GUSHKARA MAHAVIDYALAYA

P.O. GUSHKARA, DIST. PURBA BARDHAMAN, PIN 713128, W.B.
Phone: (03452) 255 105, Email: guskaramahavidyalaya@gmail.com

Tender Reference No.: GM/RUSA/P/NIT-22/2019

E-tenders are invited from reputed Manufacturer/Authorized Dealers/Suppliers for purchase of Laboratory Equipments for the Dept. of Physics. Rate should be quoted in the prescribed format (standardized BOQ format).

All the relevant documents, **Specification (Annexure-"A")** etc. should be downloaded by the interested bidders from the website: https://wbtenders.gov.in. Any addendum/corrigendum/Extension of validity period will be notified at the aforesaid e-Tendering portal: https://wbtenders.gov.in. Bidders are requested to go through the following very carefully before submission of bids. When a tendering firm submits their tender in response to this N.I.T., they will be deemed to have understood fully the contents, the requirements, terms& conditions of this tender.

A. Laboratory Equipments for the Dept. of Physics:

✓ **Login by bidder:** A bidder desirous of taking part in an e-tender invited by a State Government shall login to the e-Procurement portal of the Government of West Bengal using their login ID and password using valid DSC.

B. Eligibility of Bidder:

✓ The bidder must be a Manufacturer or authorized representative of manufacturer. Certificates/Authorization must be submitted online in support of the claim.

C. Validity of Bid & Warranty: - The tendered rate shall be valid till 1 year from the date of acceptance. The equipments must be covered under On-site Warranty for 1 year.

D. Documents: - Bidders shall submit their Valid Trade License, GST Registration Certificates, PAN No. and P. Tax, Bank Account No., Credentials in support of supplying Lab. equipments from any Govt./Govt. Aided undertaking valued at not less than Rs. 1 lakh.

E. Others: -

i. **The bid price must be final price inclusive of Supply of and Installation in the College.**

ii. The prospective bidder shall have to execute the work in such a manner so that appropriate service level of the work is maintained during the contract period. If any deficiency / damage is found during the period as mentioned above, the Bidder shall be held responsible. The bidder may quote his rate considering the above aspect. The intending Bidders shall clearly understand that whatever may be the outcome of the present invitation of Bids, no cost of Bidding shall be reimbursable by the College.

iii. The College authority does neither bind itself to accept the lowest rates of any tender nor to assign any reason thereto for non-acceptance of the tender.

iv. The college authority has the full right to check/verify the original copy of documents submitted by the bidder at any point during the e-tendering process.

It is obligatory for the bidder that to maintain delivery schedule for supply of the ordered item and its accessories. In case of delay successful bidder will be held responsible & action will be taken as per condition of tender as laid down herein without prejudice. Any sort of plea for Part Performance / No Performance / Defective Performance against work order, will not be considered and this will include incidents occurring due to acts of God.

F. Payment:

✓ Tax Invoice and the Challan against the work/supply is/are to be sent in DUPLICATE and should invariably be submitted along with supplies.

✓ Payment shall be made after executing the order satisfactorily in all respects. However, no interest shall be paid to the firm if the payment is delayed due to whatever reasons. In no circumstances, delivery schedule should be affected & or linked with the payment of outstanding bills. The payment of bills shall be withheld, in case of violation of any tender terms & conditions.

Date & Time Schedule

Sl.No.	Particulars	Date	Time
1.	NIT publication date	04.06.2019	16:15 p.m.
2.	Bidding starts	04.06.2019	16:15 p.m.
3.	Bidding closing	15.06.2019	18:00 p.m.
4.	Bid opening date	18.06.2019	15:30 p.m.

Bid Opening Location: Gushkara Mahavidyalaya, P.O. Gushkara, Dist. Purba Bardhaman, PIN 713128, W.B.

Sd/- Dr. S.K.Pan
Principal
Gushkara Mahavidyalaya

Instructions to Bidders

General guidance for E-Tendering:

The following are the instructions / guidelines for electronic submission of the tenders for assisting the Manufacturer/Authorized Dealers/Suppliers to participate in E-Tendering:

I. **Registration:** Any Manufacturer/Authorized Dealers/Suppliers willing to take part in the process of E-Tendering will have to be enrolled & registered with the Government e-procurement system, through logging on to **https://wbtenders.gov.in.**

II. **Digital Signature Certificated (DSC):** Each Manufacturer/Authorized Dealer/Supplier is required to obtain a Class-II or Class-III Digital Signature Certificate (DSC) for submission of tenders for the approval service of the National Informatics Centre (NIC) on payment of requisite amount. Details are available at the website stated in Clause-I above. DSC is given as a USB e-Token.

III. The Manufacturer/Authorized Dealers/Suppliers can search and download the NIT and Tender Document(s) electronically from computer once he logs on to the website mentioned in Clause-I using the Digital Signature Certificate. This is the only mode of collection of Tender Documents.

IV. **Submission of Tenders:** Tenders are to be submitted online to the website stated in Clause-I in two folders, one in Technical Proposal & the other is Financial Proposal before the prescribed date & time using the Digital Signature Certificate (DSC). Virus scanned and digitally signed copies of the documents are to be uploaded. The documents will get encrypted (transformed into non-readable formats).

V. **Technical Proposal:** The Technical Proposal should contain scanned copies of the following cover (folder):

a) **Statutory Cover** Containing the following documents –

i. NIT (Online)

b) **Non-Statutory Cover** Containing the following documents –

Sl.No.	Category	Sub-Category	Details
1.	Certificates	Certificates	• Manufacturer/Authorized Dealer • GST Registration • PAN • P.Tax (Challan) • IT receipt • Credentials of supplying previously the same to the Govt./Govt. Aided undertaking
2.	Company Details	Company details	• Trade License
3.	Catalogue	Brochure	• Brochure of the manufacturer for each quoted item with specifications

VI. **Financial Proposal:**

a) **BOQ:** The Financial Proposal should contain Bill of Quantities (BOQ) in one cover (folder). The contractor is to quote the rate online through computer in the space marked for quoting rate in the BOQ after downloading the prescribed format from the website.

Opening & Evaluation of Tender:

I. **Opening of Bid Proposal: Nodal Officer and Procurement Officers** will open the bids of the Tender in presence of the **members of Purchase & Tender Sub-Committee**.

II. **Intending tenderers may remain present if they so desire.**

III. Cover (folder) for Statutory Documents will be opened first and if found in order, cover (folder) for Non-Statutory Documents will be opened. If there is any deficiency in the Statutory Documents the tender will summarily be rejected.

IV. Decrypted (transformed into readable formats) documents of the Non-Statutory cover will be downloaded and handed over to the Purchase & Tender Sub-Committee.

V. Summary list of technically qualified tenderers will be uploaded online.

VI. Pursuant to scrutiny and decision of the Purchase & Tender Sub-Committee the Summary List of eligible tenderers and the serial number of work for which their proposal will be considered will be uploaded in the web portals.

VII. During evaluation the committee may summon the tenderers and seek clarification / information or additional documents or original hard copy of any of the documents already submitted and if these are not produced within the stipulated time frame, their proposals will be liable for rejection.

Sd/- Dr. S.K.Pan
Principal
Gushkara Mahavidyalaya

Please see Annexure A for details.

Annexure – "A"

Department of Physics

List of Equipments

Sl. No.	Equipment	Quantity
1.	**To study the characteristics of a series RC Circuit. C.R. Characteristics - Apparatus–** Complete with inbuilt Two Digital 20V metre, Regulated power Supply 0-20V DC, charging & discharging switch, one dial type resistance box (.1 to 10MΩ), One dial type capacitance Box (1 t 100μf), circuit diagram in front panel board, all 4mm connecting lids heavy metal base, manual & connecting lids etc.	1
2.	**To find the value of unknown capacitance by De-Sauty's Bridge. De-Sauty's Bridge -** This bridge is used to measure the unknown value of capacitance. The instrument has following in built parts fitted in metal/teak wood case. The Bridge consists of sine wave signal of 1KHZ. The Amplitude of AC switch indicating lamp is provided on the Bakelite board. Two sockets are provided for the output of AC signals. For detecting small AC signals in the output, Null Detector sin-built with digital display. Five unknown values are provided on the board selected by a Rotary switch. The circuit layout on the board is quite spread out to facilitate convenient working & clear understanding. 4mmsocket are provided for making connection. Two decade dial of x10&x100 ohms. Decade dial of x0.1mfd.	1
3.	**Dual Trace 30MHz Oscilloscope -** Product Features - Dual Channel, DC to 30 MHz, Invert facility in both Channels, Vertical Deflection coefficients : 5 mV to 20 V/div., Time Base: 20 ns -0.2 s/ div; Variable Hold- Off; X10 Magnification, Triggering: DC-60 MHz; Active TV Sync Sep.; Alternate triggering, LED indication for stable triggering, XY mode, Z Modulation, Saw tooth output (5 Vpp approx), Component Tester; 2 Level Calibrator	1
4.	**Mercury Lamp with house inbuilt Transformer**	2
5.	**Digital Multimeter -** 6000 Counts Backlit LCD, T-RMS Multimeter, Auto Power Off, Data Hold, MAX/MIN, AC / DC Voltage, AC/DC Current 20A, Resitance, Capacitance, Frequency, Transistor Test, Diode and Continuity Test - More than 30 functional ranges are available, LCD display, visible area 63×29mm, Over range display "OL", Maximum displayed value 5999, DC Voltage : 600mV/6V/60V/600V/1000V, Accuracy : ± (0.5%+2), AC Voltage TRMS : 6V/60V/600V/750V, Accuracy : ± (0.8%+3), DC Current : 60uA/6mA/60mA/600mA/20A, Accuracy : ± (0.8%+8), AC Current TRMS : 6mA/60mA/600mA/20A, Accuracy : ± (1.0%+12), Resistance : 600Ω/6kΩ/60kΩ/ 600kΩ/6MΩ/60MΩ, Accuracy : ± (0.8%+3), Capacitance : 9.999nF/99.99nF ~ 999.9μF/9.999mF/99.99mF, Accuracy : ± (2.5%+20), Frequency : 9.999Hz ~ 10.00MHz, Accuracy : ± (0.1%+5), Overload protection for all ranges, Auto Power Off., Working temperature: 0°C ~ 40°C (32°F ~ 104°F), Storage temperature: -10°C ~ 50°C (14°F ~122°F), Low battery indicator: The battery symbol will be displayed at top left of the LCD, Backlit LCD display, Data hold to freeze displayed data, Max-Min record function	4
6.	**Photo-electric effect – Photo current versus intensity and wavelength of light, maximum energy of photo-electrons versus frequency of light**. - Power Supplies: DC Supply, Operated on Mains power 230V, 50Hz +10%, Digital Meters:, Ammeter, Voltmeter, Components are mounted on the panels are: Voltage Control through Potentiometer, Stand to hold Photo Cell enclosed in metal box, Light	1

	Source is housed in suitable box with Intensity Control, Color Filters: Stand to hold color filter.	
7.	**To determine work function of material of filament of directly heated vacuum diode. -** Work Function of Diode valve – Complete with IC regulated power supply, 250V/15mA & 6.3V/0.5amp four digital meters and circuit diagram printed on panel & inbuilt with heavy metal base. Used to verify Richardson's Equation.	1
8.	**To determine the planck's constant using LEDs of at least 4 different colours. -** The set-up is one Planck's Constant Apparatus – Inbuilt One digital voltmeter, one digital mA meter, Output terminal, One Various wave length LED complete with box inbuilt – Blue, Green, Yellow, Red, White, LED with input terminal & inbuilt with heavy metal base.	1
9.	**To determine the wavelength of H-alpha emission line of Hydrogen atom.** The total set up is complete with the following: (a) **Spectrometer –** High Grade Spectrometer (Deluxe Type), Telescope and collimator are held in support rigidly and in perfect alignment. Vertical adjusting screws are provided to both the Telescope and Collimator. Clamping devices are provided to lock the telescope and the collimator after adjustment, Vernier reading 20 seconds – 7" Circle, (b) **Hydrogen Discharge Tube**, (c) **Discharge Tube Stand** – Metal stand two phos-phor bronze clamp are provided on highly insulated hylam sheet to hold upper & lower cap of the discharge tube the clamps may be adjusted to hold tubes of different lengths separate terminals & crocodile clips are provided for each clamp, (d) **High Voltage Power** Supply for Discharge, (e) **Diffraction Grating** – 2500LPI (Imported)	1
10.	**To determine the absorption lines in the rotational spectrum of Iodine vapour.** The apparatus consist of the following - Spectrometer 7" with L.C. 30 seconds, Long Iodine Tube with power supply, Grating 15000 lines/inch, Sprit Level 2", Stand for Iodine Tube, Source of white light complete set-up	1
11.	**To determine the value of e/m by Bar Magnet. -** The total Set up is Complete with the following: (a) e/m by Thomson Method (bar Magnet) – To measure e/m of electron by bar magnet method. The actual measurement by students of the ratio of charge on the electron to its equally minute mass imparts a stimulating sense of achievement. Instrument is made so as to impart a perfect result as accurate as possible. With built in power supply. It is provided with other accessories such as wooden stand, Deflection magnetometer & pair of bar magnet. Very easy to handle & compact in size. Fully self contained. Fully self contained- Power Supply, CRT Tube, Compass with stand, Magnet	1
12.	**To setup the Millikan oil drop apparatus and determine the charge of an electron -** The total set up is complete with the following – Experiments : **Exp.1 To observe Brownian movement in charged oil droplets , Exp. 2 To determine the quantum nature of charge, Salient features,** Quick and accurate measurements, Clarity of drops for measurements, Stability of drops during measurements, Inbuilt power supply, USB camera, **Key Topics-** Electron charge, Terminal velocity, Electric field, Brownian motion, Stoke's law, **Millikan's apparatus -** Input voltage – AC 220V , 50Hz, Output power – 5W, Plate voltage – 0-500V DC, Change over switch – Between +vc, -vc and 0 field, Plate distance - 5±0.2mm, Total	1

	magnification – 30X, Linear field of vision - ≥3mm, Scale division - 2±0.01mm, Objective lens – 100 lines/mm, **USB camera,** Sensor – 1.2MP, Eyepiece – 10X with adaptor ring, Connectivity – USB, CPU – PIV 2.0GHz or above, RAM – 1GB or above, O.S – win 2K/in XP/vista win7, Display – 32 Bit, 1024X 768, **Digital Stop Watch -** Display – 6digit, Accuracy – 0.01sec, Digit size – 5mm, Mode – start, stop &Reset, Necklace length – 2 feet, **Additionally required -** Computer (not supplied with this setup)	
13.	**To show tunneling effect in tunnel diode using V-I characteristics -** Complete with In built DC regulated Power Supply of 5 volts. Two 3 ½ digit digital panel meter for measuring the voltage across resistance & tunnel diode (Range 0-2V DC).Current control on the front panel. Tunnel Diode, circuit diagram in front panel board, all 4mm connecting lids heavy base, manual & connecting lids etc.	1
14.	**Apparatus for determination of wavelength of LASER light by single slit diffraction -** The total setup complete with the flowing – (a) **He-Ne Laser -** Ideally suited for simple, clear & easily comprehensive assemblies for interference, diffraction and holography experiments. The laser is constructed is such a way that is safe to use under any circumstances. Laser tubes along with SMPS power supply are housed in thick powdered coated aluminium Box. From the hole, the laser beam comes out - Operation Wavelength : 632.8nm (RED), Beam Diameter : 0.8mm, Beam Divergence : ≤1mrad, Polarisation : random (unpolarised), Mode : TEMoo, Output Power Stability: ±2.5%, Power Input : 220V AC±10%, 50Hz, Min. Operating Life time : 15000 Hrs, Shelf Life : 10 Years, Output Power – 2mW Red random polarization. (b) **Optical Bench for He-Ne Laser** – 1 meter long High quality precision bench suitable for more advanced work. This all Aluminum extruded from a hard aluminum alloy. This aluminium triangular optical bench is ideal for educational & general laboratory application. (c) **Mount for He-Ne Laser: -** This rectangular stand (all metallic) is suitable for all types of He-Ne Laser this upper black stand can be used on optical bench as well as on the heavy base. this stand is used to align the He-Ne Lasers with other Optical components. It lets you remove & replace laser system quickly with confidence that it will still be centered exactly when you want it. Supplied with heavy base. (d) **Detector with Digital meter** – **CAT NO – 1672-** This detector is used to record the contrast variation at the fringe pattern. Detector : special photo diode use for various laser experiments in detector output measurement unit we are providing digital voltmeter of three ranges 200mV,2V & 20V. (e) **Single Slit with micrometer**– Brass Make, (f) **Screen**	1
15.	**5 MHz General Purpose Function Generator -** Product Features - Frequency Range 0.5Hz to 5MHz, Digital Frequency, LCD Readout for frequency & mode, Waveforms: Sine, Square, Triangle, DC, DC-Offset Adjustment, Trigger Output, Internal Sweep & External FM-Modulation, Square Wave Risetime Typ. 30ns, Distortion Factor < 0.5% (upto 100kHz)	1

16.	**To determine the band gap using a thermistor - Energy Band Gap using Thermistor -** Complete with the following - One 20 volt digital meter, one 20mA digital meter, one adjust knob constant current source 0-20ma, one oven controller adjust knob, attach with oven & thermometer, all 4mm connecting lids inbuilt with heavy metal base, circuit diagram, manual & connecting lids etc.	1
17.	**DC Regulated Power Supply 30V/5Amp -** Description - Single Output with Backlit LCD Display of Variable 0 - 30V / 0 - 5A DC, Utilizes SMT Technology, Green LED Display, Voltage and Current displayed together, Multi-turn variable device to provide high precision voltage setting, Auto-tracking on PARALLEL and SERIAL working condition, Presetting the voltage and current, DC Output Switch, Extended output terminals, Continuous working under full load condition, Constant Current and Constant Voltage Protection, Short Circuit protection, Input : 220 / 110V ±10% 50~60Hz, Variable Output Voltage : 0 - 30V DC, Variable Output Current : 0 - 5A	2
18.	**To study V-I characteristics of PN junction diode, and Light emitting diode -** Complete with the following - One digital volt meter, one digital mA meter, inbuilt regulated 0-5V/100mA power supply, inbuilt One PN-Junction & Light emitting diode, all 4mm connecting lids heavy base, circuit diagram, manual & connecting lids etc.	1
19.	**Study of V-I & power curves of solar cells, and find maximum power point & efficiency - Solar Cell Trainer Kit -** SCOPE OF LEARNING: Study of V-I Characteristics of Solar Cell, TECHNICAL SPECIFICATIONS, Digital Meters: Volt meter 10V DC, Ammeter 200mA DC, Power Supplies: Operated on Mains power 230V, 50Hz ±10%, Components are mounted on the panels are: Solar Cell Unit (Mounted on Stand), Light Source (100W Bulb) Table Lamp, Load Control through Potentiometer, SALIENT FEATURES: Front panel built with high class insulated Printed Circuit Board sheet with well printed circuits and symbols, Fuse for Short Circuit protection, Instruction manual, Connections are brought out through 4mm Colored Sockets, Patch Cords 4mm.	1
20.	**To study a Wien bridge oscillator for given frequency using an op-amp. Wein Bridge Oscillator:** Complete with One Adjustable resistance knob (KΩ), One selectable Capacitance knob (.01, .047, .1) & output CRO knob, circuit diagram in front panel board, all 4mm connecting lids heavy base, manual & connecting lids etc.	1
21.	**To study the characteristics of a Bipolar Junction Transistor in CE configuration -** To draw the characteristics of a Bipolar Junction Transistor (BJT) in CE and CB modes Trainer kit - One DC 200µA Digital meter, One DC 200mA Digital Meter, Two DC 20V Digital meter, One Adjustable Regulated Power Supply – 0-2V/100mA, One Adjustable Regulated Power Supply – 0-10V/100mA with NPN transistor complete with heavy metal body, all 4mm connecting knob, with circuit diagram, manual & connecting knob, etc.	1
22.	**OP-AMP as integrator/differentiator trainer kit - OPAMP Trainer Kit -** One DC 20 voltmeter & one AC 20volt meter, DC power supply - ±12V, (selectable voltage - ±.05V, 0.1V,0.2V,0.3V,0.5V, 0.6V), Three each different Resistance value (1K, 5K, 10K), different capacitance value, (0.001µF, 0.01 µF,0.1 µF,1 µF,10 µF,100 µF,1000 µF), Potentiometer 10K – Potentiometer (DC offset null adjust), using IC – 741, inbuilt function generator (10 to 100KHz), frequency multiplier – 10, 100, 1K,10K , with bread board, heavy metal body, all 4mm connecting knob, with circuit diagram, manual & connecting knob, etc.	1

23.	**To measure the dielectric constant of a dielectric materials with frequency -** The total set up is complete with the following – **High Voltage Power Supply -** Input Voltage : 220V, ±5%,50Hz AC, Output Voltage : 0-600V DC, Voltage Resolution : 10V, Voltage Display : Analog, Short Circuit Current : 100µ Amp, **Power Supply 2-12V AC/DC,** Input Voltage : 220V, ±5%, 50Hz AC, Output Voltage : 2,3,4,5,6,8,10 and 12 V AC full wave rectified, unsmoothed and unregulated D.C., Overload protection : Resettable thermal trip, (a) **Dielectric Constant Kit -** Metal Rail : Metal sheet, L=350mm approx, Capacitor plate : Aluminium, 20cm x20cm (LxW), Capacitor plate : Aluminium, 28cm x 28cm (LxW), Glass sheet : 21cm x 21cm (LxW), Polystyrene sheet : 21cm x 21cm (LxW), Two way switch : 4mm socket, 3 nos., Capacitor : 0.01µF & 0.001µF, Spacer : PVC (1,2,3,4,6 mm), Switch : Push switch, (b) **Electrometer Amplifier :** Input Impedance : $>10^{13}$ohm, Input Current : ≤ 0.5pA, Output Voltage : upto +10V, Output Current : 5mA (Short circuit protected), Output impedance : ≤ 1 ohm, Supply Voltage : 12V AC, (c) **Digital Multimeter -** Digital Display : 3999(maximum), Model : MECO 801 Auto, Direct Current and Voltage measurement, AC Current and Voltage measurement, Resistance measurement, Frequency measurement, Capacitance measurement, Temperature measurement, Continuity mode, Diode measurement mode, Auto range mode	1
24.	**To study the PE Hysteresis loop of a Ferroelectric Crystal -** Technical Specification, Sample Holder, Digital Temperature Meter (0-600^{0}C), H.T Supply variable from 0 to 5000V, Inbuilt Voltmeter, Inbuilt heating arrangement, Inbuilt Fan, On board controls, Connecting Leads, Instruction Lab Manual, The complete unit is fitted in a wooden box	1
25.	**Resistivity measurement of a semiconductor (Ge) with temperature by gour-probe method (room temperature to 150^{0}C) and to determine its band gap -** Complete with the flowing : - (a) **Four Probe Power Supply,** Voltmeter Display : 3 ½ digit, 7 segment LED, auto polarity & decimal indication, Voltage Range : X1 (0-200.0mV DC) & X10 (0-2.00 VDC), 4mm socket, Current/Temperature Display : 3 ½ digit, 7 segment LED, Temperature Range : -10 to +200^{0}C @1^{0}C, Current Range : 0-20mA DC, 4mm socket, Oven Supply : 60V AC, Oven Connector : 5 Pin, DIN type, Input Voltage : 220V, 50Hz AC, Fuse : 1A, 250V, (b) **Oven -** Heating Element : 35 ohm, 75 Watt, Oven Supply : 60V AC, Oven Connector : 5Pin, DIN type, Connector Make : MX, Ambient Temperature : 50^{0}C, Fuse : 2A, Temperature Range : -10 to +200^{0}C, Lest Count : 1^{0}C, Length : 300mm approx, (c) **P-Type GE Crystal -** Crystal : Ge Water, P type, Crystal Size : 12x14x0.5mm, Resistivity :1~10Ω-cm, Oriental : <100>, (d) **Four Probe Crystal Housing -** Material : Steel metal, Nylon, Pillar: Spring loaded, Height can be adjusted using three screw mounted on top, (e) **Four Probe Cable, (f) Power Cord**	1
26.	**To determine the Hall coefficient of a semiconductor sample - Hall Effect Experiment - The total set up is complete with the following – (a) Hall Effect apparatus -** Coils : 500 turns, Coil Current : 8.5Amp (Max), Connection : 4mm safety socket, U Core : 150x130mm^2(LxH), 40x40mm^2 Cross section, I Core : Length =150mm, 40x40mm^2 cross section, Core material : Ferromagnetic, Base dimension : Ferromagnetic, Base dimension : 360x180x33mm^3 , Weight : 8.8Kg (Approx), (b) **Power Supply (20V,5A) -** Voltage : 0-20V DC continuously variable & stabilized, Voltage display : 3 ½ digit LED, Ripple : Less than 25mV, Overload : Current limiting protection, Current : 5A continuously variable, 10% to full rating,	1

	Current Display : 3 ½ Digit LED, Working Voltage : 230V AC, 50Hz single phase, (c) **Constant Current source -** Current Display : 0-20mA DC, Voltage Display : 0±200mV @0.1mV, Resolution : 10 micro amp, Current Adjustment : 10-turns potential meter, Power : 220V ±10% digit LED, Weight : 3Kg approx, (d) **Digital Gauss meter,** Range : 200 Gauss & 2K Gauss, Resolution : 0.1 Gauss at 0-200 Gauss, Offset : By Potentiometer to set ZERO, Display : 3 ½ Digit LED, Input Voltage : 220V ±5%, 50 Hz AC, Axial Hall Probe : InAs, **Liner (Screw Driver), Flexible Plug, Power Cord, GE crystal PCB,** Crystal : Ge Wafer, P Type, Crystal size : 6x7 x 0.5mm^3 (LxWxThickness), Resistivity : 1~10 ohms-cm, Orientation : <100>, Offset pot : Trim pot, Connection : 4mm safety socket	
27.	**To analyze elliptically polarized Light by using a Babinet's compensator -** The total setup complete with the flowing – (a) **Babinet's Compensator -** The instrument consists of two-round scales. One with index and the other vernier. The first scale (index scale) is for tuning the analyser into the azimuth. The second scale (vernier scale) is for measuring the degree of orientation of a wedge box. The wedges box contains two wedges cut in mutually perpendicular direction of optics axis in quartz. The long wedge is movable by means of a micrometer drum, with the help of which accurate reading of the movement is taken. Micrometer screw minimum reading 0.001cm. (i.e. Least count), (b) **Lamp House for sodium vapour lamp –** Aluminium metal box is round shap & mounted horizontally on a sturdy metal base. Box is provided with one slit fitted with iris diaphragm to control the intensity of light. Bulb holder & lead of finest quality are fitted in box to give you trouble free working for long life. This mount is suitable for 35W as well 55W lamp. Supplied without bulb & transformer, (c) **Sodium Vapour Lamp 35Watt**– **Transformer for Sodium Vapour Lamp** –	1
28.	**To determine the wavelength and velocity of ultrasonic waves in a liquid (Kerosene Oil, Xylene, etc.) by studying the diffraction through ultrasonic grating –** The total setup complete with the flowing – (a) **Ultrasonic Diffraction Unit Superior Model -** Consists of the following instruments – (1) High Grade Research Spectrometer 10" Deluxe Type : The cone bearings are of selected material and the upper and lower parts of the arms are turned and ground in one operation giving the most accurate alignment. Clamp for telescope and prism table are designed so that no strain cones on the cone bearings from clamping, thus avoiding any disturbance of the axial alignment, Scale 10" from lifetime brass scale, divided on the latest dividing machines. Accuracy of calibration within ±0.01%. Adjustment is provided to verniers for very fine opposition to the scale. The slit jaws are from stainless steel finely ground and the jaw movement is free of any spring action ensuring perfect parallelism at all openings, Finest achromatic objectives are used. Large aperture (32mm), Fine adjustment to the telescope and collimator tubes are provided laterally as well as vertically, Clamping devices are provided to lock the telescope and collimator after adjustment, The instrument is finished in a pleasing and practical finish & collimator fitted with special circular slit, 10" with brass scale with vernier reading 10 seconds, (2) R.F. Oscillator of higher frequency (1MHz to 8MHz)Digital type, (3) Liquid Tank, (4) Crystal with holder, (5) White Kerosene Oil, **(b) Sodium Vapour lamp 35Watt** – (1) **Transformer for sodium Vapour Lamp**, (2) **Lamp house for sodium vapour lamp** – Aluminium metal box is round shap & mounted horizontally on a sturdy metal base. Box is provided with one slit fitted with iris diaphragm to control the intensity of light. Bulb holder & lead of finest quality are fitted in box to give you trouble free working for long life. This mount is suitable for 35W as well 55W lamp. Supplied without bulb & transformer.	1