Material : Borofloat Diameter : 50 mm Diameter : 50 mm Quantity : 1 No. Focal Length : 750 mm Quantity : 1 No. Beamsplitter Plate Model No. : ED-INT-01-BSP Sodium vapor Lamp with Power supply Material: Borofloat Model No. : ED-INT-01-SLPS Diameter: 45 x 45 mm Output Power : 35 W Quantity: 1 No. Quantity: 1 No. Accessories LED's with Power supply Model No. : ED-INT-01-LEDP Dust Protective cover Colours : Red, Blue, Green, and Yellow Instruction Manual Output : 5V, 800mA Quantity : 1 No. each"</p>
3	Kit to build a 4-bit Counter using D-type/JK Flip-Flop ICs and study timing diagram.(Microtech)	<p>OBJECTIVE: Introduction to digital electronics lab- nomenclature of digital ICs, specifications, study of data sheet, Concept of Vcc and ground, verification of the truth table of the logic gates using TTL ICs. Outcome: To understand various digital ICs and their datasheet. Apparatus Required: Bread board IC-7400 (NAND Gate), IC-7402 (NOR Gate), IC-7404 (NOT Gate) , IC-7408 (AND Gate), IC-7432 (OR Gate), IC-7486 (EX-OR Gate), Connecting wires, etc. THEORY: Logic gate is a circuit with one output and two or more input channels. An output signal occurs only for certain combination of input signals. Logic circuits are used to perform various computer functions. NAND GATE (7400): The term NAND is a contraction of expression NOT-AND. A NAND gate therefore is an AND gate followed by an inverter. It is defined as whenever all the input is high then output must be low otherwise output is high. Schematic symbol of 2 -INPUT NAND gate is shown below. Mathematically it is expressed as $y = A.B$ Truth table of 2- INPUT NAND gates is shown in table NOT GATE (7404): The Simplest from of logic circuit is the INVERTER or NOT gate. It can have one input and one output terminal. It is defined as, when ever input is high then output is low and the vice-versa, or we can say that the inverter is a logic element whose output state is always opposite of its input state. Schematic Symbol is shown</p>
4	Setup to determine the wavelength of laser source using diffraction of single slit(DEVCO)	<p>He-Ne Laser Ideally suited for simple, clear & easily comprehensive assemblies for interference, diffraction and holography experiments. The laser is constructed is such a way that is safe to use under any circumstances. Laser tubes along with SMPS power supply are housed in thick powdered coated aluminium Box. From the hole, the laser beam comes out. Operation Wavelength: 632.8nm (RED) Beam Diameter: 0.8mm Beam Divergence : ≤ 1mrad Polarisation : random (unpolarised) Output Power Stability: $\pm 2.5\%$ Power Input : 220V AC$\pm 10\%$, 50Hz Min. Operating Life time : 15000 Hrs Shelf Life : 10</p>

		<p>Years Output Power – 2mW Red random polarization. Optical Bench for He-Ne Laser – 1 meter long High quality precision bench suitable for more advanced work. This all Aluminum extruded from a hard aluminum alloy. 48. Mount for He-Ne Laser: This rectangular stand (all metallic) is suitable for all types of He-Ne Laser this upper black stand can be used on optical bench as well as on the heavy base. this stand is used to align the He-Ne Lasers with other Optical components. It lets you remove & replace laser system quickly with confidence that it will still be centered exactly when you want it. Supplied with heavy base.</p> <p>Detector with Digital meter – This detector is used to record the contrast variation at the fringe pattern. Detector : special photo diode use for various laser experiments in detector output measurement unit we are providing digital voltmeter of three ranges 200mV, 2V & 20V.</p> <p>Single Slit with micrometer– Brass Make</p> <p>Double Slit with micrometer – Brass Make</p> <p>. Screen</p>
5	Electromagnet for the Magnetic susceptibility of Solids.(SES,GMX-01)	<p>Gouy's Method Balance, GMX-01 Product Specifications</p> <hr/> <p>Display Type Digital Weight 75 Kg Kilograms (kg) Material Electronics Application Laboratory Experiment Color Grey Usage Laboratory Experiment Gouy's Method Balance, GMX-01 Trade Information Product Description</p> <hr/> <p>To grow our presence in current business stream, we are engaged as manufacturer, supplier and exporter of Gouy's Method Balance in Roorkee, Uttarakhand, India.</p> <p>In the Gouy's method of susceptibility measurement, the solid sample in the form of a long cylinder (area of cross section A) is hung from the pan of a balance and is placed such that one end of the sample is between the pole-pieces of the magnet (field H) and the other one is outside the field. The force exerted on the sample by the inhomogeneous magnetic field is obtained by measuring the apparent change (m) in the mass of the sample. If the sample is in the form of powder, it is filled in a long non magnetic tube which is then suspended from the pan of the balance.</p> <p>Our company is a dependable entity, engaged in providing effective apparatus to conduct Gouy's Methods. With an objective to meet all quality standards, we manufacture these products using the best quality components and cutting-edge technology. Apart from this, our offered are inspected thoroughly by our adroit professionals upon various parameters to make sure that we are delivering flawless range to our precious clients.</p> <p>Features: Reliable Technically advanced High strength</p> <p>The set up consists of the following: Beam: Hard Bronze/ Brass Arrestment: Circular, falling away type Air Damping: Very quick and positive, beam coming to rest in 2-3 sec</p> <p>Chainomatic Device: A gold plated chain is suspended from the beam with its other end screwed on the rotating drum on which a scale graduated from 0 to 10 div each division representing 1mg is installed. By the movement of this scale before a vernier, reading</p>

		<p>upto 1/10th mg is taken Sample in the form of a long rod: Set of 4 samples, 2 each of Ebonite and Wood Electromagnet, Model EMU-75T Pole Pieces: 75mm tapered to 25mm Mag. Field: 20KG at 6mm air gap Energising Coils: Two of approx. 13 each Power: 0-90Vdc, 3A, for coils in series 0-45Vdc, 6A, for coils in parallel Constant Current Power Supply, Model DPS-175 Current: 0-3A per coil Smoothly adjustable Line Regulation: $\pm 0.1\%$ for 10% mains variation Load Regulation: $\pm 0.1\%$ for load variation from 0 to max. Display: 3 1/2 digit, 7 segment LED display Protection: Protected against overload, short circuit and transients caused by the load inductance. Power: 220V 10%, 50Hz or 110V 10%, 60Hz as required</p>
6	Setup for magnetic susceptibility of Solids.(SES,GMX-01)	<p>Gouy's Method Balance, GMX-01 Product Specifications</p> <hr/> Display Type Digital Weight 75 Kg Kilograms (kg) Material Electronics Application Laboratory Experiment Color Grey Usage Laboratory Experiment To grow our presence in current business stream, we are engaged as manufacturer, supplier and exporter of Gouy's Method Balance in Roorkee, Uttarakhand, India. In the Gouy's method of susceptibility measurement, the solid sample in the form of a long cylinder (area of cross section A) is hung from the pan of a balance and is placed such that one end of the sample is between the pole-pieces of the magnet (field H) and the other one is outside the field. The force exerted on the sample by the inhomogeneous magnetic field is obtained by measuring the apparent change (m) in the mass of the sample. If the sample is in the form of powder, it is filled in a long non magnetic tube which is then suspended from the pan of the balance. Our company is a dependable entity, engaged in providing effective apparatus to conduct Gouy's Methods. With an objective to meet all quality standards, we manufacture these products using the best quality components and cutting-edge technology. Apart from this, our offered are inspected thoroughly by our adroit professionals upon various parameters to make sure that we are delivering flawless range to our precious clients. Features: Reliable Technically advanced High strength The set up consists of the following: Beam: Hard Bronze/ Brass Arrestment: Circular, falling away type Air Damping: Very quick and positive, beam coming to rest in 2-3 sec Chainomatic Device: A gold plated chain is suspended from the beam with its other end screwed on the rotating drum on which a scale graduated from 0 to 10 div each division representing 1mg is installed. By the movement of this scale before a vernier, reading upto 1/10th mg is taken Sample in the form of a long rod: Set of 4 samples, 2 each of Ebonite and Wood

		<p>Digital Gaussmeter, DGM-202 Resolution: 1G at 2KG range Range: 20KG Accuracy: 0.5% Temperature: upto 40°C Display: 3.5 digits 7 segments LED DPM with auto polarity and over flow indication Power: 220 V, 50Hz Transducer: hall probe GaAs Should indicate the direction of magnetic field Interfacing: USB Software: Window Compatible software Complete in all respect.</p>
7	<p>Babinet's compensator to analyze elliptically polarized Light.(DEVCO) with sodium Vapour Lamp & supply</p>	<p>Construction and working of a Babinet's compensator : - A Babinet compensator is a continuously variable, zero order retarder. It consists of two birefringent wedges, one of which is moveable, and another is fixed to a compensator plate. A Babinet compensator is construction from two pieces of birefringent optical material (quartz prism) with indices n_0 and n_e for light polarized perpendicular and parallel to the optic axis respectively .This device can be inclined towards positive value or negative value as per adjustment. Half wave plate or quarter wave plate is place in device for wavelength. A narrow laser beam with wavelength of λ is linearly polarized in the X Z plane at 450 to X and propagates through the compensator from left to right along the Y-axis. (i) For $d \ll 1$, calculate the relative phase shift of the X and Y polarized components of the exit beam in terms of n_0 , n_e , λ , 1 , d , x . (ii) Find the value of x, for the case that the emerging light is linearly polarized and circularly polarized. If the path difference in integral multiple of wavelength $\Delta = n\lambda$.The path difference due to second birefringent material is $\Delta = (\lambda/\beta)d\beta$</p> <p>Babinet compensator with mount Surface Quality : 40 - 20 (Scratch-dig) Retardance Adjustment : 0 - 2π (full wave) Rotation : 360° continuous Material : Quartz Crystal</p> <p>Analyzer with mount Material : Sheet Polarizer Rotation : 360 degree Resolution : 1 degree</p> <p>Detector Output Measurement Unit Sensor Type : Photo Transistor Display : 7 segment, 3 ½ digit Range : 0 - 199 milli / micro amperes</p>
8	<p>Kit for amplitude modulation.(MICROTECH)</p>	<p>The single board trainer with in built I.C. regulated dual channel power supply helps to construct Modulator using Operational transconductance amplifier & to demonstrate how Signal can be added to a carrier & observe the amplitude modulated waveforms & check the percentage of Modulation. In the same trainer it also demonstrates how Signal can be recovered from an amplitude modulated carrier by Demodulator. The trainer consists of : Carrier Frequency Generator : Variable Frequency [9KHz – 80 KHz] & Amplitude [4Vpp Max] Signal Frequency Generator : Variable Frequency [100 Hz – 1 KHz] & Amplitude [10Vpp Max] Modulator using Operational trans-conductance Amplifier. Demodulator using diode detector. Additional Accessories Required : Dual Trace Oscilloscope.</p>

9	Kit for study envelope detector for demodulation of AM signal (Microtech)	<p>The single board trainer within built I.C. regulated dual channel power supply helps to construct Modulator using Transistor amplifier & to demonstrate how Signal can be added to a carrier & observe the amplitude modulated waveforms & check the percentage of Modulation.</p> <p>In the same trainer it also demonstrates how Signal can be recovered from an amplitude modulated carrier by Demodulator.</p> <p>The trainer consists of :</p> <p>Fixed Carrier Frequency : 83 KHz, 2 V_{pp}. High Frequency Transistor BF494B – 2 Nos. Air Core Output Transformer. Set of Resistance. Set of Capacitor. Additional Accessories Required : Dual Trace Oscilloscope. Signal Generator.</p>
10	Kit to study FM - Generation and Detection(MICROTECH)	<p>The single board trainer with inbuilt I.C regulated power supply helps to construct Modulator & to demonstrate how Signal can be added to a carrier & observe the frequency Modulated waveform & measure the frequency deviation.</p> <p>The demodulation part helps to demonstrate how Signal can be recovered from a frequency modulated carrier by using PLL Demodulator.</p> <p>The trainer consists of</p> <ul style="list-style-type: none"> (a) Modulator using XR2206 or 8038 with Carrier Wave Generator [45 KHz] (b) Demodulator using I.C 565 (c) Signal frequency generator : Variable frequency [100 Hz – 1 KHz] & Amplitude [4.6 V max] <p><u>Additional accessory required:</u> # Dual trace oscilloscope</p>
11	Setup to study the characteristics of a Thermostat and determine its parameters.(MICROTECH)	<p>A traditional thermostat has two pieces of different metals bolted together to form what's called a bimetallic strip (or bimetal strip). The strip works as a bridge in an electrical circuit connected to your heating system. Normally the "bridge is down", the strip carries electricity through the circuit, and the heating is on. When the strip gets hot, one of the metals expands more than the other so the whole strip bends very slightly. Eventually, it bends so much that it breaks open the circuit. The "bridge is up", the electricity instantly switches off, the heating cuts out, and the room starts to cool.</p> <p>The setup helps to study the temperature vs. position of the bimetallic strip.</p> <p>It consists of</p> <ul style="list-style-type: none"> i) Thermostat ii) Heating arrangement iii) Thermometer
12	To measure the change in temperature of ambient using Resistance Temperature Device (RTD).(MICROTECH)	<p>An RTD (Resistance Temperature Detector) is a sensor whose resistance changes as its temperature changes. The resistance increases as the temperature of the sensor increases.</p> <p>The experimental setup with steel case and integral power supply helps to study the characteristics of the RTD (Resistance Temperature Detector).</p> <p>The setup consists of the following specifications:</p> <ol style="list-style-type: none"> 1. Transducer: RTD (Pt 100)

		<p>2. Oven ; Temperature controlled , Ambient to 110 degree C .</p> <p>3. Temperature controller with Digital temperature indicator</p> <p>4. Output : Measured by Digital Voltmeter. 0 – 20 V, 3 ½ digit display</p> <p>5. Temperature indicator : Digital 3 ½ digit display</p> <p>6. I.C. Regulated Power supply : 5 V @500 mA</p> <p>7. Bridge Network</p>
13	To measure Q of a coil and influence of frequency, using a Q-meter.(MICROTECH)	<p>1. Set the Shunt Resistance (R_{sh}) value as small as possible (Say 0.02 Ohm). Set all the parameters (R, L, C) by yourself.</p> <p>2. Set the voltage value of the oscillator ($E=10$ V).</p> <p>3. At $f=100$ Hz. Check the value of voltage drop across capacitor. (E_C).</p> <p>4. Change the frequency until E_C reach at the maximum value. Then calculate the value Q measured using this formula</p> <p>5. Calculate the true value of unknown coil by using this formula</p> <p>Practical Circuit: The practical circuit is shown in Figure 1. It consists of self contained variable frequency RF oscillator. This oscillator delivers current to a low value shunt resistance R_{sh}: value may be 0.02 Ohm. The small value of input voltage E is injected into circuit that would be measured by thermocouple voltmeter. An electronic voltmeter is connected across this capacitor. The coil under test is connected to terminals T_1 and T_2.</p> <p>Measurement of Q: The circuit for measurement of Q shown in Figure 1. The oscillator is set to the desired frequency and then the tuning capacitor is adjusted for maximum value E_0. The input voltage E is kept constant then the voltage across capacitor is calibrated to read the value of Q directly. The measured value of Q is defined whole circuit not of the coil. There are errors caused due to shunt resistance and distributed capacitance of the circuit.</p> <p>6. First resonance occurs due to frequency (say f_1). Note down the value of tuning capacitor C. (say C_1). Double the input frequency (f_1) (say $f_2=2*f_1$). Change the tuning capacitor value until resonance occurs. Note down the value of tuning capacitor C. (say C_2). Discharge capacitance (C_d) would be $= (C_1 - 4*C_2)/3$.</p>
14	To plot the frequency response of a microphone.(MICROTECH)	<p>Audio communication is the basic process of exchanging information. In which people convey their thoughts, ideas and feelings to another in their own sound audio communication. As per as the audio communication is concerned the microphone and loudspeaker are the most important parts.</p> <p>Simply speaking about the Microphone, it is a special type of pressure transducer converting acoustical energy. The frequency response and directivity are the most important parameters.</p> <p>The experimental setup helps to studies</p> <p>1. To measure frequency response of a Microphone</p> <p>2. To measure Directivity of a Microphone .</p> <p>The set up consists of</p> <p>(i) Dynamic Microphone 1 No.</p> <p>(ii) Condenser Microphone 1 No.</p> <p>(iii) Circular disc fitted with stand 1 No.</p> <p>(iv) Speaker 1 No.</p> <p>(v) Preamplifier for speaker 1 No.</p> <p>(vi) Function Generator 1 No.</p> <p>(vii) Microphone Amplifier 1 No.</p> <p>(viii) Audio Power meter. 1 No.</p>

15	Calibrate semiconductor type temperature sensor(LM35/AD590) (MICROTECH)	<p>Semiconductor temperature sensors are the devices which come in the form of integrated circuits i.e. ICs hence, popularly known as IC temperature sensors. The most popular Semiconductor Temperature sensor is LM35.</p> <p>The trainer contains</p> <ul style="list-style-type: none"> i) Semiconductor Temperature Sensor: LM35 with connecting cable. ii) Oven ; Temperature controlled , Ambient to 110 degree C . iii) Temperature controller with Digital temperature indicator iv) IC regulated power supply : 0 – 12V @250 mA v) Digital Microammeter : 0 – 2000 uA, 3 ½ digit display. vi) Digital voltmeter 0 – 2V and 20 V, 3 ½ digit; Provision for Input and output Voltage measurement using selector switch. vii) .Op. Amp. based ON – OFF Controller viii) Relay: 12 V , 5 A ix) Variable Pot 2 Nos.
16	Digital CRO (DS1202Z-E, Rigol)	<p>DS1202Z-E is a multifunctional and high-performance digital oscilloscope designed on the basis of the UltraVision technique developed by RIGOL. Featuring extremely high memory depth, wide dynamic range, clear display, excellent waveform capture rate and comprehensive triggering functions, it is a useful commissioning instrument for various fields such as communication, aerospace, defense, embedded systems, computers, research and education. Wherein, the mixed signal digital oscilloscope aimed at the embedded design and test fields allows users to measure analog and digital signals at the same time.</p> <ul style="list-style-type: none"> • Main features: ● 1 GSa/s real-time sample rate of the analog channels; up to 24 Mpts standard memory depth ● 2 analog channels; analog channel bandwidth: 200 MHz ● 30,000 wfms/s (dots display) waveform capture rate ● Real-time hardware waveform recording and playback functions; up to 60,000 frames of waveform can be recorded ● Intensity graded color display ● Low base noise, 1 mV/div to 10 V/div ultra-wide vertical dynamic range ● 7.0-inch WVGA (800*480) TFT LCD, with ultra-wide screen, vivid picture, low power consumption and long service life ● Adjustable waveform brightness ● Auto setting of waveform display (AUTO) ● Up to 15 kinds of trigger functions, including various protocol triggers ● Standard parallel decoding and multiple serial decoding ● Auto measurement of 37 waveform parameters (with statistics) ● Fine delayed sweep function ● Built-in FFT function ● Multiple waveform math operation functions ● Pass/fail test function ● Standard interfaces: USB Device, USB Host, LAN and Aux ● Conform to LXI CORE 2011 DEVICE class instrument standards; enable quick, economic and efficient creation and reconfiguration of test system ● Supports remote command control ● Built-in help to facilitate information acquisition ● Supports multiple languages and Chinese/English input ● Novel and delicate industrial design and easy operation
17	Supply Optical Breadboard with Rigid	Scope of Supply Optical Breadboard with Rigid Support (800x600mm) Kinematic Laser Mount Model No. : ED-LOL-01-

	Support (800x600mm) (Holmarc)	BBS Model No. : ED-LOL-01-KLM Dimensions: 800mm x 600mm Material: Black anodized Material: Stainless Steel Aluminum alloy Quantity : 1 No. Adjustments: Using 80 tpi lead screws Adjustment Range : +/-3 degrees Quantity : 1 No. Beam Splitter Mount Mirror Mount with Translation Stage Model No. : ED-LOL-01-BSM Model No. : ED-LOL-01-MMT Degrees of freedom : 2 degrees Adjustment Range : +/-3 degrees Material : Black anodized Fine adjustments : Using 80 tpi Aluminum alloy lead screws Quantity : 1 No. Material : Black anodized Aluminium alloy Quantity : 1 No. Mirror Mount with Precision Translation Stage Rotation Stage Model No. : ED-LOL-01-MMPT Model No. : ED-LOL-01-RS Adjustment Range : +/-3 degrees Resolution : 1° / division Material : Black anodized Material : Black anodized Aluminium alloy Aluminium alloy Least count micrometer : 0.01 mm Quantity : 1 No. M6 screw ½ “ , Quantity: 50, Alen key set-1, Quantity-1
18	Polarization and Diffraction experiment kit (Holmarc)	Quantity : 1 No. Polarizer Rotator with Mount Screen with Mount Model No. : ED-LOL-01-PRM Model No. : ED-LOL-01-SM Material : Sheet Polarizer Dimension : 75mm x 75mm Rotation : 360 degree Quantity : 1 No. Resolution : 2 degree Quantity : 1 Nos. Cell Mount XYZ Translation Stage Model No. : ED-LOL-01-CM Model No. : ED-LOL-01-XYZT Material : Black anodized Material : Black anodized Aluminum alloy Aluminum alloy Diameter : 30 mm Travel : Micrometer controlled Quantity : 1 No. Resolution : 0.01 mm
19	Absorption of light of various filter(Holmarc, HO-ED-LOL-01)	MOF Model No. : ED-LOL-01-FC Material: Plastic Fiber Material : Black anodized Numerical Aperture : 0.5 Aluminum alloy Core Dia : 750,250 microns Diameter : 30 mm Length : 5 meters Quantity : 1 No. Quantity: 2 Nos. Mirror with Cell Beam Splitter Model No. : ED-LOL-01-MC Model No. : ED-LOL-01-BS Diameter: 25 mm Thickness: 6 mm Thickness: 6 mm R/T ratio : 50 / 50 Material : Borofloat Material : Aluminium Quantity : 2 Nos. Coating: N-BK7 Coating: Aluminium Quantity: 1 No. Plano Convex Lens with Cell Diffraction Cells Model No. : ED-LOL-01-PCXL Model No. : ED-LOL-01-BS Material: Borofloat Single Slit: 50 & 100 micron Diameter: 30 mm Double slit : 100 & 200 micron Focal Length : 150 mm Transmission grating : 8 lines / mm Quantity : 1 No. Single wire: 75 microns Cross wire : 75 microns Colour Filter Wire mesh : 65 microns Model No : ED-LOL-01-CF (grove spacing) Material : PMMA Pinhole : 400 microns Diameter : 30 mm Quantity : 7 Nos. Colours: Red, Blue, Green & Yellow Mounted Opto-Electronic Detectors Quantity: 4 Nos. Model No. : ED-LOL-01-MOED Light depend resistor Glass Tank Light emitting diode: 2 Nos. Model No. : ED-LOL-01-GT Photo Transistor Material: PMMA Photo Diode Dimension: 100 x 100 x 50 mm Solar Cell Number of Cells: 2 nos. Opto-Coupler Quantity: 1 No. each. Quantity: 7 Nos. Opto-Electronic Measurement Uni(230VAC / 50Hz) Diode Laser with Power supply (Red) Model No. : ED-LOE-OEMU Model No. : ED-LOL-01-DLPRR Output Voltage Wave length : 650 nm Port 1 : 0 - 5 Volt Variable Optical power : 5 mW Port 2 : 5 Volt fixed Quantity : 1 No. Quantity : 1 No. Diode Laser with Power supply (Michelson Red) Diode Laser with Power supply (Red, without Lens) Model No. : ED-LOL-01-DLPRM Model No. : ED-LOL-01-DLPRW Wave length : 650 nm Wave length : 650 nm Optical power : 5 Mw Optical power : 3 mW Quantity : 1 No. Quantity : 1 No. Detector Output Measurement Unit Accessories Model No. : ED-LOL-01-DOMU User Manual Sensor Type : Photo Transistor Allen keys Display : 7 segment Thumb Screws 3 ½ digit Glass Slides Range : 0 - 199 milli / micro amperes Sample Powder Quantity : 1 No. Meter Scale CD F
20	Fibre Characterization Lab Model (Holmarc): HO-ED-LOL-01	Fiber Chuck Holder PMMA Mount Model No. : ED-LOL-01-FCH Model No. : ED-LOL-01-PMM Material : Black anodized Material : Black anodized Aluminum alloy Aluminum alloy Quantity : 1 No.

		Quantity : 1 No. PMMA Rod Bending Loss Apparatus Model No. : ED-LOL-01-PMR Model No. : ED-LOL-01-BLA Chuck material : Poly Methyl Chuck material : Nylon Meth Acrylate Step diameter : 35, 45, 55, 65 mm Size : 200 x 25 x 25 mm Quantity : 1 N Quantity : 1 No. Laser Fiber Coupler Meter Scale Mount Model No. : ED-LOL-01-LFC Model No. : ED-LOL-01-MSM Magnification objective : 10 X Material : Black anodized Positioning : Lead screw Aluminum alloy PC Controlled Cavity Thickness : 3 mm
21	Computer	Dell Optiplex 3020 (Intel core, i5/16GBRAM/1TB SSD+256SSD and 1TB HDD, Windows 10 pro original, MS office original, 17 inches monitor) SSD
22	Tunnel Diode setup	Work Function of Diode valve - complete with IC regulated power supply, 250V/15mA & 6.3V 0.5amp meter and circuit diagram printed on panel. Tunnel Diode power Supply 5V DC, Digital Voltmeter. 0-20V. Discrete Tunnel diode, Quantity: 05.

Principal
Jhargram Raj College
Principal
Jhargram Raj College

Date: 23.08.2024

NIT/414/24-25/DBT

Copy forwarded for information and taking necessary action to:

1. The Hon'ble District Magistrate, Jhargram
2. The Sub-Divisional Officer, Jhargram.
3. The Treasury Officer, Jhargram.
4. The Block Development Officer, Jhargram.
5. The Post Master, Jhargram.
6. The Chairman, Jhargram Municipality.
7. Dr. Garima Gupta, Program officer, DBT, GoI, New Delhi
8. Dr. Tapas Kr. Adalder, Coordinator, DBT Star College Scheme, Jhargram Raj College.
9. College Notice Board.
10. Sri Diganta Das, Librarian, Jhargram Raj College
11. Sri. Sayantan Roy, Convener website committee, Jhargram Raj College
12. Sri Sandip Sarkar, Convener, purchase advisory committee, Jhargram Raj College

Principal
Jhargram Raj College
Principal
Jhargram Raj College

Proforma for Quotation (Annexure I)

Sl. No.	Name of the instrument	Technical specification with make and model	Whether technical printed literature along with Bill of Material (BoM) submitted or not	Catalogue Price (INR)	% of discount on the catalogue price	Rate excluding GST after Discount

Annexure – II

FORMAT FOR MANUFACTURER'S AUTHORISATION LETTER TO AGENT (on letter head)

Ref. No. Date:

To,
The Principal/Officer-in-Charge,
Jhargram Raj College,
Jhargram,
West Bengal 721507

Sub.: Authorization Letter

Dear Sir, We, _____, who are established and reputed manufacturers of _____, having factory at _____, hereby authorize M/s. _____ (name & address of Indian distributor /agent) to bid, negotiate and conclude the order with you for the above goods manufactured by us.

We shall remain responsible for the tender / contract / agreement negotiated by the said M/s. _____, jointly and severely.

We ensure that we would also support / facilitate the M/s _____ on regular basis with technology / product updates for upgradation / maintains / repairing / servicing of the supplied goods manufactured by us.

In case duties of the Indian agent / distributor are changed or agent / distributor is changed it shall be obligatory on us to automatically transfer all the duties and obligations to the new

Indian Agent failing which we will ipso-facto become liable for all acts of commission or omission on the part of new Indian Agent / distributor.

Yours faithfully,

[Name & Signature] for and on behalf of M/s. _____ [Name of manufacturer]

Note: This letter of authorisation should be on the letterhead of the manufacturing concern and should be signed by a person competent and having the power of attorney to bind the manufacturer. A copy of notarised power of attorney should also be furnished.

Bidders Information (Annexure-III)
(On bidder letterhead)

1. Name of the party (In Capital letter):

2. Permanent address (proof needed):

3. (a) Name of the Contact Person
(b) Contact No.
(c) Email.ID

4. Communication address (proof needed)

5. Trade license No. & date: (Renewed)

6. (a) PAN card No. (Business):
(b) (GST No.)
(c) Annual Turn Over (Prof Needed)

7. Nature of business

8. Bank detail (Kindly attach scanned copy of one Cheque)
 - a. A/C No.

 - b. Name of the Bank and Branch

9. Other Relevant Information of the Bidder:

N. B.: Copy of the documents should be furnished along with the application. I declared that all terms and conditions will be followed by me and the submitted documents are true to the best in my sound knowledge and belief.

Dated:

Signature of Party (With seal)

Annexure-IV

FORMAT FOR self-declaration of NON-BLACKLISTING OF SUPPLIER (On letter Head)

I/ We _____Manufacturer/partner/Authorized Distributor/Agent (strike out which is not applicable) of (Supplier) _____ do hereby declare and solemnly affirm that the individual/firm/company is not black-listed by the Union/State Government/Autonomous body. We hereby confirm that the we will withdraw our bids if the tender inviting authority find us guilty of blacklisting by any authority across the country or the tender inviting authority can cancel our entire bid at any point of tender process.

Signature of the Deponent

Address _____