



NATIONAL INSTITUTE OF TECHNOLOGY, DURGAPUR
MAHATMA GANDHI AVENUE
DURGAPUR –713 209, WEST BENGAL, INDIA

FAX: 0343-2547375; E-mail: director@nitdgp.ac.in; Website: www.nitdgp.ac.in
Telephones: 0343-2546397 (Director)

Date: 22.2.2010

BID REFERENCE: NITD/PLAN-GRANT/BT/2010/01

To

Dear Sir,

SUB: **INVITATION FOR QUOTATIONS FOR SUPPLY AND INSTALLATION OF FOLLOWING EQUIPMENTS AND FURNITURES**

1. You are invited to submit your most competitive quotation for the instruments as per annexure-I, in two parts, **separate (i) Technical Bid and (ii) Price Bid.**
 2. **Bid Price**
 - a) The contract shall be for the full quantity as described above. Corrections, if any, shall be made by crossing out, initialing, dating and re writing.
 - b) All duties, taxes and other levies payable by the contractor under the contract shall be included in the total price **F.O.R. NIT Durgapur.**
 - c) The rates quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
 - d) The bid price must be quoted in **Indian Rupees.**
 3. The bid submitted by the bidder must comprise the following:
 - (a) Detailed technical specifications, conforming to the given specifications (vide Annexure – I), and literature /drawings /manuals of the goods/services to be supplied
 - (b) Authorized dealership certificate from the original manufacturer
 - (c) Credentials and list of organizations where the bidder supplied similar items
 - (d) Warranty period (1 year comprehensive on-site)
 - (e) Valid sales-tax / VAT clearance certificate
 - (f) Price bid as per Annexure-II
 4. **Validity of Quotation**

Quotation shall remain valid for a period not less than 60 days after the deadline date specified for submission.
 5. **Evaluation of Quotations**

The Purchaser will evaluate and compare the quotations determined to be substantially responsive i.e. which

 - (a) are properly signed and
 - (b) conform to the terms and conditions, and specifications.
 6. **Award of contract**

The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive, technologically acceptable and who has offered the lowest evaluated quotation price.
- 7.1 Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of contract.
- 7.2 The bidder whose bid is accepted will be notified of the award of contract by the Purchaser prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the purchase order.
8. Delivery shall be made at **DEPARTMENT OF BIOTECHNOLOGY at NIT, DURGAPUR**

9. Payment shall be made immediately within **30 days** after satisfactory installation, commissioning and acceptance of the good.
10. Comprehensive onsite warranty shall be applicable to the supplied goods for a period of **12 months** from the date of installation.
11. The Institute is exempted from payment of custom and excise duty on items mentioned below:
 - a) Scientific and technical instruments, apparatus, equipment (including computers);
 - b) Accessories, spare parts and consumables thereof;
 - c) Computer software, CD-ROM, recorded magnetic tapes, microfilms, and microchips.
12. Suitable voltage stabilizer should be quoted along with equipments where applicable
13. The successful bidder must submit before the release of payment a valid bank guarantee on any nationalized bank of 10% of the order value towards **Performance Security** during the warranty period, **for items where the total unit price exceeds Rs. 1.00 lakh**. Else, 95% of the payment will be released retaining 5% of the order value towards Performance Security during the warranty period.
14. **Liquidated Damage** will be applicable at the rate of **0.5%** per week. The purchaser has the right to cancel the purchase order when LD accumulates to 10 %.
15. Settlement of any dispute will be made under the jurisdiction of Durgapur Court.
16. You are requested to provide your offer latest **by 11.00 hours on 15.03. 2010**.
17. The purchaser will open the technical bids at **12.00 hours on 15.03. 2010** and the price bid of the qualified tenders will also be opened at **12.00 hours on 15.03. 2010**.
18. The bid document must be signed and sealed and enclosed with the bid as a token of acceptance of all terms and conditions in the bid document by the bidder.
19. The items must be delivered **within 60 days** from the date of placement of purchase order at the respective department.
20. Comprehensive onsite warranty **for 12 months** from the date of satisfactory installation shall be applicable for offered goods.
21. All other terms and conditions of GFR 2005 of the Government of India will be application.
22. Place of Delivery: **DEPARTMENT OF BIOTECHNOLOGY at NIT, DURGAPUR**
23. **Installation / commissioning / demonstration requirement:** Installation, commissioning, complete demonstration and successful running at **DEPARTMENT OF BIOTECHNOLOGY at NIT, DURGAPUR**

We look forward to receiving your quotations and thank you for your interest in this project.
24. A bank draft or bank guaranty worth 2% of the quoted value payable to **Director, NIT Durgapur** at Durgapur will be enclosed with the bid by the bidder towards **Earnest Money Deposit (EMD)**. The EMD shall remain valid for a period of 105 days (Annexure-III)

The bid must be addressed to:

Head
DEPARTMENT OF BIOTECHNOLOGY
NIT, Durgapur -713209, W.B.
Contact Person: Dr. Apurba Dey
Email id: apurbadey2003@yahoo.co.in
apurba.dey@bt.nitdgp.ac.in

HOD, BIOTECHNOLOGY

Contact No. 0343-2755394/2755209

PRICE BID FORMAT

1	2	3	4		5	6	7	8
Sl.No.	Name of the good	Quantity & Unit	Price for each unit		Unite Price (a) + (b)	Sales Tax/ VAT & other Taxes Payable [admissible only on col. 4(a)]	Total Unit Price (5) + (6)	Total Unit Price (In words)
			Ex-factory/ ex-warehouse/ ex-showroom off the shelf (a)	Incidental Services (b)				

We agree to supply the above goods in accordance with the technical specifications and the terms and conditions mentioned in the bid document at prices mentioned above within the period specified in the Invitation for Quotations.

We also confirm that the comprehensive onsite warranty of **12 months** shall apply to the offered goods.

Signature of Bidder _____

Name _____

Business Address _____

Place :

Date :

ANNEXURE-I
NAME OF THE EQUIPMENTS WITH MINIMUM SPECIFICATIONS

Sl.No.	Instrument Name	Specifications	Quantity
1	Ultralow freezer	Left or right hand opening, Control Panel with Thermostat, Thermometer, Fast Freeze Switch, Single Door, Castors at the back. Adjustable feet in front, CFC / HCFC Free, 8 shelf + drawers, digital controller with display, Capacity (litres) : 344, Dimensions WxDxH (inches) : 24 x24x73 (Approx), Temp. Range : -17 °C to -24°C Wheels : Yes , Lock : Yes, Defrost : Manual, No. of Baskets/Shelves : 8,	1
2	BOD Incubator Shaker	With Double walled construction. Inner Chamber should be made of polished Stainless Steel and the outside body should be of Mild Steel Sheet painted by Heat & corrosion resistant Powder Coating paint with Fibre glass wool insulation. Glass door with latch fit at the gate of Working Chamber with Magnetic gasket and lock & key with illumination facility. Shaking Movement: Orbital. Shaking: Speed & Control: Variable, within 30 to 300 RPM. Safety thermostat. Digital RPM counter. 2KVA servo controlled voltage stabilizer (Input: 170 – 270V, Out put: 230V, ±1%). Volume 300 liter minimum. Should have 1/2 static rack. Inner chamber should be illuminated on opening. Temperature: From 5°C to 70°C, Temperature control by Digital temperature indicator cum controller having an accuracy of ± 0.5°C. Hermetically sealed ¼ H.P compressors with CFC free gas with cooling condenser and AC motor driven powerful blower to bring down the temperature below ambient. Heating: Good quality heater with an energy Regulator. ¼ H.P DC motor driven shaker should be provided. Platform: Assorted. Made of Stainless steel sheet. Size 19” X 19” (minimum). Flask holding capacity: 16Nos of any capacity of 100/250 & 500ml flask.	6
3	Refrigerator	Double door refrigerator, capacity should be at least 350 L, with lock in door	6
4	Electronic Balance	Specifications : Readability : 0.1 mg. Weighing Capacity : 120 gm. Pan Size : ø 80 mm Repeatability : 0.1 mg. Linearity : 0.2 mg. Calibration : Internal	3

5	pH meter	<p>Simple and reliable bench top pH/mV meter for routine application, for battery or mains operation, wide range power supply, With pH and temperature electrode, Technical buffer 4/7 and 10, 3M KCl</p> <p>Range / Resolution</p> <ul style="list-style-type: none"> pH: -2.00...+19.999pH, -2.00...+19.99pH mV: -999.9...+999.9mV; -1999...+1999mV Temperature: -5.0...+105.0°C <p>Accuracy (±1digit)</p> <p>pH:</p> <ul style="list-style-type: none"> ±0.005pH ±0.01pH <p>mV: ±0.3mV, ±1mV</p> <p>Temperature: ±0.1K</p>	2
6.	Water Bath with temperature control	<p>Thermostatic bath/circulator with LED, simplest operation and integrated cooling system, 1-line LED display for display of actual or set temperature, User-friendly menu guidance with simplest operation, Fully electronic continuous controller, Circulating pump, Working temperature range should be between -25 °C - 85 °C, Temperature control ± 0,05 °C, with bath cover.</p>	1
7	Magnetic Stirrer with Hot Plate (Digital display)	<p>It should have rugged aluminium die casting, It should have acid and alkali resistant glass ceramic top/rugged aluminium top. It should have digital speed control from 100 – 1200 RPM and digital temperature control from 50 – 500 degree C.</p>	1
8	Vortex shaker	<p>Should be compact and rugged type. Should have heavy metal base with rubber feet. Should provide continuous and touch mode with variable speed control. Maximum speed should be around 3000 RPM. Should include one hand insert, micro tube insert and cup attachment.</p>	1
9	Micro Centrifuge	<p>It should be compact and easy to use for a wide range of molecular biology separations and quick spins. Max RPM should be around 13500 RPM, max. RCF should be around 12,225X g. Max capacity 1.5 ml (2 ml) X 12 tubes. Control should be digital feed back control with Jog shuttle switch.</p>	3
10	<p>(a) Glass Filtration set-up (complete) with metal clamp</p> <p>(b) Portable, oil free vacuum pump for the above fitted with vacuum gauge and rectangular</p>	<p>(a) Glass Filtration set-up (complete) with metal clamp All glass parts made of borosilicate glass</p> <p>SPECIFICATION</p> <ul style="list-style-type: none"> Filter Size: 47mm dia Effective Filtration area: 9.60cm² Filter flask capacity: 1000ml Funnel Capacity: 300ml Pressure: Vacuum only <p>(b) Portable, oil free vacuum pump for the above fitted with vacuum gauge and regulator Supplied complete with Vacuum Gauge & Regulator</p> <ul style="list-style-type: none"> Oil free construction 	2 each of (a) & (b)

		<ul style="list-style-type: none"> • Diaphragms made of special 2ply Nylon reinforced Neoprene Rubber • Valve made of SS316 • Built in micro suction filter <p>SPECIFICATIONS</p> <ul style="list-style-type: none"> • Maximum Flow: at least 15Liter / Minute • Maximum Vacuum: at least 27inches of Hg • Maximum Pressure: at least 35Psi <p>(c) Cellulose Nitrate membrane filter RCN Type, Hydrophilic (should be provided as accessory consumable) Dia: 47mm Porosity: 0.45µm or 0.22µm</p>	
11	Colorimeter	<p>Wavelength: 400nm to 700nm; Resolution: 1% in Transmission Mode 0.01in Optical Density mode</p>	5
12	<u>TRINOCULAR ADVANCE RESEARCH PHASE CONTRAST MICROSCOPE.</u>	<p>OPTIONALLLY UPGRADABLE TO FLUORESCENCE</p> <ul style="list-style-type: none"> • Trinocular Head inclined 30⁰, 360⁰ rotatable, Interpupillary distance adjustable between 55-75mm, Diopter adjustment ring on ocular provides correction for eye acuity. • Eyepiece: 10x WF High Eye Point FOV 22mm (paired) • Objectives: <ul style="list-style-type: none"> ○ CCIS Plan Achromat 4x/N.A. 0.10 ○ CCIS Plan Phase 10x/N.A. 0.25 ○ CCIS Plan Phase 20x/N.A. 0.40 ○ CCIS Plan Phase 40x/N.A. 0.65 (SL) <p>CCIS Plan Phase 100x/N.A. 1.25 (SL)</p> <ul style="list-style-type: none"> • Condenser: Sub Stage Condenser: Abbe's with revolving Turrent having Annular Phase plates for 10x, 20x, 40x & 100x objectives and fifth position for bright field with iris diaphragm. Centering Telescope eyepiece and green glass filter and swing out filter holder. • Standard Accessories: 6V-30W halogen bulb, Blue & Green Fiter, Styro Foam Molded Pack. 	1
13	<u>FLUORESCENCE MICROSCOPE</u>	<ul style="list-style-type: none"> • Equipped with infinity plan achromatic fluorescent objectives, enable obtain more clearer and brighter image. • Wide-field plan eyepieces: field number Ô22mm. <p>Coaxial coarse/fine focus system, with tension adjustable and limit stopper , minimum division of fine focusing: 2µm:</p> <p>Green (520nm~530nm), Blue(460nm~470nm), Fluorescence filters: B(Blue) and G(Green).</p>	1

	<ul style="list-style-type: none"> • PHASE CONTRAST ATTACHMET 	<ul style="list-style-type: none"> • Eyepiece: Wide field WF10X(μ 22mm) • Transmitted Illumination system Abbe condenser NA.1.25 Rack & pinion adjustable Blue filter and Ground glass Collector for LED illumination and integrated field diaphragm 3W high brightness white LED, brightness adjustable. <p>Additional fluorescence filter for UV and V</p> <p>UV Excitation (330-490nm) U Excitation (395-415nm</p> <p>Universal Turret type Abbe Condenser with revolving turret having Annular Phase Plates for 10x, 20x/25x. 40x & 100x objectives and fifth position for bright field with adjustable, iris diaphragm. Consisting one Centering Telescope and Green filter.</p> <p>PHASE OBJECTIVES Phase Objectives (4 Nos.) : PH-IF-10x, PH-IF-20/25x, -PH-IF-40x & PH-IF-100x Oil.</p>	
14	Digital Camera Attachments for microscope	<p>Image Sensor Type : CCD Total Pixels : 13.93 million LCD Monitor Resolution about 230000 Dots</p>	1
15	CCD	<p>Compatible with microscope</p> <p>Image Sensor about 2 3.3 megapixel color CCD Cooling : Peltier cooled -30° below ambient Effective Pixels : 2048X1536, 3.65μm square pixels Frame Rate : 20 fps at 640X480 resolution, 20fps at 1024X768 B/W resolution. Signal/Noise : >66Db Gain : Programmable Interface Connector : Standard USB 2.0 high-speed interface Dimensions (L x W x H) : 4 x 2.00 x 3 inches (Approx) Lens Mount : C-Mount lens adapter Binning Options : 2x1, 2x2</p>	1
16	Digital BOD Analyser with test chamber and calibration arrangement	<p>For measurement of BOD_n at the range of 0 – 4000 mg/l (directly without any dilution)with digital display.</p>	1

17	Cylinder for CO ₂ gas with regulator	For running CO ₂ incubator. Stainless steel inlet pressure guage 0-280 kg/cm ² outlet pressure guage 0-80 kg/cm ²	1
18	Lyophilizer	CONDENSING UNIT: Condensing chamber made of non-magnetic stainless steel. Polyurethane foam insulation. Surface temperature of the cooling (condensate) traps -50°C at an ambient of 20°C and under vacuum. Ice condensing capacity 3.0Kg. The bulk drying chamber made of perplex tube with 12 ports with manifold to hold ampoules / vials / flask / Beakers. REFRIGERATION SYSTEM: Hermetically sealed compressor with all necessary components and safety devices, air-cooled condenser, dryer filter and over temperature safety. Condenser temperature up to -50°C. VACUUM PUMP: Direct driven, for prolonged operation. PIRANI GAUGE: electronic Vacuum Gauge with measuring sensor to read vacuum up to 10 ⁻³ torr Capacity 3 liter.	1
19	Heating mantle	Metal body with energy regulator, switch and indicating lamp. Capacity 1 liter. Temperature upto 300°C.	5
20	Adjustable volume micropipette with volume range 20-200 µl	Volume 20 µl, accuracy ±2.5%, precision <0.7%, Volume 100 µl, accuracy ±1.0%, precision <0.3%, Volume 200 µl, accuracy ±0.6%, precision <0.2%.	3
21	Adjustable volume micropipette with volume range 100-1000 µl	Volume 100 µl, accuracy ±3.0%, precision <0.6%, Volume 500 µl, accuracy ±1.0%, precision <0.2%, Volume 1000 µl, accuracy ±0.6%, precision <0.2%.	4
22	Adjustable volume micropipette with volume range 1000-5000 µl	Volume 1000 µl, accuracy ±1.2%, precision <0.3%, Volume 2500 µl, accuracy ±0.6%, precision <0.3%, Volume 5000 µl, accuracy ±0.6%, precision <0.2%.	3
23	Binocular Microscope	Co-axial focusing control with large knob, PRE-FOCUSSING LEVER & TENSION ADJUSTMENT RING. The slow motion has 1 Div – 0.002mm, Reverse angle quadruple nosepiece revolving on ball bearings, Mechanical stage size 125mm x 135mm & having low positioned co-axial controls on ball bearing guide ways. BINOCULAR HEAD : Binocular sidentopf head rotatable 360 ⁰ inclined at 30 ⁰ , Diopter adjustment ring on ocular tube, Interpupillary distance from 55mm to 75mm, SUB STAGE CONDENSER : Abbe Condenser N.A.1.25 with adjustable, Iris Diaphragm. ILLUMINATOR: Super Bright LED Illuminator with adjustable brightness control., EYEPIECES: Wide field Eyepiece 10x (Paired) FOV 18mm., OBJECTIVES : SEMI PLANS Achromatic 4x SEMI PLANS Achromatic 10x, SEMI PLAN Achromatic 40x (SL), SEMI PLAN Achromatic 100x (SL) Oil immersion., SPARES : Blue Filter. Dust Cover.	1
24	Rotary Vacuum Evaporator with suitable indigenous Vacuum Pump &	Made up of glass with double Spiral for efficient cooling D.C brushless Motor for Rotation and D.C motorized lifting system, Control Knob for Speed setting (10-250rpm) with digital RPM display. Oil bath with Digital Display Micro control base with internal Calibration facility, Detachable SS pan. Temp range +5 to 180°C .Rec. & Evap. Flask capacity of 1 Ltr	1

	Circulating water Bath	<p>Safety Measures: Motor overload protection, Manual-setting lower limit and upper limit, Weight 13 kg approx (excluding glassware + oil bath), Power Supply 100-240 V AC, 1.5 Amp (excluding the water/oil bath).</p> <p>Motor: DC brushless motor (for rotation) and DC motor (for lifting); Number of revolutions: 10 - 250 r/min (rpm); Speed (rpm) setting: Control knob (digital indicator), Safety measures (main unit): Manual-setting lower limit, upper limit, motor overload; Lifting feature: Motorized lifting system; External dimension: With Glassware A (mm) : 828(W)× 400(D)×580(H)(740(H) when raised); With Glassware B/C (mm): 643(W)× 400(D)×717(H)(877(H)when raised); Weight: Approx. 13kg(excluding the glassware and the water/oil bath); Power supply - 100 - 240V AC, 1.5A(excluding the water/oil bath).</p> <p>Double-Head Mini diaphragm Vacuum pump: Delivery: 16Ltr/min, Ultimate Vacuum: 20mbar abs., Pump head: PPS, Diaphragm: PTFE coated, Valves: FFPM.</p> <p>Cold Water Circulatory Bath (CHILLER): Double walled in construction. Inner chamber is to be made of 304 grade Stainless steel, Outer chamber is to be made of Mild steel sheet duly powder coated, A thick layer of fibre glass wool is to be provided between the two walls to minimize heat loss, Temperature Range: -30°C to +95°C, Accuracy: ±0.5°C, Resolution: 0.1°C, Volume: 15liters (approx), Completed with circulating pump with suitable speed control arrangement to control flow rate of liquid via the bath, Temperature controlled by Digital Temperature Controller Cum indicator, Cooling is done by hermetically sealed compressor with CFC free refrigerant to reach the temperature up to -30°C, LID: The lid is made of non-conductive vigil to prevent condensation of evaporated vapor fall back into the bath, Work on 230Volt, AC</p>	
25	AUTOCLAVE – VERTICAL (Electrically operated)	<p>Working Pressure: 20 lbs (Per Square inch) Size: 14” x 22” , Load: 3 KW, inner chamber made of 316L stainless steel with Argon arc welding, outer chamber made of MS</p> <p>Double walled in construction fitted with automatic stainless steel locking device, automatic pressure control device and complete with easy lifting arrangement operated by feet. The lid is made of 12 mm thick S.S. (according to the size of Autoclave) and complete with easy lifting arrangement operated by feet. The lid is to be tightened by fly nuts using suitable spanner (supplied as standard accessory).</p> <p>The machine is to be provided with best quality neoprene rubber gasket and Operating pressure up to 20 p.s.i (adjustable) All systems are tested up to 40 lbs / p.s.i as a safety measure.</p>	3
26	Adjustable volume micropipette with volume range 10-100 µl	<p>Volume 10 µl, accuracy ±3.0%, precision <1.0%, Volume 50 µl, accuracy ±1.0%, precision <0.3%, Volume 100 µl, accuracy ±0.8%, precision <0.2%.</p>	1
27	Hot Air Oven	<p>Double walled. Inner chamber is made of 304 SS and outer wall is Mild Steel Sheet, Insulation: A thick glass wool insulation to minimize heat loss. The door is to be fitted with highly polished strong hinges to maintain proper alignment and fitted with good quality woolen felt to prevent heat</p>	3

		loss. The door is to be fitted with good quality ball catcher for smooth opening & closing of the door, Should be fitted with 1/35 H.P Motor driven blower for forced air circulation through out the working chamber. Temp. Range: above ambient to 300°C controlled by digital temperature indicator cum controller having accuracy of $\pm 1^\circ\text{C}$. An adjustable air vent is provided on the top of the machine. Complete with suitable numbers of wire mesh Tray, cord & Plug, Load: 2.0 KW Nichrome Heater.	
28	Thermo reactor with COD Photometer	<p>For Thermoreactor:</p> <p>Dry thermostat COD Block Digester (with integrated Timer) for digestion of COD (COD Digester as per APHA Microdigestion), TOC, total Nitrogen, Total Heavy metals for simultaneous digestion up-to 12 samples in round tubes with external O.D. 16mm Reactor Temperature: 100°, 120° or 148°C Programme set: 148°C for 2 hours, 120°C for 30 mins, 120 for 60 mins, 100°C for 60 mins. Control Accuracy: $\pm 1^\circ\text{C} \pm 1\text{digit}$ No of Samples: 12 tubes with 16 mm o.d COD vials. Switch off.: Automatic Operation-status lamps, displays: LED or LCD display for temperature and time Heating on/off display with separate indicator lamp, Heating block: Aluminium anodized, colourless Power requirement: 230VAC $\pm 15\%$ 50Hz; 115VAC 60HZ $\pm 15\%$. Accessories: Required Voltage Stabilizer.</p> <p>For Photometer:</p> <p>Total measuring range: 30 -10000 mg/ l Determination analogous to DIN/ISO or EP A standards Measurement accuracy: $\pm 35\%$, Measuring wavelength: 605 nm (LED), Measuring time: 3 - 4 s, Housing: ABS Keypad: made of polycarbonate membrane, splash proof. Sample Chamber: waterproof, Optics: temperature-compensated LED, Power supply: 9 V battery, providing 40h of operation,</p> <p>With COD Test solution, 25 -1500 mg / L, pack of 50 tests Refill COD Solution A, 30-1500 mg / L, pack for 215 tests Refill COD Solution B, 30-1500 mg / L, pack for 215 tests</p>	1
29	Waterproof portable Turbidity Meter	<p>Measuring Parameter: Turbidity, Light Weight, Range: 0 to 1000 NTU, Automatic Range Selection: 0.01-19.99 NTU, 20.0-99.9 NTU, 100-1000NTU; Resolution: 0.01 NTU, 0.1 NTU, 1 NTU Accuracy: $\pm 2\%$ of reading $\pm \text{LSD}$ for 0 to 500NTU. $\pm 3\%$ of reading $\pm 1\text{LSD}$ for 501 to 1000 NTU, Repeatability: $< \pm 1\%$ of reading, Calibration: 4points; Response Time: $< 6\text{Seconds}$ for full step</p>	1

		change, Light Source: Infrared emitting diode (850nm wavelength), Operating Temperature: 0 to 50°C with minimum 100 ml of standard solution for Turbidity measurement.							
30	Heavy Duty Geared Stirrer	Stirring shaft (Ø X Length): 10 X 550mm (minimum), Impeller Design: Radial Turbine, Speed: 50 to 550RPM, Maximum Volume: 25 Liter	2						
31	Overhead Stirrer along with accessories	Stirring quantity: 20 lt, Speed display: digital, speed range: 60 – 2000 rpm with plate stand, boss head clamp, 4-bladed propeller stirrer: 50 mm, shaft: 8 mm minimum, shaft length: 351 mm minimum	1						
32	Microprocessor Based Peristaltic Pump	Flow Rate: 2 ml/hr -10 ltrs/hr, No. of Rollers: 4, LED Display of flow rate function and time, 1400 Variable steps of flow, Programmable timer from 1 min to 24 Hours, Battery back up to store memory in case of power failure, Audible Alarm with Auto stop/ start, Accuracy +/- 2% (Reproducibility), Power 230 V AC, 50 Hz, interface for PC Compatibility with suitable silicon tubing for the above @ 10 meter	2						
33	Peristaltic Pump with Silicon Rubber tube.	Four Channel Pump, Flow Rate Capacity: 2 ml/hr/ Ch to 1500 ml/hr/Ch, LED Display of flow rate functions and time 1400 Variable steps of flow, Programmable timer from 1min to 24Hours/Battery back up to store memory in case of power failure, Audible Alarm with Auto stops/ start, Accuracy +/- 2% (Reproducibility), Power 230 V AC, 50 Hz, RS-232 interface for PC Compatibility; With suitable silicon tubing for the above @ 10 meter	3						
34	COD Apparatus with water Bath	Can accommodate 15 tests at a time and space saving, W/O water circulation arrangement, Two hours timer & Buzzer, Digital Temperature indicator cum controller, supplied with 15 glass bottles of 40mm dia and 720mm height of air condenser with aluminium stand, Easily operable, Required Water Bath.	1						
35	Micro controller based Colony Counter- Digital	<p>LCD display and audible tone to confirms each count made. Count on the display should be reset manually. Optimum viewing of colonies to be aided by peripheral glare free illumination. A magnifier glass is to be provided for easier counting of small colonies</p> <table border="1"> <tr> <td>Digital Display</td> <td>5 digit (99999 Maximum)</td> </tr> <tr> <td>Dish Size</td> <td>110mm dia</td> </tr> <tr> <td>Magnification</td> <td>X1.7</td> </tr> </table> <p>230Volt, AC, 50HZ Standard Accessories</p> <ul style="list-style-type: none"> • Marking Pen: 2No • Magnifier Lens: 1No • Lens Holder: 1 No 	Digital Display	5 digit (99999 Maximum)	Dish Size	110mm dia	Magnification	X1.7	2
Digital Display	5 digit (99999 Maximum)								
Dish Size	110mm dia								
Magnification	X1.7								
36	High Speed Cooling Centrifuge with voltage stabilizer	<ul style="list-style-type: none"> • Maximum Speed (RPM): 20000 • Maximum RCF (g): 37570 • Maximum Tube Size (mm): 100 • Maximum Capacity (ml): 400 • Lowest Temperature: -8°C 	1						

		<ul style="list-style-type: none"> • Brush- Less induction motor with frequency drive • Safety lid interlock to prevent cover opening during Centrifugation • Digital Speed indicator end 0-99minutes Digital timer • Digital temperature indicator cum controller • Dynamic brake and imbalance detector with cut off. <p>Angle Heads with polypropylene tubes</p> <table border="1"> <tr> <th>Volume per tube</th> <th>Places</th> </tr> <tr> <td>50 ml</td> <td>6place</td> </tr> <tr> <td>1.5 ml</td> <td>24place</td> </tr> </table> <p>Should be supplied with manufacturer's recommended servo controlled voltage stabilizer</p>	Volume per tube	Places	50 ml	6place	1.5 ml	24place					
Volume per tube	Places												
50 ml	6place												
1.5 ml	24place												
37	Cyclo Mixer	<p>Variable speed mixer that accommodates a variety of tubes</p> <p>Touch feature to operate the unit as soon as the tube is slightly pressed on rubber cup</p> <p>Supply: 230Volts, Single phase, 50 Hz, AC</p> <p>To be Supplied complete with adaptor for mixing up to 18 micro tubes (6 X 0.5ml, 6 X 0.4ml & 6X 1.5ml and useful tubes, bottles & flask up to 250ml</p>	1										
38	Mixer Grinder	Mixer Grinder – 750 Watt Motor	2										
39	Stereo zoom microscope with attached digital camera and computer (with image analysis software)	<p>The magnification range: 8X to 100 X</p> <p>Eye pieces: 10 X</p> <p>Objectives: 1X to 8X</p> <p>Zoom ratio: 7:1</p> <p>Bifurcated light source (additional) for better visibility.</p> <p>Working distance: 75 mm or more</p> <p>Camera: 9 megapixel or above digital camera (same brand as the microscope)</p> <p>Computer: A branded computer with 17/19 inch TFT monitor</p>	1										
40	Protein and DNA gel apparatus with power pack	Two Gel should be able to run simultaneously	1										
41	Photoperiod cycler	Should be able to run the dark and light cycle in plant growth room	1										
42	Microwave oven	15 L capacity	1										
43	Microprocessor based Double beam UV – Visible spectrophotometer with software , computer, voltage stabilizer and Quartz Cuvette	<table border="1"> <tr> <td>Optical Design</td> <td>Double-beam, Seya-Namioka Monochromator</td> </tr> <tr> <td>Spectral Bandwidth (SBW)</td> <td>2 nm</td> </tr> <tr> <td>Light Source (typical service life)</td> <td>Deuterium: 1,000 hours Tungsten: 2,000 hours</td> </tr> <tr> <td>Detectors</td> <td>Dual Silicon Photodiodes</td> </tr> <tr> <td>Scan Ordinate Modes</td> <td>Abs, %T, Intensity, 1-4 Derivative</td> </tr> </table>	Optical Design	Double-beam, Seya-Namioka Monochromator	Spectral Bandwidth (SBW)	2 nm	Light Source (typical service life)	Deuterium: 1,000 hours Tungsten: 2,000 hours	Detectors	Dual Silicon Photodiodes	Scan Ordinate Modes	Abs, %T, Intensity, 1-4 Derivative	1
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44	Muffle furnace	<p>Temperature up to: 1050°C (Max.) Working Temperature: 900°C SPECIFICATIONS:</p> <ul style="list-style-type: none"> The casing should be made of thick gauge Mild steel sheet. The casing is complete with heat resistant painting. A1 heating elements are used for heating and fitted on Refractories /tiles support. Hot and cold faced bricks and best quality ceramic blankets are used for insulation. So the furnace is light weight and most efficient to control the heating radiation on the outer body and minimize heat loss. The swing door is complete with an observation hole to inspect the test conditions inside the Muffle chamber. Digital Temperature Indicator cum controller 	1																														
45	Scanner	1200 dpi resolution, 48-bit colour, two-button front panel (Scan, Copy), CCD scanning technology, Photosmart Essential software, OCR technology, USB 2.0 connectivity, Minimum system requirement: Windows®: BMP, JPEG, GIF, TIFF, TIFF Compressed, PNG, PCX, FlashPix (FPX), PDF, PDF searchable, RTF, HTM, TXT; Macintosh: TIFF, PICT, JPEG, GIF, FlashPix, Plain Text, PDF, HTML, Rich Text,	5																														
46	Book Cabinet	Made of SS, six racks, with lock. Width 1.5 ft, height 6 ft. Each rack should have 1 ft height	8																														
47	Almirah	Almirah for office use with good quality lock	8																														
48	Liquid Nitrogen Storage	25L capacity	1																														
49	Nitrogen gas cylinder	Oxygen free nitrogen of 99.99% purity. Approx. cylinder weight 20 Kg.	1																														

50	Laboratory freezer	Capacity: 381 Liters, Dimension: 24 (W) X 24 (D) X 73 (H) (Inches)(approx) Temperature Range: 0°C to 10°C. Wheels. Lock. No of Baskets / Shelves: 06. No of Lid / Doors: 01.	2
51	Magnetic stirrer with hot plate	Stainless steel top magnetic stirrers with hot plate with speed and energy regulators. High torque even at low speed. Accurate step less speed control. Capacity 1 liter. Max speed 1200 rpm.	4
52	Shaking water bath	Double walled with inner chamber made of thick gauge SS. Outer body made of Epoxy powder coated mild steel sheet. 2" thick fibre glass wool to minimize thermal loss during operation. Shaking motion: To & Fro. Shaking Drive: 1/20 H.P gear Motor. Shaking Speed: 40 to 140 strokes / minute. Shaking Length: 25 mm. Temperature Range: above ambient to 95°C. Temperature controlled by Digital Temperature indicator cum controller. Resolution: 0.1°C. Accuracy: ±0.5°C. Capacity 12x100 ml.	1
53	Trinocular Microscope	Trinocular observation Head: Sidentopf observation head inclined at 30°, rotatable 360°. Diopter adjustment ring on ocular tube. Interpupillary distance from 55mm to 75mm <ul style="list-style-type: none"> • EYEPIECE: Wide field eyepiece 10X (Paired), FOV: 18mm • Objective (INFINITE) <ul style="list-style-type: none"> ○ PLAN Achromatic 4X PLAN Achromatic 40X (SL) ○ PLAN Achromatic 10X PLAN Achromatic 100X oil, SL • Mechanical Body: <ul style="list-style-type: none"> ○ Co – axial focusing system with PRE – FOCUSING LEVER & TENSION ADJUSTMENT RING. The slow motion has 1 Division = 0.002mm ○ Reverse angle quadruple nosepiece revolves on ball bearing Mechanical Stage: 125mm X 135mm having low positioned Co – axial controls on ball <ul style="list-style-type: none"> ○ bearing guide ways ○ The transmitted light illumination has 6V – 20watt halogen lamp with intensity control knob • Sub Stage Condenser: Abbe condenser N.A 1.25 with Iris diaphragm Standard Accessories: 6V / 20W Halogen Tungsten Bulb, Blue & gray filters Accessories: Stage micrometer and ocular	1 no.
54	Electronic Analytical Balance	<ul style="list-style-type: none"> • Read Out 'd': 0.001g • Weighing Range: 200 • Reproducibility: 0.001g • Linearity: ±0.003g Weighing Platform: Ø81 mm	1 no.
55	Vertical Laminar Air Flow Cabinet	Size: 2'X 2'X2' <ul style="list-style-type: none"> • Pre-Filter Assemblage for Multi-Dispose particle predominantly in the size range of 5- 20 microns • HEPA Filter – 0.3 microns • Sealed white light • UV- light 	1 no.

- Stainless Steel Work table
- Pressure gauge
- Front Door
- Gas cock
- Anti Vibration Leveling leg
- Extra power outlet switch
- Inner Size: 2' x 2' x 2'

AIR FLOW:

- Designed for 0.45m/s to 0.65 m/s when measure across the entire filters space during the rated life cycle of filters.

PRE-FILTERS:

- Type : Flange type
- Media : Synthetic, Non-oven Polyester fibre, Washable type
- Retention : 5 Micron
- Efficiency : 95%
- Pressure drop : 6 to 8 mm

HEPA FILTER:

- Retention : 0.3 Micron
- Efficiency : 99.97%
- Pressure drop : 25 mm of W.c.

IMPELLERS:

High performance noise abated statically and dynamically balanced.

CLEANLINESS LEVEL:

- Class 100

ILLUMINATION:

- 40 watts Fluorescent tubes

NOISE LEVEL:

- 65 +/- 5 db

VIBRATION LEVEL:

- less than 2.5 um (0.0001)

POWER SUPPLY:

- 230 v AC, 50Hz,

STANDARDS:-

- US FED STD 209 E
- ISO 14644-1
- IEST- RP-CC-002-2
- BSI

SPECIAL FEATURES

		<ul style="list-style-type: none"> • Motor winding Protector • Mini Pleat HEPA filter • DQ,IQ,PQ and OQ documents provided • On-site testing- Velocity, Particle test, Pressure test • Hour meter for monitoring UV life 										
56	Constant Temperature Water Bath Type: Serological	<p>Double walled in construction. The inner chamber is to be made of 304 SS sheet and outer of duly painted mild steel sheet. 2” thick fibre glass wool insulation is to be provided between the walls to minimize heat loss. Best quality immersion heaters are to be used for raising the temperature, located under a perforated tray inside the chamber.</p> <p>Temperature Range: Above ambient to 100°C controlled by digital temperature indicator cum indicator</p> <p>Provided with perforated S/S platform & Lid</p> <p>Working supply: 220/230 volts A.C</p> <table border="1"> <thead> <tr> <th>Size(in “) Working area</th> <th>Load</th> <th>Capacity</th> </tr> </thead> <tbody> <tr> <td>12”L X 10”W X 7”H</td> <td>750 watt</td> <td>2 Rack</td> </tr> <tr> <td>14”L X 12”W X 7”H</td> <td>1.0K.w</td> <td>4 Rack</td> </tr> </tbody> </table>	Size(in “) Working area	Load	Capacity	12”L X 10”W X 7”H	750 watt	2 Rack	14”L X 12”W X 7”H	1.0K.w	4 Rack	1 no.
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14”L X 12”W X 7”H	1.0K.w	4 Rack										
57	Haemocytometer	<ul style="list-style-type: none"> • Neubauer chamber 	1 no									
58	Stage micrometer and ocular		1 set									
59	pH meter	<ul style="list-style-type: none"> • Up to 3 points push button calibration with auto buffer recognition. • Analog recorder output. • Hold function, Self Diagnostic Message, Ready indicator. • Measuring Parameter: pH/ mV / °C. Dual display. <p>pH:</p> <ul style="list-style-type: none"> • Range: 0.00 to 14.00 • Resolution: 0.01 pH • Accuracy: ± 0.01 pH • Calibration: Up to 3 Points. <p>Temperature:</p> <ul style="list-style-type: none"> • Range: 0.0 to 100°C. • Resolution: 0.1 °C. • Accuracy: ±0.3°C <p>mV:</p> <ul style="list-style-type: none"> • Range: ±500mV. • Resolution: 0.1mV (between ± 199.9mV), 1.0mV (outside 200mV) • Accuracy: ±0.2mV (between ±199.9mV), 2.0mV (outside 200mV) 	2									
60	All Quartz Double Distillation Unit	<ul style="list-style-type: none"> • Distilled Water Output Capacity, 2.5litres/hr. • 230-250 volts, single phase 4.4 kw 	2									

		<ul style="list-style-type: none">• Cooling water consumption, 100litres/hr.• pH (app.7), Pyrogen free, Distillation Temperature, 65-75°C.• Conductivity $<1 \times 10^{-6}$ S/cm	
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ANNEXURE-III

(Rs. 60/- Non-judicial Stamp paper)
FORM – A

..... Bank Ltd. Bank
Guarantee No. A/c M/s
Date of expiry
Address
Limit of liability Rs. (in words rupees
..... Only) Ref. Tender No.
Datedfor (Name of work)

Subject: Earnest Monet Deposit Bank Guarantee Bond.
Dated

National Institute of Technology
Durgapur – 713209
Burdwan, West Bengal

Sir,

In consideration of your agreeing to accept Earnest Money Deposit Bank Guarantee of Rs.
..... (in words rupees only)
being 2% of contract value of Rs. (in words Rs.
..... only) furnishable to you by M/s
..... of

herein after referred to as "The Bidder" in terms of tender No.....
.....dated in the form of guarantee from us in the manner
hereinafter contained.

1. We (indicate name of the Bank)at
the request of the vendor do hereby undertake to pay to you an amount not exceeding Rs.
..... (in words rupees)
claimed by you towards bid security.

2. We(indicate name of Bank)
do hereby undertake to pay the amounts due and payable under this guarantee without any
protest or demur, merely, on a demand from you stating that the amount claimed is due by
reasons of the contractor's failure to abide by the terms and conditions of the tender. Any
such demand shall be conclusive with regard to the amount due and payable by us under this
guarantee. However, our liability under this guarantee shall be restricted to an amount not
exceeding Rs... (in words Rupeesonly).

3. We undertake to pay you the money so demanded not withstanding any dispute or
disputes raised by the contractor in any suit or proceeding pending before any court or

