OFFICE OF THE PRINCIPAL
BETNOTI COLLEGE, BETNOTI, MAYURBHANJ, ODISHA

TENDER FORM

Tender No & Date	361/23 Date.09.08.2023
Name of The Tenderer	Principal Betnoti College, Betnoti
List of Items	See in Annexure-II
Date of publication of tender notification on official website and newspapers	Dt. 09.08.2023
Sale of Tender Form commence from	Dt. 09.08.2023
Last date & Time for sale of tender form	Dt. 20.08.2023, 2:00 PM
Last date & Time for submission of duly filled in Tender form	Dt. 20.08.2023, 5:00 PM
Date & Time for opening of Tender	Dt. 22.08.2023, 11:00 AM
Date and Time of the opening of Technical Bids	Dt. 22.08.2023, 11:00 AM
Place of opening of Tender	Office of the Principal Betnoti College, Betnoti
Cost of Tender Form	Rs. 500.00 (Non-refundable) by shape of DD drawn in favor of Principal, Betnoti College, Betnoti

CHECK LIST

The tenderers are hereby instructed to arrange and submit the following required documents as per the checklist

Sl. No	***Name of Document***	***Yes/No***	***Page No***
1	CHECK -LIST		
2	Bidder Details **(Annexure-I)**		
3	Technical specification with Compliance Statement **(Annexure-II)**		
4	Copy of Valid GSTIN Registration Certificate		
5	Copy of PAN		
6	The authorization certificate of OEM/ authorized Manufacturer/ Distributor/ Dealership Certificate		
7	Copy of Income Tax Return for last 03 years (20-21, 21-22 & 22-23)		
8	Price schedule in prescribed format **(Annexure- III)**		
9	Self-declaration for not having been black listed **(Annexure-IV)**		
10	Guarantee/Warranty **(Annexure-V)**		
11	Letter of Willingness **(Annexure-VI)**		
12	The tenderer should have minimum 03 nos. of similar work orders during last three years in any of the Government organization Work Experience **(Annexure-VII)**		
13	Photocopies of the work order, Installation report of similar items (Only)		
14	Original Product catalogue		
15	Original Tender form Duly Signed & Stamp on each Page		

Signature and with seal of tenderer

Date

Note – If tender is not submitted in above manner by the tenderer, may be treated as non-responsive & liable to be rejected

NOTICE INVITING TENDER

The Principal, Betnoti College, Betnoti invites sealed tenders under "TWO BID SYSTEM" from reputed suppliers of good standards for selection of a supplier for the purpose of supplying different items to Principal Betnoti College, Betnoti

"TWO BIDS SYSTEM"

Tenderer should take due care to submit the tender in accordance with requirement in sealed covers. Bids received shall be evaluated as per the Criteria prescribed in the tender document.

The College will not entertain any modifications subsequent to opening of bids and bids not conforming to tender conditions shall be liable to be rejected. Therefore, bidders are advised to submit their bids complete in all respects as per requirement of tender document specifying their acceptance to all the clauses of Bid Evaluation Criteria, General terms and conditions and compliance to the Scope of Work requirement etc.

i) **Technical Bid** shall consist of all technical details along with commercial terms and conditions.

AND

ii) **Financial Bid** shall indicate item-wise price for the items mentioned in the technical bid.

The technical bid and the financial bid should be sealed by the bidder in separate covers duly super-scribed as "**Technical Bid**" and "**Financial Bid**" respectively. Both these sealed covers should then be kept in a bigger cover which should also be sealed & **duly super- scribed as "Tender for Supplying (Name of the dept.)** to Principal Betnoti College, Betnoti. "The Letter of Willingness, Tender Fee DD receipts towards cost of Tender form, Check List.

The tender document can also be downloaded from the official website **https://betnoticollege.org.in** of the college on payment of a non-refundable cost of Tender form of Rs 500/- in the form of a Demand Draft (DD) in favour of Principal, Betnoti College, Betnoti Payable Bank. The tender document is not transferable to any other person.

ELIGIBILITY CRITERIA

The bidders who are desirous for above work require fulfilling the following conditions:

A. Must be registered under GST Act

B. Should not have been blacklisted by any State Govt. / Central Govt. / PSU India. A self-declaration is required as per **Annexure IV**.

C. The Tenderer must be a Reputed Original Equipment manufacturer (OEM) / or the authorized Dealer of an OEM should provide all documents relating to their manufacturing/ sales capabilities. Must have Odisha Office for after sales & Service (If OEM/ Dealer outside of the State). **Tenderer who has their own sales and service station in Odisha with GST Registration Number should only quote.**

D. Proof of Establishment of Firms / Manufacturing unit/ Dealership certificate fromthe OEM to be attached with **Technical Bid**.

E. The tenderer should have minimum 03 nos. of similar work orders during last three years in any of the Government organization. Photocopies of the work order and Installation report of similar items to be attached with Technical Bid.

F. The bidder should supply the items as per technical specification mentioned in Annexure II. The list of items available with the tenderer. Original Technical Catalog as Proof of Technical Specification should be enclosed by Bidder, merely Copy& Paste of Technical Specification will be outright Rejected.

G. The bidder should compile as per **Annexure II**, duly filled in, signed and complete in all respects. No alteration / modification in the format shall be permitted.

H. A self-declaration that the tenderer has not been blacklisted by any StateGovernment/ / Central Govt. / PSU in India as per **Annexure IV.**

I. Performance Statement- **Annexure-V**

J. If any Technical conflict arises while evaluating the Technical Bid, **Principal of Betnoti College, Betnoti** may ask for **Live Demonstration** of same product in front of the Purchase committee.

1. LIST OF ITEMS:

Supply of Laboratory equipments to Betnoti College, Betnoti. The items have been described in **Annexure-I** A bidder can submit financial bid for any number of items however care should be taken to submit for accounting units mentioned against each item.

2. BIDDER:

The term Bidder shall mean Company, Farm, Agency or the Individual to whom the Contract is awarded and shall include its/ his/ her/ its heirs and legal representative. Successful Bidder is referred to as "Party" in this tender document.

3. MODE OF PAYMENT:

i) Payment shall be made through NEFT/ RTGS transfer only after satisfactory supply of the said items.

ii) The principal shall be at liberty to withhold any of the payments in full or in part.

iii) No advance payment will be made in any case

iv) The 100% payment shall be given within 10-15 days after satisfactory installation of the equipment / material supplied & necessary training of operating personnel.

4. MODE OF SUBMISSION OF TENDER

A. Tender should be submitted by tenderer in prescribed form.

B. Tenderer should submit their offer in two parts as under:

(a) Technical Bid, consisting of technical details, drawing/catalogues/ brochures,data sheets or models etc. (Annexure-II)

(b) Financial Bid on prescribed format attached with the tender document(Annexure-IV)

C. Proposals complete in all respect should be submitted to the The Principal, Betnoti College, Betnoti, Mayurbhanj through Speed Post/ Registered Post/Courier Service only. Delivery in person shall not be accepted.

D. All details asked for in the Annexure(s) should be properly filled in and each page of tender should be Stamped & Signed by the tenderer. Failure to attach Annexure required may invalidate the tender.

E. Any tender which is not found in the proper form or is received late due to postal delay or otherwise shall in no case be accepted.

F. The bidder is expected to examine all instructions, forms, terms and specifications in the bid document. Failure to furnish all information required as per the tender document or submission of bids not substantially responsive to the bidding document in every respect will be at the bidder's risk and may result inrejection of the bid.

G. Offers should be typed and Price be quoted in words as well as in figures. In case of any discrepancy or variation in between figures and words is found, the offer in words shall be finally acceptable. Disagreement with this provision shall entail the bid as non-responsive and subsequently rejected.

H. Tender documents are not transferable.

I. Incomplete tenders or tender received after due date and not accompanied with earnest money deposit shall be rejected.

J. In no case the bidding manufacturer or the bidder, otherwise can authorize any other agency whatsoever to supply the items to purchaser and receive payment in respect thereof.

K. No amendment or supplementary attachment in the bidding document shall be allowed or entertained after the bid having been submitted to the purchaser. No representation there to at any stage shall be entertained.

L. Principal, Betnoti College, Betnoti reserves the right to reject any or all offers or increase/decrease in quantities, call for acceptance the offer in full or in part, without assigning any reasons thereof.

M. ISO certified Company should have established service team & network across the state.

N. The principal is not bound to accept the tender quoting the least in the financial bid. The principal reserves the right to place order for a part of the quantity offered. The rates quoted by the bidder shall be valid for any such part.

O. They should be registered for GST/CST/ST & Income Tax and should enclose copies of relevant certificates.

P. Tenderer will have to produce all these original documents at any time as deemed by the Institute.

5. TERMS & CONDITIONS

The tenderer are requested to follow the below mentioned instructions

A. Failure to comply with the conditions will result in forfeiting of the tender. Please cross out any mistakes and rewrite the same and countersign.

B. Cost involved in submitting the bids, attending the tender opening meeting, arrangements for the demonstration /presentation etc. shall be borne by the bidder.

C. No tenderer shall be allowed to withdraw the tender rates after opening of the tender. If any tenderer withdraws the rates, Rates should be offered unconditionally and if rates are submitted with any condition the tender shall be rejected.

D. Tenderer shall have to quote item wise rates; consolidated rates shall not be considered and tender shall be liable to be rejected out rightly.

E. Tenderer/Manufacturer should have extensive experience of at least 05 years of designing, manufacturing, Supplying, installation and commissioning of the required item.

F. It is a compulsory requirement that the items offered make and model, as quoted by the bidder must be supplied, installed and must be in good working condition.

G. Tenderer should quote for the whole set of items required and should be willing to undertake responsibility of commissioning, warranties and after sales service. Part offer/offers not as per given specification will not be considered.

H. Tenders should comply all the terms and conditions given in the tender document and be quoted for the specification given in the tender documents.

I. Notwithstanding anything stated herein above, the principal reserves the right to assess the tenderer capability and capacity to perform the contract, should the circumstances warrant such assessment.

J. In case any part of the equipment supplied being found to be non-functional the entire unit of equipment shall be taken as non-functional.

K. The principal reserves the right to change the quantity/ upgrade the criteria/drop any item or part thereof/extension of delivery date at any time before placing the purchase/ work/ supply order.

L. Right of Acceptance: The college authority is not bound itself to accept the lowest tender. It is the sole discretion of the principal to place order for better quality.

M. Signing of Tender: The individual signing the tender (or the documents in connection with it) must specify whether he/she is signing as:

- A sole proprietor of the farm, or constituted attorney of such proprietor.
- A partner of the farm, if it be a partnership, in which case he/she must have the authority to refer to arbitration, disputes if any, concerning the business of the partnership, either by virtue of the partnership agreement or power of attorney.
- Authorized signatory of the farm, if it is a company, a letter of the authority in this respect must been closed along with the bid.
- A person signing the tender form or any part thereof, on behalf of another, shall be deemed to warrant that he/she has the authority to bind the other and if on inquiryit appears that the person so signing has no authority do to so, Principal may without prejudice to other Civil and Criminal remedies, cancel the contract and hold the signatory liable for all costs and damages.

6. PRICES

Farm will submit the prices (all inclusive) for each item to be quoted on prescribed format attached with the tender document including charges for installation and commissioning with at least One year (12 months) Warranty from the date of satisfactory installation and commissioning of the equipment. The installation will includethe mechanical, civil, electrical, furnishing work (if any) required at site. The tenderer should take care that the rates and amounts are written in such a way its mis interpretations not possible.

The price ranking will be carried out as under:

1. The prices of optional items if not required as per technical specifications will be excluded for ranking purpose.
2. The ranking will be determined as under. Total Price (Cost) = Price quoted with all accessories as per technical specifications along with all the taxes and charges (if any). All these calculations must be clearly written by the bidder in price bid.

3. Offer with any price variation clause will not be accepted. The rates quoted in ambiguous terms such as “Freight on actual basis”, “taxes as applicable extra” or “packing & forwarding extra” will render the tender liable for rejection.
4. G.S.T. or Central sales tax (C.S.T.) or as applicable must be reflected in the financial bid and the tax amount is to be clearly indicated separately but includedin the lump sum price.
5. Bids shall be accepted with price quoted invariably in Indian Currency.
6. No increase in price shall be allowed even if claimed on the grounds of any statutory increase or fresh imposition of any other tax later.
7. Discount, if any, offered by the bidder shall not be considered unless specifically indicated in the price schedule and shall be taken into account for consideration only if it is quoted clearly with net price taking all such factors like discount, free supply etc. to arrive at net price.
8. Prices: The tenderer are required to quote as per “Annexure” (Financial Bid) in a Separate Envelope. The rates quoted shall include the cost of Material, labour, Transport & Packaging etc., as required for the completion of work.

7. VALIDITY OF BID:

The bid will remain valid for 1 months from the date of opening of financial bid.

9. TEST AND INSPECTIONS

Upon completion of the installation work, the tenderer/supplier shall facilitateinspection of the equipment by the principal or his authorized representative, to inspect & test the equipment and to confirm that they are installed in conformity to the required specifications and are serving the desired purpose. Any defect or failure to serve the desired purpose, discovered during the inspection will be promptly rectified and made good tothe satisfaction of the principal or his authorized representatives.

10. GUARANTEE/ WARRANTY (Annexure-V)

The tenderer shall furnish along with their quotations the under noted Guarantee /Warranty:

A. The Guarantee/ Warranty shall be for a period of at least 12 months from the date of satisfactory installation and handing over the equipment and of works conducted there with covered under the contract in working order. During the

guarantee period the replacement of any part(s) of the equipment orrectification of defect of works will be free of cost. If the down time exceeds seven consecutive days at any one time, the guarantee period will be extended beyond aforesaid 12 months by a duration equal to the total down time during the period of warranty.

B. The tenderer should produce written guarantee stating that the equipment being offered is latest model and that spares for the equipments will be available for a period of at least five years after its supply to the purchaser.

C. The tenderer whose tender is accepted shall furnish the warranty (Where Ever Applicable) in Annexure-V Along with Bill.

D. The manufacturer and the tenderer should guarantee the entire unit against defects of manufacture, workmanship and poor quality of components.

E. The tenderer shall bear all cost of such replacement, including freight, if any, of such replace or repaired equipment and/or other articles but without being entailed to any extra payment on that or any other account. All documents required for replacement in part/parts will be made available by the indenter.

Annexure-I

Bidder Details

1. Name & Postal address of Bidder:
   Telephones Nos.:
   E-mail:
   Name & address of Owners/ Partners/ Directors:
2. Nature of Farm/ Agency/Company (Sole/ Partnership/ otherwise):
3. Copy of GST Registration Certificate
4. Copy of PAN Card
5. Income Tax return of preceding 3 financial years
6. Undertaking certifying that the Farm is not black listed in Annexure
7. Each page of tender form duly signed in
8. EMD with the tender submitted.
9. Dealership Certificate (Latest)
10. Date of Establishment of organization/ company/ agency
11. Whether agreed to abide by all the terms & conditions of this tender

Signature of the Proprietor/ Authorized Signatory

(Name & Signature of the tenderer with seal)

Place:

Date:

LIST OF APPARATUS FOR BOTANY DEPARTMENT

BRAND : OMEGA
INDIA/CONTECH/DENVAR/SPANCOTEK/PRIME/NOVEL/BIOLINKK/BENQ

Sl No.	Experiment Name & Technical Specification	Matching Specification	Price/Unit
1	**COMPOUND MICROSCOPE** ***Technical Specification*** ➢ U - Shaped Cast Iron Base 90 Inclinable Body. Stage: 110 X 110 mm With Mechanical Stage ➢ Illumination: A Plano-Concave Reflector, A Bright Field Condenser Is Fixed To The Stage ➢ Optics: 10x & 15x Eyepieces ➢ Objective: 10x & 45x & 100x ➢ Magnification: 50-1500x Objectives Are Achromatic ➢ Focusing: Separate Knobs For Coarse And Fine Motion Are Provided On The Body,Revolving Triple Nose Piece Carrier Is Fixed To The Stage.		
2	**Digital pH Meter- Microprocessor based** Technical Specification - pH range: 0-14 Ph, pH resolution: 0.01pH, pH Accuracy: ± 0.02 pH, Temperature compensation: Automatic or Manual, Temp. Range: 0-100 deg C, mV range: ±1999mV, mV resolution: 1mV, mV Accuracy: ±1mV, Electrode: pH combination electrode with built in temperature sensor – Plastic-EpHP02, Temp. Electrode: Built in, pH, mV and temp. Measurement, 3 point ph calibration, automatic buffer recognition, Buffers selectable from 1.68pH, 4.00pH, 4.01pH, 6.86pH, 7.00pH, 9.18pH, 9.20pH, 10.01pH and 12.45pH, Bi directional RS 232 interface. Baud rate selectable from 1200, 2400, 4800 and 9600, Real time clock, Memory storage of 100pH measurements		
3	**Digital Balance** Technical Specification: Max Capacity: 220gm, Readability: 0.001g, Tare Range: Full, Repeatability: ± 0.001g, Linearity: ± 0.002g, Pan Size: 85mm, Stabilization Time: 2-3 sec, Communication: RS-232, Calibration: Automatic External Calibration, Weighting Units: Multi weighing units, Power: DC9V/500mA with 6V/1.3Ah rechargeable Battery Backup, Display: Large LCD Display with back light, Working temperature: 10-40 degree C, Automatic External calibration, 2,00,000 internal resolutions, Easy to read LCD display with back light, Multifunction weighing units as like g, ct, etc., Full tare range up to max capacity of the balance, Counting weighing functions, Standard RS 232 C interface, S.S. weighing pan, Level indicator, Adjustable fit, In built rechargeable battery for continuous use, Zero tracking function with battery back-up		
4	**Digital Balance** Technical Specification: Max Capacity: 1200gm, Readability: 0.01g, Tare Range: Full, Repeatability: ± 0.01g, Linearity: ± 0.012g, Pan Size: 120mm, Stabilization Time: 2 sec, Communication: RS-232, Calibration: Automatic External Calibration, Weighting Units: Multi weighing units, Power: DC9V/500mA with 6V/1.3Ah rechargeable Battery Backup, Display: Large LCD Display with back light, Working temperature: 10-40 degree C, Automatic External calibration, 2,00,000 internal resolutions, Easy to read LCD display with back light, Multifunction weighing units as like g, ct, etc., Full tare range up to max capacity of the balance, Counting weighing functions, Standard RS 232 C interface, S.S. weighing pan, Level indicator, Adjustable fit, In built rechargeable battery for continuous use, Zero tracking function with battery back-up		
5	**HOT AIR OVEN – 14x14X14 Outer MS & Inner SS** Technical Specification: Size: 14"x14"x14", Temperature upto 250, Accuracy ± 1, C double walled inner chamber of anodized Aluminum/ Stainless Steel, Elements on three sides		
6	**Microtome Machine** Technical Specification: Size: Erma Type		

7	**Binocular Microscope** Technical Specification: Head: Binocular, 360°rotating, 30° inclined, Eyepieces: Wide Field 10x/18mm, Objectives: Achromatic 4x,10x,40x,100x, Stage: Mechanical stage, 125x116mm with specimen holder, Focusing: Coaxial coarse and fine focusing mechanism with limit stop, Condenser: N.A. 1.2 with diaphragm adjustable height, Illuminator: 1W LED with external power supply		
8	**Sample Cold Storage system (Freeze)** ***Technical Specification*** ➢ Temperature: 4 deg. C ➢ Total Volume: 184/190 liters (Above) ➢ Type: Direct Cool, Ice magic Power cool ➢ Insulated Capillary Technology		
9	**Projector with Screen** ***Technical Specification*** ➢ Full HD (1080p) DLP Projector, 3800 ANSI lumens High Brightness, Excellent 1.07 Billion Colors, Upto 200 Inches Screen Size, 16 ms Low Input lag, 10 W Chamber Speakers, Dual HDMI Port with screen.		
10	**Autoclave (Vertical)** Technical Specification: Capacity: 40 liter, Size: 12”x20”, Load: 2.0KW, Autoclave Vertical with both inner chamber & wall of S.S., It is used for sterilization under saturated steam pressure at any selected point between 10 to 20psi (adjustable), These are double walled units with inner chamber (Boiler made of 18 S.W.G. stainless steel and outer chamber is covered with S.S lid is tightened by wing nuts/radial locking system., Fitted with neoprene rubber gasket, all systems are hydraulically tested up to 40 psi, as a safety measure, All autoclaves are fitted with standard accessories such as water indicator, pressure gauge, steam release cock, spring loaded safety valve and heating element, supplied complete with S.S. basket, Cord and plug to work on 220/230 volts A.C. Supply		
11	**Spectrophotometer (UV-Visible) -Single beam (with accessories)** Technical Specification - Optical System: Single beam, grating 1200 lines/mm, Wavelength Range: 190-1000nm, Bandwidth:2nm, Wavelength Accuracy: ±1nm , Wavelength Repeatability: 0.5nm, Wavelength Setting: Auto, Photometric Accuracy: ±0.5%T, Photometric Repeatability: 0.3%T, Photometric Range: -0.3-3A, 0-200%T, Stray Light: ≤0.3%T, Stability: +0.002A/h@500nm, Display: 128*64 Dots LCD, Detector: Silicon Photodiode, Standard cell holder: 4-position 10mm cell changer, Light Source: Tungsten & Deuterium Lamp, Output: USB port & Parallel Port (printer), Power: AC 85-250V, Dimension: 420x280x180mm, Weight: 12kg, USB Cable, 4 Glass Cell (1cm), 2 Quartz Cell (1cm), Operating Manual, Dust Cover, Software CD, Software Key, Software ManuaL, Power Cable with Computer		
12	**Universal PH Indicator**		
13	**MICRO CENTRIFUGE HIGH SPEED 16000 R.P.M (Microprocessor based)** ➢ Technical Specification: High speed Micro Centrifuge Max. R.P.M. 16000 and r.c.f 16800 ➢ Heavy duty plastic injection moulded body. ➢ Stainless Steel protection bowl. ➢ Fitted with well balance universal motor having long life with high grade carbons ➢ 2 lines of 16 character LCD display of r.p.m., R.c.f, set time and run time ➢ Digital timer which can be set from 0-99 minutes in interval of 1 minute ➢ Programmable Speed Regulator from 2000 to 16000 in variation of 100 rpm ➢ Last test parameter recall and displays automatically on LCD		
14	**Incubator – 14x14X14 Outer MS & Inner SS** Technical Specification: Size: 14"x14"x14", Temperature upto 250, Accuracy ± 1, C double walled inner chamber of anodized Aluminum/ Stainless Steel, Elements on three sides		
15	**Spectrophotometer** ***Technical Specification***		

	➢ Wavelength Range: 320-1020nm ➢ Optical System: C-T Single Beam, Grating 1200lines/mm ➢ Spectral Bandwidth: 2nm ➢ Wavelength Interval: 1nm ➢ Wavelength Accuracy: ±2nm ➢ Wavelength Repeatability: ≤1nm ➢ Photometric Accuracy: ±1%T ➢ Photometric Repeatability: 0.5%T ➢ Photometric Range: 0 -1.999A, 0-199.9%T ➢ Stray Light: ≤0.3%T@340nm ➢ Stability: ±0.004A/h @500nm ➢ Display: 4 LCD ➢ Photometric Mode: T,A,C ➢ Detector: Si Photodiode ➢ Light Source: Tungsten lamp ➢ Power Requirement: AC（220V/50Hz) ➢ Dimensions: (W x D x H) 450 x 520 x 320mm ➢ Weight: 10kg ➢ Output: RS-232C Port ➢ Operational Manual : 1 No ➢ Power cable : 1 No ➢ Glass Cell 10m m : 4 no ➢ Software CD : 1 no ➢ RS 232 Cable : 1 no		

LIST OF APPARATUS FOR CHEMISTRY DEPARTMENT

BRAND: BIOLINKK/DENVAR/SPANCOTEK/PRIME/BOROSIL/CONTECH/
SPECTRONICS/BR BIOCHEM /SISTONICS/LABTONICS

Sl No.	Experiment Name & Technical Specification	Matching Specification	Price/Unit
1	**Spectrophotometer (UV-Visible) -Single beam (with accessories)** Technical Specification - Optical System: Single beam, grating 1200 lines/mm, Wavelength Range: 190-1000nm, Bandwidth:2nm, Wavelength Accuracy: ±1nm , Wavelength Repeatability: 0.5nm, Wavelength Setting: Auto, Photometric Accuracy: ±0.5%T, Photometric Repeatability: 0.3%T, Photometric Range: -0.3-3A, 0-200%T, Stray Light: ≤0.3%T, Stability: ±0.002A/h@500nm, Display: 128*64 Dots LCD, Detector: Silicon Photodiode, Standard cell holder: 4-position 10mm cell changer, Light Source: Tungsten & Deuterium Lamp, Output: USB port & Parallel Port (printer), Power: AC 85-250V, Dimension: 420x280x180mm, Weight: 12kg, USB Cable, 4 Glass Cell (1cm), 2 Quartz Cell (1cm), Operating Manual, Dust Cover, Software CD, Software Key, Software ManuaL, Power Cable with Computer		
2	**Digital weighing Balance** Technical Specification: Max Capacity: 1200gm, Readability: 0.01g, Tare Range: Full, Repeatability: ± 0.01g, Linearity: ± 0.012g, Pan Size: 120mm, Stabilization Time: 2 sec, Communication: RS-232, Calibration: Automatic External Calibration, Weighting Units: Multi weighing units, Power: DC9V/500mA with 6V/1.3Ah rechargeable Battery Backup, Display: Large LCD Display with back light, Working temperature: 10-40 degree C, Automatic External calibration, 2,00,000 internal resolutions, Easy to read LCD display with back light, Multifunction weighing units as like g, ct, etc., Full tare range up to max capacity of the balance, Counting weighing functions, Standard RS 232 C interface, S.S. weighing pan, Level indicator, Adjustable fit, In built rechargeable battery for continuous use, Zero tracking function with battery back-up		

3	**Digital Hot Air Oven** Technical Specification: Chamber Size: 350 x 350 x 350mm (14”x14”x14”), Capacity: 45 lit, Chamber: Stainless Steel, No of Shelves: 2, Inner chamber: Stainless steel, Exterior: Mild steel powder coated, Temperature range: Ambient 50°C to 250°C), Temperature accuracy: ±1°C, Temperature sensor: PT100., Temperature Controller: Microprocessor PID Digital controller with timer, Air Circulating Fan, Power: 220/230 volts A.C		
4	**TLC UV Cabinet** Technical Specification: UV Exposed area:: 300 x 300 nm, UV Tubes: Short wave 254nm, Long Wave 365nm, White Light, UV Window: UV Protective shield, UV Area: Rubber mat with strips, Input Voltage: 230v +/-10% AC 50Hz		
5	**Calorimeter** Technical Specification: Size-4"x3"		
6	**Rotary Shaker** Technical Specification: Body made out of thick mild steel finished with powder coating. PMDC motor, Used for shaking Platform size 450x450mm. S.S. platform consists of 9x250ml, Conical flask lotus type clamps. RPM range 50-250 RPM, Electronic variable Control with Digital Timer with RPM, Workable on 220 V AC 50 Hz Single Phase.		
7	**Digital Conductivity Meter - Microprocessor Based** Technical Specification - Measurement Range: conductivity: 0-200mS/m spread into 5 ranges 0.00-20.00micro S/cm, 20.0-200.0 micro S/cm, 200-200 micro S/cm, 2.00-20.00 MS/cm, 20.0-200.0MS/cm., Resistivity: 0-100 M ohm cm, TDS: 0-100ppt (g/L), Salinity: 0-100ppt, Temp.: 10-110 deg C, Precision: Conductivity: ± 1%FS, Temp.: ± 0.4 deg C, ATC: 0-50 deg C, Display: Back Lite LCD, Power: 9V/500 Ma External adaptor or Battery backup unit (Option), Operating Temperature: 15-45 deg. C, Meter Dimensions (mm): 165 (I) x 19 (D) x 60 (H), Weight: 700gm, Electrode: Conductivity Electrode ECN G01, Temp Sensor Electrode ETS01		
8	**Digital Potentiometer (with 2 Electrodes)** Technical Specification: Range: 0 to + 199.9mV, 0 to + 1999 mV, Resolution: 0.1mV, Repeatability: +1mV, Accuracy: +1mV +1 digit, Input impedance: > 1012 ohms, Operating temperature: 10o C to 45oC, Display: 3 1/2 Digit seven segment LED display with auto polarity indication, Power: 230V + 10% AC, 50 Hz, Dimensions: 275 X 175 X 76mm, Weight: 2.5 Kg (Approx.), Accessories: Platinum Electrode, Reference Electrode, Glass Electrode and Silver Electrode-1No each, Buffer Tablets 4 pH & 7 pH, Operation Manual, Electrode Stand, and Dust Cover		
9	**Digital Hot Plate with Magnetic Stirrer (Ceramic Plate)** Technical Specification: Work plate dimensions: 135mm(5 inch), Work plate material: stainless steel cover with ceramic, Motor type: DC motor, Motor rating input: 5W, Motor rating output: 3W, Power: 515W, Heating output: 500W, Voltage: 100-120/200-240V 50/60Hz, Stirring positions: 1, 18%, Max. stirring quantity: 5L, Max. magnetic bar[length]: 50mm, Speed range: 100-1500rpm, Speed display: LED, Temperature display: LED, Speed display resolution: ±1rpm, Heating temperature range: Room temp.-310, increment 1°C, Control accuracy of work plate: ±1°C(<100°C) ±1%(>100°C), Overheating protection: 320°C, Temperature display accuracy: ±1°C, External temperature sensor: PT1000 (accuracy ±0.5°C), "Hot" warning: 50°C, Protection class: IP21, Dimension [W x D x H]: 150×260×80mm,, Weight: 1.8kg**,** Permissible ambient temperature and humidity: 5-40°C 80%		
10	**Digital Water Bath** Technical Specification: No of holes: 6, Lid: Concentric rings 75 mm dia, Temperature: Ambient+5 to 100°C, Temperature Controller: Thermostatic rotary knob, Display: LCD Display, Inner MOC: SS 304, External MOC: Powder coated GI sheet, Insulation: Glass wool, Power supply: 220 Volts 50 Hz, Optional: Digital temperature Controller SS 304 exterior		
11	**Double Distilled water Set** Technical Specification: Capacity Distilled Water Output: 1.5 LPH, Minimum cooling water requirement (Ltr/min): 1, Heater: Quartz, Boiler: Boro 3.3, Condenser: Boro 3.3, Biological Activity: Pyrogen Free, Conductivity S/cm*: <3 x 10-6, Power consumption (kw): 3 kW, Voltage (V): 230V, Dimensions (L x B x H) in mm: 640 x 630 x 520		

LIST OF APPARATUS FOR PHYSICS DEPARTMENT

BRAND: INDOSAW /3B-SCIENTIFIC/GINI USA/PHYWE/ SPANCOTEK

Sl No.	Experiment Name & Technical Specification	Matching Specification	Price/Unit
1	**To study surface tension by capillary rise method.** ***Technical Specification*** Rising Table: Cast Aluminium 10cm dia with a stem of 12cm Capillary Tube Clamp: 10cm long with glass Different internal diameter 9mm Rod is attached with Metal Frame Beaker **TRAVELLING MICROSCOPE** Travel: Horizontal Travel 170mm, Vertical Travel 100mm Least count: 0.01mm Working Distance: 50mm Eyepiece Ramsden: 8x Reticle: 90° Cross on glass		
2	**To determine the Height of a Building using a Sextant with its Stand** ***Technical Specification*** Frame: Light alloy Graduated: -5° to 125° into 1° on the arc Lacqered: Gold Micrometer: Divided to 1 minute on black drum Index Mirror: Rectangular, 33x49mm aluminium spattered Horizon Mirror: Circular, 50mm diameter, one half transparent, other half aluminium separated Shade glasses: Three different densities for direct rays and four reflected rays Star Telescope: Galilean monocle 4x40mm, prismatic monocle 7x35mm, prismatic monocle 7x50mm Shade caps: One dark and polarized light Illuminator: Equipped Adjusting tools: 1-wrench for mirror Spare parts: 2-ry cell, 2bulbs Case: Hard wood Weight of Sextant: 1.9kg/ Stand: (m.s) 6 feet stand (Tripod Stand) Weight of case: 2kg Telescope: Astronomical & Terrestrial Sextant: German silver scale embedded in brass frame Measuring Tape		
3	**To study the Motion of Spring and Calculate (a) Spring Constant.** ***Technical Specification*** Adjustable Scale on a stand of 37.5cm Helical spring with pointer Weights Digital Stopwatch: **Count**: 1/100 Second, **Time Display**: Hour, Minute, Seconds		
4	**To determine Co-efficient of Viscosity of water by Capillary Flow Method (Poiseuille's method)** ***Technical Specification*** Constant water level reservoir can be adjusted on MS chrome plated rod on tripod stand Rubber tube of length 1 meter **Digital Stopwatch- Count**: 1/100 second, **Time display**: Hour, Minute, Seconds Thermometer Pinch cock Graduated cylinder 100ml Manometer on wooden stand Glass capillary tube of length 38cm on stand Travelling Microscope (Optional)		

5	**To determine the Modulus of Rigidity of a Wire by Maxwell's Needle** ***Technical Specification*** Hollow cylindrical brass tube of length 40cm Maxwell's needle Wall Bracket**,** Wire **Screw Gauge: Material**: Stainless Steel**, Range**: 0-25mm**, Finish**: Metallic Meter Scale- 1 meter (wood) **Digital Weighing Balance**: **Body**: Plastic, **Capacity**: 700g, **Least Count**: 0.1g **Stopwatch**: **Count**: 1/100 second, **Time display**: Hour, Minute, Seconds (Optional)		
6	**To Study the Characteristics of a Series R.C Circuit** ***Technical Specification*** ➢ Built in DC Regulated Power Supply: 0-12V (Variable) ➢ Voltmeter: 0-12V (Moving Coil) ➢ Galvanometer: 1-0-1 (Moving Coil) ➢ Resistance: 10KΩ, 15KΩ & 18KΩ ➢ Capacitors: 1000µf, 2200µf and 4700µf ➢ Toggle Switch: 2way ➢ Dump Switch: 1no		
7	**To determine an unknown Low Resistance using Potentiometer** ***Technical Specification*** Power Supply +2VDC & Standard Cell +1.018VDC On board Galvanometer: Moving coil On board Digital Ammeter Unknown Resistor: 3 Carry Foster Bridge: with jockey 0-20V/200mADC Internal power supply		
8	**Measurement of field strength B and its variation in a solenoid/ artificial coil (determine dB/dx)** ***Technical Specification*** **POWER SUPPLY 0-16V, 5A** Voltage: 0-16V DC continuously variable & stabilize Voltage Display: 3 ½ digit LED Ripple: Less than 25mV Overload: Current limiting protection Current: 5A continuously variable, 10% to full rating Current Display: 3 ½ digit LED Working voltage: 230V AC, 50Hz single phase **GAUSS METER WITH AXIAL PROBE** Range: 200 Gauss & 2k Gauss Resolution: 0.1 Gauss at 0-200 Gauss Offset: By Potentiometer to set ZERO Input Voltage: 220V, ± 5%, 50Hz AC Axial Hall Probe: InAs Display: 3 ½ Digit LED **WOODEN SCALE** Length: 100cm Accuracy: 1mm **LABORATORY JACK** Material: Aluminium Top plate (LxW): 200x200mm Static load: 20kg Vertical elevation: 65-260mm **CYLINDRICAL BASE** Material: Ferrous Mount: Rod 10-14mm dia: Flat object up to 10mm Groove (LxW): Slide object, 30x10mm **CLAMP** Material: Cast iron Paint: Black powder coating Length: 75mm		

	▯▯Clamping: Threaded knob **INDUCTION COIL SETS** ▯▯Material: Copper **OD (mm) L (mm) N R (Ω) L (mH) I max** 40 75 165 0.7 0.5 2A 40 100 220 1 0.71 2A 40 125 275 1.2 0.91 2A 32 75 165 0.6 0.36 2A 32 100 210 0.8 0.51 2A 32 125 275 1 0.66 2A		
9	**To determine self inductance of a coil by Andersons bridge** ***Technical Specification*** ▯▯Variable resistance 0-100 ohm's ▯▯Resistance dials 10x10, 10x100 & 10x1000 ohm's ▯▯Standard capacitor 0.1µf and 0.2µf ▯▯Resistance 1000 ohm P and Q ▯▯Unknown inductance L ▯▯Digital NULL Detector or Head phone		
10	**To verify the Thevenin and Norton Theorems** **To verify the Superposition Theorems** **To verify the Maximum Power Transfer Theorems** ***Technical Specification*** ▯▯Power Supply Unit: 9V DC & 5V DC ▯▯Plug in Board ▯▯Digital Voltmeter ▯▯Digital Ammeter ▯▯Connecting Leads red & black (each) ▯▯Variable resistance module ▯▯Resistance modules: 10,22,50,75,100,150,220,560Ω		
11	**To study response curve of a Series LCR circuit and determine its (a) Reso- nant frequency, (b) Impedance at resonance, (c) Quality factor Q, and (d) Band width** ***Technical Specification*** ▯▯Signal Generator 10Hz to 110Khz 20V pp ▯▯Plug Board ▯▯Digital AC Ammeter ▯▯Resistance Module 1KΩ, 2KΩ, 3.3KΩ (each) ▯▯Inductor 225mH ▯▯Capacitor 0.01µf, 0.1µf ▯▯Connecting leads (red & black) 50cm pair		
12	**To determine the frequency of an electric tuning fork by Meldes experiment and verify 2 T law** ***Technical Specification*** ▯▯Heavy steel fork ▯▯Heavy cast iron base ▯▯Electromagnet ▯▯Weight box 1 ▯▯Voltage source 1.5V- 12V / 3A ▯▯Pulley with clamp ▯▯Reel of thread ▯▯Meter scale of length 1m ▯▯Scale pan		
13	❖ **To determine the dispersive power and Cauchy constants of the material of a prism using mercury source** ❖ **High resolving power of a plane diffraction grating** ***Technical Specification*** **SPETROMETR** ▯▯Scale: Brass (Strictly) ▯▯Base Dia:170mm ▯▯Objective: Achromatic lens, f = 178mm,Aperature 32mm ▯▯Slit : Brass with micrometer (German Silver with knurled screw) ▯▯Reticle : 90 cross etched on glass ▯▯Eyepiece : 15X, Ramsden eyepiece, inbuilt magnifier		

	¬¬ Base: 190mm Triangular, Cast Iron **PRISM** ¬¬ Size: 38x38mm, Height: 38mm, Material: EDF **PLANE DIFFRACTION GRATTING** ¬¬ Diffraction Grating: 15000 lines/ 6000 lines **MERCURY LIGHT SOURCE** ¬¬ Mercury Vapour Lamp: 125 watt. ¬¬ Transformer with metal Box ¬¬ Lamp house: 250x100mm(Lxdia), Aperture dia: 25mm		
14	**Computer** ***Technical Specification*** ¬¬ Intel Core I5, 12th Gen., 8GB RAM, 1 TB HDD with SSD, Display: 19.5", Windows: 11, MS Office, Key Board and Mouse with UPS		
15	**To determine mechanical equivalent of heat J by callender and barne's constant flow method.** Technical Specification : Calendar and Barn's continuous flow calorimeter, AC Ammeter : 0- 3A (Moving Coil), AC Voltmeter : 0-10V (Moving Coil), Thermometers : 10°C to 100°C -2nos, Measuring cylinder : 0 to 100mg, DC Supply : 2V to 12V/3A, Three Flow Water containg Beaker -1 no, Rubber tubing : 8mm - 2Meter, Digital Stop-watch. (Make: INDOSAW, SPANCO TEK, AELAB)		
16	**To determine the Coefficient of Thermal Conductivity of a bad conductor by Lee and Charlton's disc method** ***Technical Specification*** ¬¬ Hollow metal box ¬¬ MS chrome plated rod ¬¬ Thread reel ¬¬ MS painted base ¬¬ Chrome plated brass disc ¬¬ Disc made of ebonite and glass ¬¬ Steam generator ¬¬ Stem Chamber ¬¬ Thermometer alcohol -10 to 150°C x 1°C ¬¬ Digital Stopwatch- Count: 1/100 second, Time display: Hour, Minute, Seconds ¬¬ Rubber tube silicon L=50cm ¬¬ Rubber tube L=50cm ¬¬ Hot plate dia 6" ¬¬ Glass Beaker 250ml		
17	**To determine the Temperature Coefficient of Resistance by Platinum Resistance Thermometer (PRT)** Technical Specification: Platinum Resistance Thermometer, Three in one (Callender & Griffth bridge, Carry Foster bridge and potentiometer), Galvanometer , Hypsometer Copper, Power supply 2V DC 100mA, Connecting leads red & black 50cm (pair), Hot plate, Banana lead socket with U clip, Thermometer -10º to 150º c x 1ºc, Connecting lead red & black 100cm(pair), Instruction manual		
18	**To study the variation of Thermo-emf of a Thermocouple with Difference of Temperature of its Two Junctions** ***Technical Specification*** ¬¬ 10 wire potentiometer with jockey ¬¬ Unit of electronic standard cell 1018V ¬¬ Battery eliminator 2V/100mA ¬¬ Rheostat 0-5 K ohm & thermometer ¬¬ Hot plate ¬¬ Sensitive galvanometer 30-0-30,22Ω ¬¬ Resistance box, dial type (% dial) ¬¬ Flexible plug leads ¬¬ 'A' Base ¬¬ Rod 50cm		

	¬ ¬ Engine oil 250ml ¬ ¬ Beaker 250ml ¬ ¬ Two way plug key ¬ ¬ Thermocouple copper-Iron		
19	**To determine the specific heat of liquid by the method of cooling** ***Technical Specification*** ¬ ¬ Copper Calorimeter 4"x3" ¬ ¬ Thermometer: Mercury type ¬ ¬ Digital Stop Watch		
20	**To determine the specific heat of solid by applying radiation correction** ***Technical Specification*** **Steam Chamber** Inner chamber: 100x30mm (LxΦ), Outer chamber: 80x75mm (LxΦ), Nozzle: 30x8mm (LxΦ), Handle: L=90mm, PVC, Supplied with rubber stopper & silicon tube Dewar Flask **Digital Thermometer** Sensor/ Input: Pt-100, Range: -50 to +199.9 C, Resolution: 0.1 C, Accuracy: ± 0.2 C ± 1 digit, Battery: 9V **Three Finger Clamp** Material: Aluminium alloy, Tightening screw: 'T' type plastic knob, Rod: Aluminium length=160 mm, Object: Holds up to 75mm diameter. **Bosshead** Object type: Square & round shape, Object size: Up-to 13mm dia, Material: Aluminium alloy, Object can be held both vertically and horizontally **'A' Shaped Base** Mount: Support rod upto 8-14mm, Material: Cast iron, Length: 280mm **Round Bottom Flask** Material: Glass, Volume: 250ml **Beaker** Material: Borosilicate glass, Graduation: 50ml interval, Volume: 250ml **Digital Weighing Scale** Body: Plastic, Capacity: 700g, Least count: 0.1g. **Rod** Length: 500mm, Diameter: 100g each, Mateial: Mild Steel **Samples** Sample: Copper, Lead & Glass, Weight: 100g each, Supplied in plastic bottle.		
21	**To study the V-I characteristics of a Zener diode and its use as voltage regulator** Technical Specification: Variable DC supply: 0-15V , Voltmeter Range: 0-15V , Ammeter Range: 0-15mA, Ammeter Display: 3 ½ Digit LCD, Voltmeter Display: 3 ½ Digit LCD, Variable pot: 500K-1n, Interconnection: 4mm patch cord, Resistance: 1KΩ-3nos, Zener Diode: 6V, 9V & 12V, Mains Power: 230V/50Hz		
22	**Study of V-I & power curves of solar cells, and find maximum power point & efficiency** Technical Specification: DC Ammeter Range: 0-200mA, DC Voltmeter Range: 0-500mV, Ammeter Display: Analog Moving Coil, Voltmeter Display: Analog Moving Coil, Solar Cell, Light Source: 100W with intensity control , Range Selector Restive Load: 10Ω, 22Ω, 47Ω, 56Ω, 68Ω, 82Ω, 100Ω, 150Ω, 180Ω, 1KΩ		
23	**To study the frequency response of voltage gain of a RC-coupled transistor** ***Technical Specification*** ➢ Signal: 1KHz/15mV sine wave ➢ Transistor: BC 107BP-2nos ➢ Resistor : 33KΩ-2nos, 330Ω-2nos, 3.3KΩ-2nos, 1KΩ-2nos ➢ Capacitor: 100uf,-3nos, 10uf-2nos ➢ Interconnection: 2mm patch cord ➢ Main Power: 203V/50Hz		
24	**To investigate the use of an op-amp as an Integrator &Differentiator.** Technical Specification: DC Supply: +12V &-12V Fixed, AC		

	Signal: 10KHz, AC Voltage:1V, OPAMP-IC741, Resistor : 1KΩ,10KΩ-2nos,100KΩ-2nos,1MΩ,10MΩ, Capacitor:0.01µF-2nos,100pF Optional Essential Accessories: Cathode Ray Oscilloscope , Signal Generator		
25	**Half Adder, Full Adder and 4-bit binary Adder & Half Subtractor, Full Subtractor, Adder-Subtractor using Full Adder I.C** Technical Specification : DC Supply :+5V/250mA (Fixed) ,Data Switch : 0-5V-8nos, LED Indication : 8nos, Quad 4 IC7846 : 3nos, Quad 4 IC7404 : 2nos, Quad 4 IC7432 : 1no, Quad 4 IC7483: 1no		
26	**To design a Wien bridge oscillator for given frequency using an op-amp** ***Technical Specification*** ➢ DC Supply: +5V ➢ BJT: CL100S ➢ Resistor: 4.7KΩ, 100KΩ, 6.8KΩ, 3.3KΩ, 680Ω, 10KΩ ➢ Capacitor: 0.01µF, 0.047µF, 0.2µF ➢ Mains Power: 230V/50Hz ➢ OPTIONAL-50MHz DSO		
27	**To design phase shift oscillator** ***Technical Specification*** ➢ DC Supply: +5V ➢ BJT: CL100S ➢ Resistor: 4.7KΩ-3nos, 47 KΩ, 10KΩ, 2.2KΩ, 680Ω ➢ Capacitor: 0.01µF-3nos, 1µF, 22µF ➢ Mains Power: 230V/50Hz ➢ OPTIONAL-50MHz DSO		
28	**To study the Colpitt's Oscillator** ***Technical Specification*** ➢ DC Supply: +5V ➢ BJT: CL100S ➢ Resistor: 4.7KΩ, 100KΩ, 6.8KΩ, 3.3KΩ, 680Ω, 10KΩ ➢ Capacitor: 0.01µF, 0.047µF, 0.2µF ➢ Mains Power: 230V/50Hz ➢ OPTIONAL- 50MHz DSO		
29	**Tunneling effect in tunnel diode using I-V characteristics-Digital** Technical Specification: Inbuilt Fixed DC regulated power supply DC Voltmeter : 0-600mV, DC Ammeter : 0-50mA, Tunnel Diode : IN 3717		
30	❖ **To determine the wavelength of laser source using diffraction of single slit** ❖ **To determine the wavelength of laser source using diffraction of double slits** ***Technical Specification*** **OPTICAL BENCH** ➢ Material: Black Aluminum alloy, Type: Hexagonal section, Scale: 0-100cm, Least count: 1mm **DIODE LASER** ➢ Peak wavelength: 635nm, Operating voltage: 5V DC, Operating current: 250mA ➢ Optical power: 0.40-0.8mW, Laser product: Class II, Operating temp. : 0-40°C ➢ Storage temp. : -10 to 50 °C **PIN HOLE PHOTO DETECTOR** ➢ Detector: Silicon photocell, Terminals: 4mm safety socket, Aperture: 1mm, Rod: 10mm diameter **SLIT HOLDER** ➢ Clear Aperture: 45x45mm, Object holder: Clip type, Mounting Rod: 10mm diameter **SADDLE WITH MICROMETER** ➢ Material: Aluminium, Transverse Motion: 10-0-10mm, Least count: 0.02mm		

	➢ Locking: Spring loaded, Motion: X-Y axis, Holder: 10mm dia **SINGLE WIRE** ➢ Frame Size: 50mm x 50mm, Clear aperture: 15mm dia. (approx.), Wire thickness: 0.5mm (approx.) **CROSS WIRE** Frame Size: 50mm x 50mm, Clear aperture: 15mm dia. (approx.), Wire thickness: 0.5mm (approx.) **TRANSVERSE SADDLE** Material: Aluminium, Locking: Spring loaded, Motion: X-Y axis, Holder: 10mm dia **DIGITAL MULTIMETER** Resistance: 200W, 2000W, 20k, 200k & 2000k W., D.C. Voltage: 200 & 2000, mV: 20, 200 & 600V AC Voltage: 200 & 600V, D.C. Current: 200 & 2000mA, 10A Testing: Diode & transistor, Battery: 9V **DIFFRACTION SLIDE** Frame Size: 50mm x 50mm Slit: Width=0.06mm & Separation=0.20mm (Single, Double) Diffraction grating: 80 lines /mm Diffraction grating: 300 lines /mm Single slit: Tapered Double slit: Tapered Metal gauze: 300 mesh All individually mounted in slide frames and protected by two Glass plates		
31	**To determine (1) wavelength and (2) angular spread of He-Ne laser using plane diffraction grating** ***Technical Specification*** **OPTICAL BENCH** Material: Aluminum alloy, Type: Hexagonal section, Scale: 0-100cm, Least count: 1mm **He-Ne LASER** Wavelength: 632.8nm, Working current: 4mA-6mA, Output power: >2mW Working time: >8 hrs, Working voltage: AC 220V ±22V, Input Power:<2W Dimension: 300x62x82mm, Weight: 1.5kg (approx) **SET OF 13 OBJECTS** It consists of 13 Objects: Single slit, double slit, multiple slit 3, multiple slit 4, multiple slit 5, single tapered slit, fine, grating, 4 holes, circular opaque pot, gray filter, mesh, coarse grating & grid pattern Frame Size: 50mm x 50mm **PRISM TABLE** Disc: 75mm diameter, Rod: 10mm diameter **OBJECT SCREEN** Material: Translucent, Acrylic, Size: 300x300mm, Rod: 10mm diameter **CYLINDRICAL BASE** Material: Ferrous, Mount: Rod 10-14mm dia: Flat object up to 10mm Groove: Slide object, 30x10mm (LxW) **GLASS SCALE** Length: 15cm, Least Count: 1mm **SLIT HOLDER** Clear Aperture: 45x45mm, Object holder: Clip type, Mounting Rod: 10mm diameter **LENS IN HOLDER** SL072 -10cm 40 SL070 -5cm 40 SL062 +10cm 40 SL064 +20cm 40		
32	**To determine the Planck's constant using LEDs of at least 4 different** **Colours** ***Technical Specification*** **PLANCK'S CONSTANT APPARATUS WITH OVEN** Selector Switch: V-I and T-I experiment Selector Switch at V-I position		

	Voltmeter Display: 3 ½ digit, 7 segment LED, auto polarity & decimal indication Voltage Range: 0.000-2.000V, Current Display: 3 ½ digit, 7 segment LED Current Range: 0-2000 Micro A Selector Switch at T-I position:- Current Display: 3 ½ digit, 7 segment LED Current Range: 0-20mA Temperature Display: 3 ½ digit, 7segment LED, Temperature Range: Room temperature to 60.0 °C Oven: Heater pin 4 & 5. Temperature pin 1 & 2, Oven Connector: 5 Pin, DIN type LED Connector: 3 Pin DIN type, Input Voltage: 220V, 50Hz AC, Fuse: 1A, 250V **OVEN WITH TEMPERATURE SENSOR** Heating Element: 20 ohm, Oven Connector: 5 pin, DIN type, Ambient Temperature: 60°C Temperature Sensor: Pt100, Output Pin: Heater pin 4 & 5., Temperature pin 1 & 2 **LED SPECIFICATION** Yellow LED Size: 5mm, Wave Length: 590nm, Connector: 9pin, Din type Red LED Size: 5mm, Wave Length: 590nm, Connector: 9pin, Din type Orange LED Size: 5mm, Wave Length: 590nm, Connector: 9pin, Din type Green LED Size: 5mm, Wave Length: 590nm, Connector: 9pin, Din type		
33	**To setup the Millikan oil drop apparatus and determine the charge of an electron** ***Technical Specification*** Input Voltage: AC 220V, 50Hz Output Power: 5W Plate Voltage: 0-500V DC Plate Distance: 5±0.2mm Total Magnification: 30X Linear field of vision: =3mm Scale division: 2±0.01mm Objective lens: 100 lines/mm Operating temperature: -10-40°C Relative Humidity: Not less than 85% (at 40°C) Dimensions: 320mm x 220mm x 190mm		
34	**To build Flip-Flop (RS, Clocked RS, D-type and JK) circuits using NAND gates** ***Technical Specification*** ➢ DC Supply: +5V/250mA (Fixed) ➢ Data switch: 0-5V-4nos ➢ LED Indicator: 2nos ➢ Clock Pulse: High & Low ➢ Quad 4 IC7846-3nos ➢ Quad 4 IC7404-2nos ➢ Quad 4 IC7432-1no ➢ Quad 4 IC7483-1no		
32	**Study of Electron spin resonance- determine magnetic field as a function of the resonance frequency** ***Technical Specification*** FET based marginal R.F. Oscillator Digital display of frequency Excellent peaks display Digital display of Helmoltz Coil Current Compatible with general purpose CRO in X-Y mode**(Set up without CRO)**		
33	**Zeeman Effect Apparatus** Specification ➢ High Resolution Fabry Perot Etalon ➢ Mercury Discharge Tube (Low Pressure Mercury Discharge Tube) ➢ Power Supply (High Voltage power supply for Discharge tube) ➢ Narrow Band Interference Filter		

	➢ Central wave Length: 546nm ➢ Tmax: 74% ➢ HBW: 8nm ➢ Polarizer with lens ➢ Optical Bench ➢ CCD Camera: CAM-700 (High Resolution CCD Camera) ➢ Telescope with Focussing Lens ➢ Monitor 17" ➢ Electromagnet ➢ Constant Current Power Supply ➢ Digital Gauss meter		
34	**Measurement of susceptibility of paramagnetic solution (Quinck's Tube-Method)** ***Technical Specification*** **POWER SUPPLY** Voltage : 0-16V DC continuously variable & stabilized Voltage display : 3½ digit LED, Ripple : Less than 25Mv Overload : Current limiting protection Current : 5 A continuously variable, 10% to full rating, Current display : 3½ digit LED Working voltage : 230V AC, 50 Hz single phase **DIGITAL GAUSS METER** Range : 200 G & 2 kG Resolution : 1G at 0 - 200G Power : 220 V, 50 Hz AC Hall probe : InAs **TRAVELING MICROSCOPE** Travel : Horizontal 170mm, Vertical 110mm, Least Count : 0.01mm Working distance : 50mm, Eyepiece Ramsden : 8x Reticle : 90° cross on glass The vertical carriage slides on a brass pillar. In the vertical and horizontal at carriages a locking arrangement is provided to arrest coarse motion when slow motion screw is used. By successively locking and unlocking, motion in the total travers can be provided by the slow motion screw. **DIGITAL WEIGHING SCALE** Capacity : 700g., Display :Digital, Least count : 0.1g., Body : Plastic **ELECTROMAGNET** Coils: 400 Turns. Coil Current: 4.5Amp (Max.) Connection: 4mm safety socket U Core: 150x130mm (LxH), 40x40mm cross section I Core : Length=150mm, 40x40mm cross section Core material: Ferromagnetic		
35	**To measure the Magnetic susceptibility of Solids** ***Technical Specification*** **POWER SUPPLY** Voltage: 0-16V DC continuously variable & stabilized Voltage display: 3 ½ digit LED Ripple: Less than 25mV Overload: Current limiting protection Current: 5 A continuously variable, 10% to full rating Current display: 3 ½ digit LED Working voltage: 230V AC, 50 Hz single phase **DIGITAL GAUSS METER** Range: 200G & 2kg Resolution: 1G at 0-200G Power: 220V, 50 Hz AC Hall probe: InAs **TRAVELING MICROSCOPE** Travel: Horizontal 170mm, Vertical 110mm Least Count: 0.01mm Working distance: 50mm Eyepiece Ramsden: 8x, Reticle: 90° cross on glass The vertical carriage slides on a brass pillar. In the vertical and horizontal at carriages a locking arrangement is provided to arrest coarse motion when		

	slow motion screw is used. By successively locking and unlocking, motion in the total travers can be provided by the slow motion screw. **DIGITAL WEIGHING SCALE** Capacity: 700g Display: Digital Least count: 0.1g Body: Plastic **ELECTROMANET** Coils: 400 Turns. Coil Current: 4.5Amp (Max.) Connection: 4mm safety socket U Core: 150x130mm (LxH), 40x40mm cross section I Core: Length=150mm, 40x40mm cross section Core material: Ferromagnetic		
36	**To measure the Dielectric Constant of a dielectric Materials and variation with frequency (Resonance Method)** ***Technical Specification*** **HIGH VOLTAGE POWER SUPPLY** Input Voltage: 220V, +5%, 50Hz AC, Output Voltage: 0-600V DC, Voltage Resolution: 10V Voltage Display: Analog, Short circuit current: 100 micro Amp **POWER SUPPLY 2-12V AC/DC** Input Voltage: 220V, +5%, 50Hz AC, Output Voltage: 2,3,4,5,6,8,10 & 12V AC full wave rectified, unsmoothed and unregulated D.C Overload protection: Resettable thermal trip **DIELECTRIC CONSTANT KIT** A Matal Rail: Metal sheet, L=350mm approx.. B Capacitor plate: Aluminium, 20cm x 20cm (LxW) C Capacitor Plate: Aluminium, 28cm x 28cm (LxW) D Glass sheet: 21cm x 21cm (LxW) E Polystyrene sheet: 21cm x 21cm (L xW) F Two way switch: 4mm socket, 3nos G Capacitor: 0.01µF & 0.001µF H Spacer: PVC (1,2,3,4,6mm) **ELECTROMETERAMPLIFIER** Input Impedance: > 1013 ohm, Input Current: < 0.5pA, Output Voltage: +10V Output Current: 5mA (Short Circuit Protected, Output impedance: <1 ohm, supply voltage: 12V AC		
37	**To determine the Hall coefficient of a semiconductor sample** ***Technical Specification*** **CONSTANT CURRENT SOURCE** Current: 0-20 mA DC, Resolution: 10 micro ampere, Power: 220V ± 10%, 50 Hz AC, Display: 3 ½ digit LED Weight: 3 Kg approx. **POWER SUPPLY** Voltage: 0-16V DC continuously variable & stabilized, Voltage display: 3 ½ digit LED, Ripple: Less than 25mV		

	Overload: Current limiting protection, Current: 5 A continuously variable, 10% to full rating Current display: 3 ½ digit LED, Working voltage: 230V AC, 50 Hz single phase **DIGITAL GAUSS METER** Range: 200 Gauss & 2 k Gauss, Resolution: 0.1 Gauss at 0-200 Gauss, Offset: By Potentiometer to et ZERO Input voltage: 220V ± 5%, 50 Hz AC, Axial Hall Probe: InAs, Display: 3 ½ digit LED **HALL EFFECT APPARATUS** Coils: 400 Turns. Coil Current: 4.5Amp (Max.), Connection: 4mm safety socket. U Core: 150x130mm (LxH), 40x40mm cross section, I Core : Length=150mm, 40x40mm cross section. Core material: Ferromagnetic, Base dimension: 360x180x33mm, Weight: 8.8kg (approx) **DIGITAL MULTIMETER** Resistance: 200W, 2000, 20k, 200k & 2000k W, D.C. voltage: 200 & 2000 mV: 20, 200 & 600V AC voltage: 200 & 600V, DC Current: 200 & 2000 mA :20 & 200 mA :10 A Testing: Diode & transistor, Battery: 9V **GE CRYSTAL PCB** Crystal: Ge wafer, P type, Crystal size: 6x7x0.5mm (LxWxThickness), Resistivity: 1-10 ohm-cm Orientation: <100>, Offset pot: Trim pot, Connection: 4mm safety socket		
38	**To draw the BH curve of Fe using solenoid and to determine the energy loss from Hysteresis** ***Technical Specification*** ➢ A step down transformer on board ➢ One Solenoid coil, one search coil ➢ Output brought out through BNC connectors ➢ Type different type of controls through 10 Turn potentiometer ➢ Length of sample 39mm, Diameter of sample 1mm (Approx.) ➢ Sample type: 1 soft Iron, 2. Nickel, 3. Hard steel ➢ DSO (Optional)		
39	**To measure the resistivity and band gap of a given semiconductor by four problem method** ***Technical Specification*** **FOUR PROBE EXPERIMENTAL SETUP** Voltmeter Display: 3 ½ digit, 7 segment LED, auto polarity & decimal indication Voltage Range: X1 (0-200.0mV DC) & 10 (0-2.00V DC), 4mm socket Current Display: 3 ½ digit, 7 segment LED, Current Range: 0-20mA DC, 4mm socket Oven Supply: 45V AC (Switch position LOW), 60V AC (Switch position HIGH) Oven Connector: 5 pin, DIN type, Input Voltage: 220V, 50Hz AC, Fuse: 1A, 250V **OVEN** Heating Element: 35 ohm, 75 watt, Oven Supply: 45V/600V AC, Oven Connector: 5 pin, DIN type Ambient Temperature: 175°C, Fuse 2A **THERMOMETER** Type: Mercury, Temperature Range: 0-200°C, Least Count: 1°C, Length: 300mm approx. **FOUR PROBE ARRANGEMENT** Four probe: Spring type, Probe Spacing: 25mm, Crystal: GE wafer, P type Crystal Size: 12x14x0.5mm (L x W x Thickness), Resistivity: 1-10 ohm-cm, Orientation: <100> Connection: 4mm safety socket		
40	**To study PE hysteresis loop of a ferroelectric crystal**		

	Technical Specification Field 1KV XY probes output for oscilloscope Overload protections Current limit 2mA Standard PZT sample Sample holder Silicon Oil 500ml **Optional essential accessories** 100MHz/2gs Dual Channel Digital Ocilloscope		
41	**To verify the law of Malus for plane polarized light** Technical Specification : OPTICAL BENCH, - Must have Black Ionised Material : Aluminium Coating, Type : Circular section, Scale : 0-150cm, Least count : 1mm, Length :1mtr, POLARIZER / ANALYZER, Angle : Adjustable (0°-90°), Aperture : 21mm dia.Frame : 130mm dia., Rod : 10 mm dia. DETECTOR: Detector : Terminals : 4mm safety socket, Aperture : 1 mm , Rod : 10 mm diameter, Voltmeter : 0-20V		
42	**To determine the specific rotation of sugar solution using Polarimeter.** Technical Specification: POLARIMETER TUBE:Length :200mm with central bulb, metallic cap & cover glasses packed in a velvet case , LAURENT'S HALF SHADE: Circular scale :0˚-360˚, Least count :1˚ Vernier Reading :6 min, Dimensions : Dia 12mm, length 200mm OPTIONAL ESSENTIAL ACCESSORIES: Sodium light source ,Starting Voltage : 470 Volts, Input Voltage : 220V,50Hz,Lamp House ; 300x85mm(Lx), Aperture dia :25mm, Sodium Light Transformer		
43	**To Analyze elliptically polarized light by using a Babinet's Compensator** Techanical Speification : Babinet Compensator,White light source (Lamp),Quater wave plate,Polarizer,Analyzer,Eye Piece with light source		
44	**To determine the refractive index of liquid by total internal reflection using Wollastonsair-film** ***Technical Specification*** **GUNN DIODE POWER SUPPLY** Voltage Range: 0-12V continuously Variable, Current: 1A Max. Regulation: 0.2% for 10% variation in supply voltage Ripple: 1mV rms Modulation frequency: 1KHz±10% (900-1100Hz) Output Connector: BNC (F) for gunn oscillator and TNC (F) for pin modulator **GONIOMETER SCALE** Circular scale: 0-360°, Transmitter Arms: 0-50mm Receiver Arms: 0-100mm **MICROWAVE TRANSMITTER** Biasing: DC bias, Bias Voltage: 10Volt (Max) Output Connector: BNC(F), Waveguide: WR-90 **MICROWAVE RECEIVER** Band: X, Frequency Range: 8.2-12.4GHz, Waveguide: WR-90 Diode: Crystal diode IN23, Output Connector: BNC(F) **POLARIZING GRILL** Size: 300x190mm(LxW), Grill No: 15nos, Aluminium, Angle position: , & 45°		
45	**To determine the refractive Index of (1) glass and (2) a liquid by total internal reflection using a Gaussian eye piece** ***Technical Specification*** **SPECTROMETER** Scale: Brass, dia. 150mm, Objective: Archromatic lens, f=178mm, Aperture: 32mm		

	¬ ¬ Slit: Brass with micrometer, Reticle: 90 cross etched on glass, Least count: 1 minute ¬ ¬ Eyepiece: 10x, **Gauss eyepiece**, Vernier: 2 verniers (0-30iv) **in-bulit magnifier** ¬ ¬ Base: 190mm Triangular, Cast iron ¬ ¬ Special Features: Manufactured on **CNC machine, Illumination device** for cross wire, adjusting screws for **lateral & height adjustment** **SODIUM LIGHT SOURCE** ¬ ¬ Starting Voltage: 470 Volts, Input Voltage: 220V, 50Hz, Lamp House: 300x85mm(LxW) ¦ ¦ Aperture dia: 25mm **PRISM** ¬ ¬ Size: 38x38x38mm, Height: 38mm, Material: EDF **MICROMETER SLIT** ¬ ¬ Pitch: 0.5mm, Least Count: 0.005mm, Range: 0-6.5mm, Diameter: 38mm approx.		
46	**To study the polarization of light by reflection and determine the polarizing angle for air-glass interface** ***Technical Specification*** ¬ ¬ Optical Rail ¬ ¯ Goniometer with rail carriage ¬ ¬ Pinhole photo detector ¬ ¬ Diode laser with power supply ¬ ¬ Polarizer with rail carriage ¬ ¬ Detector output measurement unit ¬ ¬ Kinematic laser mount with rail carriage ¬ ¬ Glass & acrylic plate with holder		
47	**To verify the Stefan`s law of radiation and to determine Stefan's constant.** ***Technical Specification*** ➢ DC Power Supply: 12V/250mA ➢ DC Voltmeter: 0-12V ➢ DC Ammeter: 0-250mA ➢ DC Bulb: 12V ➢ Interconnection: 4mm banana patch cord ➢ Mains Power: 230V/50Hz		
48	**To determine the Boltzmann constant using V-I characteristics of PN junction diode** ***Technical Specification*** ¬ ¬ Plug in Board ¬ ¬ Diode Module 1N4007 ¬ ¬ Resistance Module 100Ω, 2W ¬ ¬ Variable Resistance Module 1KΩ (0-3600°C) ¬ ¬ Connecting Lads Red & Black L=50cm ¬ ¬ Digital Voltmeter: 19.99V DC ¬ ¬ Digital Ammeter: 19mV DC ¬ ¬ Power Supply: 5V DC ¬ ¬ Acrylic sheet with clip		
49	**To determine wavelength and velocity of ultrasonic wave in liquid** ***Technical Specification*** **SPECTROMETER** ¬ ¬ Scale: Brass, dia. 150mm, Objective: Archromatic lens, f=178mm, Aperture: 32mm ¬ ¬ Slit: Brass with micrometer, Reticle: 90 cross etched on glass, Least count: 1 minute ¬ ¬ Eyepiece: 10x, **Gauss eyepiece**, Vernier: 2 verniers (0-30iv) **in-bulit magnifier** ¬ ¬ Base: 190mm Triangular, Cast iron ¬ ¬ Special Features: Manufactured on **CNC machine, Illumination device** for cross wire, adjusting screws for **lateral & height adjustment** **SODIUM LIGHT SOURCE** ¬ ¬ Starting Voltage: 470 Volts, Input Voltage: 220V, 50Hz, Lamp House: 300x85mm(LxW) ¦ ¦ Aperture dia: 25mm		

	PRISM Size: 38x38x38mm, Height: 38mm, Material: EDF **MICROMETER SLIT** Pitch: 0.5mm, Least Count: 0.005mm, Range: 0-6.5mm, Diameter: 38mm approx. **RF OSCILLATOR** Frequency Range: 150MHz, Mode of wave: Sine, Amplitude: 20Vpp **RF CRYSTAL** Crystal: Double din quartz vibrator		

LIST OF APPARATUS FOR ZOOLOGY DEPARTMENT

BRAND: BH/BM/OMEGA INDIA/DBIOS/PRAGATI/PRIME/ SPANCOTEK/BIOLINKK/ SPECTRONICS

Sl No.	Experiment Name & Technical Specification	Matching Specification	Price/Unit
1	**Chart- Dbios Mitosis, Meiosis, *Fasciola hepatica* (Liver Fluke), Taenia solium Structure & L. H. (Tapeworm), *Ascaris lumbricoides* Life History, Different type of claws, Different type of Beakes, Pectoral & Pelric Girdle, Forelimb & Hindlimba bone of Rabbit, Mammal Skulls, Lungs, Kidney, Eye, Ear, Eukaryotic Reppication, Human Karyotype, Transcription, Split Genes, Neurula, Internal Gill Stage, Cleavage Stage, Tadpole Larva, Life cycle of Drisophila, Frog, Chick, Placenta, Fossils, Homopogous, Amlogous organ (Chart Size: 75x100cm, Material: Raxine)**		
2	**Permanent Slide: Thyroid, Parathyroid, Adrenal Caster & Medulla, Hardmania Spicules, Placoid, Cycloid, Ctenoid Scale**		
3	**Specimen: Tachypleus, Peripatus, Dentalium, Helix, Pinctada, Clypeaster, Pennatula, Fungia, Branchiostoma. Alytes, Icthyophis, Euglena, Petromyzon, Chimaera, Gambusia, Hetropneuster, Balanoglossus, Amphioxus**		
4	**Microtome with blade, oil & Microtome holder**		
5	**HOT AIR OVEN – 14x14X14 Outer MS & Inner SS** Technical Specification: Size: 14"x14"x14", Temperature upto 300, Accuracy ± 1, C double walled inner chamber of anodized Stainless Steel, Elements on three sides		
6	**Paper Chomatography Glass Jar with Lid**		
7	**Whatman (40) Filter Paper**		
8	**Gel Electrophoresis Vertical** Technical Specification: Mini P-4 electrophoresis cell (2 gels), Casting stands, 2 casting frames, 5 sets of glass plates, 10-well combs x5, Sample loading guide, Total buffer volume for 2 gels-700ml, Precast gels: precast gels, Handcast gels: Cast using spacer plates, Glass plate size (W x L) Short plate: 10.1 x 7.3 cm, Glass plate size (W x L) Spacer plate: 10.1 x 8.2 cm, Gel size (W x L) Handcast: 8.3 x 7.3 cm, Gel size (W x L) Precast: 8.6 x 6.8 cm, Typical run times for SDS-PAGE: 35–45 min (at 200 V constant), Recommended power supply: Power B or Power BC		
9	**Gel Electrophoresis Power Supply (Vertical)** Technical Specification: Output range : Display: 2.4” TFT LCD, Output Voltage/Inc.: 5-300V / 1V, Output Current/Inc.: 10-3000mA/10mA, Output Power/Inc.: 300W, Output Type: Constant voltage/ Current/Power, Timer: Constant		

	mode: 9999 (min) with alarm/continuous, Programmable mode: 999 (min) with alarm/continuous, Rated Voltage: 100V-240V, Program: Pre setting: up to 6 step (V, mA, W, time) 30 programmed files		
10	**Gel Electrophoresis UV-Transilluminator** Technical Specification: UV Source: 365nm Wave Length, Viewing Area: 24x14cm, UV Tube: 4x8 watts, UV Tube Housing: Anti Corrosion treated with Powder coated Mild steel, UV Safty Shield: Clear Transparent lid for excellent clarity, Input: 220V AC, 50-60Hz, Fuse: 1 Amp Anti slip rubber foot provided for base		
11	**ABO Blood Group Kit**		
12	**Manual Sphygmomanometer**		
13	**Spectrophotometer (UV-Visible) -Single beam (with accessories)** Technical Specification - Optical System: Single beam, grating 1200 lines/mm, Wavelength Range: 190-1000nm, Bandwidth:2nm, Wavelength Accuracy: ±1nm , Wavelength Repeatability: 0.5nm, Wavelength Setting: Auto, Photometric Accuracy: ±0.5%T, Photometric Repeatability: 0.3%T, Photometric Range: -0.3-3A, 0-200%T, Stray Light: ≤0.3%T, Stability: ±0.002A/h@500nm, Display: 128*64 Dots LCD, Detector: Silicon Photodiode, Standard cell holder: 4-position 10mm cell changer, Light Source: Tungsten & Deuterium Lamp, Output: USB port & Parallel Port (printer), Power: AC 85-250V, Dimension: 420x280x180mm, Weight: 12kg, USB Cable, 4 Glass Cell (1cm), 2 Quartz Cell (1cm), Operating Manual, Dust Cover, Software CD, Software Key, Software ManuaL, Power Cable with Computer		
	Spectrophotometer Technical Specification : Wavelength Range: 320-1020nm, Optical System: C-T Single Beam, Grating 1200lines/mm, Spectral Bandwidth: 2nm, Wavelength Interval: 1nm, Wavelength Accuracy: ±2nm, Wavelength Repeatability: ≤1nm, Photometric Accuracy: ±1%T, Photometric Repeatability: 0.5%T, Photometric Range: 0 -1.999A, 0-199.9%T, Stray Light: ≤0.3%T@340nm, Stability: ±0.004A/h @500nm, Display: 4 LCD, Photometric Mode: T,A,C, Detector: Si Photodiode, Light Source: Tungsten lamp, Power Requirement: AC（ 220V/50Hz), Dimensions: (W x D x H) 450 x 520 x 320mm, Weight: 10kg, Output: RS-232C Port, Operational Manual : 1 No, Power cable : 1 No, Glass Cell 10m m : 4 no, Software CD : 1 no, RS 232 Cable : 1 no		
14	**Digital Photo Colorimeter with in 8 Digital Filters** Technical Specification: Wavelength Range: 405-700 nm, Filters: Built in 8 Digital Filters Filters Wavelength: 405nm, 450nm, 480nm, 520nm, 540nm, 578nm, 620nm, 700nm, Display Parameters: O.D. % T, Wavelength Detector: Silicon Photo Diode, Accuracy: +0.01 O.D Stability: +0.02 O.D./ Hour		
15	**MICRO CENTRIFUGE HIGH SPEED 10000 R.P.M (Microprocessor based)** Technical Specification: Speed: 3000rpm - 10000rpm (step 1000rpm), Centrifugal Force: 1000g - 7500 g, Sample Capacity: 8 x 2.0ml /1.5ml / 0.5ml /0.2ml tube, (additional 0.5ml and 0.2ml tube carriers)2 x 8 x 0.2ml PCR tube, strip(tube strip only used when speed≤6000rpm), Time Range: 1s - 999min, Noise: ≤55 Db, Dimension: 176 x 156 x 121 (mm), Net Weight: ≤1.5kg, Power: 220V/110V 50-60HZ		
16	**ELISA KIT**		
17	**Dissection Box**		

Annexure-III

FINANCIAL BID

SL No	Name of the Items	Make & Model	Basic price Per unit for Destination (Excluding GST and Including Transportation and Handling, Insurance, Packaging etc.)	Qty	Taxable price Per unit	GST@%	Total Price Including GST

Price: - Total price should be inclusive of all taxes. Items quoted must be as per the specifications given in enclosed Annexure-II

Signature& Seal of
the supplier Place:
Date:

Annexure-IV

SELF DECLARATION CUM UNDERTAKING

It is certified that my Farm/ Agency/ Company has never been black listed by any of the Departments/ Autonomous Institutions/ Universities/ Public Sector Undertakings of the Government of India or Government of Odisha or any other State Government or reputed educational institutions and no criminal case is pending against the said Farm/ Agency/ Company as on date.

Signature of the Bidder:

Name of the Authorized Signatory:

Name of the Farm/Agency/Company:

Seal of the Farm/Agency/Company:

Annexure-V

GUARANTEE / WARRANTY

I/We hereby declare that the equipments and other articles supplied to the purchaser under this contract shall be of the best quality and workmanship and are strictly in accordance with the specification and particulars contained/mentioned in the clause here of and I hereby guarantee that the said equipment and other articles confirm to the description and quality aforesaid.

The purchaser will be entitled to reject the said equipment and other articles as may be discovered not to confirm to the said description and quality. On such rejection the equipment and other articles will be returned in own risk and all the provision herein containedrelating to rejection thereof shall apply. I/we shall, if called upon to do so, replace within a period of 14 days or such further period that be extended from time to time by the purchase athis discretion, and an application made thereof by us, the equipment and other articles as arerejected by the purchaser and in such an event the above mentioned Warranty shall apply to the equipment and/or other articles replaced from the date of replacement thereof, otherwise the tenderer shall pay to the purchaser such damages as may arise by reason of thereincontained without prejudice to any other right of the purchaser in that behalf.

The equipment being offered of latest model and that spares for the equipments will be available for a period of at least five years after its supply to the purchaser. The Guarantee/ Warranty shall be for a period of at least 12 months from the date of satisfactory installation and handing over the equipment and of works conducted there with covered under the contract in working order. During the guarantee period the replacement of any part(s) of the equipment or rectification of defect due to manufacturing of works will be free of cost. If the down time exceeds seven consecutive days at any one time, the guarantee period will be extended beyond aforesaid 12 months by duration equal to the total down time during the period of warranty.

Signature with seal of the tenderer

Date:

Place:

Annexure-VI

LETTER OF WILLINGNESS

To

The Principal,

Betnoti College, Betnoti, Mayurbhanj

Sub: Submission of willingness certificate to supply/ install (name of the item/items) at your college premise.

Sir,

I am to inform you that my farm (name of the farm with address) is ready to supply/ install (name of the items) within the specified period of receipt of work order from the college, if my farm is selected as eligible bidder during the selection of tender. I am willingto accept all the clauses of Bid evaluation criteria, general terms and compliance tothe scope of work requirement as mentioned in the Tender form. If my farm fails to supply and install the required items in the quoted price, my EMD/ performance security will be forfeited.

Yours faithfully,

Authorized Signatory of the farm with Seal

Date:

Place:

Annexure-VII

PAST WORK EXPERIENCES

Work of Similar nature (of value not less than 2 Lakhs) over the last 3 years

Sl. No	Name & Address of College	PO No & Date	Total Value of items supplied	Date of Supply	Contact no for College

Authorized Signatory of the farm with Seal

Date:

Place: