

## **Kolhan University Chaibasa Jharkhand**

### **Tender Notice**

Sealed tender (in two bid system) are invited from the manufacturer and Registered authorized dealer for Supply of Scientific lab equipment etc. for different Constituent college Under Kolhan University. The BOQ may be obtained from the University Website at a price of Rs 5,000/- (Five Thousand Only) in shape of Bank Draft in favor of The Registrar, Kolhan University, Chaibasa payable at Chaibasa on working days from 28/05/2022 to 11/06/2022. Earnest money of RS 2,00,000/- should be deposited with Tender in shape of Demand draft of any nationalized Bank in favor of Registrar, Kolhan University payable at Chaibasa.

<b>Name of the office inviting Tender</b>	<b>Office of Kolhan University Chaibasa</b>
<b>Name of the work</b>	<b>Supply and installation of Scientific lab equipment</b>
<b>Cost of tender paper (Non Refundable)</b>	<b>5000/-</b>
<b>EMD (Refundable)</b>	<b>2,00,000/-</b>
<b>Date of Issue of tender paper (download form University website)</b>	<b>29/05/2022 11:30 AM onwards to 13/06/2022 till 4 PM</b>
<b>Last date of Submission of tender paper</b>	<b>13/06/2022 till 4:00 PM</b>
<b>Opening of Technical Bid</b>	<b>Will be inform later to the bidder</b>
<b>Opening of Financial Bid</b>	<b>Will be inform later to the successful bidder</b>
<b>Tender No.</b>	<b>KU/R/CCDC/874/22 dt:- 28/05/2022</b>
<b>Demand Draft details (D.D.)</b>	
<b>Name of the dealer/Supplier Receiving the tender</b>	
<b>Signature &amp; seal of Authorized person</b>	

**Kolhan University Registrar reserves the right to accept/ reject any or all the tender without assigning any reason.**



# **Kolhan University Chaibasa Jharkhand**

Terms and condition for filling up the tender for supply and installation of Scientific lab equipment in different colleges of Kolhan University. Properly sealed tender (in two Bid systems) should be submitted in the office of the undersigned either in person or by the registered post on or before **13/06/2022 till 4:00 pm**. Tender received after due date and time, so whatever be the reason will be rejected/ not accepted.

**The Xerox copy duly attested by the firm with seal of under mentioned certificate should be submitted with the technical bid failing which the tender will be liable to rejected or should be rejected.**

- The bidder must quote the rates along with the Specification, Model and makes etc.(Product Catalog/ Brochure of every equipment to be submitted )
- The Bidder must have Jharkhand GST Registration., The Jharkhand GST Certificate should be submitted (submit self-attested documents)
- The bidder may quote the rates Inclusive of GST, Transportation Insurance etc.
- Bidder / OEM must have active service center / local service executive in consignee state, details to be furnished on OEM letter head.
- Authorization certificate required if bidder is not an OEM.(OEM Authorization certificated specific to bid should be submitted by bidder who participate as reseller).
- Photo copy of PAN Card must be submitted with the technical bid, failing which the tender will be rejected.
- The tender must enclose copy of the Income Tax return of last 3 Financial year with an average annual Turnover of Rs. Two Crore and above in the last three Financial years and should have audited by the Chartered Accountant.
- Last three month GSTR 3B Copy to attached for the month of January 2022 ,February 2022 and March 2022.(or Latest)
- Bidder should submit certificate for quality (ISO 9001) and OEM should submit (ISO 9001) for quality , ( ISO 45001) for safety and (ISO 14001) for environment. Issue date must be before bid publish date.
- CE Certification required from OEM/Manufacture
- Solvency Certificate of amount 10 Lac issued by scheduled/Nationalized bank should be submitted along with bid.
- Price must be valid for 180Days from the date of opening of the tender.
- Bidders may inspect the site and its surrounding where this equipment are to be supplied and installed and satisfy them before submitting their tenders. A bidder shall be demand to have full knowledge of the work whether he inspect it or not and no extra charges consequent on any misunderstanding or otherwise shell be allowed.



- EMD of Rs. 2,00,000/- (Rs. Two Lac only) (Refundable) to be deposited with the technical bid in the shape of Bank Draft of any nationalized bank in favour of Registrar Kolhan University Chaibasa.
- The Bid Security of the successful bidder would be returned, without any interest after successful execution of order.
- The firm who are registered with Small Industries Corporation (NSIC) / Small Scale Industry (SSI) / MSME are exempted from submit the above EMD. ( Copy of registration must be provided along with )
- Incomplete tender will be rejected.
- The bidder should have to quote 100% of all the items with all essential accessories to run the equipment. The tender should be finalized in favor of lowest bidder for all the departments in totality.
- Any Conditional bid would be summarily rejected.
- The Firm submitting Tender should have a minimum experience of 5 years in the concerned field.(Proof of establishment of Firm required) Firm should also submit copy of work order for the last three years of related products. (Copy of work experience/order copy of any Government School/colleges/university must be attached)
- Bidder should Successfully supplied, installed commissioned and maintained similar Lab equipment against single work order worth Rs. 50 Lakhs and above or 2 work orders for a collective sum of Rs. 60 Lakhs in State Government Colleges or in other Educational institutions in Last three years.( Three Copy of work order to be attached)
- Offers should strictly be as per the technical specifications as per the Annexure-A. No deviation shall be accepted; (Deviations are likely to render the tender non-considerable. Bidders are advised not to deviate).
- Affidavits through First Class magistrate/Notary Public, mentioning that "Our Company has not been black listed or convicted in the past 3 financial year as on bid calling date by any Organization or by any government / Semi Government.(Original copy to be submitted)
- The Purchase Committee should have all the right to reject/select lowest bidders if major variations are found in make/rates of the items quoted. The committee reserves the right to cancel the tender process or accept or reject any tender without assigning any reason or relax any condition
- All the interested bidders are required to see Notice Board/ Website for any change/corrigendum and proper understanding of the requirement.
- Quantity and items may vary at the time of final order as per the availability of fund.
- All work should be completed within 6-8 weeks from the issue of the work order. (Self declaration on letterhead should be enclosed with the technical bid)
- After successful installation by bidder, technical support will be provided as and when required for duration of twelve months.
- Performance Security : On receipt of notification of award of supply order from the University, the successful Bidder within 30 days shall furnish the performance

security of 03% (three percent) of Total value of supply/ purchase order in the form of DD/FDR/PBG in favour of "Kolhan University Chaibasa payable at Chaibasa" issued from any of commercial bank in India in an acceptable format the same will be refunded within 30 days post successful completion of all the term and condition of supply order and warranty.

- **Evaluation Process**

- The Purchase Committee may ask for meeting with the Bidders to seek clarification on their bid.
- The Purchase Committee reserve the right to reject any or all bid on the basis of any deviation.
- Each of the responses shall be evaluated as per the criterions and requirements specified in this TENDER.
- The Purchase Committee may ask to submit the sample within 10days or online product tutorial of product within two days of demand otherwise bid will be rejected.

- **Financial Bid Evaluation**

The Financial Bids of Technically qualified bidder will be opened on the prescribed date.L1 (Least cost based section) Bidder (with no deviation in the specification required) will be declared successful.

The prices should be inclusive of all the taxes and transportation cost & levies (no other cost will be borne separately.

Date of opening of Financial Bid will be informed to the successful Bidders accordingly.

- **Payment**

The payment will be equal to the amount specified in the financial bid by the successful bidder.

The payment amount will be released only on satisfactory acceptance of the deliverables from the college authority.

The payment may be done in two parts after receipt/ acceptance of equipment / materials / items in good condition as prescribed for the respective Colleges.

**First Part Payment:** The successful bidder may submit the bill along with supporting documents after completion of total supply in at least 50% of the Colleges in the first part and

**Second Part Payment:** The Second bill will cover rest of Colleges for payment as per the conditional mentioned above.



## Performa for Submitting the Technical Bid.

Department.....

Sl.No.	Name & Specification	Specification Offered by the Bidder	Remarks

## Performa for Submitting the Financial Bid.

Department: .....

Sl.No.	Name & Specification (Tender Specification )	Rate	Qty.	Rate with GST



# COMPLIANCE CERTIFICATE (CHECK LIST) FOR NIT TERMS

(To be enclosed in the Technical bid)

Sl. No	NIT Terms and Conditions	YES/NO	Page No
1.	Technical / Financial BID		
2.	Validity of quoted rate (Minimum Six Month/180days)		
3.	Tender Fee. Submitted Draft No:-..... Date: -.....		
4.	EMD submitted Draft No..... Date:-.....		
5.	GST Registration Certificate		
6.	GST Return GSTR-3B(Till March 2022)		
7.	ISO and CE certificate provided		
8.	GEM Registration Certificated Attached		
9.	MSME Certificate Attached		
10.	Payment terms agreed		
11.	Delivery terms agreed		
12.	Warranty period agreed		
13.	Photo copy of PAN Card		
14.	Audited A/C of annual turnover for last 3 years		
15.	Literature/ Brochures/ Manuals provided		
16.	Dealership / distributorship certificate (In case of dealers/agents) provided		
17.	After sales service: address in Jharkhand of after sales service centre		
18.	Solvency certificate		
19.	Experience: Work order Separately for Last 3 Years		
20.	Firm has not been blacklisted for any reason (Original Certificate to be attached)		



## **Annexure- A**

### **1. ABM College, Golmuri Jamshedpur**

#### **Department of Anthrapology**

S. No.	Item	Qty.
1	Book showcases with Glass door Size: 66" x 36" x 12" made up of 22 gauge steel with four compartment.	2 pc
2	Steel Almira office type without locker made up of 22 gauge steel with 5 compartment/4shelf. Size: 76" x 35" x 19".	2 pc
3	Computer set with minimum specification of i5, 4GB RAM, 512GB SSD, 19.5" ,Monitor with window10. and UPS 600VA.	1 pc

#### **Department of –Geography**

S. No.	Item	Qty.
1	Magnetic trough compass in wooden case 15 cm brass	4
2	Optical square with adjusting screen and two mirror in box	4
3	Dumppy level quick setting type 30cm internal focusing in a well padeed wooden box with aluminum stand	1
4	Telescopic alidate in box internal focusing telescope focusing level 15 cm with standard accessories	1
5	Prismatic compass made from brass with ring dividing into 0.5 degree (30min) having ball socket head with aluminum stand diameter 6"	2
6	Clinometer india pattern full brass	1
7	Clinometer compass 7.5cm with brass sight magnetic needle mounted on jewel graduated dial with case full brass	1
8	Planimeter for measuring areas direct from drawing and maps complete in case 112 cm	1
9	French curve in wooden case set of 24	4
10	Circular protector 15 cm diameter	10
11	Rain guage	1
12	Anemometer measure the wind speed	1
13	Aneroid barometer make (German) diameter 100 mm cat no 141	1
14	Rocks set of 45	2
15	Survey umbrella size 2 m diameter	1

16	Computer set with minimum specification of i5, 4GB RAM, 512GB SSD, 19.5" ,Monitor with window10. and UPS 600VA.	1
17	Book showcases with Glass door Size: 66" x 36" x 12" made up of 22 gauge steel with four compartment.	2

### **Department of Psychology**

S. No.	Item		Qty.	
1	Mohsin's test if general intelligence		10	set
2	portues maze test		10	set
3	jalota's Group test of mental ability		10	set
4	NLTV (chatterjee and mukherjee)		10	set
5	Muller lyer iilusion board		10	set
6	Sinha Anxiety scale		10	set
7	Eyseneck personality questionnaire		10	set
8	Veiner chronoscope		10	set
9	Mirror drawing appratus with star pattern paper		10	set
10	Aesthesiometer		10	set
11	Sorting cardboard with cards		10	set
12	Multiplication sheet for mental work and fatigue		10	set
13	colour prefrence board		10	set

### **Department of Library**

S. No.	Item	Qty.
1	Bar code printer	1
2	Xerox mechine with scanner	1
3	hard disk	4
4	Computer set with minimum specification of i5, 4GB RAM, 512GB SSD, 19.5" ,Monitor with window10. and UPS 600VA.	8
5	Book showcases with Glass door Size: 66" x 36" x 12" made up of 22 gauge steel with four compartment.	6
6	Steel Almira office type without locker made up of 22 gauge steel with 5 compartment/4shelf. Size: 76" x 35" x 19".	4
7	Pigeon (magazine stand)	1
8	AC (2 ton)	4

<b>For Geology /Psychology /Anthropology Lab</b>		
1	Desk top with printer (all in one)	3
2	Digital interactive board with inbuilt	3
3	Steel Almira office type without locker made up of 22 gauge steel with 5 compartment/4shelf. Size: 76" x 35" x 19".	6

## **2. Baharagora College, Baharagora**

### **Department of Geography**

S. No.	<u>Item</u>	Qty.
1	Set Aquare	40
2	Preneh Curv	30
3	Umbrella Survey	5
4	Full Rotectot	20
5	Stainless Steel Ruler	50
6	Measuring Tape 30mtr	5
7	Alija Slotted Angel Metal Rack (2x2x1ft)	4
8	Kaveri Produc TS 6 Shelf 12x96	2
9	Tormei Black Adjustable set of 5 shelf	3

### **Department of Chemistry**

S. No.	<u>Item</u>	Qty.
1	Potentiometer with Stirrer Digital Potentiometer (with inbuilt stirrer) for Redox Potential Measurement, 3% digit LED Display, Range 0 to + 1999mv. Resolutions I mv Accuracy $\pm 1\%$ , Power supply 230 V $\pm 10$ , Supplied with ORP Electrodes, Electrode Stand & Dust Cover.	1 pc
2	Conductivity Meter Deluxe Conductivity Meter 3½ digit LED display with facility for automatic temperature. Compensation & digital cell constant adjustment along with cond. cell & temperature probe	1 pc
3	PH Meter Microprocessor pH/Temperature/mv meter (Graphical display) A research grade instrument with 128 x 64 large Graphical LCD display having auto temperature compensation, range 0.00 to 14.00 pH, resolution 0.01, auto buffer recognition, fluid resistant housing & rotational electrode stand along with accessories. Its features include 5 point calibration. Data storage facility up to 1000 samples, complete with pH electrode, temperature probe, rotational electrode stand, dust cover & instructions manual computer interface through USB(Table Model)	1 pc
4	Viscometer	1 pc

5	<p>Hot Air Oven Relitech Size: 300x300x300mm</p> <p>A double walled unit with outer body made of Mild Steel Sheet treated for degreasing &amp; rust proofing duly powder coated and inner chamber made of Stainless Steel Sheet (304 Grade) and adjustable Stainless Steel Wire Mesh shelves. Space between inner chamber and outer wall is filled with high grade mineral wool for minimal heat loss. The Double Walled Door has synthetic rubber / fibre gasket. Unit has ventilation slides on two sides to control inner air/ vapor circulation. Fitted with beaded heating elements placed in ribs, at bottom and sides for uniform heat distribution. To work on 220/230 volts AC supply.</p>	1 pc
6	<p>Muffle Furnace Size 125x125x250mm</p> <p>Outer made of double walled thick MS Sheet duly painted. Muffle chamber made of high grade ceramic is surrounded with heating elements made of Kanthal "A-1" wire and backed by high temperature ceramic wool insulation to avoid thermal loss. Temperature control unit is fitted with energy regulator and indicator lamps. The unit is fitted with Digital Temperature Indicator cum Controller, Thermocouple, Silver Thermal Fuse, Main Lead with Power Plug. To work on 220/230 volts or 400/440 volts AC supply. Maximum temp. is 1000°C and working temp. 900°C. MODELS CHAMBER DIMENSIONS LOAD</p>	1 pc
7	<p>Digital Tds Meter-Labtronics</p> <p>3, digit LED Display facility temperature compensation and digital cell constant adjustment along with TDS cell &amp; other accessories</p>	1 pc

### **Department of Physics**

S. No.	Item	Qty.	
1	<p>Bending of Beam Apparatus</p> <p>To determine the Young's Modulus of a given beam supported on two knife edges &amp; loaded at the middle point</p> <ul style="list-style-type: none"> <li>• Bending of Beam Apparatus, Cat No. 2345</li> <li>• Vernier Caliper, Cat. No. 5</li> <li>• Galvanometer, Cat. No. 311/312</li> <li>• Stabilized Power Supply 0-5V, 1A</li> <li>• Variable Potentiometer</li> <li>• Slotted Weights 500gm x 5 &amp; Measuring Tape</li> </ul>	2	pc
2	Spherometer	5	pc
3	<p>Analytical Balance (Chemical Capacity-200gm Lc. 0.01gm</p> <p>200gm Lc. 0.01gm</p> <p>Glass windshield</p> <p>RED LED display</p> <p>Low Battery Indicator Overload protection</p> <p>RS232C - Optional</p> <p>Stable Indicator</p>	1	pc
4	<p>Young's Modulus (Vernier Type)</p> <p>Simple form but efficient. Consists of a brass scale 10cm long and vernier to</p>	4	pc

	read 1/10mm with V slide clamp guides for wire ceiling attachment and torsion weight.		
5	<p>Advanced Travelling Microscopes with Square &amp; special drum type verniers</p> <ul style="list-style-type: none"> <li>• The vertical square brass pillar is mounted on a traversing carriage that moves along the horizontal stainless steel scale and has a swing out magnifier for reading the vernier</li> <li>• Precision lapped vertical a horizontal carriages with fine movements, free from lateral shift or chattering. Travels horizontally 165mm, vertically 120mm</li> <li>• Square brass pillar, in which in lifetime stainless scales.</li> <li>• Measured to 0.01mm</li> <li>• Cross line graticule is provided in the eyepiece.</li> </ul>	1	pc
6	<p>P.O. Box 3- Ratio (Managanin Coil)</p> <p>Consisting of 12mm thick rectangular brass blocks and coils, wound with manganin coil having accuracy within <math>\pm 0.05\%</math> Other specifications are same as above.</p>	2	pc
7	<p>To find the Young's Modulus, modulus of rigidity (<math>\eta</math>) &amp; Poisson's Ratios (<math>\sigma</math>) for the material of a given wire by Searle's Method.</p> <ul style="list-style-type: none"> <li>• Rigidity Apparatus,</li> <li>• Stand for Rigidity Apparatus,</li> <li>• Screw Gauge 20 X 1mm,</li> <li>• Vernier Caliper</li> <li>• Stop Clock &amp; Measuring tape</li> <li>• Thread, Candle and Match Box</li> <li>• Digital Balance or Spring Balance 1 Kg.</li> </ul>	1	pc
8	Pin with Stand	5	pc
9	Sperial bob	10	pc
10	Slide Callipers IME Type	10	pc

### 3. Jamshedpur Co-operative College

## Department of Botany

S. No.	Item	Qty.
1	HPLC Complete setup	1
2	Gel Doc Electrophoric setup	1
3	<b>Digital Incubator Size 14x14x14 “</b> A double walled unit with outer body made of MS sheet treated for degreasing & rust proofing duly powder coated and inner chamber made of Stainless Steel (304 Grade) sheet. Provided with adjustable Stainless Steel Wire Mesh / perforated shelves. Space between inner chamber and outer wall is filled with high grade mineral wool for minimal heat loss. The Double Walled Door is fitted with glass window to facilitate viewing inside chamber without disturbing the inner temperature and has synthetic rubber/ fiber gasket. Unit has ventilation slides on two sides to control inner air/ vapor circulation. Fitted with beaded heating elements placed in ribs, at bottom and sides for uniform heat distribution. Unit is fitted two lamps and ON / OFF switch. To work on 220/230 volts AC supply. Unit is fitted with Digital Temperature Indicator-cum-Controller (with display for SV and PV) for temperature control from +5° C ambient to 70°C, $\pm 1^\circ\text{C}$ at 50°C.	1
4	Analytical Balance (Chemical Capacity-200gm Lc. 0.01gm <ul style="list-style-type: none"> <li>• Glass Windshield</li> <li>• Auto Calibration with External Weight</li> <li>• Low Battery Indicator</li> <li>• Multifunction Weighing Units</li> <li>• In built rechargeable battery for continues use</li> <li>• Auto Zero tracking</li> <li>• Overload Protection Design</li> <li>• Front RED LED display</li> <li>• Automatic Switch Off Option</li> <li>• High precision loadcell sensor</li> <li>• RS232C Interface</li> </ul>	1
5	Medical Compound Microscope with Stage With quadruple revolving nosepiece, precise graduated slow motion reading to 0.002mm and separate coarse motion knobs, graduated mechanical stage, tube length 160mm fixed eyepiece tube, rack and pinion motion for abbe condenser N.A. 1.25 with iris diaphragm and filter holder. Packed in Thermocol Packing with filter, vinyl cover and operating manual.	10
6	Dissecting Microscope Having a stable round shaped base with joint revolving arm for moving the magnifying lens over the full area of the stage. The microscope can be focussed by a smooth rack pinion system and light adjustment through a reflecting mirror. Supplied with 10x and 20x eye-pieces. Stage size 85 x 75 mm.	10
7	Sprit Lamp	10
8	T/A Apparatus	5
9	Ganong Potometer	5
10	Farmer's Potometer	5
11	Camera Lucida	2
12	Occular Micrometer	5
13	Inoculation Needle	5

## Department of Chemistry

S. No.	Item	Qty.
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1	Galvanometer	2
2	Voltmeter	2
3	Stop watch	6
4	Kjeldhl flask	12
5	Water Bath 6 Hole Digital model A double walled bath with inner chamber made of SS sheet (304 grade) Argon Arc Welded, and outer wall made of MS sheet duly epoxy powder coated. Provided with SS lid having 75mm dia. holes with removable concentric rings. The gap between outer and inner walls is filled with special grade glass wool insulation. Temperature from +5°C ambient to 99°C.	6
6	Kipp's Apparatus	2
7	Fusion Tube	50
8	Test Tube	10box
	<b>Furniture</b>	
1	Chair	6
2	Steel Almira office type without locker made up of 22 gauge steel with 5 compartment/4shelf. Size: 76" x 35" x 19"	2
3	Shelves for Chemicals	2
4	Podium	5

### **Department of Geology**

S. No.	Item	Qty.
1	Crystal Cubic Isometric	1
2	Cube	1
3	Octa Hedron	1
4	Rhombododeca hedron	1
5	Tetra Hexa hedron	1
6	Trisectahedon	1
7	Hexahedon	1
8	Trapezohedron	1
9	Tetragonal system	1
10	Zircon	1
11	Quartz	1

### **Department of Physics**

S. No.	Item	Qty.
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1	UV Vis Double Beam Spectro Photo Meter with graphic LCD	1
2	LCR Meter Frequency 4Hz to 8MHz Capacitive range 1.001pt to 20Mt Inductance 0.001H to 1000.0H Precision $\pm 0.005\%$ Large LCD	1

### **Department of Psychology**

S. No.	Item	Qty.
1	Porteus Maze Test	5
2	Effect Of Set On Perception	5
3	Jalota'S Group Of Mental Ability	5
4	N TLV Chaterjee And Mukherjee	5
5	Emmotional Ingelligence Scale	5
6	Self Confidence Inventory	5
7	Life Satisfaction Scale, Hardeo Ojha	5
8	Achievement Of Motive Test	5
9	Pgi Health Questionnaires	5
10	Psychological Well Being Scale (Hindi)	5
11	Katona Experiment Card Trick	10
12	Multiplication Trip	5
13	Cancellation Sheet	5
14	Word Asssociation Test	5
15	Sentense Completion Test	10
16	Color Preference Set With Mannual	5
17	Pass Along Test	5
18	Block Design Test	10
19	Cube Construction Test	10
20	Card Shorting Tray With Mannual	10
21	Mirror Drawing Set	10
22	Mechanical Stop Watch	10
23	Screen	20
24	Weight Box 14 Set	10
25	Tachiso Scope	10
26	Electric Bell	10
27	Vernier Chrono Scope	10
28	Adjusting Rod	10

### **Department of Zoology**

S. No.	Item	Qty.
1	Double Beam UV-VIS Spectrophotometer - (2 Cell Holder) Advance circuit measurement and control system make the instrument of high reliability and low noise. Range 190-1100 nm, Basic/quantitative wavelength scan/DNA, Protein Test/Kinetic, automatic peak picking & spectrum display. Large coloured screen with graphic display. Spectrum and data can be printed out by printer and sent to computer via USB PORT. SOFTWARE INCLUDED	1
2	Digital Colorimeter	1
3	Cooling Centrifuge	1
4	Crystal (Biological Microtome)	1
5	LAMINAR FLOW CABINET, HORIZONTAL Size 2x2x2 Structure made of thick plyboard covered with sunmica. Sides of work bench covered with transparent acrylic sheet. Front acrylic door of collapsible type. Work-bench made of thick ply-board covered with stainless steel sheet. HEPA Filter provided vertically on back of the work bench horizontally. Blowers, motor and pre-filters fitted in lower portion of the cabinet. Properly balanced blowers fitted on 1/4 H.P. Electric motor provided to supply sufficient air to HEPA filter. Pre-filters provided to supply pre filtered air to the blowers. One fluorescent tube and one U.V. Germicidal tube provided over work bench. Static pressure manometer fitted to the unit.	1
6	Digital Incubator Size 14x14x14 “ A double walled unit with outer body made of MS sheet treated for degreasing & rust proofing duly powder coated and inner chamber made of Stainless Steel (304 Grade) sheet. Provided with adjustable Stainless Steel Wire Mesh / perforated shelves. Space between inner chamber and outer wall is filled with high grade mineral wool for minimal heat loss. The Double Walled Door is fitted with glass window to facilitate viewing inside chamber without disturbing the inner temperature and has synthetic rubber/ fiber gasket. Unit has ventilation slides on two sides to control inner air/ vapor circulation. Fitted with beaded heating elements placed in ribs, at bottom and sides for uniform heat distribution. Unit is fitted two lamps and ON / OFF switch. To work on 220/230 volts AC supply. Unit is fitted with Digital Temperature Indicator-cum-Controller (with display for SV and PV) for temperature control from +5° C ambient to 70°C, $\pm 1^{\circ}\text{C}$ at 50°C.	1
7	Pc Base Research Microscope (Trinocular Research Microscope) <ul style="list-style-type: none"> <li>• optical system - Infinite optical system, Color corrected</li> <li>• lamination - Koehler 6V-20W/30W Halogen/LED with intensity control</li> <li>• viewing Head - Ergonomic Sidentop Binocular Head, Inclined 30° Rotatable 360° with IPD 48-75mm</li> <li>• nosepiece - Reversed Quintuple/Quarduple</li> <li>• eyepiece - Extra wide field WF10X with FOV 18/20mm with diopter adjustment on both eyepieces</li> <li>• objectives - DIN PLAN Infinite</li> <li>• Mechanical Stage - Right hand control, hard coated surface (120x132mm), double slide holder low position coaxial movement</li> <li>• Condenser - Moveable Abbe N.A. 1.25 with iris diaphragm filter slot</li> <li>• Focussing - Coaxial with Tension Control &amp; Upper Limit Stopper</li> <li>• Power Supply - 220V/50Hz AC (SMPS)</li> <li>• Phase Contrast – Optional</li> <li>• Darkfield – Optional</li> <li>• Polarizing – Optional</li> <li>• Certification - CE, UL, ISI, ISO</li> </ul>	1

8	<p>Procam Cmos Camera 5 Mp With Measuring Software (Usb 2.0) ProCAM can be directly interface with Trinocular port of any Stereo-zoom, Biological, Metallurgical or Measuring Microscope with a 0.5x CMOS adaptor, making compatible with most of microscope.</p> <p>Features of RADICAL Capture &amp; Measurement Software: Image Capture, Time Lapse Imaging, Video Capture</p> <ul style="list-style-type: none"> <li>• Multi-fluorescence mode</li> <li>• Individual user profiles</li> <li>• Exposure control</li> <li>• Multi-camera operation</li> <li>• Image annotations</li> <li>• Programmable resolution</li> <li>• • Measurement capabilities</li> <li>• Multi-focus</li> </ul>	4
9	Binocular microscopes	4
10	digital Haemometer	2
11	Cell Counter Chamber	5
12	ESR Apparatus	6
13	Deep Frizer	1
14	<p>Analytical Balance (Chemical Capacity-200gm Lc. 0.01gm</p> <ul style="list-style-type: none"> <li>• Glass Windshield</li> <li>• Auto Calibration with External Weight</li> <li>• Low Battery Indicator</li> <li>• Multifunction Weighing Units</li> <li>• In built rechargeable battery for continues use</li> <li>• Auto Zero tracking</li> <li>• Overload Protection Design</li> <li>• Front RED LED display</li> <li>• Automatic Switch Off Option</li> <li>• High precision loadcell sensor</li> <li>• RS232C Interface</li> </ul>	1
15	Plankkton Counting Chamber	10
16	<p>Ph Meter (Digital) – (Graphical display) A research grade instrument with 128 x 64 large Graphical LCD display having auto temperature compensation, range 0.00 to 14.00 pH, resolution 0.01, auto buffer recognition, fluid resistant housing &amp; rotational electrode stand along with accessories. Its features include 5 point calibration. Data storage facility up to 1000 samples, complete with pH electrode, temperature probe, rotational electrode stand, dust cover &amp; instructions manual computer interface through USB (Table Model)</p>	1
17	Micropipetts with Disposable Tips (Different capacities)	5
18	Quebec Colony Counter	
19	<p>Digital Water Bath 6 Hole Unit is fitted with Digital Temperature Indicator-cum-Controller (with display for SV and PV) for temperature control from +5° C ambient to 99°C ± 1°C at 50°C.</p>	1
20	Magnetic Stirrer	1
21	Sprit Lamps or Bunsen Burner	10

22	<p>Digital Hot Air Oven Size 14x14x14 “</p> <p>A double walled unit with outer body made of Mild Steel Sheet treated for degreasing &amp; rust proofing duly powder coated and inner chamber made of Stainless Steel Sheet (304 Grade) and adjustable Stainless Steel Wire Mesh shelves. Space between inner chamber and outer wall is filled with high grade mineral wool for minimal heat loss. The Double Walled Door has synthetic rubber / fibre gasket. Unit has ventilation slides on two sides to control inner air/ vapor circulation. Fitted with beaded heating elements placed in ribs, at bottom and sides for uniform heat distribution. To work on 220/230 volts AC supply.</p> <p>Unit is fitted with Digital Temperature Indicator-cum-Controller (with display for SV and PV) for temperature control from +5° C ambient to 250°C, ±1°C at 100°C.</p>	1
23	glassware complete set up for Soxlet	2

## **4. Ghatsila College Ghatsila**

### **Department of Botany**

S. No.	Item	Qty.
1	T/A Apparatus	10 pc
2	Farmer's Potometer	10 pc
3	Ganong's Potometer	10 pc
4	Moll's Apparatus	2 pc
5	<p>Spectrophoto meter digital double Display</p> <p>Range 340-960 nm with facility for automatic concentration, 6% Transmission and absorbance measurements. 3 digit data display, separate 3 digit LED display-For wavelength in nm with 1 nm wavelength resolution. Provision for 10 mm &amp; 50 mm path length cuvettes is provided equipped with set of 10mm &amp; 50 mm path length cuvettes</p>	1 pc
6	<p>Compound Microscope with Stage</p> <p>With quadruple revolving nosepiece, precise graduated slow motion reading to 0.002mm and separate coarse motion knobs, graduated mechanical stage, tube length 160mm fixed eyepiece tube, rack and pinion motion for abbe condenser N.A. 1.25 with iris diaphragm and filter holder. Packed in Thermocol Packing with filter, vinyl cover and operating manual.</p>	4 pc
7	<p>Dissecting Microscope</p> <p>Having a stable round shaped base with joint revolving arm for moving the magnifying lens over the full area of the stage. The microscope can be focussed by a smooth rack pinion system and light adjustment through a reflecting mirror. Supplied with 10x and 20x eye-pieces. Stage size 85 x 75 mm.</p>	2 pc
8	Stop Watch	10 pc
9	Herbarium Cabinet 12 Showcase	1 pc
10	Steel Almira office type without locker made up of 22 gauge steel with 5 compartment/4shelf. Size: 76" x 35" x 19".	2 pc

## Department of Physics

S. No.	Item	Qty.
1	Screw Gauge	10
2	Newton's Ring	5
3	Determine the Wave Length of Sodium Lamp by Michelson Interferometer (Complete Setup) This setup consists of following apparatus : a) Michelson Interferometer b) Sodium Vapour Lamp 35 Watt fitted in Box With Transformer	5
4	Laser Diode	5
5	Solar Cell	5
6	Digital Current	5
7	Detector with Dultimeter	5
8	Analyser & Polariser Red	5
9	Detector with Dultimeter	5
10	To analyze elliptically polarized light by using a Babinet's compensator. Complete set i. Babinet compensator ii. Sodium transformer iii. Sodium lamp house iv. Sodium lamp	5
11	To determine (1) wavelength He-Ne laser using plane diffraction grating. Complete set i. He-Ne-Laser 2mW ii. Mount for He-Ne-Laser iii. Laser grating with grating holder iv. Screen v. Detector with digital meter vi. Two base mount vii. Measuring tape	5
12	Operational Amplifier as Inverting, Non-Inverting, Unity Gain Amplifier & Frequency Response with Analog Voltmeter	5
13	Analytical Balance (Chemical Capality-200gm Lc. 0.01gm 200gm Lc. 0.01gm Glass windshield RED LED display Low Battery Indicator Overload protection RS232C - Optional Stable Indicator	1
14	Steafan's Constant Apparatus	3
15	Traveling Microscope	5
16	Glass Slab	10
17	Potential box	5
18	Resistance box	5
19	12V Battery	5
20	Connecting wire	50

21	Meter scale	5
22	Stop watch	5
23	Ten wire potentio meter	5
24	One way key	10
25	Two way Key	10
26	Biprism	6
27	REC Counter	3
28	De, Sauty Bridge	5
29	Ballistic Galvanometer	5
30	LCR circuit	
31	Slide Caliper	10

### **Department of Library**

S. No.	Item	Qty.
1	Steel Almira office type without locker made up of 22 gauge steel with 5 compartment/4shelf. Size: 76" x 35" x 19".	8 pc
2	Book showcases with Glass door Size: 66" x 36" x 12" made up of 22 gauge steel with four compartment.	22 pc
3	Rack for Sports Sction	4 pc

## **5 Jamshedpur Women's college**

### **Department of Botany**

S. No.	Item	Qty.
1	Analytical Balance (Chemical Capality-200gm Lc. 0.01gm Analytical Balance (Chemical Capality-200gm Lc. 0.01gm Glass windshield RED LED display Low Battery Indicator Overload protection RS232C - Optional Stable Indicator	1 pc
2	Herbarium Cabinet 12 Showcase For keeping botanical specimens securely placed in herbarium sheets. Cabinet frame of 19mm thick plyboard with melamine lamination. Door provided with lock & lined with velvet. Drawer frame of MDF with MDF sheet bottom fitted with puller knob and index card holder. Phosphor bronze clip provided inside drawer for keeping herbarium sheets in position. Drawers Finished in moisture proof polish. Drawer Size 45x37x8cm.	1 pc
3	Thin Layer Chromatography (App Kit) Thin Layer Chromatography Kit, Comprising of moveable applicator (Spreader) with built in arrangement, 0-2 mm, perspex base plate 114 x 23 cm. Aluminium Carrier, perspex spotting temp plate, developing chamber with lid, five T.L.C. plates 20 x 20 cm., two T.L.C. plates 20 x 5 cm., scribe for marking lines, micropipette and glass sprayer	1 pc
4	Chromatography Paper 30x10cm)-	1 pc

5	CAMERA LUCIDA (PRISM TYPE) This Instrument is a simplified version for tracing the image of microscopic specimens on a plain paper. It fits on the eyepiece tube of all standard microscopes. Supplied in a velvet box. (For RM-Series	1 pc
6	Ocular Micrometer Disc	3 pc
7	Stage Micrometer Disc	3 pc
8	Dissecting Microscope	2 pc
9	Stop Watch Digital	2 pc
10	Pc Base Research Microscope (Trinocular Research Microscope)	1 pc
11	Procam Cmos Camera 5 Mp With Measuring Software (Usb 2.0)	1 pc

### **Department of Chemistry**

S. No.	Item	Qty.
1	Magnetic Stirrer with Hot Plate Magnetic stirrer 1 litre capacity with hot plate & Digital Speed Indicator.	1 pc
2	Medico Centrifuge CLINICAL CENTRIFUGE with 4 x 15 ml. swing out head & 15 ml tapered bottom glass tubes.	1 pc
3	PH Meter Microprocessor pH/Temperature/mv meter (Graphical display) A research grade instrument with 128 x 64 large Graphical LCD display having auto temperature compensation, range 0.00 to 14.00 pH, resolution 0.01, auto buffer recognition, fluid resistant housing & rotational electrode stand along with accessories. Its features include 5 point calibration. Data storage facility up to 1000 samples, complete with pH electrode, temperature probe, rotational electrode stand, dust cover & instructions manual computer interface through USB(Table Model)	1 pc
4	Conductivity Meter Deluxe Conductivity Meter 3½ digit LED display with facility for automatic temperature. Compensation & digital cell constant adjustment along with cond. cell & temperature probe	1 pc
5	Analytical Balance (Chemical Capacity-200gm Lc. 0.01gm 200gm Lc. 0.01gm Glass windshield RED LED display Low Battery Indicator Overload protection RS232C - Optional Stable Indicator	2 pc
6	TLC Kit with brass applicator Thin Layer Chromatography Kit, Comprising of moveable applicator (Spreader) with built in arrangement, 0-2 mm, perspex base plate 114 x 23 cm. Aluminium Carrier, perspex spotting temp plate, developing chamber with lid, five T.L.C. plates 20 x 20 cm., two T.L.C. plates 20 x 5 cm., scribe for marking lines, micropipette and glass sprayer	1
7	Pipette pump 10 ml	30 pc
8	<u>water distillation</u>	<u>1 set</u>

### **Department of Geography**

S. No.	Item	Qty.
1	Plain Table With Accessories Plane Table -: Size 750 * 600 Mm * 21 Mm : East man	1
2	Prismatic Compass With Stand Eastman	4
3	Dumpy Level Eastman	2
4	Trough Compass	2
5	Leveling staves	2
6	Ranging rod (3 meter)	10
7	French curve	2
8	Indian Pattern Clinometer Compass In Leather Case (Tangent Clinometer )	2
9	Measuring Tape .. 30 Meters	2
10	Indian Clinometer	2
11	Umbrella Survey	1
12	Maximum & Minimum Thermometer	1
13	Wet & Dry Bulb Thermometer	1
14	Computer set with minimum specification of i5, 4GB RAM, 512GB SSD, 19.5" ,Monitor with window10. and UPS 600VA.	1

### **Department of Home science**

S. No.	Item	Qty.
1	Garments Display board size 3'x3' depth - 6", made from both side sunmica laminated wooden board, front with sliding glass	1 pc
2	display rack wooden size- 16"x3' ,ht 5' made from wooden board, inner and outer part laminated with sunmica, 4- selves, front door fitted with glass	2 pc
3	Modular kitchen size- 5'x2', ht 2.5', made with 3/4" wooden board, sunmica pasted on both side with top of table granite, and wheels fitted at base .	1 pc

### **Department of Physics**

S. No	Item	Qty.
1	To measure the Dielectric Constant of a dielectric Materials with frequency. DIELECTRIC CONSTANT KIT for Solids. For measurement of dielectric constant at different frequencies“ Setup consists of · Main unit consisting of d) Digital voltmeter ( 0-9.99 V ac) e) Audio oscillator ( 3,5,7 & 10KHz) & Electronic circuitry f) Standard Capacitors (pf, nf)	1 PC

	· Dielectric cell consists of § two 1" dia. gold plated brass discs § two 3" dia. gold plated brass discs Samples : Glass, Bakelite, PZT & PCB sample	
2	Half Effect experiment (complete set up)	1PC

### **Psychology**

S. No.	Item	Qty.	
1	Old Age Adjustment Inventory-Hussain	3	pc
2	PGI health questionnaire	2	pc
3	Psychological Well Being - Sisodia	2	pc
4	Emotional maturity scale	2	pc
5	Weinstein's noise sensitivity	2	pc
6	Social adjustment	2	pc
7	Life satisfaction	2	pc
8	Vocational interest record	2	pc
9	Democratic values	2	pc
10	Mental health questionnaire	2	pc
11	Non verbal of intelligence	2	pc
12	Social support	2	pc
13	Emotional maturity scale	2	pc
14	Differential personality inventory	2	pc
15	Study of value	2	pc
16	Moral value scale	2	pc
17	Models Brain, Nerve, Spinal, Cord	1	pc

### **Department of Zoology**

S. No.	Item	Qty.	
1	THIN LAYER CHROMATOGRAPHY KIT Thin Layer Chromatography Kit, Comprising of moveable applicator (Spreader) with built in arrangement, 0-2 mm, perspex base plate 114 x 23 cm. Aluminium Carrier, perspex spotting temp plate, developing chamber with lid, five T.L.C. plates 20 x 20 cm., two T.L.C. plates 20 x 5 cm., scribe for marking lines, micropipette and glass sprayer	1	pc

2	Dissolved Oxygen Meter Microprocessor D.O. Meter with 16x2 alpha numeric LCD display, simultaneous display of D.O. & temp. Data Facility up to 1000 samples, computer interlace through USB, Supplied with D.O. probe, temp. probe, electrode dust cover & instructions manual.	1	pc
3	Digital Soil Moisture Meter	1	pc
4	Dissolved Turbidity Meter With 16x2 Alpha numeric LCD display having 2 range up to 1000 JTU with memory of storage of 2 standard stoavoid frequent use of solutions.	1	pc
5	Digital Salinity Meter Using latest microcontroller, Auto Ranging (3 ranges from 2ppt to 50ppt), temperature compensation, auto cell constant measurement, touch keys along with Salinity Cell.	1	pc
6	Digital PH Meter	1	pc
7	Stop Watch Digital	1	pc
8	Haemo meter Set	1	pc
9	Plankton Net	1	pc
10	Secchi Disk	4	pc
11	Compound Microscope All metal rugged Stand with individual Coarse & Fine Focus drive with focus stop, Maintenance Free ECO LED illumination including Battery backup with regulating intensity control for 220V/50Hz, Achromatic Condenser 0.65 NA with aperture iris diaphragm, 110 X 120 mm stage with clips, Quadruple revolving nosepiece, Achromatic objectives 4x, 10x, 40x (spring), 360° rotatable 45° inclined Monocular head with Widefield Eyepiece 10x/18 lockable, dust cover complete set packed in thermocole.	3	pc

### **Department of Music**

S. No.	Item	Qty.
1	Digital Piano	1
2	Tanpura ladies	1

## **6. Jamshedpur Worker College Jamshedpur**

### **Department of Botany Apparatus**

S. No.	Item Description	Qty.
1.	<p>LAMINAR FLOW CABINET, HORIZONTAL Size: 2'x2'x2'</p> <p>Structure made of thick plyboard covered with sunmica. Sides of work bench covered with transparent acrylic sheet. Front acrylic door of collapsible type. Work-bench made of thick ply-board covered with stainless steel sheet. HEPA Filter provided vertically on back of the work bench horizontally. Blowers, motor and pre-filters fitted in lower portion of the cabinet. Properly balanced blowers fitted on 1/4 H.P. Electric motor provided to supply sufficient air to HEPA filter. Pre-filters provided to supply</p>	1 pc

	pre filtered air to the blowers. One fluorescent tube and one U.V. Germicidal tube provided over work bench. Static pressure manometer fitted to the unit.	
2.	<p>Ph Meter (Digital) –</p> <p>(Graphical display) A research grade instrument with 128 x 64 large Graphical LCD display having auto temperature compensation, range 0.00 to 14.00 pH, resolution 0.01, auto buffer recognition, fluid resistant housing &amp; rotational electrode stand along with accessories. Its features include 5 point calibration. Data storage facility up to 1000 samples, complete with pH electrode, temperature probe, rotational electrode stand, dust cover &amp; instructions manual computer interface through USB (Table Model)</p>	1pc
3.	<p>Digital Hot Air Oven Size 14x14x14 “</p> <p>A double walled unit with outer body made of Mild Steel Sheet treated for degreasing &amp; rust proofing duly powder coated and inner chamber made of Stainless Steel Sheet (304 Grade) and adjustable Stainless Steel Wire Mesh shelves. Space between inner chamber and outer wall is filled with high grade mineral wool for minimal heat loss. The Double Walled Door has synthetic rubber / fibre gasket. Unit has ventilation slides on two sides to control inner air/ vapor circulation. Fitted with beaded heating elements placed in ribs, at bottom and sides for uniform heat distribution. To work on 220/230 volts AC supply.</p> <p>Unit is fitted with Digital Temperature Indicator-cum-Controller (with display for SV and PV) for temperature control from +5° C ambient to 250°C, ±1°C at 100°C.</p>	1pc
4.	<p>Hot Plate</p> <p>Laboratory Hot plates are available in round and rectangular shapes. Body is fabricated out of thick mild steel sheet, duly finished in epoxy powder coated. The Hot Plate made of cast iron, nicely and precisely machined &amp; smoothed duly finished in heat resistant black paint is firmly mounted on the body. Heavy duty heating elements are securely laid under the plate to operate on 220/230V AC supply. Temperature is controlled by energy regulators fitted with an indicator lamp for the mains. Supplied with cord and plug.</p>	1pc
5.	<p><b>PORTABLE AUTOCLAVE S.S</b></p> <p><b>Size 300x300mm Capacity 25Litter</b></p> <p>Suitable for general laboratory &amp; field sterilization of instruments &amp; dressing etc. Lid is provided with dial pressure gauge. Spring loaded safety valve, dead weight type safety valve &amp; steam release valve. Fitted with jointless neoprene gasket for leak proofing.</p>	1pc
6.	<p>ORBITAL SHAKING INCUBATOR</p> <p>Inner Chamber Size: 550 X550 Mm,</p>	1pc

	<p>Shaking Platform Size: 450 x450mm</p> <p>Speed Range 50-520RPM</p> <p>Outer Body made of MS Sheet duly powder coated. Inner chamber made of Stainless Steel Sheet (304 Grade). Double walled door with a transparent see through glass window. Variable speed orbital shaking platform is fitted with DC driven motor for continuous operation. Shaking platform is provided at the base of incubator so as to shake Erlenmeyer flasks. The shaking platform can accommodate 9 flasks of 500ml or 16 flasks of 250ml or 25 flasks of 100ml or 36 flasks of 50ml (one set of clamps with shaking platform is supplied with the unit). The variable speed motor is fitted outside inner chamber, at the base. The complete unit is mounted on a sturdy angle iron frame. Fitted with specially designed Digital Temperature Indicator-cum-controller is fitted to control the temperature from +5°C ambient to 70°C, <math>\pm 0.5^\circ\text{C}</math> at 50°C . To work on 220 / 230 volts AC supply.</p>	
7.	<p>Soxhlet Extraction apparatus 6 Test</p> <p>Suitable for flasks of 100 ml to 500 ml capacity. Unit is supplied with Heating Box fitted with heaters (Hot Plates or Heating Mantles), individual Energy Regulators, Neon Lamps, adjustable rods, clamp and boss heads and with Glass Parts. To work on 220/230 volts AC supply.</p>	1set
8.	Glass Rod for stirrer Size 8x200mm	5 pc

### **Department of Chemistry**

S. No.	Item	Qty.
1	<p>Analytical Balance (Chemical Balance)</p> <p>Capacity 200gm Lc. 0.01gm</p> <p>Glass windshield</p> <p>RED LED display</p> <p>Low Battery Indicator Overload protection</p> <p>RS232C - Optional</p> <p>Stable Indicator</p>	1

<b>2</b>	Automatic Distillation apparatus <b>WATER STILL (METAL HEATER)</b> Comprises of a horizontal borosilicate glass boiler fitted with a 3KW chrome plated immersion heater with thermostat and double coil condenser. The still is fitted on a sheet metal epoxy coated stand, suitable for bench or wall mounting. For use on 220/230 V AC supply. Approx. Distillate output 4 ltrs/ hr. and pH 5-6.5 pyrogen free.	1
<b>3</b>	Kips Apparatus 500ml	2
<b>4</b>	Viscometer	20
<b>5</b>	Stalcanometer set of 3 in box	10
<b>6</b>	Burette Stand with clamp	30
<b>7</b>	Test Tube 15x125	500
<b>8</b>	Test Tube Stand Plastic	50
<b>9</b>	Fusion Tube	5
<b>10</b>	Hot Plate Laboratory Hot plates are available in round and rectangular shapes. Body is fabricated out of thick mild steel sheet, duly finished in epoxy powder coated. The Hot Plate made of cast iron, nicely and precisely machined & smoothed duly finished in heat resistant black paint is firmly mounted on the body. Heavy duty heating elements are securely laid under the plate to operate on 220/230V AC supply. Temperature is controlled by energy regulators fitted with an indicator lamp for the mains. Supplied with cord and plug.	2
<b>11</b>	Reagent bottle with lid	200
<b>12</b>	Rubber Bulb (for 10ml pipette)	20
<b>13</b>	Double Beam UV-VIS Spectrophotometer - (2 Cell Holder) Advance circuit measurement and control system make the instrument of high reliability and low noise. Range 190-1100 nm, Basic/quantitative wavelength scan/DNA, Protein Test/Kinetic, automatic peak picking & spectrum display. Large coloured screen with graphic display. Spectrum and data can be printed out by printer and sent to computer via USB PORT. SOFTWARE INCLUDED	1

### **Department of Geography**

S. No.	Item	Qty.	
1	Superior quality quickset dumpy level Erect image	1	pc
2	Geographers Poster for wall framing 35x50 cm (set of 8)	1	set
3	Laminated Toposheet ( Different Districts of Jharkhand in individual Sets) no. 73J/11 , 73J/10 , 73J/7, 73J/15, 73J/6, 73J/1, 73J/2	50	pc
4	Maximum and minimum thermometer	1	pc
5	3-D chart size - 75 cm x 100 cm River in action (The water cycle)	1	pc
6	Glacial landscape	1	pc
7	Formation of Rock (Geological cycle)	1	pc
8	Igneous metamorphic sedimentary volcanoes	1	pc
9	Interior of the Earth	1	pc

10	3-D wall map world physical	1	pc
11	3-D wall map India physical	1	pc
12	3-D wall map Jharkhand physical	1	pc
13	Geographical chart framed cycle of erosion	1	pc
14	Full protector	10	pc
15	French curve (set of 12 curves)	2	set
16	Aneroid Barometer (Indian)	1	pc
17	Wet and dry bulb Thermometer	1	pc
18	Geological kit (Sedimentary rock/igneous rock metamorphic rock / mineral / ore (2 each)	1	pc
19	Hygrometer (Digital thermometer)	1	pc
20	Relief wall map of India	1	pc
21	Relief wall map of world	1	pc
22	Relief wall map of Jharkhand	1	pc
23	Relief wall map of all Asia Continent	1	pc
24	Relief wall map of all Africa Continent	1	pc
25	Relief wall map of all Europe Continent	1	pc
26	Relief wall map of Australia Continent	1	pc
27	Relief wall map of all North America Continent	1	pc
28	Relief wall map of all South America Continent	1	pc
29	Digital hanging watch (Showing weather)	1	pc
30	Notice Board (Covered) - size 4x3	1	pc

### **Department of Physics**

S. No.	Item	Qty.	
1	Magenitic stirrer with hot plate	1	pc
2	Centrifuge	1	pc
3	Hot air oven	1	pc
4	Carey Foster Bridge Meter Bridge or Wheatstone Bridge With Pencil Jockey The four-gap bridge has a large and heavy copper strip of (SWG No. 18) mounted on a heavy 3/4" thick laminated base of size 45" x 4" x 3/4". Nine heavy Brass terminals lock type are provided to reduce the resistance to a minimum. The ends gaps are closed by removable Copper Binding pieces which 24 SWG constantan wire is stretched along the top of wooden meter scale and securely clamped to the Brass end strips so that end errors are negligible. Supplied complete with pencil jockey along with lead for connections. Includes detail working manual. Overall dimensions: 1.12m x 100mm x 50mm, including terminals. are held in position by the terminals. The	2	pc

5	<p>Zener Diode V-I Characteristics Apparatus with Aluminum Panel &amp; Square Meters (Forward &amp; Reverse)</p> <p>Objective : To study Forward &amp; Reverse V-I Characteristics of Zener Diode.</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 0- 15 VDC 150mA, two meter for voltage &amp; current measurement, Zener Diodes mounted behind the panel, connections of Supplies, Meters &amp; Zener Diode brought out at 4mm Sockets.</p> <p>Features:</p> <p>High quality aluminium panel used for longer durability, High accuracy window type square meters used in the kit. High quality computer power cord and patch cords used</p>	2	pc
6	Ballistic Galvanometer	2	pc
7	CRO 20MHz, Dual Channel, 2 Trace	1	pc
8	<p>Determine the Wavelength of Sodium Light by Fresnel's Biprism Kit (Complete Setup)</p> <p>Objective : Determine the Wavelength of Sodium Light</p> <p>Setup consists of :</p> <p>a) Optical Bench 1.5mtrs with Bi-Prism Assembly</p> <p>b) Biprism</p> <p>c) Single Slit</p> <p>d) Convex Lens 10cm FL</p> <p>e) Sodium Vapour Lamp 35 Watt fitted in Box With Transformer</p>	1	pc
9	<p>Application of IC 555 ( Astable , Monostable &amp; Bistable Multivibrator)</p> <p>Objective : To assemble &amp; study Astable, Monostable, Bistable Multivibrators &amp; V to F convertor</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 5VDC/150 mA, IC 555 &amp; various components kept inside the cabinet &amp; connections brought out at 4mm sockets,</p>	4	pc
10	3 1/2 Digit Digital Multimeter (Manual Range)	10	pc
11	Bar Magnet	4	pc
12	Slide caliper	10	pc
13	Screw Gauge	10	pc
14	Centre tapped transformer (9V-0-9V)	10	pc
15	Breadboard	20	pc
16	Mercurt thermometer graduated up to 350°C	2	pc
17	Audio frequency (AF) oscillator	2	pc
18	(Biopolar junction Transistor)	1	pc
19	Spectrometer prism	10	pc
20	Searle's Apparatus	3	pc
21	Desauty Bridge with inbuilt Digital Null Detector, Sinewave Oscillator etc	1	pc

### **Department of Psychology**

S. No.	Item	Qty.
1	Jalota's Group Test of Mental Ability	1 pc
2	NLTV ( Chatterjee and Mukharjee)	1 pc
3	Tachistooscope ( fall type)	1 pc
4	RTA Apparatus with Vernier Chrono-Scope with three lights	1 pc

5	Muller Lyer Illusion Figure (with stand scale)	1	pc
6	Screen 18" x24"	3	pc
7	Stop Watch	3	pc
8	Mirror Drawing Apparatus Simple	3	pc
9	Card Sorting	3	pc
10	Colour Preference	3	pc
11	Porteus Maze Test	3	pc
12	Cancelation Sheets	3	set
13	Sentence Completion Test	3	pc
14	Emotional Intelligence Scale (A.K Sings)	3	pc
15	Self Confidence-Gupta	3	pc
16	Life Satisfaction Ojha	3	pc
17	Achievement Motivation- Bhargava	3	pc
18	PGI Health Questionnaire N-1 Verma & Wip & Pershed	3	pc
19	Psychological Wellbeing Sisodia / A.Ahmed	3	pc

### **Department of Zoology**

S. No.	Item	Qty.
	<b>List of Specimen</b>	
1	Sycon	1 pc
2	Hirudinaria	1 pc
3	Blanoglossus model	1 pc
4	Herdmania	1 pc
5	Branchiostoma	1 pc
6	Petromyzon (Imported)	1 pc
7	Myxine (Imported)	1 pc
8	Scoliodon	1 pc
9	Pristis	1 pc
10	Torpedo	1 pc
11	Chimaera (Imported)	1 pc
12	Mystus	1 pc
13	Heteropneustes	1 pc
14	Labeo	1 pc
15	Exocoetus	1 pc
16	Encheneis	1 pc
17	Anguilla	1 pc
18	Hippocampus	1 pc
19	Anabas	1 pc
20	Necturus	1 pc
21	Bufo Imported	1 pc
22	Alytes	1 pc
23	Salamandra	1 pc
24	Chelone- model	1 pc
25	Hemidactylus –model	1 pc
26	Varanus –model	1 pc

27	Uromastix – model	1	pc
28	chamaeleon – model	1	pc
29	Draco – model	1	pc
30	Bugarus – model	1	pc
31	Vipera – model	1	pc
32	Naja- model	1	pc
33	Sorex- model	1	pc
34	Bat (Insectivorous & Frugivorous)- model	1	pc
35	Funambulus- model	1	pc
36	Loris- model	1	pc
37	Herpestes- model	1	pc
38	Erinaceous- model	1	pc
39	Hydrophis- model	1	pc
40	Physalia	1	pc
41	Porpita	1	pc
42	Aurelia	1	pc
43	Metridium	1	pc
44	Adamsia	1	pc
45	Octopus	1	pc
46	Aestarias (star fish)	1	pc
	<b>List of Slide</b>		
1	Ascaris Lumbicoids male (W.M)	1	pc
2	Ascaris Lumbicoids Female (W.M)	1	pc
3	Paramecium Slide (W.M)	1	pc
4	Conjugation in Paramoecium	1	pc
5	Gemmules of Sponges	1	pc
6	Nauplius and Zoea larvae, Bipinnaria	1	pc
7	Nephridia of Earth worm (W.M)	1	pc
8	Statocyst of Palaemon	1	pc
9	Hydra (W.M)	1	pc
10	Hydra with budding	1	pc
11	Fasciola (W.M)	1	pc
12	Endocrine gland : Thyroid gland Islets of Langerhans ,adrenal, Pituitary, Testis, Ovary	6	pc
13	Permanent Slides of Frog embryo (W.M) set of 12	1	set
14	Permanent slide of Chick embryo (W.M) set of 15	1	set
15	T.S of lung, Stomach, Liver, Kidney, Intestine of frog and Rabbit	10	pc
16	Obelia( W.M)	1	pc
	<b>Other requirement</b>		
1	Human Skeleton made of PVC Articulate life size with stand	1	pc
2	Senior Dissecting Microscope Equiped with Heavy round base body, provision for moving magnifying lens over full area of the stage which is easily replaceable by a special bull eye lens of 83 mm dia to increase the field of vision . Supplied with 10x and 20x eyepiece, a bull eye Lens and Handrest . Object stage size 100 x 100mm with glass plate	5	pc

3	Dissecting Tray with wax EVA Sheheet size 30x23x5cm	20	pc
4	Sprit Lamp SS	5	pc
5	Filter Paper 12.5cm Round	2	pkt
6	PH Paper Range 1-14	1	pkt

## **7. Jawahar Lal Nehru College Chakradharpur**

### **Department of Botany**

S. No.	Item	Qty.
1	Nitro Meter	1
2	Thermostat	1
3	2 Ton Ac with Stablizer 10KVA	1
4	Quick Fit Glassware	1
5	Computer System with Laser Printer	1
6	Power Backup System (Inverter/ Battery etc.)	1
	<b>Chemicals</b>	
7	Ammonium Chloride	2
8	Ammonium Nitrate	2
9	Ammonia Solution	2
10	Acetanilide	1
11	Acetic Anhydride	1
12	Barium Sulphate	1
13	Beta Naphthol	1
14	Alfa Naphthol	1
15	Copper Foil	1
16	Calcium Sulphate	2
17	Cobalt Sulphate	2
18	Ethyl Alcohol	4
19	Ethyl Acetate	2
20	Ethyl Benzoate	2
21	Glycerol	2
22	Phenol	2
23	Potassium Fericyanide	1
24	Phthalic Anhydride	1
25	Sodium Hydroxide	2
26	Sodium Carbonate	2
27	Sodium Bi-Carbonate	2
28	Toluidine	1
29	Potassium Iodide	1
30	Nickel Chloride	1
31	Strontium Carbonate	1
32	Strontium Sulphate	1

33	Di-ethyl Aniline	1
34	Methyl Acetate	1
35	Toluene	1
36	Glycenne	1
37	Benzene	2
38	Acetone	4
39	Salicylic Acid	1
40	Cobalt Nitrate	1
41	Cobalt Chloride	1
42	Barium chloride	1
43	Barium Sulphate	1
44	Chromium sulphate	1
45	Ortho-phosphoric Acid	1
46	Fehling's Solution A	1
47	Fehling's Solution B	1
48	Di-phenyl Benzidine	1
49	Di-phenyl Amine	1
50	Chloro- Acetic Acid	1
51	Hydrazine Hydrate ((98%))	1
52	Carbon Di-sulphide	1
53	Mandalic Acid	1
54	Thio Acetic Acid	1
55	Thio Glycolic Acid	1
56	Alpha Piclomic Acid	1
57	N- Phenyl Triazole	1
58	2-Hydrazené Benzimidazole	1
59	2-Hydrazene Benzthiozole	1
60	N-phenyl Triazole	1

### Department of Physics

S. No.	Item	Qty.
1	Slide Calipers	6
2	Screwe Gauge	6
3	Traveling Microscope	2
4	Computer System i7, 8th Generation )	2
5	Printer (1 color Inkjet) all in one	1
6	Stabilizer 15Kva	1
7	Computer Table	2
8	Computer Chair	4
9	Motion of spring with complete set	1
10	Fly wheel with manual	1
11	Viscosity of water by capillary flow	1
12	Multimeter	4
13	RC Circuit Complete set with Manual	1
14	A set of AC Circuit to DC of diff volt Reg.	1

15	Thevenin's Theorem With Bakelite Panel & Round Meters	1
16	Norton's Theorem With Bakelite Panel & Round Meters	1
17	High Resistance by Leakage Method (Complete Setup) The setup consists of : a) Ballistic Galvanometer with lamp and scale arrangement, b) Condenser 0.47uF c) High Resistance 1M ohm & 10M ohm d) Stop Watch. e) DC power supply 2V/1A +6V/1A f) One Way Plug Keys g) Two Way Plug Key, h) Morse Key (Single Pole Double Throw Switch)	1
18	Plain diffraction grating with manual	1
19	Platinum Resistance Thermometer with Manual	1
20	CRO 20MHz, Dual Channel, 2 Trace	1
21	Thermal conductivity of Cu by Serl's App. With Manual	1
22	Determine Thermal Conductivity using Lee's Disc Apparatus (Complete Setup) Setup consists of : VERNIER Stop watch Heater Thermometer	1
23	Multimeter Manual Range	6
24	Using Transistor to design a switch	1
25	To Convert a Boolean expression in the Logic Circuit and design it using Logic IC with Manual	1
26	To Built Flip Flop Circuit using NAND Gate	1
27	To design a Stable Multi Vibrator to giving specification using 555 Timer	1
28	To design a Mono stable Multi vibrator to giving specification using 555 Timer	1
29	Measurement of Plank's Constant using Black body radiation & photo director with Manual	1
30	Cooler (Symphony 1 tower)	1
31	Stand Fan	1
32	Battery 180Ah (Exide Inva Tubular)	2
33	Inverter 1.5 Kva	1
34	To Determine the Plank's Constant of LED of test 4 Different	1
35	To determine the Value of E/M by Bar Magnet	1
36	Plank Constant of black body radiation with Man.	1
37	Magnetic Suceptibility of solid apparatus with Manual	1
38	Bose Einstein Distribution Function Varies with Temp App. With Manual	1

### **Department of Library**

S. No.	Item	Qty.
1	Book showcases with Glass door Size: 66" x 36" x 12" made up of 22 gauge steel with four compartment.	20

2	Steel Almira office type without locker made up of 22 gauge steel with 5 compartment/4shelf. Size: 76" x 35" x 19".	30
3	Reading Table	10
4	Chair	40

## **8. KS College Sarikela**

### **Department of Chemistry**

S. No.	<u>Item</u>	Qty.	
1	Potentiometer with Stirrer Digital Potentiometer (with inbuilt stirrer) for Redox Potential Measurement, 3% digit LED Display, Range 0 to + 1999mv. Resolutions 1 mv Accuracy $\pm 1\%$ , Power supply 230 V $\pm 10$ , Supplied with ORP Electrodes, Electrode Stand & Dust Cover.	2	pc
3	To determine the specific rotation of sugar solution using Polarimeter. Mercury light source complete with Mercury lamp, 80 Watts choke for Mercury Lamp & specially made aluminium metal box to hold mercury Lamp Borosilicate Beaker 150 ml Funnels Borosilicate pipette 10 ml Small digital Balance Sugar etc.	1	pc
4	Molecular Atomic Models	2	pc
6	Microprocessor Photoelectric Calorimeter 8 fitters With facility for direct measurement of results In conc., %T & O.D. Memory for Storage of 3 standards to avoid frequent use of standards. Automatic zero setting facility. 1ml. solution measurement.	1	pc
9	Magnetic Stirrer with Hot Plate Magnetic stirrer 1 litre capacity with hot plate & Digital Speed Indicator.	2	pc
11	Stalganometer set of 3 in box	4	pc
18	Water Bath 6 Hole Digital model A double walled bath with inner chamber made of SS sheet (304 grade) Argon Arc Welded, and outer wall made of MS sheet duly epoxy powder coated. Provided with SS lid having 75mm dia. holes with removable concentric rings. The gap between outer and inner walls is filled with special grade glass wool insulation. Temperature from +5°C ambient to 99°C.	1	pc
19	Chromatography Paper Size 30x10cm	4	pc
24	Heating Mantle Body is made of one piece aluminum and is lagged with special mineral wool. The panel is provided with on-off switch, energy control knob and pilot lamp. Provided with joint less hand knitted heating nets of glass yarn capable of withstanding high temperature up to 400°C. Supplied complete with cord & plug to work on 220/230V AC supply.	2	pc
21	Medico Centrifuge CLINICAL CENTRIFUGE with 4 x 15 ml. swing out head & 15 ml tapered bottom glass tubes.	1	pc

22	<p>ABBE Refractometer</p> <p>For accurate measurement of index of refraction of transparent liquids, solids and solutions. For use in Sugar, Ghee and Oil Mills Pharmaceuticals and Chemical Laboratories, JAM Factories and Distillaries etc. Measuring range 1.3000 to 1.7000. Measurement of Sugar 0% to 95% Complete. Designed for the Accurate &amp; quick Examination of the Refractive Indices &amp; Mean Dispersion of Liquids. Solids &amp; Oil. NDRange : N.D. 1.3000 to N.D. 1.7000 in steps of 0.001, Accuracy : 0.0002, Sugar Percentage : 0 to 95% in steps of 1 Division, Accuracy : <math>\pm 0.5\%</math>, Temperature : 0 – 50° C</p>	1	pc
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### **Department of Botany**

S. No.	Item	Qty.	
1	<p>LAMINAR FLOW CABINET, HORIZONTAL Size: Size 3' x2'x2'</p> <p>Structure made of thick plyboard covered with sunmica. Sides of work bench covered with transparent acrylic sheet. Front acrylic door of collapsible type. Work-bench made of thick ply-board covered with stainless steel sheet. HEPA Filter provided vertically on back of the work bench horizontally. Blowers, motor and pre-filters fitted in lower portion of the cabinet. Properly balanced blowers fitted on 1/4 H.P. Electric motor provided to supply sufficient air to HEPA filter. Pre-filters provided to supply pre filtered air to the blowers. One fluorescent tube and one U.V. Germicidal tube provided over work bench. Static pressure manometer fitted to the unit.</p>	1	pc
2	<p>Analytical Balance (Chemical Capacity-200gm Lc. 0.01gm</p> <ul style="list-style-type: none"> <li>• Glass Windshield</li> <li>• Auto Calibration with External Weight</li> <li>• Low Battery Indicator</li> <li>• Multifunction Weighing Units</li> <li>• In built rechargeable battery for continues use</li> <li>• Auto Zero tracking</li> <li>• Overload Protection Design</li> <li>• Front RED LED display</li> <li>• Automatic Switch Off Option</li> <li>• High precision loadcell sensor</li> <li>• RS232C Interface</li> </ul>	1	pc
3	Herbarium Press (Bwpp-1)	2	pc
4	Chromatography Cabinet Research Grade (Size 24”X12”X24” )	2	pc
5	Pedometer	2	pc
6	Digital Soil Moisture Meter	1	pc
7	<p>Digital Conductivity Meter –</p> <p>3 digit LED display with facility for automatic temperature. Compensation &amp; digital cell constant adjustment along with cond. cell &amp; temperature probe</p>	1	pc

8	Digital Photoelectric Calorimeter 8 fitters With facility for direct measurement of results In conc., %T & O.D. Memory for Storage of 3 standards to avoid frequent use of standards. Automatic zero setting facility. 1ml. solution measurement.	1	pc
9	Centrifuge Machine	1	pc
10	Plankton Net	4	pc
11	100X objective Medical Microscope	2	pc

### **Department of Geography**

S. No.	Item
	<b>Maps Of The World (Laminated wall Map)</b>
1	Agriculture Size 70 x100 cm
2	Natural Vegetation Size 70 x100 cm
3	Minerals And Ores Size 70 x100 cm
4	Climate Size 70 x100 cm
5	Roadways And Railways Size 140 x100 cm
6	Physical Map Of The World Size 70 x100 cm
7	Political Map Of The World Size 140 x100 cm
	<b>Maps Of India ( On Frame)</b>
8	Drainage Size 70 x100cm
9	Physiographic / Relief Size 70 x100cm
10	Climate Size 70 x100cm
11	Transport And Communications Size 70 x100cm
12	Agriculture Size 70 x100cm
13	Natural Resource Size 70 x100cm
14	Soil

15	Industries
	<b>Maps Of Jharkhand</b>
16	Political Size 70 x100cm
17	Physical Size 70 x100cm
18	Map Storage Stand All Iron Pipe Side Hook For 36 Map
19	Map Display Stand All Iron Single Pipe Height Adjustab

### **Department of Physics**

S. No.	<u><b>Item</b></u>	Qty.	
1	Determine Young's modulus's, modulus of rigidity and poisson's ratio of the material of a given wire by Searle's dynamical method (Complete Setup). <b>The setup consists of :</b> a) Identical Bar - 2 Nos. b) Stop Watch c) Screw Gauge d) Vernier Calipers e) Candle & Match Box f) Connecting Wire	2	pc
2	To study the Motion of a Spring and calculate Spring Constant,	2	pc
3	To determine g by Bar Pendulum	2	pc
4	To determine g by Kater's Pendulum.	2	pc
5	Charging & Discharging of Condenser with 2 Digital Panel Meters Objective : To study RC time constant using various sets of Resistance & Capacitors. Specifications : Instrument comprises of DC Power Supply with selector switch to select different voltages, One digital Ammeter & One Digital Voltmeter Circuit diagram is Printed, Terminals are provided for connecting different values of Resistances & Capacitors. Standard Acc. : Three sets of Resistances Capacitors & Digital Stop watch	1	pc
6	Norton's Theorem With Bakelite Panel & Round Meters	2	pc
7	Thevenin's Theorem With Bakelite Panel & Round Meters	2	pc
8	Maximum Power Transfer Theorem With Bakelite Panel & Round Meters	2	pc

9	<p>PN / Zener Diode / LED Characteristics Apparatus with Aluminum Panel &amp; Square Meters</p> <p>Objective : To plot Forward &amp; Reverse Characteristics of PN Junction &amp; light emitting diode &amp; Zener Diode.</p> <p>Specifications : Instrument comprises of two DC Power Supply, three meter to measure voltages &amp; current, one PN Junction Diode &amp; one Zener Diode mounted behind the panel &amp; connections brought out at terminals/sockets.</p> <p>Features:</p> <p>High quality aluminium panel used for longer durability, High accuracy window type Square meters used in the kit. High quality computer power cord and patch cords used</p>	2	pc
10	<p>Transistor Characteristics Apparatus with Aluminum Panel &amp; Square Meters, Regulated Power Supplies</p> <p>Objective : To plot Input &amp; Output Characteristics of Common Base PNP &amp; NPN Transistors Input &amp; Output Characteristics of Common Emitter PNP &amp; NPN Transistors</p> <p>Specifications : Instrument comprises of Two DC Regulated Power Supplies 0-10VDC/150mA &amp; 0-1 VDC/150mA, four meters for voltage &amp; current measurement, one PNP &amp; one NPN Transistor mounted behind the panel, connections of Supplies meters &amp; Transistors brought out at 4mm sockets.</p> <p>Features:</p> <p>High quality aluminium panel used for longer durability, High accuracy window type square meters used in the kit. High quality computer power cord and patch cords used</p>	1	pc
11	<p>Verification of truth tables of Logic Gates using Universal Gates</p> <p>Objective : To understand that NAND &amp; NOR gates are basic building blocks in Digital Electronics &amp; Verification of AND, OR, NOT, NOR NAND Gates using NAND &amp; NOR Gates.</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 5V/150mA, Two logic '1' &amp; two logic '0' inputs are provided on sockets, two Red LED output indicators, circuit diagram printed for four NAND' &amp; four 'NOR' gates &amp; their respective IC's placed on the front panel &amp; connections brought out at sockets.</p>	1	pc
12	<p>4 Bit Adder &amp; Subtractor Circuits using IC 7483</p> <p>Objective : To study &amp; verify truth tables of two bit half adder, two bit half subtractor, three and four bit full adder and full subtractor.</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 5V/150mA, four Logic inputs selectable using SPDT switches, four output LED indicators, circuit diagram Printed &amp; connections brought out at sockets on the front panel.</p>	1	pc

13	<p>Zener Diode V-I Characteristics Apparatus with Aluminum Panel &amp; Square Meters (Forward &amp; Reverse)</p> <p>Objective : To study Forward &amp; Reverse V-I Characteristics of Zener Diode.</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 0- 15 VDC 150mA, two meter for voltage &amp; current measurement, Zener Diodes mounted behind the panel, connections of Supplies, Meters &amp; Zener Diode brought out at 4mm Sockets.</p> <p>Features:</p> <p>High quality aluminium panel used for longer durability, High accuracy window type square meters used in the kit. High quality computer power cord and patch cords used</p>	2	pc
14	<p>Voltage Stabilization Characteristics of Zener diode with Aluminum Panel &amp; Square Meters</p> <p>Objective : Zener Diode Characteristics Apparatus has been designed to study the voltage stabilization application of a zener diode.</p> <p>Specifications : One continuously variable DC power supply of 0-30V. Two analog moving coil round meter to measure Input &amp; Output voltages are provided on the front panel. One series resistance &amp; one zener diode of 8.2 V has been provided on front panel.</p> <p>Different type of load resistances selectable using band switch are also provided on the front panel.</p> <p>Features:</p> <p>High quality aluminium panel used for longer durability, High accuracy window type square meters used in the kit. High quality computer power cord and patch cords used</p>	1	pc
15	<p>FET Characteristics Apparatus with Aluminum Panel &amp; Square Meters</p> <p>Objective : To plot static &amp; Transfer Characteristics of FET.</p> <p>Specifications : Instrument comprises of Two DC Regulated Power Supplies 0-15VDC/150mA &amp; 0-5 VDC/150mA, three meters for voltage &amp; current measurement, FET BFW10 mounted behind the panel, connections of Supplies, Meters &amp; FET brought out at 4mm Sockets.</p> <p>Features:</p> <p>High quality aluminium panel used for longer durability, High accuracy window type square meters used in the kit.</p> <p>High quality computer power cord and patch cords used</p>	2	pc
16	<p>Verification of truth tables of Logic Gates using Universal Gates</p> <p>Objective : To understand that NAND &amp; NOR gates are basic building blocks in Digital Electronics &amp; Verification of AND, OR, NOT, NOR &amp; NAND Gates using NAND &amp; NOR Gates.</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 5V/150mA , Two logic '1' &amp; two logic '0' inputs are provided on sockets, two Red LED output indicators, circuit diagram printed for four NAND' &amp; four 'NOR' gates &amp; their respective IC's placed on the front panel &amp; connections brought out at sockets.</p>	2	pc

17	PN / Zener Diode / LED Characteristics Apparatus with Bakelite Panel & Round Meters	2	pc
18	Operational Amplifier as Inverting, Non-Inverting, Unity Gain Amplifier & Frequency Response with Analog Voltmeter	1	pc
19	Operational Amplifier as Differentiator & Integrator Objective : To study the Operational amplifier as Differentiator & Integrator. Specification : Fixed output DC Regulated power supply of $\pm 15$ V. Operational amplifier IC 741 is placed inside the cabinet and connections are brought out at sockets. Circuit diagram for Differentiator & Integrator are printed on the front panel and components are mounted inside the cabinet.	2	pc
20	Boltzman constant Apparatus with PN Junction Diode with Aluminum Panel & Digital Panel Meters	1	pc

### **Department of Psychology**

S. No.	Item	Author	Qty.	
1	Human Rights Awareness Test	Vishal Sood and Arti Anand	2	pc
2	P. G. I. Memory Scale	D. Pershad and N. N. Wig	2	pc
3	Family Environment Scale	Harpreet Bhatia and N. K. Chadha	2	pc
4	Students Stress Scale	Z. Akhtar.	2	pc
5	Job Satisfaction Scale	Amar Singh and T. R. Sharma	2	pc
6	Stress Management Scale	V. Kaushik and N. A. Charpe.	2	pc
7	Positive Mental Health Inventory	C. D. Agashe and R. D. Helode.	2	pc
8	Stress Coping Strategies Scale	Manish Sharma and Surbhi Sharma	2	pc
9	Women Social Freedom Scale	L. I. Bhusan	2	pc
10	Organizational Job Satisfaction Questionnaire	Hardeo Ojha	2	pc
11	Psychological Counselling Need Scale	Vijay Laxmi Chauhan and Gunjan Ganotra Arora	2	pc
12	Women Empowerment Scale	Monika Gupta and Sundeep Kumar Shrivastava	2	pc
13	Model of Neuron		1	pc
14	model of Spinal cord		1	pc

15	Marriage Adjustment Inventory	C.G Despande	2	pc
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**Department of zoology**

S. No.	Item	Qty.	
1	<p>LAMINAR FLOW CABINET, HORIZONTAL</p> <p>Size Size 3' x2'x2'</p> <p>Structure made of thick plyboard covered with sunmica. Sides of work bench covered with transparent acrylic sheet. Front acrylic door of collapsible type. Work-bench made of thick ply-board covered with stainless steel sheet. HEPA Filter provided vertically on back of the work bench horizontally. Blowers, motor and pre-filters fitted in lower portion of the cabinet. Properly balanced blowers fitted on 1/4 H.P. Electric motor provided to supply sufficient air to HEPA filter. Pre-filters provided to supply pre filtered air to the blowers. One fluorescent tube and one U.V. Germicidal tube provided over work bench. Static pressure manometer fitted to the unit.</p>	1	pc
2	<p>Double Beam UV-VIS Spectrophotometer</p> <p>- (2 Cell Holder) Advance circuit measurement and control system make the instrument of high reliability and low noise. Range 190-1100 nm, Basic/quantitative wavelength scan/DNA, Protein Test/Kinetic, automatic peak picking &amp; spectrum display. Large coloured screen with graphic display. Spectrum and data can be printed out by printer and sent to computer via USB PORT. SOFTWARE INCLUDED</p>	1	pc
3	<p>Senior Precision Rotatory Microtome</p> <p>It is a universally approved. most modern and reliable sectioning equipment designed for very precise sectioning of tissues upto 1 micron thickness. The feed indicator, located in front of microtome is operated by the latest 'CAM DRIVE SYSTEM' for accurate feed setting from 1-50 microns in steps of one micron. It is graduated in microns, is conveniently located in the front for instant references and its setting is controlled by a knurled knob at the back of the microtomes. The interior mechanism rests on a heavy cast iron base and is covered with a full swing protective cover for easier cleaning and lubrication. The salient features include independ ent feed mechanism with automatic safety device, universal knife holder with lateral movements permitting use of the entire knife edge, universal vie type object holder for accurate centering of the specimen. The instrument ensures life-long smooth operation. Individual components are fabricated and assembled from selected material using latest technology. The knife supplied with the microtome is fabricated from imported fine grain steel</p>	1	pc

	tested for micro-structure, heat treated for optimum rigidity and sharpness. The instrument is supplied with the following accessories in sturdy wooden cabinet. Razor 120 mm, with back & handle in box.		
4	Thin Layer Chromatography Kit, Comprising of moveable applicator (Spreader) with built in arrangement, 0-2 mm, perspex base plate 114 x 23 cm. Aluminium Carrier, perspex spotting temp plate, developing chamber with lid, five T.L.C. plates 20 x 20 cm., two T.L.C. plates 20 x 5 cm., scribe for marking lines, micropipette and glass sprayer with rubber bellow.	1	pc
5	Chromatography Paper 30x10cm)-	1	pc
6	Dissolved Oxygen Meter Microprocessor D.O. Meter with 16x2 numeric LCD display, simultaneous display of D.O. & temp. Data Facility up to 1000 samples, computer interlace through USB, Supplied with D.O. probe, temp. probe, electrode dust cover & instructions manual.	1	pc
7	Dissolved Turbidity Meter With 16x2 Alpha numeric LCD display having 2 range up to 1000 JTU with memory of storage of 2 standard stoavoid frequent use of solution	1	pc
8	Maximum-Minimum Therme -Meter	1	pc
9	Digital Salinity Meter using latest microcontroller, Auto Ranging (3 ranges from 2ppt to 50ppt), temperature compensation, auto cell constant measurement, touch keys along with Salinity Cell.	1	pc
10	Digital Soil Moisture Meter	1	pc
11	Phytoplankton Net Mesh Size 10,25,50,100	1	pc

12	<p><b>BACTERIOLOGICAL INCUBATOR</b> Size 14x14x14</p> <p>A double walled unit with outer body made of MS sheet treated for degreasing &amp; rust proofing duly powder coated and inner chamber made of Stainless Steel (304 Grade) sheet. Provided with adjustable Stainless Steel Wire Mesh / perforated shelves. Space between inner chamber and outer wall is filled with high grade mineral wool for minimal heat loss. The Double Walled Door is fitted with glass window to facilitate viewing inside chamber without disturbing the inner temperature and has synthetic rubber/ fiber gasket. Unit has ventilation slides on two sides to control inner air/ vapor circulation. Fitted with beaded heating elements placed in ribs, at bottom and sides for uniform heat distribution. Unit is fitted two lamps and ON / OFF switch. To work on 220/230 volts AC supply. Unit is fitted with Digital Temperature Indicator-cum-Controller (with display for SV and PV) for temperature control from +5° C ambient to 70°C, <math>\pm 1^{\circ}\text{C}</math> at 50°C.</p>	1	pc
13	Haemocytometer	1	pc
14	<p>Pc Base Research Microscope (Trinocular Research Microscope)</p> <ul style="list-style-type: none"> <li>• optical system - Infinite optical system, Color corrected</li> <li>• lamination - Koehler 6V-20W/30W Halogen/LED with intensity control</li> <li>• viewing Head - Ergonomic Sidentop Binocular Head, Inclined 30° Rotatable 360° with IPD 48-75mm</li> <li>• nosepiece - Reversed Quintuple/Quarduple</li> <li>• eyepiece - Extra wide field WF10X with FOV 18/20mm with diopter adjustment on both eyepieces</li> <li>• objectives - DIN PLAN Infinite</li> <li>• Mechanical Stage - Right hand control, hard coated surface (120x132mm), double slide holder low position coaxial movement</li> <li>• Condenser - Moveable Abbe N.A. 1.25 with iris diaphragm filter slot</li> <li>• Focussing - Coaxial with Tension Control &amp; Upper Limit Stopper</li> <li>• Power Supply - 220V/50Hz AC (SMPS)</li> <li>• Phase Contrast – Optional</li> <li>• Darkfield – Optional</li> <li>• Polarizing – Optional</li> <li>• Certification - CE, UL, ISI, ISO</li> </ul>	1	pc
15	<p>Procam Cmos Camera 5 Mp With Measuring Software (Usb 2.0)</p> <p>ProCAM can be directly interface with Trinocular port of any Stereo-zoom, Biological, Metallurgical or Measuring Microscope with a 0.5x CMOS adaptor, making compatible with most of microscope.</p> <p>Features of RADICAL Capture &amp; Measurement Software: Image Capture, Time Lapse Imaging, Video Capture</p> <ul style="list-style-type: none"> <li>• Multi-fluorescence mode</li> <li>• Individual user profiles</li> <li>• Exposure control</li> <li>• Multi-camera operation</li> <li>• Image annotations</li> <li>• Programmable resolution</li> </ul>	1	pc

	<ul style="list-style-type: none"> <li>• • Measurement capabilities</li> <li>• Multi-focus</li> </ul>		
16	Digital Photoelectric Calorimeter 8 fitters With facility for direct measurement of results In conc., %T & O.D. Memory for Storage of 3 standards to avoid frequent use of standards. Automatic zero setting facility. 1ml. solution measurement.	1	pc
17	LOW VOLUME HIGH SPEED TABLE TOP COOLING CENTRIFUGE MAX 20000 RPM / 37570 RCF, LED display without rotor heads & accessories (Recommended Voltage Stabilizer VS-03)	1	pc
18	Mini Horizontal Electrophoresis System with Power Supply For Above	1	pc
19	Micropipette Variable	1	pc
20	Secchi Disk	1	pc
21	Soxhlet Extraction apparatus 6 Test Suitable for flasks of 100 ml to 500 ml capacity. Unit is supplied with Heating Box fitted with heaters (Hot Plates or Heating Mantles), individual Energy Regulators, Neon Lamps, adjustable rods, clamp and boss heads and without Glass Parts. To work on 220/230 volts AC supply.	1	pc

## 9. LBSM College Jamshedpur

### Department of Geography

S. No.	Item	Make/Model	Qty.	
1	Big Size marker Board (8x4)	Aerashine / Prince Board /	1	pc
2	Map Storage stand all iron pipe slide hook for 36	Biocraft / NC Kansil Bharat Graphic	2	pc

3	Toposheet Jharkhand		4	pc
4	Set Square	NC Kansil / Devine / Eastman	20	set
5	Full Protector dia 150mm	NC Kansil / Devine / Eastman	20	pc
6	French Curave set of 12	NC Kansil / Devine / Eastman	20	pc
7	Making of New rack of Size:- 6'x10' made up of 19mm waterproof board with glass slider and locks with all material and labour cost.		1	pc

### **Department of Psychology**

S. No.	Item	Make/Model	Qty.	
1	Colour Preference	NPC / Rupa Psychological/ Prashad Psychological	4	pc
2	Weight Discremination (10 weight)	NPC / Rupa Psychological/ Prashad Psychological	4	pc
3	Pass A Long	NPC / Rupa Psychological/ Prashad Psychological	4	pc
4	Koh Block Design	NPC / Rupa Psychological/ Prashad Psychological	4	pc
5	Cube Construction	NPC / Rupa Psychological/ Prashad Psychological	4	pc
6	Maudsley Personality- Jalota	NPC / Rupa Psychological/ Prashad Psychological	4	pc
7	Mental Fatigue - Bhargava	NPC / Rupa Psychological/ Prashad Psychological	4	pc
8	Knowledge of Result	NPC / Rupa Psychological/ Prashad Psychological	4	pc
9	Psychological Well Being - Sisodia	NPC / Rupa Psychological/ Prashad Psychological	4	pc
10	Life Satisfaction	NPC / Rupa Psychological/ Prashad Psychological	4	pc

11	Emotional Intelligence Mangal	NPC / Rupa Psychological/ Prashad Psychological	4	pc
12	Teachers Occupational Stress- Jamal	NPC / Rupa Psychological/ Prashad Psychological	4	pc
14	Verbal Intelligence	NPC / Rupa Psychological/ Prashad Psychological	4	pc
15	Paired Association	NPC / Rupa Psychological/ Prashad Psychological	4	pc
16	General Intelligence	NPC / Rupa Psychological/ Prashad Psychological	4	pc
17	Paired Association	NPC / Rupa Psychological/ Prashad Psychological	4	pc
18	Maudsley Personality	NPC / Rupa Psychological/ Prashad Psychological	4	pc
19	Occupational Stress	NPC / Rupa Psychological/ Prashad Psychological	4	pc
20	Locus of Control - Husnain	NPC / Rupa Psychological/ Prashad Psychological	4	pc
21	Adjustment - Bells	NPC / Rupa Psychological/ Prashad Psychological	4	pc
22	Student Stress Scale- Akhtar	NPC / Rupa Psychological/ Prashad Psychological	4	pc
23	Distinctive Aptitude Test Battery- Vishal Sood	NPC / Rupa Psychological/ Prashad Psychological	4	pc
24	Mohsin's Test of General Intelligence	NPC / Rupa Psychological/ Prashad Psychological	4	pc
25	Photographs of Psychologists (Type of 12 Educationists) Size 11x17"	NPC / Rupa Psychological/ Prashad Psychological	1	set

### **Department of Botany**

S. No.	Item	Make/Model	Qty.	
1	Office Almirah without Locker 20gauge		2	pc

2	Herbarium Paper Sheet pkt of 100	Biocraft / D. Bios /Bharat Graphic	1	pkt
3	Willmount Bubler		4	pc
4	Medical Compound Microscope with Stage With quadruple revolving nosepiece, precise graduated slow motion reading to 0.002mm and separate coarse motion knobs, graduated mechanical stage, tube length 160mm fixed eyepiece tube, rack and pinion motion for abbe condenser N.A. 1.25 with iris diaphragm and filter holder. Packed in Thermocol Packing with filter, vinyl cover and operating manual.	Radical /Olympus Hytek	4	pc
5	Dissecting Microscope Having a stable round shaped base with joint revolving arm for moving the magnifying lens over the full area of the stage. The microscope can be focussed by a smooth rack pinion system and light adjustment through a reflecting mirror. Supplied with 10x and 20x eye-pieces. Stage size 85 x 75 mm.	Radical / lympus Hytek	2	pc
6	Tissue Paper Roll		10	roll
7	Soxhlet Extraction apparatus 6 Test Suitable for flasks of 100 ml to 500 ml capacity. Unit is supplied with Heating Box fitted with heaters (Hot Plates or Heating Mantles), individual Energy Regulators, Neon Lamps, adjustable rods, clamp and boss heads and without Glass Parts. To work on 220/230 volts AC supply.	Relitech / BR Biochem / Boroshil	1	pc
8	Fiber Glass Botanical models Typical Flower	Biocraft / D. Bios /Bharat Graphic	1	pc
9	Germination pollen grain set of 8	Biocraft / D. Bios /Bharat Graphic	1	set
10	Ovule Development set of 11	Biocraft / D. Bios /Bharat Graphic	1	set
11	Monocot stem anatomy model TS & LS (Fiber glass Model)	Biocraft / D. Bios /Bharat Graphic	1	pc
12	Monocot Root anatomy model TS & LS (Fiber glass Model)	Biocraft / D. Bios /Bharat Graphic	1	pc
13	Monocot Leaf anatomy model TS & LS (Fiber glass Model)	Biocraft / D. Bios /Bharat Graphic	1	pc

14	Dicot stem anatomy model TS & LS (Fiber glass Model)	Biocraft / D. Bios /Bharat Graphic	1	pc
15	Dicot Root anatomy model TS & LS (Fiber glass Model)	Biocraft / D. Bios /Bharat Graphic	1	pc
16	Dico Leaf anatomy model TS & LS (Fiber glass Model)	Biocraft / D. Bios /Bharat Graphic	1	pc
17	Botanical chart Common Type Size 58x90 cm	Biocraft / D. Bios /Bharat Graphic	10	pc
18	ClassWork Material Common Type per tube	Biocraft / D. Bios /Bharat Graphic	12	pc
19	Diethyl Ether 500ml	Merck / Loba /SRL	2	pc
20	Silica Gel 500gm	Merck / Loba /SRL	2	pc
21	Methyl Alcohol 500ml	Merck / Loba /SRL	2	pc
22	Potassium Hydroxide 500gm	Merck / Loba /SRL	2	pc
23	n Butanol 500ml	Merck / Loba /SRL	2	pc
24	Anhydrous sodium sulphate 500gm	Merck / Loba /SRL	2	pc
25	Fehling solution A 500ml	Merck / Loba /SRL	2	pc
26	Fehling solution B 500ml	Merck / Loba /SRL	2	pc
27	Benedicts Solution 500ml	Merck / Loba /SRL	2	pc
28	Spirit 1000ml	Merck / Loba /SRL	2	pc
29	Dextrose 500gm	Merck / Loba /SRL	2	pc
30	Ammonium Hydroxide 500ml	Merck / Loba /SRL	2	pc
31	Copper sulphate 500gm	Merck / Loba /SRL	2	pc

32	Seuan III 25gm	Merck / Loba /SRL	2	pc
33	Glycrine 500ml	Merck / Loba /SRL	2	pc
34	Osmic acid 1gm	Merck / Loba /SRL	1	pc

### **Department of Chemistry**

S. No.	Item	Make/Model	Qty.	
1	Conductivity Meter Deluxe Conductivity Meter 3½ digit LED display with facility for automatic temperature. Compensation & digital cell constant adjustment along with cond. cell & temperature probe	Labtronics /EI / Systronics	1	pc
2	PH Meter Microprocessor pH/Temperature/mv meter (Graphical display) A research grade instrument with 128 x 64 large Graphical LCD display having auto temperature compensation, range 0.00 to 14.00 pH, resolution 0.01, auto buffer recognition, fluid resistant housing & rotational electrode stand along with accessories. Its features include 5 point calibration. Data storage facility up to 1000 samples, complete with pH electrode, temperature probe, rotational electrode stand, dust cover & instructions manual computer interface through USB(Table Model)	Labtronics /EI / Systronics	1	pc
3	Digital Melting Point Apparatus Within built Silicon Oil Bath and Stirrer Adjustable heating rate and stirrer speed. Range upto 275°C with readability of 1°C	Labtronics /EI / Systronics	1	pc
4	Magnetic Stirrer with Hot Plate Magnetic stirrer 1 litre capacity with hot plate & Digital Speed Indicator.	Remi / Relitech / BR Biochem	1	pc
5	Analytical Balance (Chemical Capacity-200gm Lc. 0.01gm 200gm Lc. 0.01gm Glass windshield RED LED display Low Battery Indicator Overload protection	Wenser / Shimadzu / Citizon	1	pc

	RS232C - Optional Stable Indicator			
6	<b>ROTARY FLASK SHAKER</b> Designed for continuous shaking of solutions in Erlenmeyer . It is compact bench type Table Top model with platform fitted with rubber discs mounted on ball bearing crank shafts to give an orbital motion to the flasks, within a diameter of approximately 50mm. The motor is coupled by means of a V-belt with pitch pulley and is mounted on a heavy and sturdy angle iron frame. Speed is - controlled from 50 -250 rpm by speed controller. To work in 220/230 volts AC supply. <b>FLASK HOLDING CAPACITY 250ml x 16Flask</b>	Remi / Relitech / BR Biochem	1	pc
7	<b>Water Bath 6 Hole Digital model</b> A double walled bath with inner chamber made of SS sheet (304 grade) Argon Arc Welded, and outer wall made of MS sheet duly epoxy powder coated. Provided with SS lid having 75mm dia. holes with removable concentric rings. The gap between outer and inner walls is filled with special grade glass wool insulation. Temperature from +5°C ambient to 99°C.	Remi / Relitech / BR Biochem	1	pc
8	<b>Hot Air Oven Relitech Size: 300x300x300mm</b> A double walled unit with outer body made of Mild Steel Sheet treated for degreasing & rust proofing duly powder coated and inner chamber made of Stainless Steel Sheet (304 Grade) and adjustable Stainless Steel Wire Mesh shelves. Space between inner chamber and outer wall is filled with high grade mineral wool for minimal heat loss. The Double Walled Door has synthetic rubber / fibre gasket. Unit has ventilation slides on two sides to control inner air/ vapor circulation. Fitted with beaded heating elements placed in ribs, at bottom and sides for uniform heat distribution. To work on 220/230 volts AC supply.	Remi / Relitech / BR Biochem	1	pc
9	Methyl alcohol 500ml	Merck / Loba /Himedia	1	pc
10	Ethyl alcohol	Merck / Loba /Himedia	2	pc

11	Acetone 500ml	Merck / Loba /Himedia	2	pc
12	Acetic Acid 500ml	Merck / Loba /Himedia	2	pc
13	Oxalic Acid 500ml	Merck / Loba /Himedia	2	pc
14	Fehling Solution A 500ml	Merck / Loba /Himedia	2	pc
15	Fehling Solution B 500ml	Merck / Loba /Himedia	2	pc
16	Silver Nitrate 25gm	Merck / Loba /Himedia	1	pc
17	Cobalt Nitrate 100gm	Merck / Loba /Himedia	1	pc
18	Exhaust Fan 300mm	Crompton/ Havells / USHA	4	
19	Gas pipe line on Pratical Table		150	rft
20	Two way gas tape		8	
21	Gas burner brass		16	
22	Gas pipe for Burner		16	

### **Department of Physics**

S. No.	Item	Qty.	
1	Determine Thermal Conductivity using Lee's Disc Apparatus (Complete Setup) Setup consists of : VERNIER Stop watch Heater Thermometer	1	pc

2	<p>PN / Zener Diode / LED Characteristics Apparatus with Aluminum Panel &amp; Square Meters</p> <p>Objective : To plot Forward &amp; Reverse Characteristics of PN Junction &amp; light emitting diode &amp; Zener Diode.</p> <p>Specifications : Instrument comprises of two DC Power Supply, three meter to measure voltages &amp; current, one PN Junction Diode &amp; one Zener Diode mounted behind the panel &amp; connections brought out at terminals/Sockets.</p> <p>Features:</p> <p>High quality aluminium panel used for longer durability, High accuracy window type Square meters used in the kit. High quality computer power cord and patch cords used</p>	1	pc
3	<p>Transistor Characteristics Apparatus with Aluminum Panel &amp; Square Meters, Regulated Power Supplies</p> <p>Objective : To plot Input &amp; Output Characteristics of Common Base PNP &amp; NPN Transistors Input &amp; Output Characteristics of Common Emitter PNP &amp; NPN Transistors</p> <p>Specifications : Instrument comprises of Two DC Regulated Power Supplies 0-10VDC/150mA &amp; 0-1 VDC/150mA, four meters for voltage &amp; current measurement, one PNP &amp; one NPN Transistor mounted behind the panel, connections of Supplies meters &amp; Transistors brought out at 4mm Sockets.</p> <p>Features:</p> <p>High quality aluminium panel used for longer durability, High accuracy window type square meters used in the kit.</p> <p>High quality computer power cord and patch cords used</p>	1	pc
4	<p>Verification of truth tables of Logic Gates using Universal Gates</p> <p>Objective : To understand that NAND &amp; NOR gates are basic building blocks in Digital Electronics &amp; Verification of AND, OR, NOT, NOR NAND Gates using NAND &amp; NOR Gates.</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 5V/150mA, Two logic '1' &amp; two logic '0' inputs are provided on sockets, two Red LED output indicators, circuit diagram printed for four NAND' &amp; four 'NOR' gates &amp; their respective IC's placed on the front panel &amp; connections brought out at sockets.</p>	1	pc
5	<p>4 Bit Adder &amp; Subtractor Circuits using IC 7483</p> <p>Objective : To study &amp; verify truth tables of two bit half adder, two bit half subtractor, three and four bit full adder and full subtractor.</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 5V/150mA, four Logic inputs selectable using SPDT switches, four output LED indicators, circuit diagram Printed &amp; connections brought out at sockets on the front panel.</p>	1	pc

6	<p>Zener Diode V-I Characteristics Apparatus with Aluminum Panel &amp; Square Meters (Forward &amp; Reverse)</p> <p>Objective : To study Forward &amp; Reverse V-I Characteristics of Zener Diode.</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 0- 15 VDC 150mA, two meter for voltage &amp; current measurement, Zener Diodes mounted behind the panel, connections of Supplies, Meters &amp; Zener Diode brought out at 4mm Sockets.</p> <p>Features:</p> <p>High quality aluminium panel used for longer durability, High accuracy window type square meters used in the kit. High quality computer power cord and patch cords used</p>	1	pc
7	<p>Voltage Stabilization Characteristics of Zener diode with Aluminum Panel &amp; Square Meters</p> <p>Objective : Zener Diode Characteristics Apparatus has been designed to study the voltage stabilization application of a zener diode.</p> <p>Specifications : One continuously variable DC power supply of 0-30V. Two analog moving coil round meter to measure Input &amp; Output voltages are provided on the front panel. One series resistance &amp; one zener diode of 8.2 V has been provided on front panel.</p> <p>Different type of load resistances selectable using band switch are also provided on the front panel.</p> <p>Features:</p> <p>High quality aluminium panel used for longer durability, High accuracy window type square meters used in the kit. High quality computer power cord and patch cords used</p>	1	pc
8	Amplitude Modulation & Demodulation	1	pc
9	CRO 20MHz, Dual Channel, 2 Trace	1	pc
10	Function Generator 2Hz~2MHz with Frequency Counter	1	pc
11	<p>Verification of truth tables of Logic Gates using Universal Gates</p> <p>Objective : To understand that NAND &amp; NOR gates are basic building blocks in Digital Electronics &amp; Verification of AND, OR, NOT, NOR &amp; NAND Gates using NAND &amp; NOR Gates.</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 5V/150mA , Two logic '1' &amp; two logic '0' inputs are provided on sockets, two Red LED output indicators, circuit diagram printed for four NAND' &amp; four 'NOR' gates &amp; their respective IC's placed on the front panel &amp; connections brought out at sockets.</p>	1	pc
12	<p>4 Bit Adder &amp; Subtractor Circuits using IC 7483</p> <p>Objective : To study &amp; verify truth tables of two bit half adder, two bit half subtractor, three and four bit full adder and full subtractor.</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 5V/150mA, four Logic inputs selectable using SPDT switches, four output</p>	1	pc

	LED indicators, circuit diagram Printed & connections brought out at sockets on the front panel.		
13	<p>Application of IC 555 ( Astable , Monostable &amp; Bistable Multivibrator)</p> <p>Objective : To assemble &amp; study Astable, Monostable, Bistable Multivibrators &amp; V to F convertor</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 5VDC/150 mA, IC 555 &amp; various components kept inside the cabinet &amp; connections brought out at 4mm sockets,</p>	1	pc
14	Transistor Characteristics Apparatus with Bakelite Panel & Round Meters, Regulated Power Supplies	1	pc
15	<p>Common Emitter Transistor Amplifier</p> <p>Objective : To study Frequency Response, Input Impedance, Output Impedance &amp; -ve Feed Back of Common Emitter Transistor Amplifier.</p> <p>Specifications : Instrument comprises of fixed output DC Regulated Power Supply of 12V, Circuit diagram is Printed, Components mounted behind the front panel &amp; connections of important points brought out at 4 mm Sockets</p>	1	pc
16	Operational Amplifier as Inverting, Non-Inverting, Unity Gain Amplifier & Frequency Response with Analog Voltmeter	1	pc
17	<p>Determine of the Specific Rotation of the Cane Sugar Solution with the Help of Polarimeter (Complete Setup)</p> <p>Objective : Determine the Specific Rotation of Cane Sugar Solution using Half Shade Polarimeter</p> <p>The setup consists of :</p> <p>a) Half Shade Polarimeter</p> <p>b) Sodium Vapour Lamp 35 Watt fitted in Box With Transformer</p> <p>c) Beaker</p> <p>d) Measuring Cylinder</p>	1	pc
18	<p>Stefan Constant Apparatus</p> <p>Objective : Stefan's Constant apparatus has been designed to study the Stefan's law of radiation.</p> <p>Specifications : Continuously variable, over load &amp; short circuit protected DC regulated power supply of 0 to 12 Volt. Voltmeter &amp; Current meter are mounted on the front panel to measure the voltage &amp; current. One bulb holder with bulb (12 volt) is mounted on the front panel.</p>	1	pc

### **Department of Zoology**

S. No.	Item	Qty.
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1	Spectrophotometer digital double Display Range 340-960 nm with facility for automatic concentration, 6% Transmission and absorbance measurements. 3 digit data display, separate 3 digit LED display-For wavelength in nm with 1 nm wavelength resolution. Provision for 10 mm & 50 mm path length cuvettes is provided equipped with set of 10mm & 50 mm path length cuvettes	1	pc
2	Analytical Balance (Chemical Capacity-200gm Lc. 0.01gm <ul style="list-style-type: none"> <li>• Glass Windshield</li> <li>• Auto Calibration with External Weight</li> <li>• Low Battery Indicator</li> <li>• Multifunction Weighing Units</li> <li>• In built rechargeable battery for continuous use</li> <li>• Auto Zero tracking</li> <li>• Overload Protection Design</li> <li>• Front RED LED display</li> <li>• Automatic Switch Off Option</li> <li>• High precision loadcell sensor</li> <li>• RS232C Interface</li> </ul>	1	pc
3	Ocular Micrometer Disc	1	pc
4	Stage Micrometer Disc	1	pc
5	Medical Compound Microscope with Stage With quadruple revolving nosepiece, precise graduated slow motion reading to 0.002mm and separate coarse motion knobs, graduated mechanical stage, tube length 160mm fixed eyepiece tube, rack and pinion motion for abbe condenser N.A. 1.25 with iris diaphragm and filter holder. Packed in Thermocol Packing with filter, vinyl cover and operating manual.	1	pc
6	Dissecting Microscope Having a stable round shaped base with joint revolving arm for moving the magnifying lens over the full area of the stage. The microscope can be focussed by a smooth rack pinion system and light adjustment through a reflecting mirror. Supplied with 10x and 20x eye-pieces. Stage size 85 x 75 mm.	1	pc
7	Chemical Weight Box (1-Mgm - 100gm).	1	pc
8	Stop Watch Digital	1	pc
9	Haemocytometer	1	pc
10	Soil and Water Testing Kit Temperature Resolution 0.1°C. Measurement & calculation of calorific value & water equivalent Weight of sample. Display- 3 Digit LED, Temperature accuracy-0.1°C, Temperature Resolution-0.1°C, Temperature Detector- RTD, Temp. Range-RT. to 99.9°C, Calculation - manual, Power supply- 230V±10%/50Hz, Complete with all accessories.	1	pc

11	Lux Photometer Digital	1	pc
12	Hot Plate Laboratory Hot plates are available in round and rectangular shapes. Body is fabricated out of thick mild steel sheet, duly finished in epoxy powder coated. The Hot Plate mad of cast iron, nicely and precisely machined & smoothed duly finished in heat resistant black paint is firmly mounted on the body. Heavy duty heating elements are securely laid under the plate to operate on 220/230V AC supply. Temperature in controlled by energy regulators fitted with an indicator lamp for the mains. Supplied with cord and plug.	1	pc
13	Digital Water Bath 6 Hole Unit is fitted with Digital Temperature Indicator-cum-Controller (with display for SV and PV) for temperature control from +5° C ambient to 99°C ± 1°C at 50°C.	1	pc
14	Haemometer Set	1	pc
15	Esr Pipette With Stand	1	pc
16	Centrifuge Machine	1	pc
17	Sedgewick Rafter Counting Cell	1	pc
18	Plankton Net	1	pc
19	Insect Box	1	pc
20	Micropipette Variable	1	pc
21	Secchi Disk	1	pc

### **Department of Library**

S. No.	Item	Qty.
1	Desktop Computer (Core i3, 4GB RAM, 1TB HDD, 18" Monitor, with Keyboard and Mouse Preloaded OS)	5
2	Computer Table	5
3	Computer Chair	5
4	UPS Single Battery	5
5	Electrical work Electrical fitting with 64MP Scket and switch, 32 AMP MCB fitting and other	5
6	Fire Extinguisher 4Kg ABC type	1

7	Air Condition 1.5 TON 3star	2
8	Stablizer for AC	2
9	Periodical Display unit (Magazine Stand )	1
10	Book showcases with Glass door Size: 66" x 36" x 12" made up of 22 gauge steel with four compartment	5
11	Portraits of Inspirational Perssonalities	5
12	Labling Machine (Spine and Barcoding )	1
13	Printer Multi Functional	1
14	Vaccum Cleaner Aluminium Partition	1
15	Wall Clock	2

## **10. Mahila College Chaibasa**

### **Department of Botany**

S. No.	Item	Qty.
1	<b>Autoclave</b>	
2	Sprit Lamp	10
3	Inoculating Needle	1
4	Beaker Big	10
5	Beaker Small	12
6	Beaker Medium	12
7	Conical Flask Big	6
8	Conical Flask Middle	10
9	Conical Flask Small	12
10	Culture tubes	24
11	Petriplates	
12	Cotton (Non Absorbant )	4pkt
13	Centrifuge	1
14	Separatory funnel	6
15	Separating funnel stand	2
16	Measuring Cylinder	
17	Micropipette	6
18	Inoculating Chamber 50°C	1
19	Oven 100 °C	1
20	Slides	1
21	Agar Agar	1
22	Dextrose	1
23	Sucrose	1

24	Iodine Solution	1
25	Glycerine	1
26	Saffraanin Solution	1
27	Light Green	1
28	Cotton Blue	1
29	Maltose 500gm	1
30	Lactose 500gm	1
31	Starch 500gm	1
32	Cork borer	1
33	Test tube holder	1
34	Plain test tube	1
35	<b>Tripal stand</b>	1
36	Iron net	1
37	Prestige Pressure Cooker	1
38	NaoH	1
39	KoH	1
40	High Power Bulb with stand	1
41	Thin Layer Charomatographic plate	6
42	Charomatic graphic paper	10 sheet
43	TLC stand steel	1
44	Test tube Rack	1
45	Flask Rack	1
46	Iron net jar	1
47	Whatman Filter Paper	1
48	Glass tank with lid	1
49	Morter & Pestle (China clay)	3
50	Gas Stove	
	<b>Chemical</b>	
1	Alcohol	5Liter
2	Methylated Alcohol	1
3	Butanol	1
4	Acetone	1
5	Glacial Acetic Acid	1
6	Carmin Powder	1
7	Qudrat (Wooden) 100cm x 100cm	1
8	NaHcO3	1

### **Department of Geography**

S. No.	Item	Qty.
1	Inch Tape 100ft	10
2	Indian Pattern Clinometer Compass In Leather Case (Tangent Clinometer)	5
3	Gps System All Types	2
4	Survey Of Instruments Chain & Tape Chain -66ft /100 Unit Tape 30mtr	10
5	Meter Scale Wooden	10

6	Maximum & Minimum Thermometer	10
7	Non Recording Rain Gauge As Per Imd Specification: Made Of Fiber Body With Brass Ring Fited On The Top With Fiber Collection Bottle	3
8	3d Chart Size:- 75cmx100cm River In Action (The Water Cycle) BG	1
9	Glacial Landscape BG	1
10	Formation Of Rack (Geological Cycle)	1
11	Igneous Metamorphic Sedimentary Volcanoes	1
12	Interior Of The Earth	1
13	3d Wall Map World Physical Bharat graphic	1
14	3d Wall Map World Physical, India	1
15	Geographical Chart Framed Cycle Of Erosin	1
16	Globe 30cm Illuminated Led lamp	2
17	Topographic Map Of India (Topo Map)	10
18	Toposheet Jharkhand	10
19	Plain Table With Accessories Plane Table -:Size 750 600 Mm * 21 Mm:	5
20	Drawing Instrument set	10
21	Drawing Board Size 18" x12"	10
22	Set Square	10
23	Tee Square	10
24	Full Protector dia 150 mm moulded	10
25	Compass - Pencil	15
26	French Curve set of 12	5
27	Prismatic Compass With Stand	5
28	Clinometer - Indian	5
29	Chain....66ft/100links with arron	3
30	Measuring Tape.. 30 Meters	10
31	Umbrella Survey	3

### **Department of History**

S. No.	Item	Qty.
1	Steel Almira office type without locker made up of 22 gauge steel with 5 compartment/4shelf. Size: 76" x 35" x 19".	2
2	Book showcases with Glass door Size: 66" x 36" x 12" made up of 22 gauge steel with four compartment	1
3	Office Table	1
4	Chair	5

### **Department of Home Science**

S. No.	Item	Qty.
1	Steel Almira office type without locker made up of 22 gauge steel with 5 compartment/4shelf. Size: 76" x 35" x 19".	2
2	Book showcases with Glass door Size: 66" x 36" x 12" made up of 22 gauge steel with four compartment	1
3	Office Table	1

4	Chair	5
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### **Department of Physics**

S. No.	Item	Qty.
1	A4 Sheet Paper bundle	3
2	Graph Paper sheet	200
3	Steel Almira office type without locker made up of 22 gauge steel with 5 compartment/4shelf. Size: 76" x 35" x 19".	3
4	Desktop +CPU+Keyboard +mouse +speaker	1
5	CRO B-H loop tracer	1
6	Resister for attendance	10
7	Books	3

### **Department of Political Science**

S. No.	Item	Qty.
1	Steel Almira office type without locker made up of 22 gauge steel with 5 compartment/4shelf. Size: 76" x 35" x 19".	1
2	Book showcases with Glass door Size: 66" x 36" x 12" made up of 22 gauge steel with four compartment.	2

### **Department of Psychology**

S. No.	Item	Qty.
1	Memory Drum Electronic	10
2	TAT	10
3	Jalota Test of Intelligence (hindi) with manual	10
4	Mocldsley Personality Inventory with manual	10
5	Mental Health Inventory with manual	10
6	Mirror Drowing Apparatus	10
7	Myler Lyllar Illusion apparatus	10
8	Habit Interference board	10

### **Department of Zoology**

S. No.	Item	Qty.
	<b>Permanent Slide</b>	
1	Paramecium wm	1
2	Paramecium conjugation wm	1

3	Sponge Gemmule wm	1
4	Nauplius wm	1
5	Zoea larva wm	1
6	Bipannaria wm	1
7	Redia wm	1
8	Cercaria wm	1
9	Statocyst of palaemon wm	1
10	Cephalic appendages of palaemon	1
11	Nephridia of pheretima wm	1
12	Ovary of pheretima wm	1
13	Lung wm in	1
14	Stomach	1
15	Liver	1
16	Kidney	1
17	Intestine	1
18	Thyroid of oryctolagus	1
19	Islet of Langerhans of oryctolagus	1
20	Adrenal of oryctolagus	1
21	Pituitary of oryctolagus	1
22	Testis of oryctolagus	1
23	Ovary of oryctolagus	1
24	Primitive Streak in chick embryo	1
25	13 hr incubation in chick embryo	1
26	21 hr incubation in chick embryo	1
27	15 hr incubation in chick embryo	1
28	28 hr incubation in chick embryo	1
29	36 hr incubation in chick embryo	1
30	48 hr incubation in chick embryo	1
31	72 hr incubation in chick embryo	1
32	96 hr incubation in chick embryo	1
	<b>Museum Specimen</b>	
1	Fasciola	1
2	Ascaris	1
3	Hirudinaria	1
4	Loris	1
5	Funambulus	1
6	Chiroptera	1
7	Psittaciformes	1
8	Alcedinidae	1
9	Passeridae	1
10	Strigiformes	1
11	Chelone	1
12	Hemidactylus	1
13	Varanus	1
14	Balanoglossus	1
15	Uromastrix	1

16	Bungarus	1
17	Hydrophis	1
18	Necturus	1
19	Salamandra	1
20	Alytes	1
21	Bufo	1
22	Tetradon	1
23	Anguilla	1
24	Myxine	1
25	Herdmania	1
26	Chamaeleon	1
27	Branchiostoma	1
28	Hyla	1
29	Mystus	1
30	Petromyzon	1
31	Heteropneustus	1
32	Amphioxus	1
33	Specimen Jar with Plastic Cap of various sizes 50 X 100	1
34	Models showing lifecycle in bombyx	1
35	Models showing lifecycle in Lac Insect	1
36	Models showing lifecycle in Apis	1
37	Models showing lifecycle in Horse	1
38	Models showing serial homology exhibited by teeth and appendages	1
39	Models showing homologous and analogous organ	1
40	Luminous Inverter and Battery Combo	1
41	25 (OH) 2 Vitamin D ELISA Kit	1
42	Premium quality highly magnified microscope	1

**11. Singhbhum College Chandil Jamshedpur**  
**Department of Chemistry**

S. No.	Item	Qty.
1	Digital Melting Point Apparatus Within built Silicon Oil Bath and Stirrer Adjustable heating rate and stirrer speed. Range upto 275°C with readability of 1°C	1 pc
2	Magnetic Stirrer with Hot Plate Magnetic stirrer 1 litre capacity with hot plate & Digital Speed Indicator.	1 pc
3	Distillation Unit	1 pc
4	Digital TDS 3, digit LED Display facility temperature compensation and digital cell constant adjustment along with TDS cell & other accessories	1 pc
5	Inverter with battery	1 pc
6	Refrigerator 190L	1 pc

### **Department of Home Science**

S. No.	Item	Qty.
1	Sulphuric acid 500ml	1 pc
2	Hydrochloric acid 500 ml	1 pc
3	Ammonia solution 500ml	1 pc
4	Sodium hydroxide 500gm	1 pc
5	Baking powder 100gm	1 pc
6	Potassium sorbet 1kg	1 pc
7	Sodium nitrate 500gm	1 pc
8	Vinegar 500ml	1 pc
9	Beaker 500ml	1 pc
10	Conical flask 250ml	1 pc
11	Burrete 50ml with taflone key	1 pc
12	Pipette 1ml/2ml	1 pc
13	Pipette 5ml	1 pc
14	Pipette 10ml	1 pc
15	Lab thermometer	1 pc
16	Ph paper	1 pc
17	Spatula stainless steel	1 pc
18	Filter paper 11cm	1 pc
19	Permanent slide	10 pc
20	Burrete stand with clamp	1 pc
21	Microwave oven 23 L	1 pc
22	Induction 1600W	1 pc
23	Refrigerator 90 L	1 pc
24	Dinner set 35 pc	1 pc
25	Swinging machine Electric, Automatic	1 pc
26	Electric kettle 1.8 L	1 pc
27	Tea set with 6 cup & Sauer with kettle pot milk pot & Suga pot	1 pc
28	Sandwich maker	1 pc
29	Tray set plastic set of 3	1 pc
30	Sarbat set jug with 6 glass	1 pc
31	Table cloth 56" x 56"	1 pc
32	Embroidery kit	1 pc
33	Mixer grinder 500W 3 Jar	1 pc
34	Office Almirah without Locker 20gauge	1 pc
35	Green Board/ White Board 6 x4	1 pc
36	Notice Board with Acrylic cover size 4x4	1 pc
37	Inverter Sine Wave Copper GQP 1050 Capacity – 1050 VA/12 V	1 pc
38	Battery 180 AH TALL TABULAR Warranty – 36 F + 24 Month	1 pc

39	Book showcases with Glass door Size: 66" x 36" x 12" made up of 22 gauge steel with four compartment.	1 pc
40	Wheel Chair	1 pc

### **Department of Physics**

S. No.	Item	Qty.
1	Charging & Discharging of Condenser with 2 Digital Panel Meters Objective : To study RC time constant using various sets of Resistance & Capacitors. Specifications : Instrument comprises of DC Power Supply with selector switch to select different voltages, One digital Ammeter & One Digital Voltmeter Circuit diagram is Printed, Terminals are provided for connecting different values of Resistances & Capacitors. Standard Acc. : Three sets of Resistances Capacitors & Digital Stop watch	1 pc
2	Thevenin's Theorem With Bakelite Panel & Round Meters	1 pc
3	Superposition Theorem With Bakelite Panel & Round Meters	1 pc
4	PN / Zener Diode / LED Characteristics Apparatus with Aluminum Panel & Square Meters Objective : To plot Forward & Reverse Characteristics of PN Junction & light emitting diode & Zener Diode. Specifications : Instrument comprises of two DC Power Supplie, three meter to measure voltages & current, one PN Junction Diode & oneZener Diode mounted behind the panel & connections brought out at terminals/Sockets. Features: High quality aluminium panel used for longer durability, High accuracy window type Square meters used in the kit. High quality computer power cord and patch cords used	1 pc
5	Verification of truth tables of Logic Gates using Universal Gates Objective : To understand that NAND & NOR gates are basic building blocks in Digital Electronics & Verification of AND, OR, NOT, NOR NAND Gates using NAND & NOR Gates. Specifications : Instrument comprises of DC Regulated Power Supply 5V/150mA , Two logic '1' & two logic '0' inputs are provided on sockets, two Red LED output indicators, circuit diagram printed for four NAND' & four 'NOR' gates & their respective IC's placed on the front panel & connections brought out at sockets.	1 pc
6	4 Bit Adder & Subtractor Circuits using IC 7483 Objective : To study & verify truth tables of two bit half adder, two bit half subtractor, three and four bit full adder and full subtractor. Specifications : Instrument comprises of DC Regulated Power Supply 5V/150mA, four Logic inputs selectable using SPDT switches, four output LED indicators, circuit diagram Printed & connections brought out at sockets on the front panel.	1 pc
7	Universal B.H Curve Apparatus	1 pc

8	<p>Zener Diode V-I Characteristics Apparatus with Aluminum Panel &amp; Square Meters (Forward &amp; Reverse)</p> <p>Objective : To study Forward &amp; Reverse V-I Characteristics of Zener Diode.</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 0- 15 VDC 150mA, two meter for voltage &amp; current measurement, Zener Diodes mounted behind the panel, connections of Supplies, Meters &amp; Zener Diode brought out at 4mm Sockets.</p> <p>Features:</p> <p>High quality aluminium panel used for longer durability, High accuracy window type square meters used in the kit. High quality computer power cord and patch cords used</p>	1	pc
9	<p>Voltage Stabilization Characteristics of Zener diode with Aluminum Panel &amp; Square Meters</p> <p>Objective : Zener Diode Characteristics Apparatus has been designed to study the voltage stabilization application of a zener diode.</p> <p>Specifications : One continuously variable DC power supply of 0-30V. Two analog moving coil round meter to measure Input &amp; Output voltages are provided on the front panel. One series resistance &amp; one zener diode of 8.2 V has been provided on front panel. Different type of load resistances selectable using band switch are also provided on the front panel.</p> <p>Features:</p> <p>High quality aluminium panel used for longer durability, High accuracy window type square meters used in the kit. High quality computer power cord and patch cords used</p>	1	pc
10	<p>Verification of truth tables of Logic Gates using Universal Gates</p> <p>Objective : To understand that NAND &amp; NOR gates are basic building blocks in Digital Electronics &amp; Verification of AND, OR, NOT, NOR &amp; NAND Gates using NAND &amp; NOR Gates.</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 5V/150mA , Two logic '1' &amp; two logic '0' inputs are provided on sockets, two Red LED output indicators, circuit diagram printed for four NAND' &amp; four 'NOR' gates &amp; their respective IC's placed on the front panel &amp; connections brought out at sockets.</p>	1	pc
11	<p>4 Bit Adder &amp; Subtractor Circuits using IC 7483</p> <p>Objective : To study &amp; verify truth tables of two bit half adder, two bit half subtractor, three and four bit full adder and full subtractor.</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 5V/150mA, four Logic inputs selectable using SPDT switches, four output LED indicators, circuit diagram Printed &amp; connections brought out at sockets on the front panel.</p>	1	pc
12	<p>Application of IC 555 ( Astable , Monostable &amp; Bistable Multivibrator)</p> <p>Objective : To assemble &amp; study Astable, Monostable, Bistable Multivibrators &amp; V to F convertor</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 5VDC/150 mA, IC 555 &amp; various components kept inside the cabinet &amp; connections brought out at 4mm sockets,</p>	1	pc
13	<p>PN / Zener Diode / LED Characteristics Apparatus with Bakelite Panel &amp; Round Meters</p>	1	pc
14	<p>Transistor Characteristics Apparatus with Bakelite Panel &amp; Round Meters, Regulated Power Supplies</p>	1	pc
15	<p>Common Emitter Transistor Amplifier</p> <p>Objective : To study Frequency Response, Input Impedance, Output Impedance &amp; -ve Feed Back of Common Emitter Transistor Amplifier.</p> <p>Specifications : Instrument comprises of fixed output DC Regulated Power Supply of 12V, Circuit diagram is Printed, Components mounted behind the front panel &amp; connections of important points brought out at 4 mm Sockets</p>	1	pc

16	Operational Amplifier as Inverting, Non-Inverting, Unity Gain Amplifier & Frequency Response with Analog Voltmeter	1	pc
17	Operational Amplifier as Differentiator & Integrator Objective : To study the Operational amplifier as Differentiator & Integrator. Specification : Fixed output DC Regulated power supply of $\pm 15$ V. Operational amplifier IC 741 is placed inside the cabinet and connections are brought out at sockets. Circuit diagram for Differentiator & Integrator are printed on the front panel and components are mounted inside the cabinet.	1	pc
18	Work Function of Diode (Richardson Law) Objective : To draw the graphs between heater current vs heater resistance, Anode voltage vs anode current. Specifications : Instrument comprises of DC Regulated power supply of 0-6 V & 0-300 V. Two volt meters & two current meters are mounted on the front panel. Valve diagram is printed on the panel & connection are brought out on sockets/terminals.	1	pc
19	New Modular lab working table of size 7'x5, Including , labor charge and all material	1	pc

### **Department of Psychology**

S. No.	Item	Qty.	
1	Jalotas Group Test of Mental Ability Scale	1	pc
2	Eysenck Personality Questionnaire (EPQ)	1	pc
3	Mohsin's Test of General Intelligence Test	1	pc
4	Maudsley Personality Inventory Scale (MPI)	1	pc
5	Rosarch Test	1	pc
6	Statile of Brain Poster of Spinal Cord, Eye, Ear	1	pc
7	Psychologist Frame (With Description) Ivan Pavlov, Carl Rages, William James, Alfred Binet, Jean Piaget, Albert sandura, Max wenthimer & Carl Juny, braham Marlao	10	pc
	Two way self Almirah storing apparatus	2	pc

## **12. Tata college Chaibasa**

### **Department of Botany**

S. No.	Item	Qty.
	<b>Group Algae Specimens (Class work Material)</b>	
1	Nostoc veg	5
2	Nostoc heterocystic	5
3	Chlamydomonas	5
4	Chlamydomonas palmella	5
5	Chara veg	5
6	Chara reproductive	5
7	Oedogonium veg	5

8	Oedogonium capcells	5
9	Oedogonium holdfast	5
10	Oedogonium macrandrous	5
11	Oedogonium oogonial	5
12	Oedogonium nanadrous	5
13	Oedogonium mixwd stage	5
14	Spirogyra veg	5
15	Spirogyra scal. Conj.	5
16	Spirogyra lat. Conj.	5
17	Spirogyra zygote stages	5
18	Vaucheria veg	5
19	Vaucheria sexual	5
20	Vaucheria Hypnospores	5
21	Volvox veg.	5
22	Volvox daughter colonies	5
23	Volvox antheridial	5
24	Volvox oogonial	5
25	Volvox mixed stage	5
26	Batrachospermum veg.	5
27	Batrachospermum sexual	5
28	Batrachospermum cystocarpic	5
29	Polysiphonia veg.	5
30	Polysiphonia tetrasporic	5
31	Polysiphonia cystocarpic	5
32	Polysiphonia antheridia	5
33	Polysiphonia mixed stage	5
	<b>Group Fungi Specimen (Class Work Material</b>	
34	Mucor veg.	5
35	Mucor Sporangial	5
36	Mucor Zygosporic	5
37	Phytophthora	5
38	Rhizopus veg.	5
39	Rhizopus Sporangia	5
40	Rhizopus Zygosporic	5
41	Penicillium	5
42	Peziza	5
43	Puccinia Uredo	5
44	Puccinia Teleuto	5
45	Puccinia Accidial	5
46	Puccinia Pycnidial	5
47	Ustilago on wheat(loose smut)	5
48	Alternaria	5
49	Cercospora	5
50	Fusarium	5
51	Colletotrichum	5

	<b>BACTERIA (Slides)</b>	
52	Bacteria coccus	5
53	Bacteria bacillus	5
54	Citrus canker	5
55	Coccus form	5
56	Spirillum	5
57	Root nodule with host	5
58	Rhizobium	5
59	Streptococci	5
	<b>LICHENS SPECIMEN (Class work material)</b>	
60	Lichen thallus	5
61	Lichen apothecia	5
	<b>BRYOPHYTES Specimens (ClassWork material)</b>	
62	Anthoceros veg.	5
63	Anthoceros sporophyte	5
64	Anthoceros antheridia	5
65	Anthoceros archegonia	5
66	Marchantia Thallus	5
67	Marchantia with gemma cup	5
68	Marchantia antheridial plant	5
69	Marchantia archegonial plant	5
70	Marchantia sporophyte	5
71	Riccia veg.	5
72	Riccia antheridia	5
73	Riccia archegonia	5
74	Riccia sporophyte	5
75	Funeria veg.	5
76	Funeria with capsule	5
77	Funeria antheridia	5
78	Funeria archegonia	5
79	Moss antheridia	5
	<b>GYMNOSPERMS Specimens (Class Work material)</b>	
80	Cycas leaflets	5
81	Cycas rachis	5
82	Cycas ovules	5
83	Cycas male/female sporophyll	5
84	Cycas coralloid root	5
85	Cycas root	5
86	Gnetum stem	5
87	Gnetum leaves	5
88	Gnetum male/female cone	5
89	Gnetum ovule	5
90	Ginkgo stem	5
91	Ginkgo dwarf shoot	5

92	Ginkgo leaves	5
93	Ginkgo male/female cone	5
94	Pinus stem young/old	5
95	Pinus root	5
96	Pinus dwarf shoot	5
97	Pinus needles	5
98	Pinus male cone	5
99	Pinus male cone in cluster	5
100	Pinus female cone 1st year	5
101	Pinus female cone 2nd year	5
	<b>Plant Anatomy Class Work material )</b>	
102	Achyranthus stem	5
103	Bignonia stem	5
104	Boerhavin stem	5
105	Bougainvillea stem	5
106	Casurina stem	5
107	Nyctanthus stem	5
108	Nymphaea petiole	5
109	Tinospora stem	5
110	Dracaena stem	5
111	Hydrilla stem	5
112	Maize young stem	5
113	Monocot root	5
114	Orchid root	5
115	Tinospora root	5
116	Nerium leaf	5
117	Maize leaf Orchid leaf	5
	<b>PERMANENT SLIDES</b>	
	<b>Angiosperms</b>	2
1	Typical plant cell (onion)	2
2	Allium root apex mitosis	2
3	Starch grains eccentric	2
4	Starch grains concentric	2
5	Apical cell meristem LS	2
6	Aerenchyma TS or WM	2
7	Collenchyma TS or WM	2
8	Sclerenchyma TS or WM	2
9	Chlorenchyma	2
10	Xylem elements proto & meta TS	2
11	Xylem spiral and annular vessels	2
12	Xylem elements pitted vessels	2
13	Xylem elements bordered vessels	2
14	Phloem elements	2
15	Sieve tubes	2

16	Tracheids	2
17	Stomata	2
18	Protostele in section	2
19	Actinostele in section	2
20	Plecostele in section	2
21	Siphonostele in section	2
22	Solenostele in section	2
23	Dicotystele in section	2
24	Actostele in section	2
25	Polystele in section	2
26	Achyranthus stem TS	2
27	Bigonia stem TS	2
28	Bignonia stem TS	2
29	Boerhavia stem TS	2
30	Bougainvillaea stem TS	2
31	Casurina stem TS	2
32	Nyctanthus stem TS	2
33	Nymphaea petiole TS	2
34	Tinospora stem TS	2
35	Dracaena stem TS	2
36	Hydrilla stem TS	2
37	Maize young stem TS	2
38	Jussaea stem TS	2
39	Maize root TS	2
40	Maize root LS	2
41	Orchid root showing velamen TS	2
42	Root with root hairs WM	2
43	Root with root cap LS	2
44	Nerium leaf	2
45	Maize leaf	2
46	Orchid leaf	2
47	Dicot leaf typical TS	2
48	Monocot leaf typical TS	2
49	Mesophytic leaf TS	2
50	Xerophytic leaf TS	2
51	Hydrophytic leaf TS	2
52	Utricularia WM	2
53	Hydrilla leaf TS	2
	<b>Vascular Bundles</b>	
54	Radial	2
55	Conjoint collateral open	2
56	Conjoint collateral closed	2
57	Conjoint bicollateral	2
58	Concentric amphivasal	2
59	Concentric amphicribal	2

	<b>Floral Morphology</b>	
60	Anther WM/TS	2
61	Epigynous flower LS	2
62	Hypogynous flower LS	2
63	Perigynous flower LS	2
64	Pollen grains different types	2
65	Pollen grains germinating	2
66	Pollinia of calotropous	2
	<b>Types of Ovules</b>	
67	Amphitropous	2
68	Anatropous	2
69	Campylotropous	2
70	Orthotropous	2
71	Circinitropous	2
	<b>Placentation</b>	
72	Axile placentation	2
73	Basal placentation	2
74	Free central placentation	2
75	Marginal placentation	2
76	Parietal placentation	2
77	Superficial placentation	2
78	Microspore mother cell preparing for division	2
	<b>Meiosis cell Division</b>	
79	Leptotene stage	2
80	Zygotene stage	2
81	Pachytene stage	2
82	Diplotene stage	2
83	Dikinasis stage	2
84	Metaphase I	2
85	Anaphase/Telophase I	2
86	Metaphase II	2
87	Anaphase/Telophase II	2
88	Metabolic nucleus stage	2
	<b>Mitosis Cell Devision</b>	
89	Prophase stage	2
90	Metsphase stage	2
91	Anaphase stage	2
92	Telophase stage	2
	<b>Special Cytological Events</b>	
93	Chromosome bridge	2

94	Laggard formation	2
95	Ring formation	2
96	Gaint Chromosome	2
97	Chiasma formation	2
98	Multivalent formation	2
99	Sticky chromosome formation	2
100	Precocious separation of chromosomes	2
101	Unequal distribution of chromosomes	2
102	Polyad formation	2
	<b>Embryological Slides Dicotyledonous Embryology</b>	
103	TS anther showing microsporogenesis	2
104	TS mature anther with pollen grains	2
105	LS ovule showing megasporogenesis	2
106	LS ovule showing globular/heart shaped embryo	2
107	LS seed showing seed coat, embryo and endosperm	2
	<b>Monocotyledonous Embryology</b>	2
108	TS anther showing microsporogenesis	2
109	TS mature anther with pollen grains	2
110	LS ovule showing megasporogenesis	2
111	LS ovule showing megagametogenesis	2
112	LS grain showing caryopsis, endosperm and Embryo	2
	<b>Sunflower Embryology</b>	
113	Pollen grain WM	2
114	Germinating Pollen grains	2
115	Male gametophyte	2
116	Female gametophyte	2
117	Ovary LS	2
	<b>Anther Development</b>	
118	TS young anther showing mass of parenchymatous cells	2
119	TS young anther showing differentiation of archesporial cell	2
120	TS anther showing different wall layers and sporogenous tissues	2
121	TS anther showing microspore tetrads	2
122	TS mature anther with pollen grains	2
	<b>Cypselia Embryology</b>	
123	One celled stage LS	2
124	Two celled stage LS	2
125	Quadrant stage LS	2
126	Octant stage LS	2
127	Globular and Heart shaped embryo	2
128	Differentiation of cotyledons	2
129	Pre-cotyledone	2
130	Bending of cotyledons	2
131	Mature Embryo LS	

	<b>Fossils Slides</b>	
132	Calamites TS Complete round Stem	2
133	Calamites Root-pith fully developed	2
134	Calamites Sporangia	2
135	Rhynia Stem	2
136	TS Rhynia LS	2
137	Rhynia Sporangium	2
138	Rhynia TS Rhizome	2
139	Lepidodendron Selaginoides TS	2
140	Lepidodendron Root TS	2
141	Lyginopteris Oldhamia TS stem older	2
142	Lyginodendron TS Stem	2
143	Cycadeoidea stem TS excellent	2
	<b>Fossils Slides each with labeled Descriptive Card</b>	
144	Calamites Stem	2
145	Cycadeoidea Stem	2
146	Cycadeoidea Flower bud	2
147	Cycadeoidea Foliage	2
148	Lepidodendron stem	2
	<b>Storage Accessories for Class work material</b>	
1	Long forceps stainless steel 10"	1
2	Long forceps stainless steel 12"	1
3	Long forceps stainless steel 15"	1
4	Botanical laboratory tray 6" x 8"	1
5	Botanical laboratory tray 8" x 10"	1
6	Botanical laboratory tray 12" x 10"	1
7	Botanical laboratory tray 15" x 12"	1
8	Formaldehyde Bulk Packing (cost including Polythene Drum) 100% pure.5 Liter	1
9	Formalin Aceto Alcohol(F.A.A.)-Plant preservatives 500ml.	2
10	Cytology Fixative (Carnoy's Fixative)-For mitosis & meiosis 125ml	2
11	Greening solution (To fix chlorophyll) 125 ml.	2
	<b>Plant/ Herbarium Press/Field Equipments</b>	
12	Craft's plant press-(Collage grade Quality) 12" x 18"	1
13	Herbarium paper sheet Printed 100 Nos.	1
14	Soil testing kit	1
15	Qudret 1 x 1 m2	2
	<b>PLANT PHYSIOLOGY</b>	
16	Demostration osmoscope - Ganong's Borosilicate glass	4
17	Potometer ganong's-On stand with graduated fine capillary tube Borosilicate glass	4
18	Potometer farmer's-For measuring amount of transpiration	4
19	Apparatus for collecting the oxygen produced by the assimilating water plants- Borosilicate glass	4

20	Wilmott's bubbler for the measurement of the ratio of photosynthesis- Borosilicate glass	4
	<b>Cell and molecular biology</b>	
21	Thin layer chromatography equipment set	2
22	Gel electrophoresis equipment set	2
23	Litmus paper - Red & Blue-pkt. Of 100 leaves	1
24	Starch iodide paper- pkt. Of 100 leaves	1
25	Wide range pH paper- pkt. Of 100 leaves	1
26	Narrow range pH paper- pkt. Of 100 leaves	1
27	Universal indicator paper- pkt. Of 100 leaves	1
28	Cobalt chloride paper -pkt. Of 100 leaves	1
29	Parchment paper- pkt. Of 100 leaves	1
30	Lead Acetate paper-pkt. Of 100 leaves	1
31	Chromatographic paper	1
	<b>Glass Apparatus Made of Borosilicate Glass</b>	
32	wash bottle 250ml	3
33	wash bottle 500ml	3
34	Pipettes: Graduated-1,2,5ml	1
	<b>Laboratory Glass Ware Neutral</b>	
35	Beakers (Graduated) 500ml	6
36	Bell jar- 22.5cm x 15cm	2
37	Glass rods-4mm to 10mm	500GM
38	Flask conical 500ml	2PKT
39	Flask flat 500ml	2PKT
40	Flask Round -500ml,	2
41	Flask conical 1000ml	2
42	Flask flat 1000ml	2
43	Flask Round -1000ml,	2
44	Funnel 60° angel - Dia.	2
45	Petri dishes- Dia.-5cm	10
46	Petri dishes- Dia.-10cm	10
47	Petri dishes- Dia.-15cm	10
48	Pestle mortar-9cm	2
49	Reagent bottles-Narrow mouth-250ml	6
50	Watch glasses/dozen	2
51	Test Tube Borosilicate Glass	1PKT
52	Capillary tubes	6
53	Thistle Funnel Borosilicate glass	6
	<b>Borosilicate Glass Ware</b>	
54	Beaker with spout 100ml	6
55	Beaker with spout 250ml	6
56	Beaker with spout 500ml	6
57	Beaker with spout 1000ml	3
58	Flasks conical 250ml	6
59	Flasks conical 500ml	6
60	Crafts evaporating basins-100mm	2

61	Pestles & Mortars- 250mm	2
62	Slides Glass pkt of 50	1PKT
63	Cover slips 18x18	1PKT
64	Cover slips 22 x22	20
65	Cover slips 24 x 24	20
	<b>Chemical</b>	
1	Acetic acid glacial 500ml	5
2	Aceto Carmine solution 125ml	2
3	Acetone 500ml	2
4	Agar Agar Powder 500gm	1
5	Benedicts Reagent (Qualitative) 500ml	1
6	Benzene Extra pure 500ml	2
7	Calcium Carbonate 500gm	1
8	Carmine Powder 25ml	1
9	Cotton blue in Lactophenol 125ml	1
10	Crystal Violet 25gm	1
11	Crystal violet stain solution 125ml	2
12	Dextrose Anhydrous (Glucose) 500gm	1
13	Distilled water 5 Liter	1
14	Ether Petroleum 60 degrees to 80 degrees 500ml	1
15	Ethyl Alcohol 500ml	5
16	Fast green 25gm	1
17	Fast green solution (Alcoholic) 125ml	1
18	Fehling's solution no. 1 500ml	1
19	Fehling's solution no. 2 500gm	1
20	Formaldehyde (37-41% w/v solution) 5 Liter	1
21	Formino-Aceto-Alcohol (F.A.A.) 500ml	2
22	Glucose powder anhydrous (Dextrose) 500gm	2
23	Glycerine (Glycerol) 500ml	5
24	Gram's Iodine Stain Solution 125ml	2
25	Hydrochloric Acid (C.P.) 500ml	2
26	Iodine solution (AQ) 125ml	2
27	Immersion oil 100ml	1
28	Lactophenol solution 125ml	1
29	Lactophenol with cotton blue 125ml	1
30	Lens clearing solution 100ml	2
31	Light green powder 25gm	1
32	Light green solution (Alcoholic) 125ml	1
33	Lime Water 500ml	1
34	Litmus Blue paper (100 Leaves)	1
35	Litmus Red paper (100 Leaves)	1
36	Methylene Blue 25gm	1
37	Methylene Blue Solution 125ml	1
38	Millions Reagent for Protein Estimation 125ml	1
39	Molisch's Reagent 125ml	1
40	Nitric Acid (C.P) 500ml	1
41	pH Indicator paper1-14	1
42	Potassium Iodide 100gm	1

43	Potassium Hydroxide sol (N/10) 125ml	1
44	Safranin Stain powder 25gm	1
45	Safranin Stain solution Aqueous 125ml	2
46	Safranin Stain solution Alcoholic 125ml	1
47	Sodium Bicarbonate 500gm	1
48	Sodium carbonate anhydrous 500gm	1
49	Sodium Hydroxide sol (N/10) 500ml	1
50	Absolute Alcohol 500ml	5
51	Euporal	2
52	Para dichlorobenzene 500 ml	1
53	Chloroform 500ml	1

### **Department of Chemistry**

S. No.	Item	Qty.
1	Rota evaporator with Vacuum Pump & Chilling (Eyla / Buchi)	1
2	Ultrasonic Bath Cleaner	1
3	Fume Hood (For Chemical reaction)	1
4	Infra red Spectrometer (Perkin Elmer/ Shimadzu)	1
5	Cyclic Voltmeter	1
6	Micropipette (100 ML/500ML/2000ML)	3
7	Melting Point (Oil Based) apparatus	1
8	Magnetic Stirrer with hot plate	3
9	Thin Layer Chromatography with UV-Chamber	1
10	Heating Mantle (1, 2, 5 litre)	3
11	Beckmann's freezing Point apparatus	2
12	Victor Mayer's apparatus	1
13	Calorimeter Apparatus	6
14	Conductometer	2
15	Potentiometer	2
16	Polarimeter	2
17	Refractometer	2
18	Ostwald Viscometer	12
19	Stalagmometer	12
20	UV-Visible Spectrophotometer (Double Beam) Perkin Elmer/Shimadzu	1

### **Department of Psychology**

S. No.	Item	Qty.
1	<b>Academic Resilience</b>	1
2	Academic Self-handicapping Scale	1
3	Adjustment Inventory of School / College Students	1
4	Meta-Cognitive Skills Scale	1
5	Psychological Wellbeing Scale	1
6	Peer Pressure Scale	1

7	Academic Motivation Inventory	1
8	Academic Procrastination Scale	1
9	Career Preference Record	1
10	Thematic Apperception Test (Indian Adaptation)	1
	<b>Instrument</b>	
1	Tachistoscope (Falling door type)	1
2	Stop watch	2
3	white Board	2
4	Printer	1
5	Computer set with minimum specification of i5, 4GB RAM, 512GB SSD, 19.5" ,Monitor with window10. and UPS 600VA.	1

### **Department of Urdu**

S. No.	Item	Qty.
1	Small Table	1
2	Chair	1
3	Normal Chair	1
4	Computer set with minimum specification of i5, 4GB RAM, 512GB SSD, 19.5" ,Monitor with window10. and UPS 600VA.	1
5	Printer	1

### **Department of Zoology**

S. No.	Item	Qty.
1	<b>Slides</b>	1
a	Euglena (w.m)	1
b	Amoeba (w.m)	1
c	Paramecium (w.m)	1
d	Binnary fission	1
e	conjugation in Paramecium	1
f	Larval forms of Fasciola	1
g	Larval forms of Mollusca	1
h	Larval forms of Crustacea	1
i	Larval forms of Echinodermala	1
j	Histo logical Slides of spleen	1
k	Histo logical Slides of thymus	1
l	Histo logical Slides of Lymph	1
	<b>Museum Specimen</b>	
a	Peripatus	1
b	Amphioxus	1
c	Example of living Fossil Limulus	1

d	Fasciola	1
e	Ascaries (Male & Female)	1
f	Taenia	1
g	Sycon	1
3	Highly Magnified Compound Microscope	5
4	Dissecting microscope	5

### **13. Graduate School College for Women's Jamshedpur** **Department of Anthropology**

S. No.	Item	Qty.
1	Anthropometer made of all Brass Range 0 to 2100mm Supplied in Canvas Bag	1 pc
2	Sliding cum vernier caliper (Martin type)	1 pc
3	Sliding Caliper Pointed end 0-200mm	1 pc
4	Sliding Caliper Rounded end 0-200mm	1 pc
5	Chest Depth Caliper	1 pc
6	Collyer Breadth Caliper	1 pc
7	Bicondylar Caliper-Measuring range: 0mm to 140 mm- Galaxy make	1 pc
8	Coordinate Caliper range: 20-220mm, net weight : 300gm approx.	1 pc
9	Cubic Craniophor made of S. Steel with skull holder. Item # CCP0	1 pc
10	Tubular Craniophor (Martin type) with skull holder.net. Item No. TCP01	1 pc
11	Mollison Craniophor	1 pc
12	Diagraph Martin Type with Pencil holder net weight approx. 3kg. Item # DG001	1 pc
13	Horizontal Tracing Needle	1
a)	Item No. HTN-300	1 pc
b)	Item No. HTN-450	1 pc
13.	Parallelograph	1 pc
14.	Bone Support with bone holder Item # BS-01	1 pc
15.	Palatometer	1 pc
17.	Mandibulometer	1 pc
18.	Osteometric Table	1 pc
19.	Human Skeleton Articulated life size	1 pc
20.	Life size Dis-articulated Skeleton	1 pc
21	Fabricated Replica of Pre-Historical Tools	1 pc

### **Department of Botany**

S. No.	Item	Qty.
1	Compound Microscope All metal rugged Stand with individual Coarse & Fine Focus drive with focus stop, Maintenance Free ECO LED illumination including Battery backup with regulating intensity control for 220V/50Hz, Achromatic Condenser 0.65	2pc

	NA with aperture iris diaphragm, 110 X 120 mm stage with clips, Quadruple revolving nosepiece, Achromatic objectives 4x, 10x, 40x (spring), 360° rotatable 45° inclined Monocular head with Widefield Eyepiece 10x/18 lockable, dust cover complete set packed in thermocole.	
2	Microwave Oven 23 Letter	1 pc
3	Medico Centrifuge CLINICAL CENTRIFUGE with 4 x 15 ml. swing out head & 15 ml tapered bottom glass tubes.	1 pc
4	Thin Layer Chromatography Kit, with all Accessories Comprising of moveable applicator (Spreader) with built in arrangement, 0-2 mm, perspex base plate 114 x 23 cm. Aluminium Carrier, perspex spotting temp plate, developing chamber with lid, five T.L.C. plates 20 x 20 cm., two T.L.C. plates 20 x 5 cm., scribe for marking lines, micropipette and glass sprayer with rubber bellow.	1 pc
5	Paper Chromatography Cabinet Cabinet Size 60 x 30 x 60cm Papersize of 46 x57 cm	1 pc
6	Chromatography Paper Size 30x10cm	2 pc
7	Herbarium Press (Bwpp-1)	1 pc

### **Department of Chemistry**

S. No.	Item	Qty.
1	Digital Melting Point Apparatus Within built Silicon Oil Bath and Stirrer Adjustable heating rate and stirrer speed. Range upto 275°C with readability of 1°C	1 pc
2	Analytical Balance Max Cap. 220gm Display 0.0001gm/0.1mg Internal Auto Calibration Piece Counting & percentage (%) counting Touch Screen Underhook for below weighing E.M.F.C Technology Multiple Weighing units Density Measurement function	1 pc

### **Department of Geography**

S. No.	Item	QTY
1	Inch Tape 100ft	3 pc
2	Green Board/ White Board 6 x4	1 pc
3	Tee Square	2 pc
4	Ranging Rod 82019 3 fold	6 pc
5	Umbrella Survey	2 pc

6	<p>Plain Table With Accessories Plane Table -:  Size 750 * 600 Mm * 21 Mm :  As per I.S.I Specifications. Made of best seasoned fir wood with strong battons at the back having slots for brass screws and washers.Brass nut for clamping, provided with brass circular disc fixed at the back of the plane table. Supplied along with all aluminium telescopic tripod stand with standard accessories as mentioned below :  1 Sight vane, size 600 mm, made of rolled brass sheet of 5 mm thickness, in highly polished wooden box  2. Magnetic compass, size 150mm, made of aluminium alloy in wooden box  3. Plumb bob, made of brass with suspending  4 Plumbing fork, made of brass.  5. Spirit level, made of brass, in wooden box.  6.Strong canvas carrying case all corners are protected by strong protectors, with shoulder straps and carrying handles.</p>	3	pc
7	Wind Vane Apparatus	1	pc
8	Globe 30cm Illuminated Led lamp	1	pc
9	Topographic Map Of India (Topo Map)	25	pc
10	Rotometer	2	pc
11	Map Storage Stand All Iron Pipe Side Hook For 36 Map	1	pc
12	Map Display Stand All Iron Single Pipe Height Adjustable	1	pc
13	Maps Of The World		
	Agriculture	1	pc
	Natural Vegetation	1	pc
	Minerals And Ores	1	pc
	Physical Map Of The World	1	pc
	Political Map Of The World	1	pc
14	Maps Of India		
	Physiographic / Relief	1	pc
	Soil	1	pc
	Drainage	1	pc
	Climate	1	pc
	Natural Resource	1	pc
15	Maps Of Jharkhand		
	Political	1	pc
	Physical	1	pc
16	Set Square	4	pc
17	Trough Compass Trough compass . Size 150 mm Rectangular pattern,made of Brass with properly megnetised needle and accurately divided in a highly polished wooden box.	2	pc
18	Laser Printer	1	pc
19	Styationary Box	1	pc
	First Aid box	1	pc
20	Pen Stand	2	pc

### Department of Home Science

S. No.	Item	Qty.
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1	Infantometer	2	pc
2	Weighing Machine	1	pc
3	Height Measurement Scale	2	pc
4	Height Weight Chart (Body Mass Index ) Size 68 x100cm ) Rixin	2	pc
5	Measuring tape of Head, Chest and Arm Circumference	5	pc
6	Electric Sewing Machine	2	pc
7	Cutting Scissors	2	pc
8	Printing Blocks & Different Fabric Dye	6	pc
9	Flower Vase and Oissis	6	pc
10	Lactometer	2	pc
11	Refrigerator 190L	1	pc
12	Electric Knitting Machine	1	pc
13	Color Wheel	5	pc
14	Building Block	6	pc
15	Voice Amplifier	1	pc

### **Department of Physics**

S. No	ITEMS	Qty
1	To determine the moment of inertia of a flywheel about its own axis of rotation <ul style="list-style-type: none"> <li>• Flywheel</li> <li>• Weight with hanger arrangement (up to 250 gm)</li> <li>• Stop watch</li> <li>• Vernier calipers</li> <li>• Measuring tape (3m)</li> </ul>	1
2	To study the Motion of a Spring and calculate Spring Constant,	6
3	Digital Multimeter	2
4	Norton's Theorem With Bakelite Panel & Round Meters	2
5	Thevenin's Theorem With Bakelite Panel & Round Meters	2

6	<p>PN / Zener Diode / LED Characteristics Apparatus with Aluminum Panel &amp; Square Meters</p> <p>Objective : To plot Forward &amp; Reverse Characteristics of PN Junction &amp; light emitting diode &amp; Zener Diode.</p> <p>Specifications : Instrument comprises of two DC Power Supply, three meter to measure voltages &amp; current, one PN Junction Diode &amp; one Zener Diode mounted behind the panel &amp; connections brought out at terminals/Sockets.</p> <p>Features:</p> <p>High quality aluminium panel used for longer durability, High accuracy window type Square meters used in the kit. High quality computer power cord and patch cords used</p>	1
7	Planck's Constant Apparatus using LED	1
8	<p>Verification of truth tables of Logic Gates using Universal Gates</p> <p>Objective : To understand that NAND &amp; NOR gates are basic building blocks in Digital Electronics &amp; Verification of AND, OR, NOT, NOR NAND Gates using NAND &amp; NOR Gates.</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 5V/150mA, Two logic '1' &amp; two logic '0' inputs are provided on sockets, two Red LED output indicators, circuit diagram printed for four NAND &amp; four 'NOR' gates &amp; their respective IC's placed on the front panel &amp; connections brought out at sockets.</p>	1
9	<p>4 Bit Adder &amp; Subtractor Circuits using IC 7483</p> <p>Objective : To study &amp; verify truth tables of two bit half adder, two bit half subtractor, three and four bit full adder and full subtractor.</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 5V/150mA, four Logic inputs selectable using SPDT switches, four output LED indicators, circuit diagram Printed &amp; connections brought out at sockets on the front panel.</p>	1
10	Universal B.H Curve Apparatus	2
11	<p>Application of IC 555 (Astable, Monostable &amp; Bistable Multivibrator)</p> <p>Objective : To assemble &amp; study Astable, Monostable, Bistable Multivibrators &amp; V to F convertor</p> <p>Specifications : Instrument comprises of DC Regulated Power Supply 5VDC/150 mA, IC 555 &amp; various components kept inside the cabinet &amp; connections brought out at 4mm sockets,</p>	1
12	<p>Common Emitter Transistor Amplifier</p> <p>Objective : To study Frequency Response, Input Impedance, Output Impedance &amp; -ve Feed Back of Common Emitter Transistor Amplifier.</p> <p>Specifications : Instrument comprises of fixed output DC Regulated Power Supply of 12V, Circuit diagram is Printed, Components mounted behind the front panel &amp; connections of important points brought out at 4 mm Sockets</p>	2
13	Operational Amplifier as Inverting, Non-Inverting, Unity Gain Amplifier & Frequency Response with Analog Voltmeter	1
14	<p>Operational Amplifier as Differentiator &amp; Integrator</p> <p>Objective : To study the Operational amplifier as Differentiator &amp; Integrator.</p> <p>Specification : Fixed output DC Regulated power supply of <math>\pm 15</math> V.</p> <p>Operational amplifier IC 741 is placed inside the cabinet and connections are brought out at sockets.</p> <p>Circuit diagram for Differentiator &amp; Integrator are printed on the front panel and components are mounted inside the cabinet.</p>	2

15	Determine of the Specific Rotation of the Cane Sugar Solution with the Help of Polarimeter (Complete Setup) Objective : Determine the Specific Rotation of Cane Sugar Solution using Half Shade Polarimeter The setup consists of : a) Half Shade Polarimeter b) Sodium Vapour Lamp 35 Watt fitted in Box With Transformer c) Beaker d) Measuring Cylinder	1
16	Boltzman constant Apparatus with PN Junction Diode with Aluminum Panel & Digital Panel Meters	2
17	Work Function of Diode (Richardson Law) Objective : To draw the graphs between heater current vs heater resistance, Anode voltage vs anode current. Specifications : Instrument comprises of DC Regulated power supply of 0-6 V & 0-300 V. Two volt meters & two current meters are mounted on the front panel. Valve diagram is printed on the panel & connection are brought out on sockets/terminals.	2
18	Desktop Computer	1
19	Anderson Bridge	1
20	Extension Board	2
21	Phase Shift Oscillator Apparatus	1
22	RC Coupled Transistor Amplifier Apparatus	1
23	Torch Light for Dark Room Experiment	4
24	Analog to Digital Converter (ADC) IC	1
25	Magnifying glass (Medium )	6

### **Department of Zoology**

S. No.	Item	Qty.
1	Haemocytometer	1
2	Haemometer	1
3	Plankton Counting cell (Sedwich Rafter)	1
4	Plankton Net	1
5	Insect Box	1
6	ESR Pipette with Stand	1
7	Evolution of Horse Chart	1
8	Pedigree chart (Victorian family)	1
9	Micropipette	2
10	Carapace and plastron of turtle	1
11	<b>Museum Specimens</b>	

a	Preipatus	1
b	Sphenodon	1
c	Nauplivs larva	1
d	Chambeleon	1
e	Darco	1
f	Sphygomonometer	2
g	Model of life cycle of honey Bee	1
h	Mode of life cycle Lac Insect	1
i	Common pests of Paddy	1
j	Common pests of sugarcane set	1
	<b>Chart of Homologous &amp; Analogous organs</b>	1
<b>13</b>	<b>Permanent Slides</b>	
a	Spleen	1
b	Thymus	1
c	Lymph node	1
d	Bone	1
a	Diffue(pig)	1
b	Discoïd (Men)	1
c	Zonary (cat)	1
d	Cotyledona (sheep)	1
14	Fossil evidences (picture / Charts	1
15	Digital PH Meter	1
16	Stop watch	1
17	Water Testing Kit	1
18	Soil Testing Kit	1
19	Evolution of Horse model)	1