

To
The

TENDER FORM

1. Subject:
2. Name and full postal address of the firm submitting the tender
.....
3. Addressed to :-
4. Reference :-

I/We agree to abide by all the conditions mentioned in Tender Notice No..... dated Issued by Cluster University of Jammu and also the further condition of the said Tender Notice given in the attached sheets (all the pages of which have been signed by us in token of our acceptance of the terms mentioned therein).

5. The rates for the supply of..... are as under
.....
.....
.....
.....
6. Goods will be delivered within a period of 20 days from the date of receipt of supply order.
7. The rates quoted above are valid upto 31-03-2019. The period can be extended with mutual agreement.

Draft Deposit Receipt No.....
dated..... For Rs..... **in favour of**
Cluster University of Jammu
to cover earnest money is submitted herewith.

Signature of the Tenderer

CONDITIONS OF TENDER AND CONTRACT

1. Tenders must be enclosed in a properly sealed envelope according to the directions given in the tender notice.
2. The rate unit must not under any circumstances be altered and the rates must be entered in words as well as in figures.
3. Tenders should be given by those firms/dealers who are registered/approved/authorized suppliers for those articles/goods/equipment machineries etc. or by those who are dealing actually in goods for which tender is being given.
4. The tender are to be submitted in the following manner:-
 - a) Envelope No.1 (Technical Bid) should contain the technical information and undertaking of the document. It should also contain the photocopy of the tender document with each page duly signed by authorized signatory of the bidder.
 - b) Envelope No.2 (Financial Bid) should be marked as Financial Bid and should contain Financial Bid Performa.
 - c) Envelope No.3 (Master Envelope) should contain the Technical Bid and Financial Bid and should be marked as “Tender for Scientific Equipments/Material.
5. The approved supplier shall be deemed to have carefully examined the conditions, specifications, size, make and drawing etc., of the goods to be supplied. If he shall have any doubt as to the meaning of any portion of these conditions or of the specification, drawing etc., he shall before signing the contract, refer to the officer in-charge and get clarifications.
6. The contractor shall not assign or sublet his contract or any substantial part thereof to any other agency.
7. All the stocks supplied shall be of the best quality, to the specifications, Trade mark laid down for them and in strict accordance with the approved standard **samples** and in case of any materials, of which there are no standard or approved supplies, the supplies shall be of the very best quality and description obtainable in India. The decision of the accepting authority shall be final as to the quality of the stocks and shall be binding upon the tenders and in case any of the articles supplied not being approved and thus shall be liable to be rejected or replaced and any expense or loss caused to suppliers as a result of rejection or replacement of supplied, shall be entirely at the account of the tenderer.
8. The Purchasing Officer or his duly authorized representative shall have at all reasonable time access to the suppliers premises, and shall have the power at all reasonable time to inspect and examine the materials and workmanship of the goods.
9. In case the goods other than of the approved quality, make or size are supplied they shall be rejected and will have to be replaced within a reasonable time by the supplier, without extra cost. If due to exigencies of public works/interest such replacement is not possible, the prices of such article will be reduced suitably. The prices fixed by the Purchasing Officer shall be final.

10. The bidder should be registered with appropriate tax authorities such as Income Tax , Goods & Services Tax(GST)_ etc., and should submit valid certificates of registration with these authorities.
11. The bidder has to produce tax clearance certificates from Income Tax Department for the three preceding years (2015-16, 2016-17 & 2017-18).
12. The bidder's Average Turnover during preceding three years should be Rs 50,00,000/- (Rupees fifty lakh only) per annum or more.
13. The rates shall be inclusive of all taxes applicable in the state of Jammu and Kashmir.
14. The rejected articles must be removed by the tenderer from the destination where they are within 30 days of the date of information of rejection. The officials concerned will take reasonable care of such material but in no case shall be responsible for any loss, shortage, damage that may occur to it while it is on their premises.
15. The tenderer shall be responsible for the proper packing so as to avoid damage under the normal conditions of transport by sea, rail and road or air and delivery of the material in good condition to the consignee at destination. In the event of any loss damage, breakage or leakage or any shortage the tenderer shall be liable to make good such loss and shortage found at the checking/inspection of materials by the consignee. No extra cost on such account shall be admissible.
16. All rates quoted must be F.O.R Destination and should include all taxes. In case of local supplies also the rates should include all taxes and no cartage or charges for transportation will be given by the university and the delivery of the goods shall be given at the premises of the University School/College.
17. The tenderer whose tender is accepted shall arrange supplies within a period of 10 days from the date of placing the order. The supplies shall have to be arranged according to the requirement of the Department.
18. The contract of supply can be repudiated at any time if the supplies are not made to the specification of the Undersigned.
19. Tender should be filled with ink and S.No's. No tender filled in by pencil. Each page of the tender documents should be numbered and signed by the tenderer. The tender with cuttings/overwritings/erasing and using fluid etc. shall not be accepted. Such tenders shall be rejected and no explanation entertained or accepted.
20. The tenderer should sign the tender form at each page at the end in token of the acceptance of all terms and conditions of the agreement.
21. Tender must be accompanied by an earnest money of Rs50,000./- for each subject without which tenders will not be considered. The amount should be deposited through C.D.R. The firms who are exempted from CDR/Security Deposit shall have to furnish a certificate of exemption from competent authority indicating the reference of exemption during current financial year i.e. 2018-19. In case of failure the tenders shall be rejected.

22. This earnest money will be refunded to unsuccessful tenderer within one month of the final acceptance of the tender whereas in case of successful tenderer it will be treated as a part of security.
23. Successful tenderers will have to execute an agreement in the prescribed form and deposit security amounting to Rs 1,25,000/-for the due performance of the contract. The security money will be returned after two months from the date of completion of the agreed contract. No interest will be paid by the department on such security amount. The expenses of completing and stamping the agreement shall be paid by the supplier and the Purchasing Officer shall be furnished free of charge with one executed stamp counterpart of the agreement.
24. Remittance charge on payment made to the firms will be borne by the contractors.
25. If the approved suppliers fail either to supply goods of the prescribed specification or to deliver the goods within the specified period, the Purchasing Officer shall be at liberty to arrange supply either through tender or otherwise.
The Purchasing Officer may give seven days notice in writing to the approved supplier to make good the failure, neglect or contravention complained of and should the contractor fail to comply with the notice within seven days of the date of service thereof and in such cases if the Purchasing Officer thinks fit it shall be lawful for him to retain and supply the balance which may be due to the contractor or to supply the amount of earnest money deposited by the supplier to make good the loss sustained or excess cost incurred by the State in arranging the supplies through any other agency.
26. *Insurance* -(i) The goods will be delivered at the destination godown in perfect condition. The supplier, if he so desires, may insure the valuable goods against loss by theft, destruction or damage by fire, flood, undue exposure to weather or otherwise viz. war, rebellion etc. The insurance charges will have to be borne by the supplier and State shall not be required to pay such charges, if incurred.
(ii) No advance payment will be made except in very rare and special cases for which reasons will have to be recorded. Payment shall be due and payable by the Purchasing Officer on behalf of the Governor only when the whole quantity has been delivered and inspected and accepted by the Purchasing Officer and a certificate of having done so is recorded by Purchasing Officer. In case of disputed items 10 to 25 percent of the amount shall be withheld and will be paid on settlement of dispute in terms of the award granted. Progressive payments, if agreed to will be made according to the terms entered in the agreement.
(iii) The validity period and the delivery period can be extended with the written agreement by the undersigned.
27. Direct or indirect canvassing on the part of tenderers or their representatives will disqualify their tenders.
28. The committee reserves the right to accept any tender not necessarily the lowest tender and reject tender without assigning any reasons thereof. Orders can be placed for the

whole or part of the quantity and articles tendered for at the discretion of the Government.

29. No Railway Receipt will be accepted by V.P.P.
30. All legal proceedings if necessity arises to institute any, by any of the parties (Government or Contractor), shall have to be lodged in courts situated in Jammu and Kashmir State and not elsewhere.
31. No conditional tender shall be accepted.
32. Any sum of money due and payable to the contractor (including security deposit returnable to him) under this contract may be appropriated by the purchaser or Government or any other person or persons contracting through the Secretary and set off against any claim of the purchaser or Government or such other person or persons for the payment of a sum of money arising out of or under any other contract made by contractor with the purchaser or Government or such other person or persons.
33. No other conditions except those mentioned above will be entertained in the tender.
34. In case of machinery/equipments the payment shall be released only after the machinery/equipment is installed and successfully commissioned. CDR shall be released after testing of equipment.
35. Besides the terms and conditions as laid down above, the supplier shall be bound to the other terms and conditions as might appear in the purchase order.

Most Important Condition

It is essential to furnish the complete literature and other details regarding make /model no. etc. relevant to all items of equipment/goods quoted by the tenderer. The tender may be rejected in absence of such literature. Laboratory manual should be provided with each equipment/machinery.

TECHNICAL INFORMATION

1	Name of the Supplier/Firm/Dealer	
2	Name of the authorized person	
3	Phone/Mob. No. & Mailing Address.	
4	PAN Number (include photocopy of PAN Card)	
5	Date of Registration of the Firm, including registration certificate. I. If the firm is registered under the Indian Factories Act, Copy thereof. II. Any other Act. (Attach documentary proof of Registration.) III. Certificate of the company authorizing the firm as dealer	
6	Copy of GSTIN registration with GST.	
7	Authenticated copies of tax clearance of preceding three years from Income Tax Deptt.	
8	Authenticated copies of Annual turnover of last three years.	
9	Terms and Conditions duly signed to be enclosed by the vendor/firm.	
10	Bank draft for EMD. Details:	
11	Certificate to the effect that the firm/dealer has not been black listed by any Govt agency/department	

Cluster University of Jammu

Annexure B

Lists of Science Practical Material and Equipments required for Physics, Chemistry, Boatny, Zoology & Geology

FINANCIAL BID

Subject: - Physics

S. No.	Item Required	Qty.	Required Specifications
A	Mechanics		
1	Moment of Inertia of fly wheel		Flywheel with a set of 50/100 gms with the lowermost weight attached with a hook. The flywheel should be attached with a mechanical counter.
2	Bending of beam Appartus		Uniform rectangle bar (Steel) 1 m long having knife edges with provision for electric contact, slotted weight hanger made of cast iron painted black with hook 0.5 kg (8 nos. of weights each of 0.5 kg).
3	Sextant		Sextant with a rigid clamp stand, a measuring tape, a plumb line and a spirit level (complete set up)
4	Bifilar setup		A bifilar suspension arrangement, metal plate, metre rod, metal spring, telescope and stop watch.
5	Searle's Rigidity Apparatus		Searl's appartaus, metre rod, screw guage(complete set up)
6	Spring Constant apparatus		Two springs of nearly equal lengths, two half kg weight, one pan, stop watch.
7	Bar Pendulum		A compound pendulum, a wedge, a spirit level, a telescope , a stop watch, a metre rod and a spring balance.
8	Kater's Pendulum		A Kater's Pendulum, a telescope, a stop watch and a metre rod.
9	Free Falling Body Apparatus		Behr Free Fall Apparatus, a dc source to power the electromagnet, a falling object(plummet), high voltage spark generator which can mark the spark tape every 1/60 sec, a metre rod.
10	Maxwell's Needle Apparatus		A Maxwell needle, A copper wire of suitable length and thickness, a fixed support with torsion head, a telescope with a scale attached to its stand, a stop watch, a screw guage, a spring balance, a metre rod and an electric lamp with a holder.
11	Travelling Microscope		Should have cast iron base properly machined and fitted with leveling screws. Carriage sliding smoothly in dove tale groove at the base, should be clamped at any position. Should have slow motion provision, vetrical pillar adjustable with rack and pinion arrangement, special arrangement for transverse and horizontal movements, Least count of both vernier scales should be 0.01 m.
12	Jaegar's Apparatus		Complete in all respects with two extra sets of rubber tubes and two callibrated glass tubes.
13	Screw Guage		(LC=0.005mm)
14	Vernier Callipers		(LC=0.1mm)
15	Connecting wire copper		Rate per kg

16	Weight box		0-500 mg, 20g,50g, 100g, 200g, 250g
17	Magnifying Glass		(10 X, 15 X, 20X,45X)
18	a) Stop watch		Digital
	b) Stop watch		Analog
19	Wooden Metre Rod		0.5 m, 1m
20	Beaker (Borosil)		250ml, 500 ml
	Graduated Beaker		500 ml
21	Spirit level		Bubble level
22	Measuring Tape		with Ranges 100m,50m,10m
23	Plumb Line		
24	Digital Balance		High Resolution(100 gm X .001 gm)
25	LED/Study lamp		10 watt, 15 watt,20 watt
26	wooden Scale		(50cm/100 cm)
27	Soldering Rod		25 watt and 35 watt

B. Electricity and Magnetism

S. No.	Item Required	Qty.	Required Specifications
1	Digital Multimeter		Provision for measuring passive components three and a half digit ranging, hand held, multimeter display LCD with low battery indication and annunciator $\pm 0.5\%$ indication audible continuity check and diode check facility with specification DC volt 200 mV-1000 volts in 5 ranges Ac voltages 2 volts-750 volts in 4 ranges. DC current/ AC current 200 mA to 10 A ranges. Resistance 220 ohms to 20 mega ohms in 6 ranges. Two 1.5 volt pencil cell. Power 9 volt DC or 9 volt AC to DC adapter.
2	CRO		Dual trace 20MHz Bandwidth at all vertical sensitivity. Vertical Sensitivity from 2 mV/cm to 10 V/cm. Time based range 0.5 micro seconds/cm to 0.2 sec/cm. All inputs protected to 4000 DC. Internal external line trigger source. Automatic selection of Chop or alternate active TV sync. Separator. XY display mode output, Z modulation input. Design for IEC 348 CATI, mono accelerator CRT at 2 KV EHT with quick heat cathode. Trace rotation by front panel present. Dimensions 140 mm X 305mm X 100mm.
3	Signal Generator		Range 10 Hz to a least 110 kHz in four Decade ranges. Wave form sine and square. Output-Continuously variable from 0-7 volts, 5 W, working voltage 230 volts AC ,50 Hz Single Phase.
4	Bread Board to test the electric circuit with variable 1-20 V supply and without supply		
5	Low resistance using potentiometer(complete set)		Crompton Potentiometer, Two rheostats, two e.m.f Batteries, Two way key(1) and one way key (2)

6	Low Resistance using Carey Foster's Bridge		The apparatus consists of seven terminals on a wooden block. A thick copper strip and two fractional resistance box upto 1 ohm. Resistance coil of 0.3/0.5 ohm , jockey. Carey Foster's Bridge, Two Equal resistances, Thick copper strips. Two resistance boxes from 1-20000ohm, Cell, Galvanometer, Jockey, Key
7	De ' Sauty Bridge		With 3 decade resistance dials having range 1000,100 and 10 ohms and other having three more decades of the same value as in first variable resistance, Two variable capacitances, Inbuilt power supply frequency of 1 KHz, 10 V DC supply with head phone.
8	Digital Gaussmeter		Complete experimental setup to determine the field strength Band ad its Variation in a solenoid(to determine dB/dx). App[aratus includes Digital Gaussmeter, Solenoid with copper winding, Heavy Duty stand form moment of Gaussmeter probe, DC regulated power Supply(0-30 V/0-2 amp)
9	Anderson's Bridge		The apparatus should be compact with five resistors(three fixed and two variable resistors, one variable resistor should have value upto 1.5 Kohm, other variable resistor should have value upto 10 Kohm). Choke with multiple L-Values. Capacitors having multiplier values(with a provision to shift/ Switch from one value to another). Head phones, connecting leads.
10	LCR Series/LCR Parallel experimental(complete setup)		With Function generator(10Hz-10KHz)
11	Moving Coil ballistic Galvanometer to measure current Sensitivity and CDR (complete setup).		Apparatus including ballistic galvanometer, three resistance boxes, a cell, two simple keys, spring key.
12	To determine the high resistance by leakage method(complete set up)		Ballistic galvanometer, a tap key, a lamp scale arrangement, a morse key, a capacitor of capacity 0.2 to 0.5 μ F, a two way key, a cell, a high resistance of about 100 Mohm and connecting wires.
13	Variation of magnetic field with distance along the axis of circular coil carrying current.		Apparatus includes Stewart and Gee's type tangent galvanometer, a battery, a rheostat , an ammeter, a one way key, reversing key etc.
14	High resistance by Leakage method		Apparatus includes Ballistic galvanometer, a tap key, lamp and scale arrangement, a morse key, a capacitor of capacity 0.2-0.5 μ F. A two way key, a one way key, a cell, a high resistance= 100 Mega Ohm.
15	Mutual Inductance of two coils by Absolute method(Complete setup)		A mutual inductance coil ,a ballistic galvanometer, two tap keys, a four way key, a rheostat, a standard resistance of 0.1 or 0.01 ohm, a battery, connecting wires, stop watch.
16	Self Inductance of a coil by Rayleigh Method		A post office box, a ballistic galvanometer, a lamp and a scale arrangement, a standard low resistance(0.1 ohm), an inductance coil, one key, a tap key, a cell, connecting wires.
17	Experimental set up to determine		Apparatus included deflection magnetometer, Vibration magnetometer, magnets, brass bar, stop watch, metre scale, vernier caliper, weight box, physical balance, spirit level, search needle.
	(i)Horizontal component of earth's magnetic field		

	(ii) Magnetic moment of the magnet (complete setup)		
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C. Optics

S. No.	Item Required	Qty.	Required Specifications
1	Spectrometer		Scale: Dia 175 mm, Objective: Achromatic lens, f=178 mm, Aperture 32 mm, slit: with knurled screw, Reticule: 90° cross etched on glass, least count: 20 sec, Eyepiece: 15 X, Ramsdens Eyepiece, Vernier: 4 vernies(Telescope and prism table), base: 220 mm dia, supplied in wooden box
2	Diffraction Grating		Should consist of 15000 lines per inch size 38 X 50 mm
3	Prisms:		Crown glass prism 32 X 32 mm Extra dense flint glass prism 32 X 32 mm Calcite/ Quartz Prisms 25 X 25 mm and 18 X 18 mm Hollow prisms 32 X 32 mm
4	Newton's rings apparatus		Plano convex lens with dia 61.5 mm, glass, focal length 200 mm, reflector assembly, sodium light source, bridge type microscope, wooden block, spherometer, double disc with glass plate, plano convex lens with plane glass plate, lens arrangement, plane glass plate pair(50 X 35 X 2 mm)
5	Fresnel's Biprism		Fresnel biprism, with universal lens holder, optical bench, adjustable slit- self centering sodium light source, micrometer eye piece, convex lens in the holder, three saddles (fixed) one saddle transverse. One biprism extra
6	Mercury Vapour lamp with and without choke		40 W with choke to work on 230 V AC (ISO/ISI certified only) 40 W without choke to work on 230 V AC (ISO/ISI certified only) 80W with choke to work on 230 V AC (ISO/ISI certified only) 80W without choke to work on 230 V AC (ISO/ISI certified only)
7	Sodium Vapour lamp		35 W with auto leak transformer, operated at 100-230V 35 W without auto leak transformer, operated at 100-230V 55 W with auto leak transformer, operated at 100-230V 55 W without auto leak transformer, operated at 100-230V
8	Michelson interferometer apparatus		To find the wavelength of sodium light, Michelson Interferometer, sodium light source, telescope with holder, pin hole, ground glass, glass/pin holder, He-Ne laser, Beam expander, Objective holder, Object screen, lab jack, Cylinder base, power adapter
9	Laurent's Half Shade Polarimeter apparatus complete		Polarimeter Laurent's half shade with circular scale 0-360°, Least count 1°, Vernier reading 6 min, dimensions 12mm dia, length 200 m, Sodium light source.

10	He-Ne laser with inbuilt power supply, Hexagonal optical bench with locking arrangement and translucent screen to view the diffraction pattern		
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D. Heat and Thermodynamics

S. No.	Item Required	Qty.	Required Specifications
1	Callendar and Barne's apparatus for finding mechanical equivalent of heat		Apparatus: Constant flow Calorimeter, two $1/5$ th degree thermometer, AC ammeter of range 1.5 amp, a voltmeter of range 50 V, a step down transformer, a beaker, a balance, a weight box, a graduated cylinder, a screw type pinch cook, a stop watch and a well insulated connecting wire.
2	Searle's thermal conductivity apparatus		Searle's apparatus for conductivity of metals, two half degree thermometer, two $1/10$ th or $1/5$ th degree thermometer, a steam generator, a tripod stand, a Bunsen burner, a weight box, a stop watch and a well insulated connecting wire.
3	Searle's appartus for finding mechanical equivalent of heat		Apparatus: Friction cone apparatus, Sensitive thermometer, physical balance with weights, stop watch.
4	Joule's Calorimeter apparatus for finding mechanical equivalent of heat		Apparatus: Joule Calorimeter, Step down transformer, rheostat, AC voltmeter, AC ammeter, a sensitive thermometer, physical balance, weight box, plug key and insulated connecting wires
5	Apparatus to determine specific heat of a liquid by method of cooling		Apparatus: cooling apparatus, two thermometers, stop watch, water, given liquid (turpentine, glycerine etc) stop watch. Description: It consists of two tin boxes C and D polished white inside and placed on within the other. Two calorimeters A and B provided with corks are contained in it.
6	Apparatus to verify Stefan's law using black body radiations		Experimental setup comprises of filament auto bulb of 12V/36V rating, variable voltage DC power supply to give constant (upto 3 A)ammeter of range 3A,voltmeter of ranges(5V/10V).
7	Apparatus to find Plank's constant using black body radiation		Experimental setup with a solar photovoltaic cell and incandescent lamp to determine the Stefan's constant and verify photoelectric equation.
8	Lee's Disc method to find coefficient of thermal conductivity of bad conductor		Apparatus: Lee's disc apparatus, two $1/10$ th C thermometer, circular disc of the specimen of a bad conductor(ebonite or card board), stop watch, a screw gauge, vernier caliper etc.
9	Apparatus to study variation of thermo emf with temperature across two junctions of a thermocouple.		A copper constantan thermocouple, a clamp stand, a water bath, heating arrangement, a funnel stand, a beaker, a thermometer, a potentiometer, a sensitive galvanometer, a resistance box, a post office box,a Edison cell, one way key, jockey, a voltmeter, connecting wires.

10	Forbe's method apparatus to determine thermal conductivity of metal rod		A long uniform metal rod with hole drilled to insert the thermometers, steam generator, thermometers, stop watch, meter scale etc.
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E. Electronics

S. No.	Item Required	Qty.	Required Specifications
1	Transistor Characteristics Apparatus		The Board should have germanium NPN's and PNP's in addition to silicon NPN's and PNP's with 4 metres-two 0-10 V DC at 200 mA continuously variable power supply for base emitter and collector emitter junction, two DC ammeter 65 mm rectangular dial with switch selectable range of 1 V and 10V main. On/Off switch fuse and jewel light connecting leads (one way and two way leads)
2	Logic Gates		Apparatus to study various logic gates, compact and complete on all respects
3	Half Adder and Full Adder apparatus		
4	Half Subtractor and Full Subtractor Apparatus		
5	Half-Wave and Full-Wave Rectifier		Apparatus to study half and full wave rectifier with L and π type filters and rectification efficiency, With AC and DC voltmeters and ammeters
6	RC coupled Amplifier (two stage)		The board consists of 12 V DC, IC regulated power supply internally connected NPN transistors, Main On/Off switch, Fuse and Jewel light with decade audio frequency generator, AC milivoltmeter, decade resistance box, connecting leads two ways.
7	Study of PN junction diode		Complete in all respects to study its load line characteristics
8	Study of LED junction diodes		Complete in all respects to study its characteristics
9	Study of ZENER Diode		Complete in all respects to study its characteristics
10	Study of ZENER Diode as voltage regulated power supply		Compact and complete in all respect. Should have two ZENER diodes of different values fixed on the board and four extra ZENER diodes to be supplied separately
11	FET Characteristics		Compact and complete in all respects
12	Thyratron for finding ionization potential		Compact and complete in all respects
13	UJT Characteristics apparatus		Compact and complete in all respects
14	Inverting and non-Inverting Operational Amplifiers		
15	Flexible connecting wires with pins on both sides.		

F. General Apparatus

S. No.	Item Required	Qty.	Required Specifications
1	Apparatus to determine Planck's Constant using LED's of four different colours		Light source: Tungsten-halogen 12V/35W, Scale: Length 400mm, Photocell: Cs Vacuum Phototube, Dark Current: $0.003\mu\text{A}$, Display mode switch: Displays current(μA) or voltage(V), Current Multiplier: X1, X0.1, X0.01 and X0.001, Accelerate Voltage:-15 V to 0 V and 0 to 15 V $\pm 2\%$, Power Supply : 220/50 Hz with measuring error : $\pm 15\%$ compared with the reorganized value ($h=6.62619 \times 10^{-34}$ Js)
2	Millikan's oil drop apparatus for charge determination		Millikan's oil drop apparatus comprises of plane condenser, Display Microscope, Vaporiser, Lighting System, Adjustable high stand, Camera, Software CD
3	To find dielectric constant of a dielectric material		Apparatus consists of Dielectric constant kit, Electrometer Amplifier, Digital multimeter, Power supply(2-12 V AC/DC), High Voltage power supply (0-600V DC), Flexible plug leads(50 cm) black, Flexible plug leads(50 cm) red, Earthing lead(100 cm) green, 2 way switch, capacitor mode 0.01 μF , Capacitor module 100 nF, 4.7 Mega Ohm Resistance Box, Flexible plug leads(25 cm) black, Flexible plug leads(25 cm) red, Flexible plug leads(25 cm) yellow, Flexible plug Leads(100 cm) red and black.
4	B-H curve apparatus with CRO		The board should consist of 6V, 10V, 20V, 40V, 80V AC output of which any voltage can be selected with the help of select or switch depending upon the gain available at the horizontal circuit of oscilloscope for display, set of coils E and I type of lamination.
5	Resistivity of semiconductor and band gap measurement by four Probe Method		Four individually spring loaded probes. The probes are collinear and equally spaced. Germanium crystal in the form of a chip. Oven for variation of temperature from room temperature to a maximum of 200 degree Celsius. Thermometer 0-200 degree Celsius. Digital panel meter for measuring voltage and current. Voltage range 0-200 mV and 0-2 V. Current range 0-20mA. Display three and half digit, seven segments LED (12.5 mm height) with auto polarity and decimal indications.
6	Apparatus to measure 'e/m' by Helical Method		Complete with all accessories to perform expt. Cathode Ray Tube Data: i) Distance between X and Y deflecting plate and the screen Solenoid Data: A) Diameter $d=12$ cms, B) length of winding $L = 74$ cms, C) Number of turns $N = 4000$ (any ISO certified company)
7	Determination of Hall coefficient of a semiconductor sample		Hall effect apparatus, Power supply (20V, 5A), Constant current source, Digital Gauss meter, Liner (Screw Driver), Flexible Plug leads (100cm) black, Flexible plug leads (100cm) Red, Flexible plug leads (50cm) Yellow, Power cord, GE Crystal PCB.
8	Sonometer Apparatus		The apparatus should consist of a metal wire stretched over the two moveable bridges placed on a hollow wooden sound box (about 1m long). One end of wire should be fixed to peg and other end should pass over pulley fixed at the other end of the sound box and carries a weight hanger, 4 weight of 1000g.
9	Time ball		Time ball with seven segment display and stop watch.

Subject: - Chemistry

S. No.	Item Required	Qty.	Required Specifications
1	Chromatographic Jar	4 No.	
2	Chromatographic Paper	20 sheets Whatmann	
3	Silica Gel(TLC)	4 X 500 g	
4	Acetanilide	2 X 500 g	
5	Aniline	2 X 500 ml	
6	Phenol	2 X 500g	
7	Bromine	20 X 20 ml	
8	Acetic Acid	2 X 2.5 L	
9	Nitrobenzene	500 ml	
10	Toluene	1 X 2.5 ml	
11	Sulphuric Acid	2 X 2.5 L	
12	Nitric Acid	2 X 2.5 L	
13	Ethanol	10 X 500 ml	
14	Copper Sulphate	2 X 500g	
15	Potassium dichromate	1 X 500g	
16	Sodium Thiosulphate	2 X 500g	
17	Disodium EDTA	2 X 100g	
18	Magnesium Carbonate	500g	
19	Zinc Carbonate	500g	
20	Calcium Carbonate	500g	
21	o-Toluidines	250 ml	
22	m-Toluidines	250 ml	
23	p-Toluidines	250g	
24	o-Anicidines	250 ml	
25	m-Anicidines	100 ml	
26	p-Anicidines	250g	
27	β -Naphthol	500 g	
28	α -Naphthol	1g	
29	Vaniline	2 X 100g	
30	Salicylic Acid	2 X 500g	
31	Benzoyl Chloride	500 ml	
32	Resorcinol	500 g	
33	p-Cresol	500 ml	
34	Iodine	500 g	

35	Isopropyl Alcohol	5 X 500 ml	
36	m-dinitrobenzene	500g	
37	Benzamide	500g	
38	Acetamide	500g	
39	Ethyl Acetate	2 X 2.5 L	
40	Semicarbazide	500g	
41	Acetone	2 X 2.5 L	
42	Butanone	500 ml	
43	Cyclohexanone	500 g	
44	Benzaldehyde	2 X 500 ml	
45	Phenylacetic acid	500 g	
46	Pthalic acid	500 g	
47	Benzoic Acid	2 X 500g	
48	Oxalic Acid	4 X 500 g	
49	Succinic Acid	500 g	
50	Sodium Chloride	2 X 500g	
51	Ignition Tube	10 gross	
52	Acetic Acid	2 X 2.5 L	
53	Chloroform	4 x 500 ml	
54	Cyclohexane	2 X 500 ml	
55	Mohr's salt	2 X 500 g	
56	Sodium bisulfite	2 X 500g	
57	Ammonium Chloride	4 X 500g	
58	Aluminium sulphate	500 g	
59	Manganese(II) Acetate	500 g	
60	Potassium permanganate	500 g	

S. No.	Item Required	Qty.	Required Specifications
1	Burette	20	
2	Beaker 100 ml	20	
3	Beaker 500 ml	5	
4	Beaker 250 ml	40	
5	Beaker 1000 ml	2	
6	Measuring Cylinder 10 ml	10	
7	Measuring Cylinder 20 ml	10	

8	Measuring Cylinder 100 ml	10	
9	Tripod Stand	50	
10	Glass Rod	50	
11	Watch Glass	50	
12	Titration Flask 150 ml	100	
13	Titration Flask 250 ml	50	
14	Titration Flask 500 ml	20	
15	Water Bath(06 holes)	4	
16	Spatula Stainless Steel	50	
17	Ignition Tube	10 gross	
18	Wire Guaze	100	
19	Round Bottom Flask 100 ml	20	
20	Round Bottom Flask 250 ml	20	
21	Round Bottom Flask 500 ml	20	
22	Seperating Funnel 250 ml	10	
23	Pipette 5 ml	20	
24	Pipette 10 ml	20	
25	Boiling Test Tube 6"	50	
26	Screw Clips	20	
27	Ostwald viscometer	20	
28	Rubber Tubing	2 coil (6 mm, 10 mm) 5 coil (8mm)	
29	Seperating Funnel 500 ml	4	
30	Glass Funnel	50	
31	Thermometer 360 degree	20	
32	Filter paper	2 Ream	
33	Plastic Beaker 250 ml	50	
34	Tongs	50	
35	Capillary Tube	10 pkt	
36	Pinch Cock	20	
37	Melting Point appartaus	5	
38	Thiele's tube	20	
39	Condenser B24, 450 mm	20	
40	Specific Gravity Bottle	20	
41	Stalagmometer	20	
42	China Dish	100 each(3",4")	

43	B24 Head and receiver	5 each	
44	Thermometer pockets	20	
45	Rubber Cork assorted	2 gross	
46	Pyknometer	20	
47	Burette stands	40	Long
48	Burette Clamps	40	Long

Subject: Integrated M.Sc Chemistry

S. No.	Item Required	Qty.	Required Specifications
1	Hot air temperature control Oven	4	
2	Muffle Furnaces	4	
3	Ice making Machine (with ice crushing)	1	
4	Water Distillation plant (double distillation)	2	
5	Microwave Synthesizer	1	
6	Sohxlet extraction assembly	2	
7	UV/Visible spectrophotometer	1	
8	Polarimeter	2	
9	IR Spectrometer	1	
10	Potentiometer	5	
11	pH meter	5	
12	Melting point apparatus(Digital)	10	
13	Bomb Calorimeter	4	
14	Colorimeter	4	
15	Rotavapour	2	
16	Heating mentles	10	
17	Electronic water baths	10	
18	Magnetic stirrers	10	
19	Electronic weighing balance (upto 3 decimals)	4	
20	Distillation Apparatus(Borosil)	5	
21	Conductivity meter	4	
22	Centrifugation Machine (Electronic)	4	

23	Magnetic Beads	25	
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Subject: - Botany

S. No.	Item Required	Qty.	Required Specifications
1	Microscopes (HAS-Model Magnus with 100 X objective)	30	
2	Petridishes(small and large)- 10 cm and 20 cm	04 dozen	
3	Watch Glasses	04 dozens	
4	Cavity Blocks(small and large)-40 X 40 mm and 60 X 60 mm	04 dozens	
5	Microscopic Slides	50 boxes	
6	SquareRound cover glass	50 Boxes	
7	Conical flasks(250 ml,500 ml and 1 litre)- Borosil glass	20 each	
8	Measuring Cylinders(10 ml, 50 ml, 100 ml and 1 litre)	10 each	Borosil Glass
9	Pipettes((2 ml, 5 ml, 10 ml and 20 ml)	10 each	Borosil Glass
10	Tearing needles	2 dozen	
11	Foreceps(stainless steel)-small and medium	2 dozen each	
12	Blotting paper	2010 sheets	
13	Wattmans filter paper	25 pkts	
14	Funnel(small and medium)-Borosil glass	10 each	
15	Staining rods and racks	10 each	
16	Distillation double unit-glass	1	
17	Droppers(small and medium)	2 dozen each	
18	Beakers(250 ml,500 ml and 1000 ml)- borosil glass	5 each	
19	pH meter(digital)	1	
20	Oven (Hot Air and Microwave oven)	1 each	
21	Physical Balance	1	
22	Model/Charts for Mitosis and Meiosis		

23	Chemical reagent bottles (250 ml and 500 ml)	2 dozen each	
24	Photometer	1	
25	Chemicals	250g 250g 5 X 500ml 500 ml 500 ml 500 ml 2 X 500 ml 250 ml 2 X 250 ml 2 X 250 ml	i. Iodine Crystals ii. Saffarinin Powder iii. Ethanol iv. Cotton Blue v. Lectophenol vi. Glycerol vii. Acetic Acid viii. Crystal Violet ix. DPX mountant x. Gram's Staining
26	Class Material and charts-Life Cycle	02 each	i. TMV Viruses ii. Bacteriophages(temperate) iii. Lysogenic and lytic cycle iv. Rhizopus Life Cycle v. Ectocarpus, Volvox, oedogonium, Coleocleate, Chlamydomonas, Chara, Vaucharia and Batrachospermum
27	Haemocytometer	2	
28	Ocular and stage micrometer	5	
29	Models/Electron micrographs-DNA, Cell Organelles	5	
30	Microscopic Lamps Stainless steel	25	

Sub: - Equipments and Glassware

S. No.	Item Required	Qty.	Required Specifications
1	Watch Glass 3"	50	
2	Cavity Block	50	
3	Petri Dish 3"	100	Borosil Glass
4	Beaker 500 ml	30	Borosil Glass
5	Conical Flask 500 ml	30	Borosil Glass
6	Measuring Cylinder	5	Borosil Glass

7	Soil Thermometer	10	
8	Anemometer	5	
9	Rain Guage and luxmeter	5	
10	pH meter (field)	5	
11	Dissection Microscope(Olympus)	20	
12	Refrigerator LG	1	
13	Transformer 20KW	1	
14	Inverter with four batteries	1 set	

Subject: - Zoology

S. No.	Item Required	Qty.	Required Specifications
1	MIPS (Micro Image Projection system) with screen and cable cord	1	Annexure - I
2	Compound Microscope	10	Annexure - II
3	Research Microscope with objective 5x, 10x, 40x, 100x Eye piece 5x, 10x, 15x Binocular with Monocular tube	1	Annexure - II
4	Stereoscopic Microscope objectives 2x, 4x, 10x Eyepiece 5x and 10x	3	Annexure - II
5	Water Quality Analyser	1	Annexure - III
6	Spectrophotometer	1	Standard make
7	Slide projector	1	Standard make
8	Van Dorn Bottle	5	Standard make
9	Conductivity meter	1	Standard make
10	Turbidity meter	1	Standard make
11	Plankton meter	1	Standard make
12	Eckman Dredge	1	Standard make
13	Ponar Grab bottle	10	Standard make
14	Inverter with battery backup	1	Standard make

15	Secchi disc	5	Standard make
16	BOD Incubator	1	Standard make Annexure - IV
17	Plankton counting chamber	5	Standard make
18	R.O. System	1 Unit	Standard make
19	Steel stools with plastic top	80	Standard make

MIPS (Micro Image Projection System)

S. No.	Item Required	Qty.	Required Specifications															
1	Body		Aluminium die-cast body with all critical movements based on ball bearing & wire guides thereby ensuring smooth & precise manipulation															
2	Inclined observation Head		Binocular 45 degree inclined rotatable through 360 degrees															
3	Eyepiece (widefield) for observation		WF 10x (FN 18) compensating paired eyepiece provides relief from eye fatigue and renders color-compensated images of utmost clarity. Compatible with an optionally available eyepiece micrometer.															
4	Nosepiece		Quadruple revolving nosepiece based on precision ball bearing mechanism with positive click stop															
5	Objectives		<table border="1"> <thead> <tr> <th>Achromal Objective</th> <th>N.A</th> <th>W.D</th> </tr> </thead> <tbody> <tr> <td>4X</td> <td>0.10</td> <td>29.0 mm</td> </tr> <tr> <td>10X</td> <td>0.25</td> <td>6.3 mm</td> </tr> <tr> <td>40X (spring loaded)</td> <td>0.65</td> <td>0.53 mm</td> </tr> <tr> <td>100X (oil, spring loaded)</td> <td>1.25</td> <td>0.20 mm</td> </tr> </tbody> </table>	Achromal Objective	N.A	W.D	4X	0.10	29.0 mm	10X	0.25	6.3 mm	40X (spring loaded)	0.65	0.53 mm	100X (oil, spring loaded)	1.25	0.20 mm
Achromal Objective	N.A	W.D																
4X	0.10	29.0 mm																
10X	0.25	6.3 mm																
40X (spring loaded)	0.65	0.53 mm																
100X (oil, spring loaded)	1.25	0.20 mm																
6	Mechanical Stage		Stage size 125 mm X 145 mm with traverse area of 50mm X 76 mm with right hand low drive mechanical stage															
7	Focusing system		Co-axial coarse & fine controls with a focus adjustment range of 25 mm															
8	Condenser holder		Rack & pinion mounted condenser holder with height displacement upto 20 mm.															
9	Condenser		Abbe condenser with aperture iris diaphragm (NA. 1.25) focusable with rack & pinion through 20 mm and a continuously variable iris diaphragm with a removable blue filter for daylight observation															
10	Illumination base with option		LED light source High brightness longlife (30.000 hrs) 1W LED.															

Subject: - MICROSCOPES

S. No.	Item Required	Qty.	Required Specifications
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1	MONOCULAR LABORATORY INCLINABLE MICROSCOPE MODEL		Monocular Laboratory Inclunable Microscope Model standard microscope set complete with widefield eyepieces NWF 10x Achromatic objectives 10x, 40x & 100x (spring, oil imm), attachable graduated mechanical stage 120mm x 125mm, plano-concave mirror in adjustable fork mount, Sub-stage Abbe Condenser N.A. 0.9/1.25 fitted with an iris diaphragm & blue filter etc.
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Subject: - STEREO MICROSCOPES

S. No.	Item Required	Qty.	Required Specifications
1	Stereoscopic Binocular Microscope		Stereoscopic Binocular Microscope complete with paired widefield eyepiece 10x (F.N. 23) having with in-built light stand (incident: 6V15W Lamp/ Transmitted: 5 W Fluorescence Lamp) complete set in thermocole packing (available in 2 models): a) MODEL: with turret mounted (2x & 4x) in-built objectives or b) MODEL: with turret mounted (1x & 3x) in-built objectives

Subject: - WATER QUALITY ANALYSER

S. No.	Item Required	Qty.	Required Specifications
1	pH		
	Range		0 to 14.00 pH
	Resolution		0.01 pH
	Accuracy		± 0.01 pH ± 1 Digit
	Sensor		Combined Electrode
	Temp. Compensation		Auto & Manual
2	mV / ORP		
	Range		± 1999 mV
	Resolution		1 mV
	Accuracy		± 1 mV ± 1 Digit
	Sensor		Combined Electrode
3	Conductivity / TDS		
	Range		0 to 100 mS (5 ranges) 0 ppm to 100 ppt (5 ranges) at TDS factor 0.5 (Approx) & TEMPCO 2%

	Accuracy		$\pm 1\%$ of FS ± 1 Digit
	Sensor		Conductivity Cell (Acceptable from 0.1 to 5.0 cell constant)
	Temp. Compensation		Auto / Manual)
4	Salinity		
	Range		0 to 40 ppt
	Resolution		0.1 ppt
	Accuracy		$\pm 2\%$ of FS ± 1 Digit
	Sensor		Conductivity Cell (Acceptable from 0.1 to 5.0 cell constant)
	Temp. Compensation		Auto / Manual)
5	Dissolved Oxygen		
	Range		0 to 20 ppt
	Resolution		0.1 ppm
	Accuracy		$\pm 1\%$ of FS ± 1 Digit ± 0.1
	Sensor		Au / Ag Probe
	Temp. Compensation		Auto / Manual)
6	Temperature		
	Range		0 to 100°C
	Resolution		0.1°C
	Accuracy		$\pm 0.5\%$ of C ± 1 Digit
	Sensor		PT 100
7	Colorimeter		
	Range		0 to 2.00 Abs 0 to 100% T Conc: 0 to 1999
	Accuracy		± 0.05 Abs
	Resolution		0.001 Abs / 0.1% T
	Sensor		Photodiode
	Source		Tungsten Lamp
	Filters		Blue (440 nm) Green (540 nm) Red (660 nm)
8	Trbidity		
	Range		0 to 1 NTU 0 to 10 NTU 0 to 100 NTU

	Accuracy		± 2% of FS
	Sensor		Photodiode
	Source		Tungsten Lamp
9	General		
	Display (LCD)		2 line 20 Char. Aplphanumeric
	Printer Port		Epson Compatible 80 Column D.M. Printer 230 V 50Hz ± 10% or Internal Battery with charger
	Power		230 V 50 Hz ± 10% or Internal Battery with Charger
	Dimensions		420(W) x 520(D) x 175(H) mm
	Weight		9 kg (Approx)
	Accessories		

Subject: - BOD INCUBATORS

S. No.	Item Required	Qty.	Required Specifications
1	Capacity		Approx. 1000 L
2	Temperature Range		Ambient + 5°C to + 80°C
3	Temperature Uniformity		± 0.1°C
4	Temperature Control		± 0.1°C
5	Chamber		Stainless steel
6	No. of Shelves		4 - 6
7	Shelves		Perforated stainless steel
8	Overall L W H		Approx. 80 cm Approx. 80 cm Approx. 180cm (not more than 200 cm)
9	Number of doors (ea.)		1 - 2
10	Load per rack (kg)		25 - 60
11	Light Facility		Door side / wall sides
12	Inside door		Transparent acrylic
13	Outside door		Well insulated
14	Display		Digital display
15	Power (optional)		Supplied with battery (Invertors)

S. No.	Item Required	Qty.	Required Specifications
A.			
1	Beakers		(250 ml, 500 ml, 1000 ml)
2	Test Tubes		(Small, Medium and Large)
3	Funnels		
4	Measuring Cylinders		(50 ml, 100 ml, 200 ml)
5	Pipettes		
6	Flasks-conical flat bottom		
7	Troughs (glass)		
8	Reagent Bottles		
9	Glass Stoppered Bottles		
10	Museum Jars		(small, medium and large with sealing lid)
B.			
1	Spirit Lamps		
2	Test Tube Holders		
3	Test Tube stands		
4	Funnel stands		
5	Staining racks		
6	Reagent Bottle Racks		
7	Tripod stands		
8	Wire Guage		
C.			
1	Cotton		
2	Filtrer Paper		
3	Watmann's Filter Paper		
4	Gloves		
5	Surgical Blades		

S. No.	Item Required	Qty.	Required Specifications
D.			
1	Microscopic Glass Slide		
2	Cover Slips		(Rectangular, Square)
3	Culture Bottles		

4	culture voils		
5	Pipettes		
6	Burettes		
7	Double Distillation Filter plant		
8	Sterilised needles		
9	Wash bottles		
10	watch glasses		
11	Cavity Blocks		
12	Foreceps		(Pointed, blunt)
13	Parafilm		
14	Dissection Boxes		
15	Needles		
16	Droppers		

Subject: - Chemicals and Reagents

S. No.	Item Required	Qty.	Required Specifications
1	Absolute Alcohol		
2	Ammonium Sulphate		
3	Caustic Soda		
4	Calcium Chloride		
5	Copper Chloride		
6	Ether		
7	Fehling Solution		
8	Fructose 0.5%		
9	Ferric Chloride 1%		
10	Glucose		
11	Glycerine		
12	Iodine Solution		
13	Lead Acetate		
14	Maltose 2%		
15	Mercuric Sulphate		
16	Olive Oil		
17	Picric Acid		
18	Potassium Ferricynide (sol.)		

19	Phenolphthalein		
20	Potassium Hydrogen Sulphate		
21	Sodium Chloride		
22	Sulphosalicylic Acid		
23	Sucrose 2%		
24	Tannic Acid		
25	Acetic Acid (Glacial Acid)		
26	Benedicts		
27	Barium Chloride		
28	Chloroform		
29	Chlorophenol		
30	Ethyl Acetate		
31	Ferric Chloride 0.5%		
32	Glucose 1% & 0.2 %		
33	Hydrochloric Acid(conc.)		
34	Lactose 2 %		
35	Methyl Blue		
36	Mercuric Nitrate		
37	Mercuric Chloride(Saturated)		
38	Potassium Tartrate		
39	Peptone		
40	Potassium dihydrogen phosphate		
41	Sodium Hydrogen Sulphate		
42	Sodium Acetate		
43	Silver Nitrate		
44	Sodium Nitrate		
45	Sodium Hydroxide		
46	Sulphuric Acid(Conc.)		
47	Thymol		
48	Thymol Blue		
49	Benedicts Reagent-A		
50	Benedicts Reagent-B		
51	Formaldehyde		
52	canada balsam		
53	DPX mounting		
54	Methylene Green		
55	Giesma Powder		

56	Borax Carmine		
57	Aceto-Carmine sol.		
58	Methyl Alcohol		
59	Acid Fuchsin		
60	Alum		
61	Haemotoxylin		
62	Formic Acid		
63	Xylene		
64	Acetone		
65	Eosin Stain/Powder		
66	Leishmans Stain		

Subject: - Geology

M.Sc. Integrated Sem - I

S. No.	Item Required	Qty.	Required Specifications
1	Physiographic		3-D Models of geomorphic features of Rivers, Wind and Glaciers.
2	Topographic maps of J & K		
3	Mineral specimens (size 2 x 3 inches)		Talc, Gypsum, Calcite, Fluorite, Apatite, Orthoclase, Quartz, Topaz, Corundum, Muscovite, Biotite, Hornblende, Olivine, Tourmaline, Augite, Beryl, Kyanite, Sillimanite, Tremolite, Andalusite, Garnet, etc.
4	Mineral Thin sections of minerals	Pack of 20 slides	Size 7" X 5" pack of 20 slides.
5	Crystal models of normal class of 6 crystal systems (made of glass or plastic).		
6	Crystal models of normal class of 6 crystal systems (made of wood).		
7	Goniometer	20	
8	Soil Profile charts of different areas.		
9	Lithostratigraphic maps of India.		
10	Geological maps of India.		
11	Binocular Petrological Polarising Microscope	02 no.	Optics, 3 objectives (strain free) 4X/5x, 10x and 40X/45x and 2 paired eyepiece WF 10X (1 cross hair scale eyepiece) and one pair widefield eyepiece WF 15X Binocular head with adjustable interocular distance. Transmitted Light Illuminator: Built-in 6V 20W halogen lamp Illuminator with variable transformer built in the base. Binocular Head: Rotatable by 360 degree with adjustable interocular distance. Compensators (Optional): Mica Quarter Wave and Gypsum Red 1st Order Plates.

12	Monocular Petrological Polarising Microscope	20 no.	Optics, 3 objectives (strain free) 4X/5x, 10x and 40X/45x and 2 paired eyepieces WF 10X (1 cross hair scale eyepiece) and one pair widefield eyepieces WF 15X Binocular head with adjustable interocular distance. Reflected Light mirror: Binocular Head: Rotatable by 360 degree with adjustable interocular distance. Compensators (Optional): Mica Quarter Wave and Gypsum Red 1st Order Plates.
13	Specimen trays	500 each	3" x 4" and 4" x 6" (Plastic made)

M.Sc. Integrated Sem - II

S. No.	Item Required	Qty.	Required Specifications
1	Nickel crucibles	10	
2	Hot Plates	5	
3	Teflon Bombs (crucibles)	10	
4	Agate Mortar and Pestle (small size)	5	
5	Steel Mortar and Pestle	5	
6	Chemicals		<ul style="list-style-type: none"> a. Hydrochloric acid 2.5 litre b. Acetic acid 2.5 litre c. Acetone 2.5 litre d. Nitric acid 2.5 litre e. Ammonium Molybdate 100gm f. Barium Chloride 500 gm g. Cobalt Nitrate 100 gm h. Sodium Hydroxide (AR) pellets 500 gm i. Sodium Sulphate Anhydrous 500 gm j. Methyl red solution 125 ml
7	Glass ware		<ul style="list-style-type: none"> a. Bottle for stock solutions 2 litres b. Beaker borosilicate 50 ml c. Beaker cap 50 ml borosilicate glass d. Beaker borosilicate 100 ml e. Beaker cap 100 ml borosilicate glass f. Conical flask 50 ml g. Conical flask 250 ml h. Capillary droppers i. Cylinder 100 ml j. Droppers glass with latex length 8" k. Funnel 3" l. Hot water funnel 3" m. Volumetric measuring flask 250 ml n. Volumetric measuring flask 500 ml o. Round bottom flask with B-24 joint Borosilicate 100 ml

			p. Round bottom flask with B-24 joint Borosilicate 250 ml q. Measuring cylinder (graduated) cap 10 ml r. Measuring cylinder (graduated) cap 20 ml s. Measuring cylinder (graduated) cap 50 ml t. Pipette volumetric 5 ml u. Pipette volumetric 10 ml
8	Digital Camera – for field work	1	
9	Geologist Hammer : steel made, 11" with nylon viny shock reduction grip	20	
10	Geologist Chisel (steel)	20	3", 4" and 6"size
11	Brunton Compass	20	
12	Field Bag	20	
13	Measuring tap: 15 metres	5 no.	
14	Hand Lens	20	Magnifying hand lens folding type, 10X magnification.
15	Thin section cutter and Polinher		

M.Sc. Integrated Sem - III

S. No.	Item Required	Qty.	Required Specifications
1	Rock specimens of common igneous rocks (approx. size 2 x 3 inches)		Granite, Granodiorite, Syenite, Gabbro, Peridotite, Dunite, Phonotite, Diorite, Pegmatite, Nepheline Syenite, Lamprophyre, Dolerite, Rhyolite, Andesite, Basalt, Charnockite, Eclogite, etc.
2	Rock specimens of common sedimentary rocks (approx. size 2 x 3 inches)		Sandstone, Arkose, Greywacke, Shale, Breccia, Conglomerate, Different varieties of Limestones, Dolomite, etc
3	Rock Thin sections of common igneous rocks and sedimentary rocks	pack of 20 slides.	Size 7" X 5"
4	3-D Models of sedimentary structures.		
5	Fossil specimens of		(a) Trilobite -- Agnostus, Olenus, Calymene, Philipsia, Paradoxides, Illaenus, Redlichia, Ogygia. (b) Brachiopoda – Orthis, Productus, Spirifer, Rhynchonella, Terebratulla, Lingula, Laptana, Syringothyris, Atrypa, Athyris.

		<p>(c) Lamellibranchs – Cardita, Arca, Pecten, Gryphaea, Trigonina, Nucula, Modiola, Gervillea, Spondylus, Lima, Ariculopecten, Ostrea,</p> <p>(d) Gastropods – Bellerophon, Cerithium, Physa, Voluta, Cypraea, Pleurotomaria, Turritilla, Murex, Natica.</p> <p>(e) Cephalopods -- Nautilus, Ceratites, Acanthoceras, Goniatites, Stephanoceras, Turillites, Perisphinctes, Scaphites.</p> <p>(f) Corals – Calceola, Cyathophyllum, Lithostrotion, Syringopora, Zaphrentis</p> <p>(g) Graptoloids – Monograptus, Didymograptus, Diplograptus, Tetragraptus.</p> <p>(h) Echinoids – Cidaris, Hemicidaris, Holastor, Micraster, Clypeaster, Apicrinus.</p> <p>(i) Vertebrates : Proboscians, Equidae, Giraffidae, Bos, etc.</p> <p>(j) Plants : Glossopteris, Gangamopteris, Vertebraria, Lepidodendron, Schizoneura, Nilsonia, Williamsonia, Thinnfeldia, Sigillaria, Calamites, etc.</p>
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M.Sc. Integrated Sem - IV

S. No.	Item Required	Qty.	Required Specifications
1	Rock specimens of common metamorphic rocks (approx. size 2 x 3 inches):		Serpentinite, albite-epidote-chlorite-quartz schist, slate, talc-tremolite-calcite-quartz schist, gneisses, amphibolite, hornfels, garnetiferous schists, sillimanite-kyanite-bearing rocks, granulites, eclogite, diopside-forsterite marble, etc.
2	Thin Sections of common metamorphic rocks		Slate, Phyllite, Schist, Gneiss, Amphibolite, Marble, etc. Size 7" X 5" pack of 20 slides

M.Sc. Integrated Sem - V

S. No.	Item Required	Qty.	Required Specifications

1	Specimens of ore minerals (approx. size 2 x 3 inches)		Hematite, Magnetite, Pyrite, Pyrrhotite, Chalcopyrite, Chalcocite, Bauxite, Sphalerite, Galena, Malachite, Azurite, Sulphur, Native copper, Chromite, Orpiment, Realgar, Cinnabar, Rhodochrosite, Siderite, Cuprite, Goethite, Graphite, Molybdenite, Pyrolusite, Psilomelane, Ilmenite, Arsenopyrite, Cassiterite, etc.
2	Polished sections of common ore miner	Pack of 10	
3	Binocular Polarising Ore microscopes: 02 no.		Magnification: 40x/50x -600/675x Polarising Equipment : 360 degree rotatable polariser is mounted below the condenser with 15 degree calibration scale. Polariser also provided in the Incident Light. Transmitted Light Illuminator : Built-in 6V 20W halogen lamp Illuminator with variable transformer built in the base. Binocular Head : Rotatable by 360 degree with adjustable interocular distance. Compensators (Optional): Mica Quarter Wave and Gypsum Red 1st Order Plates
4	Monocular Polarising Ore microscopes:		Magnification: 40x/50x/100x Polarising Equipment : 360 degree rotatable polariser is mounted below the condenser with 15 degree calibration scale. Polariser also provided in the Incident Light. Transmitted Light Illuminator : Built-in 6V 10W halogen lamp Illuminator with variable transformer built in the base. Monocular Head : Rotatable by 360 degree with adjustable interocular distance. Compensators (Optional) : Mica Quarter Wave and Gypsum Red 1st Order Plates
5	Coal specimens		Varieties of Peat, Lignite, Semi-bituminous, Bituminous, Semi-anthracite and Anthracite.

M.Sc. Integrated Sem - VI

S. No.	Item Required	Qty.	Required Specifications
1	Aerial Photographs (coloured)		
2	DIP and GIS softwares.		
3	Satellite images		
4	Mirror stereoscope (Portable)		
5	Parallex Bar (for use with Stereoscope)		
6	Pocket Stereoscope	20	

**DECLARATION REGARDING ACCEPTANCE OF THESE TERMS AND CONDITIONS
CONTAINED IN THE TENDER DOCUMENT FOR PURCHASE OF SCIENCE PRACTICAL
MATERIAL AND EQUIPMENTS.**

**(To be put in sealed envelope super-scribed with Technical Bid for purchase of
Science Practical Material and Equipments)**

To
Dean Sciences
Cluster University of Jammu (GGM Science College)
Jammu.-180002

Sir,

I have carefully gone through the Terms and Conditions contained in the Tender Notice datedregarding purchase of Science Practical Materials and Equipments in the office of Dean Sciences Cluster University of Jammu.

I declare that all the Terms and Conditions of this Tender Notice are acceptable to my Company. My Company does not have any terms and conditions of its own in respect of quotation being submitted for Purchase of Science Practical Material and Equipments. I further certify that I am an authorized signatory of firm/supplier and am competent to make this declaration.

Yours Very Truly,

Signature of authorized signatory with date

Name:

Designation:

Name of Firm:

Address:

Office Seal