

optical method. Optical work 40mm dia plane mirror mounted on a metallic arc. The said arc mounted on aluminium metallic base having two fixed legs and a levelling screws.

BALANCES

12. Hydrostatic Balance

Hydrostatic Balance with brass pan, with fitting, steel Agate, Cap. 250 gms.

13. Spring Balance

Best Quality in Plastic Mount with having anodized Aluminium scale with Zero adjustment.

Cap. 100 gm
Cap. 250 gm
Cap. 500 gm
Cap. 1000 gm

14. Sprint Balance

Acrylic tubular Balance with Zero adjustment & handing ring and hooks for weight

Cap. 100 gm
Cap. 250 gm
Cap. 500 gm
Cap. 1000 gm
Cap. 2 Kg.
Cap. 5 Kg.

WEIGHT BOXES AND ACCESSORIES

15. Physical Weight Boxes

Superior quality having accurate brass weights in nicely polisted wooden box. Compete with forceps and fraction weight

Cap.: 1 mg to 50 gm
100 gm
200 gm
500 gm

16. Fractional Weight Set Physical

1 mg to 500 mg made from silver alloy, in plastic case.

SLOTTED WEIGHT

17. Slotted Weight Iron C.P.

Rust proof, set of five including hanger

- a) 10x5 gm total 50 gm
- b) 20x5 gm total 100 gm
- c) 50x5 gm total 250 gm
- d) 100x5 gm total 500 gm

18. Slotted Weight (Iron Black Painted)

Made from cast iron black painted. These sets of slotted weights particularly suitable for use with sonometers or applications where large load is required.

- a) 250x5 gm total 1250 gm
- b) 500x5 gm total 2500 gm
- c) 1000x5 gm total 5000 gm

19. Slotted Weight Brass C.P.

These slotted weights are precisely turned from brass rods, carefully adjusted and chrome plated. The flowing described slotted weights are set of five.

- a) 5x5 gm total 25 gm
- b) 10x5 gm total 50 gm
- c) 20x5 gm total 100 gm
- d) 50x5 gm total 250 gm
- e) 100x5 gm total 500 gm
- f) 200x5 gm total 1000 gm

THERMOMETERS

20. Hydrometer : Any Range

21. Aneroid Barometer (Wall Type)

An inexpensive Barometer for laboratories or home use, 4" Indian make wall type.

22. Aneroid Barometer (Demonstration Type)

This Barometer can be used to measure change in barometric pressure, demonstration type, Indian make

23. Maximum and Minimum Thermometer

For indicating the maximum and minimum temperature reached since the previous settings. This is the most economical and practical instrument to mount in or out of doors. the plastic scale has a large easy to read scales and numerals. Mercury filled tube on plastic scale with black graduations. Mounted on a superior quality wooden frame, deluxe quality.

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SPECIMENS FOR DENSITY AND SPECIFIC GRAVITY

40. Cylinder of Metals

Set of six different metals in cylindrical form for density in electrical and thermal experiments. The set consists one piece each of solid cylinders : brass, aluminium, copper, zinc, iron and lead. Three different sizes available are :
25x12mm
37x12mm
50x12mm

41. Cube of Metals

These metal blocks are intended for use as sinkers or for specific gravity measurements. Set of six different metals. The set consists one piece each of brass, aluminium, copper, zinc, iron and lead available in different sizes.
10mm
20mm
25 mm

42. Pendulum Bobs or Sphere (Set of Six)

Comprising a solid turned different metals sphere with a small hook for suspension. Set of six different metals. The set consists one piece each of brass, aluminium, copper, zinc, iron and lead. Available in three different sizes.
12mm
18mm
25 mm

VOLTAMETERS

43. Water Voltameter

With platinum electrodes instead of Eureka wire and Aluminium tube holder with two raduated glass tubes.

44. Copper Voltameter

It consist of three thick copper plates with brass terminals suspended on bakelite cover in plastic jar.

45. Hoffman Voltameter

For use in demonstration decomposition of water platinum electrodes are used for

electrolysis of water, Glass parts are made from corning glass.

ELECTROSTATICS

46. Gold Leaf Electroscope in Bell Jar

Gold Leaf provides high sensitive in this electroscope. The glass used has exceptionally good dielectric properties. Conducting strips on sides serve to discharge the leaf when charge be comes excessive. With aluminium collar and screwed in aluminium top, finished on a polished wooden circular base.

47. Gold Leaf Electroscope in Bell Jar

Same as above but with all parts of brass.

48. Proof Plane

For transferring small charges from one body to another. A nickel plate brass disk is mounted on insulated ebonite handle.

49. Pith Ball Pendulum

Two Pith ball suspended by silk thread to insulating stand approx height16 cm.

50. Conductors Set of Three Brass N.P.

An insulating stand on tripod base with hammertone finish, three different shapes of conduc-tors are provided in the set.
* Conical shaped conductor: Showing that the distribution of the static charge on a conductor depends upon the curvature of the surface.
* Hollow Sphere shaped conductor: Show that a charge resides on the outside of the conductor.
* Cylindrical shaped conductor : Showing that electrostatic charge is only on the outer surface of the conductor.

51. Blot's Apparatus

For showing that an electrostatic charge resides on the outer surface of a conductor by removing the outer surface leaving the body uncharged. It consists of a brass sphere N.P. and two removeable hemispheres with insulated handles,

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PLANT PHYSIOLOGY APPARATUS :

Apparatus for Osmotic and Imbibition Phenomenon

Apparatus for Root pressure

Apparatus for Transpiration of Water

Potometers

Apparatus for Respiration

Apparatus for Photosynthesis

Plant Growth Temperature and Electrical Phenomenon

Anthropological Instruments

Psychological Apparatus, Lab Materials

We also deal in :

Laboratory Chemicals, Glasswares, Maps,

Charts, Models & Geographical items

mounted on an insulated stand on tripod base, hammertone finish.

52. Electrophorous Brass N.P.

For production of electrostatic charges for electroscope experiments. A plated brass metal disc is mounted on ebonite fitted wooden base.

Size : 10 cm
12.5 cm
15 cm**53. Earth Inductor**

This is an improved form comprising a coil of different number of turns (500,1000 or 2000 turns) of 36 S.W.G. copper wire wound on an aluminium metal ring (150mm dia), A stop limiting rotation to 1800 of ring is provided with the help of a spring. The cradle supporting the coil of cast non-magnetic alloy 200x210 x 115 mm high may be placed either on its base or side so that the axis of rotation of the coil is either horizontal or vertical. Terminals for connections are mounted on the cradle supporting blocks.

500 turns
1000 turns
2000 turns
5000 turns**54. Oersted's Law Apparatus**

For observing the magnetic effects of a current flowing in a wire. Comprising a magnetic needle pivoted at the centre of a rectangular heavy gauge copper strips. Both the ends of the strips are pivoted with terminals. The frame is carried upon a rod mounted either on a circular wooden base or on bakelite base.

55. Ampere Rule Apparatus

Wire form, consists of a copper wire arranged in a wooden block so that field along the vertical as well as along the horizontal portion of the wire can be shown by small compass on iron filings with terminals supply without compass.

56. Barlow Wheel

A star shaped copper wheel, free to rotate

so that each tooth in turn passes between the poles of horse shoe magnet and at the same time makes contact with a small mercury trough in the wooden base. Disk adjustable vertically on metal pillar.

57. Magnetic Field Apparatus

To demonstrate the production of magnetic field by current flowing in a solenoid. A small wooden table supports a bakelite ring with three coils of enamelled copper wire of 5, 10 & 15 turns respectively connected to the terminals at the edge of the base.

CELLS & BATTERIES**58. Leclanche Cell**

Its higher e.m.f. 1.5 V and lower internal resistance, this cell will deliver a stronger current for short period of time than the Denial Cell. Charge porous pot with brass terminal having e.m.f. exactly 1.5 volts complete with thick Zinc Rod and Plastic Jar.

59. Danial Cell

This cell is steady & reliable and may used as open or close circuit works. It consists of zinc rod immersed in a very dilute solution of sulphuric acid in an empty porous pot which in turn, is immersed in copper sulphate solution. This cell consist of copper pot of approximately size 6"x4", empty porous pot and zinc rod. Superior quality.

60. Charged Porous Pot 150x50 mm having e.m.f. 1.5 volts.**61. Porous Pot Empty** For denial cell.**62. Copper Plate****63. Zinc Plate****64. Zinc Rod** with brass screw & brass terminal
A. 140x9 mm
B. 150x9 mm
C. 150x12 mm**65. Carbon Rod** 6" with terminal

66. Simple Cell For studying the construction and characteristic of a voltaic cell. It consists of copper plate, zinc plate and plastic jar but without solution.

67. Acid Accumulator
 A. 2 volts 20 AH on slow discharge
 B. 2 Volts 45 AH on slow discharge
 C. 6 volts 7 plates

68. Crocodile Clips
 With strong spring and clamping screw for wires. The shank will accept 4mm plugs.
.Pair

69. Battery Clips
 With wide jaws tooth and strongly sprung clamping screws for connecting wires.
.Pair

MAGNETISM

70. Bar Magnet, Alnico
 An excellent pair of Alnico bar magnets that are exceedingly strong for their size and will resist demagnetising conditions. North, South poles are permanently inscribed.
 Size: a) 37mm
 b) 50mm
 c) 75mm
 d) 100mm
 e) 150mm

71. Bar Magnet, Alnico
 Same as above but with routine quality.
 Size: a) 37 mm
 b) 50mm
 c) 75mm
 d) 100mm
 e) 150mm

72. Horse Shoe Magnet, Alnico
 Excellent, when high magnetic strength is required. These magnets will hold their force for a long time. Distance between the pole is 20 mm.
 Size: a) 50mm
 b) 75mm
 c) 100mm

73. Bar Magnet (Extra Strength, Alnico)
 A large Alnico Bar Magnet having a high magnetic force PARCO type.
 Size : a) 50mm
 b) 75mm
 c) 100mm
 d) 150mm

74. Electromagnet
 A coil is wound on each arm of a U shape bar of soft iron. The poles are 10mm in diameter and ends are ground quite flat to make good magnetic contact with iron armature. It will operate on one or more dry cells.
 Size : 4"
 6"

75. Magnetic Compass (18 mm dia)
 Case of 18 mm dia with a glass bottom and top. The needle is 12 mm long and sufficiently sensitised to give excellent result.

76. Magnetic Compass (25 mm dia)
 The needle is well balanced, mounted in an aluminium case with glass top & dial.

77. Magnetic Compass (37 mm dia)
 The needle is well balanced, mounted in an aluminium case with glass top & dial.

78. Magnetic Compass (50 mm dia)
 The needle is well balanced, mounted in an aluminium case with glass top & dial.

79. Magnetic Compass (100 mm dia)
 The needle is well balanced, mounted in an aluminium case with glass top & dial.

80. Mariner Compass
 Gimbol on stand with floating dial.

81. Magnetic Needle Stand
 For magnetic needles with metal base and Aluminium rod of 6 mm diameter.

82. Magnetic needles
 Highly magnetised, with accurate brass center having low friction. 75 mm

f) 605 x 605 x 605 14,000.00 24,000.00
 g) 910 x 605 x 605 23,000.00 37,000.00
 h) 900 x 900 x 900 36,500.00 58,400.00

Optional Accessories:
 i) Air circulating fan.
 ii) Timer 0-24 hours.
 iii) Digital temperature indicator.
 iv) Digital temperature indicator-cum-controller.
 v) Imported Thermostat
 vi) PID Microprocessor Indicator Cum Controller. **P.O.R**

B.O.D. Incubator: Unilab RH-178
 Inner Chamber Size in mm.

	cuft	Al	SS
A) 455x410x610	4		
B) 505x415x830	6.1		
C) 565x565x865	10		
D) 650x580x900	12		
E) 700x640x900	15		

Optional Accessories:
 i) Carbon Dioxide mixer nozzle
 ii) Timer 0-24 hours day night cycle.
 iii) Digital temperature Indicator-cum-controller.
 iv) Automatic Voltage Stabilizer

883. CHEMICAL BALANCE : 'NATIONAL' MAKE

	Capacity	Sensitivity
a) Gunmetal Beam Sunmica Base	200kgs	1/5mgm
b) Gunmetal All Parts are Nickilled	200kgs	1/5mgm

884. ANALYTICAL BALANCE : 'NATIONAL' MAKE

	Capacity	Sensitivity
a) Magnesium flat beam sunmica base	200kgs	1/10mgm
b) Gunmetal flat beam Bunge	200kgs	1/10mgm

type sunmica base
 c) Air damping 200kgs 1/10mgm device (Triangular beam Sunmica base)

885. ANALYTICAL CHAINOMATIC : 'NATIONAL' MAKE

	Capacity	Sensitivity
a) Analytical chainomatic Balance sunmica base	200kgs	1/10mgm
b) Air damping device type sunmica base	200kgs	1/10mgm
c) Air damping device with Rider facility (0.1gm to 1gm)	200kgs	1/10mgm

Also Available

886. Bouins Fixed Materials

Charts; Laminated, Bio-Visual, Rexine, Pharmacognosy, Pathology
 Classwork Materials
 Collection Set
 Dissection Animal Preserved
 Display Specimens
 Educational CDs
 Imported and Rare Specimens
 Life Histories
 Micro Models (in Acrylic Cover)
 Imported Human Skeletons and Models
 Imported 3D Human Models
 Photographs of Famous Scientists
 Plastic Embedded Specimens
 Specimen in Jar
 Slides :- Prepared
 Skeleton :- Disarticulated and Articulated
 Storage Accessories for Dissection Animals
 Video Cassettes (Educational)

878. HOT PLATES : UNILAB

Hot Plate Round RH-156
A. Hot Plate Round Single Dia 8"

B. Hot Plate Round Double Dia 8"

Hot Plate Rectangular RH-158
Specification as above but plates is rectangular in shape. Following standard sizes are available:

- i) 300x250mm
- ii) 400x250mm
- iii) 450x300mm
- iv) 600x450mm

Optional Accessories: (Extra)

- a) Energy regulator.
- b) Digital temperature Indicator cum-Controller.

c) PID Microprocessor Indicator Cum Controller **P.O.R.**

Slide Warming Table RH-160 Standard sizes available.

- a) 300x250mm
- b) 400x250mm.
- c) 450x300mm

AUTOCLAVE : UNILAB

Autoclave Laboratory (Portable) RH-/62
Sizes :Dia x height in mm:

- a) 300 x300
- b) 300 x 375

879. Autoclave (Vertical) RH-163

Chamber Size mm
450x600 Double Wall
450x600 Triple Wall

880. Autoclave (Horizontal) RH-164H. High Pressure Autoclave Chamber Size mm.

- c) 400x11 00 156 ltr.

881. OVENS : UNILAB

Hot Air Universal Oven (Memmert Type)
RH-171

Chamber Size in mm

Al SS

- a) 300x300x300
- c) 350x350x350
- d) 400x400x400
- e) 450x450x450
- f) 600x450x450
- g) 600x600x600
- h) 910x605x455
- i) 910x605x605
- j) 900x900x900

Optional Accessories:

- i) Air circulating fan.
- ii) Timer 0-24 hours.
- iii) Digital temperature Indicator.

iv) Digital temperature indicator-cum-Controller.

v) Imported Thermostat

vi) PID Microprocessor Indicator Cum Controller **P.O.R.**

Drying Oven RH-173

Chamber sizes in mm.

- a) 900x600x600
- b) 1200x900x600
- c) 1500x900x600
- d) 1800x1200x900

Optional Accessories: (Extra Cost)

a) Digital temperature indicator-cum-controller.

Hybridization Oven RH-176,

Inside of Stainless Steel, temperature controlled by PID Controller

882. INCUBATORS : UNILAB

Incubator Bacteriological (Memmert Type)
RH-177

Chamber sizes in mm.

Al SS

- a) 300 x 300 x 300
- b) 350 x 350 x 350
- c) 400 x 400 x 400
- d) 450 x 450 x 450
- e) 600 x 450 x 450

83. Vibration Magnetometer

Consisting of a superior quality polish wooden box having sliding glass doors. The top of wooden box is slotted and carries a glass tube fitted with simple torsion head to support by means of a silk fibre, a strip holding magnet etc. Complete with one bar magnet and one brass bar. All metal parts are manufactured from superior quality brass alloy. Size: 4".

84. Deflection Magnetometer (superior quality)

A highly sensitive compass box is mounted of the centre of a non-magnetic wooden base about one meter long, a metric scale extending outward from each side of the compass box for observing the position of the magnet tested. The compass direction is indicated in degrees. Its dimension 40"x5" with cup at the centre for holding compass box. Supply with Compass Box.

85. Tangent Galvanometer

It consist of a bakelite moulded ring 170 mm dia, with three sets of winding either 2,50 & 500 turns or 2,5 & 50 turns (depending upon the requirement) respectively with carefully insulated, connected to a heavy brass terminals. The number of turns clearly marked between the terminals. The ring is mounted in pivoted round bakelite base which rotates on a aluminium tripod base fitted with three brass levelling screws. The high sensitive compass box is mounted on a substantial brass pillar and is free to rotate upon it. The compass is 5" in dia and has a scale graduated to single degrees. Overall height is approx. 9". All brass part are chrome plated.

86. Tangent Galvanometer

Same as cat No. 141, Aluminium parts instead of Brass parts. Routine quality.

87. Helmholtz Galvanometer

It consist of two equal coaxial coils (parallel to each other) separated by distance equal to the radius of the coils. The magnetic

compass is pivoted on the brass cup at the midway between them and the same current is passed through the coils in the same direction. The coils increase the uniformity of the field at the middle and thus make it more sensitive. Supplied with superior quality Magnetic Compass box.

88. Stewart & Gee Apparatus

It consists of a circular frame made from non-magnetic silver aluminium alloy. An insulating copper wire wound on the frame. The ends of the wires are connected to the terminals, which are fitted on the superior quality wooden board. A rectangular frame made from aluminium rods is supported on wooden board. Aluminium rods are graduated upto 50 cms on both sides. Superior quality magnet compass box moves in a platform made from aluminium silver alloy. This platform moves on the rectangular frame along the axis of the coil. The compass is so arranged that centre of the magnetic needle lies on the axis of the coil. Supplied with superior quality compass box.

89. Compass Box

For deflection magnetometer or tangent galvanometer Comprising a bakelite moulding case with aluminium dial graduated 0-900 four times. The magnet with aluminium pointer is provided of the centre on the jewel so as to move frictionless.

90. Compass Box

Same as above but routine quality.

91. Dip Circle Standard

Heavy and sturdy construction, comprising an extra sensitive needle mounted on practically frictionless bearing and moving in vertical plane over an engine divided circular scale, enclosed in duco painted metal case, fitted with hardened steel pivot.

92. Dip Circle Standard

Deluxe model with superior fittings and lifting arrangement to stop the needle movement when not in use, with the help of a lever screw.

- 93. Electrical Demonstration Bell**
All parts clearly visible rigid construction to show the connections on vertical stand.

INDUCTION COILS

94. Induction Coils

This coil, specially designed for school, use in suitable for vacuum tubes, eudiometer etc. It is wound with insulated copper wire, has tungsten contacts and on/off reversing switch commutator. Voltage tested condensers are fitted inside the teak polish wooden box. The top of the wooden box is provided with sunmica and relevant data engraved on the sunmica. Terminals are provided for H.T. output and L.T. input of the coil. Upto 50mm spark being obtained with 4 to 6 volt D.C. input and spark from 50 to 100mm can be obtained by 6 to 12 volt D.C. input. Length of Spark
(a) 5 mm
(b) 10mm
(c) 15mm
(d) 20mm
(e) 25mm
(f) 50mm
(g) 75mm
(h) 100mm.

95. Anchor Ring

This consists of a specimen of iron in a ring form wound with two uniformly spaced coils of wires. Soft iron ring of dia. 75mm and cross sectional dia is 9mm. The primary winding consists of 220 turns of insulated copper wire of proper gauge with binding post terminals and secondary winding consists of about 25 turns of fine wire.

96. Self Inductance Coils

It consists of 3000 turns of copper wire, on base with adjustable soft Iron core.

97. Induction Apparatus

Improved Form with a lamp and automatic make and Break arrangement. Lamp is lighted by induced current effect with Lamp mounted on teak base.

- 98. Induction Coil:** To be used with Kohlraush Conductivity Bridge.

99. Self and Mutual Inductance Coils

Primary 3000 turns and Secondary 1000, 2000 & 3000 turns. It is mounted on wooden base.

100. Self and Mutual Inductance Coils

Primary 500 turns and secondary 100, 250 & 500 turns, bobbin dia 10 cms.

101. Solenoid Model or Helix

A coils of copper wire mounted on Iron core on stand with terminals to demonstrate electro magnetic effect.

102. Solenoid:

20 turns per cm length of size 50 cms, mounted on base. Copper wounded on pipe.

103. Solenoid Inductor

A useful instrument for calibrating a ballistic galvanometer. Primary coil has 1000 turns & is about 100cm long fitted on wooden board. Secondary coil has three tappings of 100, 250 and 500 turns.

104. Solenoid Inductor

Pye type: Length 25 cm Dia 10 cm. Primary coil has 200 turns and secondary has 20 & 200 turns mounted on base.

105. Induced Current Apparatus

Primary & Secondary coils are wound separately with iron core.

TICKER TAPE TIMER

106. Ticker Tape Timer

It comprises of a spring mounted steel vibrator arm which carries a contact connected in series with a solenoid. The free end of vibrator carries a making point which strikes the paper tape through a disc of carbon paper thus making the tapes once for each oscillation. It works on 12 volt, 500 mA A.C. power supply. Complete with one dozen round carbon papers and roll of paper strip.

for use by student for general experiments. Drive mechanism consists of constant speed electric motor and accurate Gear-Box contained in the base together with robust clutch plate. 6" dia main cylinder & ball bearing movement S.S. Spindles. The following speeds with 6" dia cylinder. are Obtained: 0.12, 0.25, 1.25, 2.5, 12.5, 25, 320, 640 mm per sec.

Kymograph Accessories 1

Muscle Twitch assembly: Consisting of 8 Items:

1. Electrical Recording Drum 8 speeds
2. Myograph with lever
3. Adjustable stand S.S. Upright
4. Drum paper clip Brass
5. Tuning fork N-100
6. simple electrode with connectors
7. Dubois Reymond Key with table clamp
8. Electronic Stimulator 220v. 50Hz. A/C.

Accessories Set 2 (including Kymograph)

Dubois Reymond Induction Call	1
Drum paper Clips	2
Nerve Muscle Chamber	1
Adjustable Stand	1
Open Sided X-Blocks	1
Dubois Reymond Key	1
Simple Electrode	1
Hook & Weight Set 11 gm	1
Frog Heart Clips	2
15 Cm Capillary lever with Writing Point	3
Power Supply for Induction Coil	1
Crank Myograph	1
Starling Heart Lever	1
Standard X-Blocks	2
N-100 Tuning Fork	1
Press Contact Key	1
Hook & Weight Set 11gm	1
Muscle Grip	1

872. ORGAN BATH : UNILAB

Student Organ Bath: RH-124.
Bath Chamber made out of thick Transparent

acrylic sheets, chemically welded to make them leak proof. The chamber is measuring 9"x6"x8" and is fitted on a metallic stand. Bath temperature is thermostatically controlled with sensitivity 0.1 deg C. A compact control panel has been provided with independent switches for mains, stirrer and heater. Bath consists of an electric stirrer and complete set of accessories such as two sets of glass inner vessels, oxygen tubes, warming coils, fix it levers, X blocks, four stainless steel upright with boss heads Student Organ Bath (Double Unit): RH- 125 Same as above but Bath size 12" x9" x8"

CENTRIFUGAL MACHINES : UNILAB

873. Centrifugal Machine Electrical RH-142.

- A) 4x15 ml. Tubes.
- B) 6x15 ml. Tubes.
- C) 8x15 ml. Tubes.

Optional Accessories:

Automatic 0-60 minutes timer.
Clinical/Medico Centrifuge RH-143
Conical body.
A) 4/6/8 x 15 ml. Tubes.
B) 4/6/8 x 15 ml. Tubes. With ball bearing & C.R.C Motor

874. Centrifugal Machine, Hand RH-144

- A) 2 Tubes
- B) 4 Tubes.

875. Laboratory Centrifuge Machine RH-148, with timer

- a) 14/6/8 x15 ml. Tubes.
- b) 112/16 x15 ml. Tubes.

876. Centrifuge Non- Refrigerated: RH-149, 5500 RPM

- a) 16 Tubes x15 ml.
- b) 12 Tubes x15 ml.
- c) 8 Tubes x15 ml.

877. Centrifuge Refrigerated: RH-150, 20,000 RPM

- a) 8 Tubes x15 ml.
- b) 12 Tubes x15 ml.

Eyepieces:- Spare SWF 10x or 15x or 20x (paired)

Auxiliary Objective:- Extra 0.5x or 2x attachable below main objective

868. **INVERTED TISSUE CULTURE MICROSCOPE : UNILAB**

Inverted Binocular Microscope: Model RH-115:

Heavy & sturdy base, Binocular head assembled from coated prism. Quadruple revolving nose-piece. Coarse & graduated slow motion. Large stage with extension plates, Two stage clips to hold specimen upto 40mm. Removable central insert gives 65mm dia stage aperture. Koehler's illumination by a 6V-20W halogen bulb Complete with lens cleaning paper, eye-guards & other standard accessories. In a Thick & attractive plywood box.

Eyepieces-Achromatic 10xW/F (paired). Objectives:- 5x, 10 x, LWD 20x & LWD 40x.

Inverted Trinocular Microscope: Model RH-116:

Same as Model RH-114, but trinocular head instead of binocular.

869. **METALLURGICAL MICROSCOPE : UNILAB**

Binocular Metallurgical Microscope: Model RH-105:

Binocular head inclined at 45°, moveable to 360°. Bright field, Incident light through epilluminator with centering provision having an Iris-diaphragm & a slot for filters. fixed co-axial mechanical stage. Illumination by 6V-20W built-in base, Supplied with all accessories. In a thick & attractive plywood box. Eyepieces: W/F 10x & Huy 5x (Paired). Objectives: M5, M10, & M40 all achromatic & suitable for Metallurgical micros copy.

Trinocular Metallurgical Microscope: Model RH-106:

Same as our model RH-105 but with trinocular head instead of binocular. Accessories For Metallurgical Microscope:

Micrometer Eyepiece: With 10mm scale divided into 100 parts.

Grain Size eyepiece: W/f 10x with grain size

Achromatic Objectives: 20x objective optional.

870. **MICROTOMES : UNILAB**

Rotary Microtome (Erma Type) Model GE-68

Heavy cast iron base with entire mechanism covered with a heavy cast iron protective dust cover. Microtome has a feed range of 1-25 microns in steps of one micron. Supplied with accessories such as razor 20mm with back & handle in a box, honing stone, 3 object holders, oil can and dust cover.

Rotary Microtome (Spencer Type) Model GE-70

A more accurate & reliable sectioning device. The independent feed mechanism works on Com System for accurate feed setting from 1-50 microns in steps of one micron. Supplied with accessories such as razor 120mm with back & handle in a box, honing stone, 3 object holders, oil can and dust cover. Optional Accessories: Razorspare for above.

a. Made of carbon steel

b. Made of Stainless steel

Automatic Razor Sharpener : Model RH-72 For sharpening microtome knife. Provided with one hour timer with steps of 5 mins. Supplied complete with two grades of emry powder, dust cover etc.

871. **KYMOGRAPH : UNILAB**

Kymograph: Model RH-120 Electrically driven recording drum suitable

DYNAMOS AND MOTORS

107. **Dynamo A C** On nicely polished wooden ply board, with driving wheel & bulb.

108. **Dynamo D C** On nicely polished wooden ply board, with driving wheel & bulb.

109. **Dynamo A.C. & D.C.** Model with driving wheel, with reversing switch & bulb.

110. **Electric Motor** Heavy pattern with Newton's colour disc, workable on 4-6 volts.

111. **Demonstration Motor & Generator** One Armature with permanent magnet.

PLUG KEYS AND SWITCHES

112. **Plug Key**

Superior Quality but heavy brass block of 10.5 mm with Brass Pache.

1 way

2 ways

3 ways

4 ways

6 ways

113. **Plug Key Commutator**

4 ways circular with all brass parts on base.

114. **Tapping Key**

Single contact, brass stripand terminals. Mounted on bakelite base.

115. **Tapping Key**

Double contact: Two strips of brass and mounted on base.

116. **Charge and Discharge Key**

Brass strips with insulated knob and terminals are fitted on bakelite base, quick action with silver contact.

117. **Releigh's Key**

For self induction with all brass parts on bakelite base.

118. **Pohl's Commutator**

On bakelite base with brass parts fitting.

119. **Reversing Switch**

On bake lite base with brass parts fitting.

120. **Double Pole Double Throw Switch**

Fitted on Bakelite base.

121. **Morse Key**

VARIOUS TYPE OF WIRES

122. **Copper Wire Bare (Wound on Plastic Tares)**

100 gm packing

123. **Copper Wire Double Cotton Covered (D.C. C.)**

These wires are used for connections in various electrical and electronics experiments. 500 gm packing

124. **Constantan Wire Bare**

A Copper-Nickel alloy of low temperature coefficient suitable for many resistance measurement. 100 gm packing

125. **Nichrome Wire**

A Nicek-Chromium-Iron alloy specially suitable for high temperature applications such as heating elements and rheostats etc. 100 gm packing

126. **Manganin Wire**

A alloy of Magnese, Nickel and Copper having a low temp. coefficient. This wire is particularly suited to the construction of resistance coils etc. or any application where accuracy of ohmic value is the important factor and electrical loading is low. 100 gm packing

127. **Brass Wire**

Used either for Sonometer or Young Modulus Apparatus. Supplied in 100 gm pack. Anyone single range.

128. **Steel Wire**

Used either for young Modulus or Sonometer, 100 gm Pack.

RHEOSTATS SLIDE WIRE (OPEN TYPE)

129. The bakelite or aluminium moulded support tight the pipe on each side with rod and nuts. Pipe are made from special porcelain. The guide rod carrying contact block is tightened with screws to the projection of the supports. The sliders are provided with Phosphorous0Bronze contact. These have double contact system and move perfectly smooth on the sliding rod. Three brass terminals are provided. One terminal bring connected to the sliding contract and the other two to the ends of winding enabling the unit to be used as a rheostat or potentiometer. The layers of electrically oxidised Eureka wire wound on insulating heat resistance porcelain pipe according to the length required. Total resistance and max. current capacity is marked on the sliders.

4.3 cms Tube dia - wound on Porcelain Pipe with Eureka wire Rheostats in single tube.

Tube Length :

15 cm (6") Resistance in Ohms
(Per Tube)

20 cm (8")	do
25 cm (10")	do
30 cm (12")	do
35 cm (14")	do
40 cm (16")	do
45 cm (18")	do
50 cm 20")	do
55 cm (22")	do
60 cm (24")	do

N.B.: While placing order please mention the Resistance (in Ohms)

130. Carbon Contact Rheostats

In these Rheostats the slider carries a carbon contact, which makes gentle and soft contact with the resistance wire, at an extra cost.

RESISTANCE BOXES PLUG TYPE

131. In plug type resistance box the contact between plug and socket is the most important feature affecting reproducibility of results. We use tapered brass plug and split block. This is the best form of contact but is expensive to make. Since it requires accurate machining to ensure interchangeability (i.e. plugs and lugs are cut to a fine taper and are interchangeable). The plug heads are machine moulded of heavy insulated bakelite in beautiful shape. Selected double cover Eureka or Manganin wire is wound on the bakelite spool. Sufficient heat treatment is processed through to avoid any appreciable shifting of values. The coils are mounted lower side to an insulating panel with the help of threaded brass leads and connected across the gap between the heavy brass blocks which are mounted on the panel. The top panel is provided with two heavy type brass terminals. The coils are clearly marked on the panel. The case is of teak wood.

Resistance Boxes

- .1 to 1 or 1 to 10 ohms
- .1 to 5 or 1 to 50 ohms
- .1 to 10 or 1 to 100 ohms
- .1 to 50 or 1 to 500 ohms
- .1 to 100 or 1 to 1000 ohms
- .1 to 500 or 1 to 5000 ohms
- .1 to 1000 or 1 to 10000 ohms

RESISTANCE BOXES DIAL TYPE

132. Resistance Boxes Dial Type Decade Resistance Boxes incorporate latest design switches so as to ensure low contact resistance. The moving contacts are constructed from phosphor-bronze lamination to ensure long life and repeatability of results. Eleven position switches are employed. An insulating panel of bakelite enclosed in a elegantly polished teak wood box. Resistance Coils are non-inductively wound properly varnished and aged for permanence of values over a long period.

A. 60" X 60" or 52" X 72" (Routine Quality)

B. 60" X 60" or 52" X 72" (Non reflective Projection Cloth).

866. Projection Screen (Map Type) For hanging on the wall

A. 60" X 60" or 52" X 72".

B. 60" X 60" or 52" X 72" (Non reflective Projection Cloth).

(Instalock Pull out & Motorised screen can also be supplied on specific requirements)

Transparencies: Duly mounted in cardboard.

App. size 11 "x14"

a. Hand Coloured

b. Fully Process Coloured

Transparencies making kit:

Useful kit for the users for making their own transparencies. Packed In a carrying case.

Laser pointer : A very compact pen type laser pointer for pointing the subject matter on the screen, range 1 00 feet, dual effect.

867. STEREOSCOPIC MICROSCOPES : UNILAB

Stereo Binocular Microscope: Model GE-76
Straight Binocular Head, Eyepieces: 10x or 15x W/F paired, Objective: Fixed 2x or 3x or 4x paired, in plywood box.

Stereo Binocular Microscope: Model GE-78:
Same as above but Binocular Head Inclined at 45° instead of straight one.

Stereo Binocular Microscope: Model GE-79
Same as GE-7 8 but stand pole type and extension pillar, lockable at any position
Eyepieces: 10 x or 15x W/F paired, Objective: Fixed 2x or 3x or 4x paired, in plywood box.

Stereo Binocular Microscope: Model GE-80:
Inclined Binocular Head, two sliding objectives, Trans-illumination base for reflector illumination. Eyepieces: 10x or 15x W/F paired, Objective :Fixed 2x 4x or 3x , 5x paired, in plywood box.

Stereo Binocular Microscope: Model GE-80B:

Same as GE-80 but with built in light and transformer base instead of reflector base.

Advance Stereo Binocular Microscope: **Model GE-82**

Inclined Head rotatable to 360° which can be locked at any position. Turrettype objective changer. Built in illumination for incident (Epl) and substage (Transmitted) light. Eyepieces: light, Eyepieces : 10x or 15x W/F paired, Objective: Fixed 2x 4x or 3x or 5x paired, in plywood box.

A. Same as above. On Pillar type stand, adjustable height, without light.

Optional accessories:

Eyepieces:- Spare 10 x or 15x paired for **Model GE-82**

Eyepiece:- Spare 20x paired.

Stereo Zoom Binocular Microscope: Model **GE-84:**

Built-in transmitted & Incident light. Fine focusing by rack & pinion motion. Binocular Head Inclined at 45° and rotatable to 360°. 6V-20 W Halogen bulb through solid state Transformer. Eyepieces: SWF 10x paired, Zoom Objective: 1x to 6x or 0.7x to 4x. Magnification: 10x to 60x or 7x to 40x, continuously variable.

B.Imported Stereo Zoom Binocular microscope instead of UNILAB

Stereo Zoom Trinocular Microscope: Model **GE-86:**

Same as Model GE-84 but with Trinocular Head Instead of Binocular.

B. Imported Stereo Zoom Trinocular Microscope instead of UNILAB

Optional Additions: (For Stereo Zoom):

Dark field attachment with jewel clamp for testing of jewels.

859. OVERHEAD PROJECTORS : UNILAB

Model RH-131 :

24V-250W halogen bulb illumination. Equipped with good quality double Fresnel lens to ensure optimum brightness & most efficient cooling system. Working stage 250mm x 250mm. focusing by rack & pinion. With all accessories: Nicely packed In Styrofoam packing Inside a sturdy cardboard box.

1. With single bulb.
2. With twin bulbs, (for Interruption free presentation)

Model RH-132:

Same as Model RH-131 but with better quality fresnellens, & with micro switch for current cut-off when stage of projector is open.

1. With single bulb.
2. With twin bulb, (for interruption free presentation).

Model RH-132D:

Same as Model RH-132 but very lightweight ABS body & attractive outlook. Twin bulb.

Model RH-134:

Same as our model RH-132 but with superior & large fresnellens A4 size. Working stage area is 285 x 285mm. Single element lens system, with twin bulb.

Model RH-134D:

Same as our model RH-134 but with very light weight ABS body & attractive outlook. Lens system triplet varifocal for a very good projection.

Model RH-136: Portable Overhead Projector A very compact & light weight Over Head Projector which can be folded to be kept In a carrying case for easy portability.

860. LCD PROJECTOR

Imager 0.55" Active matrix poly silicon TFT

(x3), Resolution: 800x600 pixels (SVGA) Brightness: 100 Lumens, Colours: 16.7 millions. Zoom Lens: 1.2: 1 zoom ratio Screen Size:30" (minimum) to 300" (maximum), Lamp: 130/132 Watt UHB Lamp Life: 2000 Hours (3000 hours in whisper mode) Power : 200-240V AC, 50-60Hz Cordless Remote Control, electronic Keystone Correction Zoom and Focus. Three input channels for simultaneous connections of one computer and two video signals Intelligent image scaling technology for SXGA, XGA, VGA resolution and video. Height adjustment knobs. (These are tentative prices. Please confirm before giving quotations).

PROJECTOR ACCESSORIES : UNILAB

861. Overhead Projector Stand:

Metallic stand with adjustable height, having sturdy platform, on which the projector can be kept while using.

862. Overhead projector trolley:

Fabricated out of laminated board. Cupboard with lock on one side where O.H.P. can be kept when not in use. Wheels for easy movement. Fitted with electric points.

863. LCD Projector Stand: Fabricated out of iron pipes duly powder coated. Sufficient space for LCD projector & Laptop. Wheels for easy movement.

864. Projection Screen (Tripod Model) Deluxe: Projection screen with tripod stand and steel metal housing with automatic spring roller system.

A. 60" X 60" or 52" X 72" (Routine Quality)

B. 60" X 60" or 52" X 72" (Non-reflective Projection Cloth).

865. Projection Screen (Wall and ceiling model) Deluxe:

Equipped with a wall mounting designed metal housing automatic spring roller system.

CONTACT RESISTANCE: Contact Resistance per decade is of the order of 0.0015 ohm.

Range	Total Resistance	C/M Coils
Single Dial		
a) Tenths	1	
b) Units	10	
c) Tens	100	
d) Hundreds	1000	
e) Thousands	10,000	
Two Dials		
a) Tenths and units	11	
b) Units and tens	110	
c) Tens and hundreds	1100	
d) Hundreds and thousands	11,000	
Three Dials		
a) Tenths, units and tens	111	
b) Units, tens and hundreds	1110	
c) Tens, hundreds and thousands	11110	
Four Dials		
a) Tenths, units, tens & hundreds	1111	
b) Unit, tens, hundreds & thousands	11110	
Five Dials		
a) Tenths, units, tens hundreds, thousands	11111	

For 0.01 and 10,000 ohms dial
Extra Rs

133. Resistance Boxes Dial Type

Accuracy 1 % made with Metal Film Resistance

Single Dial

Two Dials

Three Dials

Four Dials

Five Dials

Please mention the value of decade while sending the order.

Any other decade can be supplied on request.

POST OFFICE BOXES PLUG TYPE

The 3-Ratio P.O. Box has sixteen non-inductively wound coils 1, 2, 2, 5, 10, 20, 20, 50, 100, 200, 200, 500, 1000, 2000, 2000, 5000 ohms and two proportional arms each with coils of 10,100 and 1000 ohms. The 4-Ratio P.O. Box has sixteen coils as above and three proportional arms each with coils of 1,10,100 and 1000 ohms. Also incorporates infinity gap. Heavy superior quality double brass terminals are provided and panel is clearly engraved with the nominal resistance values. Two spring keys having good contact for battery and galvanometer is also provided. The whole system is contained in a superior quality teak wood box.

134. P.O. Box 3-Ratio (C/M Coil) Superior Quality

Consisting of 12mm thick rectangular brass block and coils are wound with constantan coil having accuracy within $\pm 0.1\%$ Rest specifications are same as above.

135. P.O. Box 4-Ratio (C/M Coil) Superior Quality.

Consisting of 12 mm thick rectangular brass blocks. Constantan coil, Accuracy $\pm 0.1\%$ Rest specifications are same as described above.

POST OFFICE BOX DIAL TYPE

136. Post Office Box 6-Dials (C/M Coil)

With 6-decades, four series dials for resistances 1,10,100 & 1000 ohms and 2 ratio dials. Two terminals used the series dials as an ordinary dial type resistance box. The galvanometer and battery key are fitted with contacts. Range of measurement is .001 to 1,11,10000 Coils are non-inductively wound with constantan wire. Accuracy 0.1%B. grade.

RESISTANCE COILS

137. Resistance Coils Constantan

a) In bakelite case

b) Transparent case (Parco type)

138. High Resistances

Enclosed in bake lite tough case, with terminals and short circuiting plug. Any single value 1 k, 2k, 5k, 10k or 15k ohms.

139. High Resistances

Wire wound enclosed in bake lite tough case with terminal on top. Any single value.

140. Resistance Coils in Series and Parallel

Fitted with three Resistance coils and two meters. One voltmeter and One Ammeter for taking independent readings.

141. Precision Resistance Standard

Range 0.01 Ohms to 100 Ohms (Any value) With Aluminium Cup

D.C. MOVING COIL PANEL METERS

142. Moving coil meters are of high quality, confirming to IS 1248 - 83 ans BS 89 - 54 specifications. All the meters are fitted with ALINCO high flux density magnets and maximum torque weight ratio movements. The special feature includes snow white deals, clear linear scales, dust proof cases and elegant shapes.

Range	Rectangular
a) Ammeters 0-1, 1.5, 3, 5, 10 15, 20, 25 A	
b) Milli Ammeters 0-1, 5, 10, 50, 100, 250, 500 mA	
c) Micro Ammeters 0-250, 300, 500uA 0-100, 150, 200uA 0-50, 0-25 uA	
d) Voltmeters 0-1, 3, 5, 10, 15 25, 50, 100, 150 250, 300 V	
e) Milli Voltmeters 100, 250, 300 500 mV 0-25, 30, 50 mV	

- f) Galvanometers
30-0-30 div scale
20 uA per div
2 uA per div
- g) Galvanometers
30-0-30 Scale
20uA per div

A.C. RECTIFIER TYPE PANEL METERS (MOVING COIL)

- 143. Range** **Rectangular**
- a) Ammeters
0-1, 1.5, 3, 5, 10 A
15, 20, 25 mA
 - b) Milli Ammeters
0-1, 10, 50, 100,
250, 500 mA
 - c) Voltmeters
0-5, 10, 15, 25, 50
100, 150, 250, 300

A.C./D.C. MOVING IRON PANEL METERS WITH DESK STAND

- 144. (a) Ammeters :** 0-3, 5, 10 Amps.
(SO 65) 3" size
- (b) Milli Ammeters:** 0-100, 250 and 500 mA.
(SO 65) 3" size
- (c) Voltmeters:** 5,10,50,100, 300 Volts
(SO 65) 3" size
- 145. Ohm's Meter**
A fine instrument for reasonably accurate and quick measurement of unknown resistance. Comprising of rectangular meter, a zero adjustor and also an internal cell of 1.5 volts.
Low Range 0 - 25 ohms
High Range 0 - 2K ohms
- 146. Ohm's Law Apparatus**
To verify ohms law: A wire wound potentiometer fitted on board with one milli ammeter, one voltmeter and schematic diagramme. Battery operated 4-6 volts with sunmica top.

- B. Trinocular dual observation head for simultaneous viewing by two persons, as well as for taking photographs. Complete with two pairs of 10x LKW Eyepiece.
Sidentopf Head: Inclined at 30 deg for more comfortable viewing.
Dual Observation Monocular Tubes: for simultaneous viewing by two persons through monocular tubes.

856. POLARISING ATTACHMENT

Polarising Attachment: consisting of a polariser , analyser & a wide field Eyepiece.

857. PROJECTION MICROSCOPES : UNILAB

Model GE-62:
Projection Microscope: with separate screen 15mm or 6" dia, on inclined microscope. Attachable Mechanical Stage, 6V-20W Halogen lamp, Eye piece: 10x (Huy) or 15x (Huy), Objectives: Achromatic 10x & 20x in a thick and attractive finish plywood box.

Model GE-62B:
Projection Microscope (Senior Model): Same as above but advance model with rack-pinion motion provided to the lamp, Eyepiece: 10x (Huy.) & 15x (Huy), Objectives: 10x, 20x & 45x. In a thick and attractive plywood box.

Model GE-64:
Senior Projection Microscope:
Built in graduated 195mm screen with imported Fresnel lens, rotatable to 360°. Co-axial Mech. stage for easy manipulation. 12V-100W Halogen bulb illumination. With in built Eyepiece.
Objectives: Achromatic 5x, 10x, 20x, 40x/45x 'UNILAB'
Magnification: 125x to 1000x/1125x.
B. Same as above but with all objectives original imported JAPAN Instead of 'UNILAB' i.e., 5x, 10x, 20x, 40x /45x.

Model GE-65:
Senior Projection Microscope With Binocular Head:
Same as Model GE-64, but incorporating Binocular Head with switch over system for projection or viewing through Binocular Head when projection is not required. Objectives :5x, 10x, 20x, 40x/45x & 100x oil immersion all 'UNILAB' make. Eyepieces :Achromatic 10x W/F & Huy 5x (Paired). Supplied complete with standard accessories.

B. Same as Model GE-65 but with imported JAPAN objectives instead of 'UNILAB' make.

Model GE-66:
Senior Projection Microscope With Trinocular Head:
Same as Model GE-65 but trinocular head instead of binocular.
B. Same as above but with imported JAPAN objectives instead of 'UNILAB' make.

858. FILM SLIDE PROJECTORS : UNILAB

Model RH-126:
Film Slide Projector: For projecting 35mm film slides. 24V-150watt halogen bulb for optimum brightness & a high performance blower cooled cooling system. The projector is packed in Styrofoam packing Inside a thick plywood box.

A. With Indian Projection Tube

B. With Imported Projection Tube.

Automatic Slide Projector: (Kinderman Diafocus 1500E):
Light weight slide projector with linear tray of 50 slides, equipped with 24V/150W halogen lamp in a nice & easy carrying case. (These are tentative prices. Please confirm before giving quotations).

Model RH-87 UXL DF:

Same as our model RH-87 UXL but with dark field condenser system as well as bright field condenser,

852. PHASE CONTRAST EQUIPMENT

Model RH-81 PHC:

Microscope same as in our model RH-81 but supplied with phase contrast equipment.

Model RH-85 UXL PHC:

Microscope same as in our model RH-85 UXL but supplied with phase contrast equipment.

Model RH-87 UXL PHC:

Microscope same as in our model RH-87 UXL, but supplied with phase contrast Equipment.

853. FLUORESCENCE MICROSCOPE : UNILAB

Binocular Fluorescence Microscope : RH-90 FM

Binocular Head sidentopf inclined at 30°, Co-axial Coarse & Fine Focusing with tension adjustment ring. Bright field condenser system N.A. 1.25, moveable by rack-pinion. Co-axial mechanical stage working on ball bearings for feather touch movement. Illumination by 6V-20W Halogen bulb.

Eyepieces: W/F 10x (LKW) & Huy. 6x (Paired).

Objectives: 4X, 0X, 40X & 100X (Fluorescent Plan Objectives)

Filters: B (Blue), G (Green) Exciting light Filter System, 'O' Ordinary Light System.

Epi-Fluorescent Illumination: 100WHBO Ultra High-Voltage Spherical Mercury Lamp Protection Barrier: Barrier to Resist the Ultra violet light.

Power Supply: 220V/110V AC, Input (Interchangeable) Digital Display

Trinocular Fluorescence Microscope: RH-90T FM

Same as RH-90 FM but with Trinocular Head instead of Binocular.

854. CAMERA ATTACHMENTS FOR MICROSCOPES

Photomicrography Equipment: consisting of an Imported SLR Camera with automatic electronic shutter speed control, Adapter for Camera, Cable Release & Photo Eyepiece SP 2.5X

Close Circuit TV-consisting of a high resolution CCN/CCD Camera imported Samsung / Water make & camera adapter. Can be attached directly to a monitor/TV. Can also be attached to a computer through a image capturing card.

Image Capturing Card

Monitor: A very high resolution monitor imported Taiwan make.

Digital Camera: Imported Nikon / Sony :'Japanese' camera. With 4.0 or more Mega pixels. Can be fixed to a microscope for routine photography. Also can be attached to a computer system through USB port. Complete with camera Adapter

Computer System: Computer system for projecting & storing images through a digital Camera. (Prices as per configuration required)

855. OBSERVATION HEADS

Multiviewing Head: For simultaneous viewing by three persons, through one binocular & two monocular tubes.

Dual Observation Head:

A. Binocular dual observation head for simultaneous viewing by two persons through two binocular heads. Complete with two pairs of 10x LKW Eyepiece.

147. Ohm's Law Apparatus

Same as above but enclosed in Cabinet Polished teak wood box, superior quality with sunmica top.

148. Battery Cell Tester

Range: 3-0-3 or 15-0-15 volts. A useful instrument for instant Battery checking.

149. Demonstration Meter

Horizontal Type: Brand new assembled meters fitted on a thick bakelite base with non break-able transparent acrylic top and with all sides Glass.

Overall dimensions 5½" x 4½" x 2½"

- a) Galvanometer : 30-0-30 scale
- b) Voltmeter : 0-3 volts
- c) Ammeter : 0-1.5 amps.

150. 'D' Arsonal Galvanometer:

Mirror and scale form. The coil is of 200 ohms resistance. The coil can be raised, lowered or set to zero by adjusting screw at the top and a lever is provided on the back to clamp the coil when not in use.

151. Ballistic Galvanometer

For measurement of small quantities of electrical charge. Reflecting mirror type open model. The moving coil is suspended by a phosphorus bronze strip, which carries an optically true concave mirror. The coil can be raised or lowered or set to zero by adjusting knurled knob at the top. A knob at the back is provided for clamping and releasing the coils. A high link resist-ance is provided to make the Galvanometer periodic, if desired Levelling screws are provided for balancing the coil.

Resistance of coil	Period	Sensitivity
100 ohms	10-12 sec.	180 mm
500 ohms	12-15 sec.	400 mm

152. Ballistic Galvanometer

"OSAW" type, a more sensitive and superior quality and with more time period.

Resistance of coil	Period	Sensitivity
100 ohms	10-12 sec.	220 mm
500 ohms	12-14 sec.	480 mm

153. Lamp and Scale Outfit

Suitable for use with above reflecting Galvanometers.
(i) Fitted with transformer and low voltage bulb to work on AC main.

154. Spot Reflecting Galvanometer

A self reflecting Galvanometer in tough bakelite body and to work on 220 VAC. or 6 Volts D.C.

- a) Coil Res. 125 ohms & sensitivity 0.05 to 0.1 micro amps per mm.
- b) Coil Res 625 ohms & sensitivity 0.02 to 0.05 micro amps per mm.

155. Taut Suspension Galvanometer

INDUCTANCES

156. Inductances:

Fixed: These are quite useful at audio frequencies. The coils upto 100 mH are air cored and above 100 mH, the coils are with cores. Housed in nicely polished teak wood/ metal box with engraved bakelite top panel. Accuracy.....2%

- a) 100 micro Heneries to 1000 Micro Heneries ANY SINGLE VALUE
- b) 1 milli heneries to 10 Milli Heneries ANY SINGLE VALUE
- c) 10 milli heneries to 100 Milli Heneries ANY SINGLE VALUE
- d) 100 milli Heneries to 1 Henery ANY SINGLE VALUE

157. Decade Inductance Box

These are variable decade Inductance unit for use in filter and turned circuits and housed in polished teak/metal Box. Accuracy ± 3%

Single Dial :

Steps	Total
a) 0.1 mH	1 mH
b) 1 mH	100 mH
c) 10 mH	100 mH
d) 100 mH	1 H
e) 1 H	10 H

Two Dials :

a) 0.1 and 1 mH	11 mH
b) 1 and 10 mH	110 mH
c) 10 and 100 mH	1100 mH
d) 100 mH and 1 H	11 H

Three Dials :

- a) 0.1, 1 and 10 mH 111 mH
- b) 1, 10 and 100 mH 1110 mH
- c) 10,100 mH & 1 H 11.1 H

Four Dials :

- a) 0.1,1,10 & 100 mH 1.11 H
- b) 1,10,100 mH & 1 H 11.11 H

Five Dials :

- a) 0.1,1,10,100 mH
& 1H steps 11.11 H
- b) 1,10,100 mH, 1 H
& 10H steps 111.11 H

NOTE : Any other value of decade can be supplied on request.

CONDENSERS**158. Condensers :**

Fixed A single condenser housed in tough bake lite case with lock type terminals on top. Maximum working voltage 400 volts.

- a) .0001 mfd. to 0.05 mfd. Any Single value
- b) .01 mfd. to 0.5 mfd. Any Single value
- c) 1 mfd. (Working Voltage 250 Volts)
- d) 2 mfd. (Working Voltage 250 Volts)
- e) 5 mfd. (Working Voltage 250 Volts)

159. Decade Condenser Boxes Dial Pattern

High quality Mica, Paper, Polyester and Metal films capacitors are used in the Decade Boxes. The capacitors are mounted on High grade Band Switches which are fixed on a Bakelite Panel mounted on Metal box. The working voltage of the capacitors is 250 Volts.

Single Dial - Range:

Steps	Total capacity
a) .0001 mfd.	.001 mfd.
b) .001 mfd.	.01 mfd.
c) .01 mfd.	.1 mfd.
d) .1 mfd.	1 mfd.
e) 1 mfd.	10 mfd.

Two Dials - Range:

- a) .0001 & .001 mfd. .011 mfd.
- b) .001 & .01 mfd. .11 mfd.
- c) .01 & .1 mfd. 1.1 mfd.
- d) .1 & 1 mfd. 11 mfd.

Three Dials - Range

- a) .0001, .001
& .01 mfd. .111 mfd.
- b) .001, .01 & .1 mfd. 1.11 mfd.
- c) .01, .1 & 1 mfd 11.1 mfd.

Four Dials - Range

- a) .0001, .001, .01
& .1 mfd .111 mfd.
- b) 0.001, .01, .1
& 1 mfd. 11.11 mfd.

Five Dials - Range

- a) .0001, .001, .01, .1
& 1 mfd 11.111 mfd.

BATTERY ELIMINATORS**160. Battery Eliminators** Small size, transistor type.

Output: 1.5 - 3 - 4.5 - 6 - 7.5 - 9 - 12 volts at 500mA.

161. Battery Eliminators Superior quality

- a) Output: 2-4-6-8-10-12 volts D.C. at 1 amps.
- b) Output: 2-4-6-8-10-12 volts D.C. at 2 amps
- c) Output: 2-4-6-8-10-12 volts D.C. at 3 amps.

162. Battery Eliminators Superior quality Heavy duty

- a) Output: 2-4-6-8-10-12 volts D.C. at 4 amps.
- b) Output: 2-4-6-8-10-12 volts D.C. at 5 amps.
- c) Output: 2-4-6-8-10-12 volts D.C. at 6 amps.

163. Battery Eliminator IC Regulated

These are designed for replacing dry cell batteries permanently and provide highly stabilised fixed Output Voltages.

848. BINOCULAR RESEARCH MICROSCOPES : UNILAB**Binocular Research Microscope: GE-48**

Binocular head inclined at 45 deg moveable to 360 deg. Complete with Two eyepiece 52x (Huy.), 10x w/f. Four objectives, 5x, 10 x, 45x & 100x oil immersion. Detachable mechanical stage, 6v-20w Halogen bulb. Complete with accessories In a wooden box.

Binocular Research Microscope: Unilab RH-81

Binocular head inclined at 45deg. moveable to 360 deg. Complete with Two eye piece 6x (Huy.), 10x(LKW). Four objectives, 5x, 10x, 45x & 100x 011 immersion. Ball bearing nose piece & ball bearing guide ways in slow motion for long life. Co-axial mechanical stage, 6v-20w Halogen Bulb, with electrical fitting in lower part of Microscope base. Complete with accessories in a wooden box with thermocol packing.

Binocular Research Microscope: Unilab RH-81A

Same as RH-81, But with 100x objectives imported Japan' instead of IUNILAB'.

849. ADVANCE BINOCULAR RESEARCH MICROSCOPES : UNILAB**Advance Binocular Research Microscope: Unilab RH-85UXL**

Binocular head inclined at 45deg moveable to 360 deg. Co-axial coarse & Fine focusing with ball bearing guideways & gear system in slow motion for long life. Ball bearing nose piece. Complete with Two eyepiece 6x (Huy), 10x(LKW). Four objectives, 5x, 10x, 45x & 100x oil immersion. Co-axial mechanical stage. 6v-20w Halogen Bulb, with electrical fitting in lower part of microscope base. Complete with accessories in a wooden box with thermocol packing.

Advance Binocular Research Microscope: Unilab RH-85BUXL

Same as RH-85UXL. But with all objectives imported 'Japan' instead of 'UNILAB'

Advance Binocular Research Microscope: RH-87UXL

Same as above but with a very attractive out look body & DIN Standard Objectives.

Advance Binocular Research Microscope: RH-87BUXt

Same as RH-87UXL, But with all 'DIN' objectives imported 'Japan' instead of 'UNILAB'

850. TRINOCULAR RESEARCH MICROSCOPES : UNILAB**Trinocular Research Microscope: RH-81TRH, same as RH-81**

but trinocular head instead of binocular one.

Advance Trinocular Research Microscope: RH-85UXLTRH,

Same as RH-85UXL but trinocular head instead of binocular one.

Advance Trinocular Research Microscope: RH-87UXL TRH,

Same as RH-87UXL but trinocular head instead of binocular one.

852. DARK FIELD CONDENSER SYSTEM : UNILAB**Model RH-81 DF :**

Same as our model RH-81 but with dark field condenser system as well as bright field condenser.

Model RH-85 UXL OF :

Same as our model RH-85 UXL but with dark field condenser system as well as bright field condenser.

Optional Accessories for Student Microscopes:

- A. Wide field Eyepiece : Achromatic 10x W/F eyepiece Instead of Huygenian.
- B. Detachable Mechanical Stage: Light pattern detachable mechanical Stage with any model of student microscope.
- C. Objective 4x / 5x: Spare for any model of Student Microscope.
- D. Sub-stage Lamp: 220V/AC pin type lamp,
- E. Inclined Tube: 3600 rotatable Inclined tube instead of straight one.

846. MEDICAL MICROSCOPES : UNILAB

Medical/Pathological Microscope: Model GE-40

Separate Coarse & fine Focusing. Moving condenser with iris Diaphragm N.A.1.25. Eyepiece Huy. 5x & 10 x, Objective 10 x, 45x & 100x oil Immersion, Detachable mechanical stage. Complete with accessories in a thermocol box inside a Thick wooden box.

- A. Same as GE-40 but with Inclined observation Tube instead of straight one & with pin type sub stage lamp.
- B. Same as GE-40 but with co-axial mechanical stage Instead of attachable.
- C. Same as GE-40 but with 100x objective original Imported 'Japan' Instead of 'UNILAB
- D. Same as GE-40 but with all objective original imported 'Japan' instead of 'UNILAB.

Optional Accessories for Medical Microscopes:

- A. Wide field Eyepiece: Achromatic 10 x W/F eyepiece instead of Huy.

- B. Co-axial Mechanical Stage: Fixed co-axial Mechanical Stage Instead of attachable.
- C. Objective 4x / 5x: Spare for any model of Medical Microscope.
- D. Imported oil Immersion : Imported 'JAPAN' 100 x objective.
- E. Imported objectives: Imported 'JAPAN' objectives 10 x, 40x & 100x oil immersion.
- F. Sub-stage Lamp: 220V/AC pin type lamp.
- G. Inclined Tube :360 degree rotatable tube instead of Straight one
- H. Camera Lucida Prism Type
- I. Camera Lucida Mirror Type
- J. Double Demonstration Eyepiece
- K. Mechanical Stage Heavy

847. INCLINED MONOCULAR MICROSCOPES: UNILAB

Inclined Monocular Microscope: GE-44

Complete with monocular 45 degree Inclined tube two eyepiece 5x (Huy.), 10 x w/f Four objectives, 5x, 10 x, 45x & 100x oil immersion. Detachable mechanical stage, 6v-20w Halogen bulb In a wooden box with accessories.

Inclined Monocular Microscope: Unilab RH-70

Complete with Two eyepiece 6x (Huy.), 10x (LKW). Four objectives, 5x, 10 x, 45x & 100x oil immersion. Ball bearing nose piece& ball bearing Guideways in slow motion for long life, Detachable mechanical stage, 6v-20w Halogen bulb, with electrical fitting in lower part of microscope base. Complete with accessories in a wooden box with thermocol box.

Inclined Monocular Microscope: RH-70A

Same as RH-70, but with 100x objectives imported 'Japan' instead of 'UNILAB'.

- INPUT : 230 Volts A.C. at 50 c/s
- LOAD
- REGULATION : Better than 1 %
- RIPPLE : Less than 5mV r.m.s.
- OUTPUT : 2-4-6-8-10-12 volts D.C. at 1 Amps
- : 2-4-6-8-10-12 Volts D. C. at 2 Amps
- : 2-4-6-8-10-12 Volts D.C. at 3 Amps

BATTERY CHARGERS

For charging battery from 230 V AC 50 cycles lines. This charger is recommended for general use in laboratories specially where the drain on the battery is quite severe. The charger is equipped with heavy transformer silicon diode bridge rectifier ampere meter and safety fuse.

164. Battery Chargers

Superior quality for continuous working with charging current Adjustment and Ammeter.

- a) Output : 2-4-6-8-10-12 volts D.C. at 3 amps.
- b) Output : 2-4-6-8-10-12 volts D.C. at 4 amps.
- c) Output : 2-4-6-8-10-12 volts D.C. at 5 amps.

TRANSFORMERS

165. Model Transformers

Nicely demonstrated on the wooden base. Input and output leads brought out on terminals on bakelite panel.

166. Model Transformers Same as above but with step up voltage.

167. Model Transformers Step Up/Down combined.

168. Step down Transformers

For low A.C. output voltage requirements in laboratories. Housed in Steel Cabinet.

- | | <u>volts</u> | <u>amps. AC.</u> |
|----|---------------|------------------|
| a) | 2-4-6 | at 2 |
| b) | 2-4-6-8-10-12 | at 2 |

- c) 2-4-6-12-18-24 at 2
- d) 2-4-6-12-18-24 at 3

169. High Voltage Transformer for Discharge Tubes

Used as Power supply for spectral and other discharged tubes. It is also called E.H.T. Power Supply Unit. A highly insulated voltage transformer is provided with solid state circuit to change the output voltage in steps. Input 230V AC, 50Hz Output Voltage 5000 V AC (under no load)

Note: Any other type of Transformer can be Supplied on Request

SPECTRUM DISCHARGE TUBE

170. Spectrum Discharge Tube

Fitted with Spectroscopically pure sample of gases. Straight form total length is about 20cm. Any Gas

Name of gases: (a) Argon (b) Neon (c) Krypton (d) Ammonia (e) Carbon Dioxide (f) Nitrogen (g) Oxygen (h) Mercury Vapour (i) Sulphur (j) Water Vapour (k) Hydrogen (l) Helium

ELECTRICAL BRIDGES

171. Meter Bridge or Wheatstone Bridge with Spring Jockey :

The four-gap bridge has large and heavy brass strip of mounted on a teakwood base of size 44"x4". Nine nos. Brass terminals are provided to reduced the resistance to a minimum. The ends gaps are closed by removable Brass Bridging pieces which are held in position by the terminals. The 24 S.W.G. Constanton 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 Spring Jockey.

172. Industrial Kelvin Double Bridge

A very useful instrument for accurate measurement of low resistances such as shunts and specific resistances

determinations. The bridge comprises of variable standard resistances, five multiplying ratios and galvo key. The standard resistances consist of 10 steps of (10x.01) ohms and a circular slide wire divided into 200 equal parts. The resistance of slide wire is 0.02 ohms. Provision is made for the corrections of the Zero of the bridge. The multiplying ratios are x100, x10, x1, x0.1 and x.01. The total range is 2 micro ohms to 11 ohms. All the coils are made of Manganin wire. Accuracy: 0.1%

173. Conductivity Attachment

For use with above Kelvin bridges.

174. Headphone Set

A more sensitive and high resistance set of two head phones with cord and head bend for use with any instruments.

175. D.C. Source for Kelvin.

176. Platinum Resistance Thermometer :

Corning glass tube in velvet case. Resistance approx. 2.8 ohms. with copper lead & Brass terminals.

177. Portable Wheatstone Bridge

This instrument gives an accurate measurement of resistance and also locates faults in cables by adopting the Murray and Varley loop circuit tests. Complete with Galvanometer. The instrument is provided with another switch controlling the sensitivity on short circuiting the Galvanometer. Arrangements are provided to use an external galvo or high voltage source. Ratio arms of the bridge are capable of selecting and multiplying factors of .001, .01, 1,10,100 and 1000 for conductive resistance measurements and for Varley loops sets and capable of selecting multiplying factors of 10,100,1000 for Murray test. Coils are of Manganin wire. Accuracy of coils : 0.5%

178. Portable Wheatstone Bridge Routine quality with Metal Film Resistance.

179. Kohlraush Conductivity Bridge

For direct measurement of resistance of electrolytics. The slide wire is circular type and calibrated from .01-10 ohms. There are six multipliers of .1,1,10, 100,1000 and 10000,thus providing a total range of .01 to 10,000 ohms. PUSH button key of robust construction is provided. It is useful for quick determination of resistance when head phone is employed for null point instead of Galvo. With fixed circular scale. Manganin coils.

180. Schering bridge

For measurement of capacitance. Made with metal film resistances of 1% Accuracy.

181. Desaughty bridge

For comparison of capacities of condensers. Made with metal film resistances of 1% Accuracy.

182. Anderson Bridge

For measurement of Inductance in terms of capacity and Resistance. Made with metal film resistances of 1% Accuracy.

183. Maxwell Bridge

For measurement of Inductance of a coil in terms of capacitance. Made with metal film resistances of 1% Accuracy.

184. Weins Bridge

For measurement of capacitance. Made with metal film resistances of 1% Accuracy.

185. Raleigh's self inductance bridge

For measurement of self inductance of a coil.

POTENTIOMETERS

186. Potentiometer 4-Wires: Brass C.P.

Thick connecting strips and terminals fitted on nicely polished plywood base, with sliding jockey with full Sunmica sheet on base, superior quality.

841. Suba Seal Rubber Stoppers

Auto-clavable with turn over Flange Plain or Serration for test tube.

Size

- 12 mm
- 15 mm
- 18 mm
- 25 mm

842. High Pressure Rubber Tubing (Superior Quality 10 Mtr Coils)

Approx Bore mm	Wall Thickness mm
3.0	4.5
4.5	4.5
6.0	4.5
8.0	4.5
9.0	4.5
12.0	6.5

843. Rubber Corks (Per 100 Nos.)

Top Dia ± 0.2 mm	Bottom Dia ± 0.2 mm	Height ± 0.2 mm	No.
9.0	6.0	16.0	000
13.0	9.0	15.5	0
14.0	11.0	18.5	1
16.5	13.0	20.0	2
19.0	14.0	21.0	3
21.0	15.0	22.0	4
22.5	17.0	23.0	5
24.5	20.0	24.0	6
26.0	20.0	27.5	7
26.5	21.0	27.5	8
28.0	21.5	31.0	9
30.0	26.0	33.0	10
33.0	29.0	32.0	11
34.0	30.0	34.5	12
38.5	31.0	37.0	13
41.5	32.0	42.5	14
42.0	38.0	40.5	15
45.0	35.0	36.5	16
49.5	40.0	40.5	17
53.5	48.0	33.5	18
58.0	44.0	45.0	19
60.0	51.0	56.5	20

Rubber Corks Hole Charges extra. 24 Paise one hole & 40 paise two hole.

844. DISSECTION MICROSCOPES : UNILAB

Dissection Microscope: GE-8

All Brass parts, 10 x & 20 x Eye Piece complete In a wooden box.

Dissection Microscopes (Entomological) Model: GE-12

Eyepiece: 10 x & 20 x with additional special 83 mm BULL LENS easily replaceable to increase the field of view. Complete in a wooden box.

845. STUDENT MICROSCOPES : UNILAB

Student Microscopes: RH-24 (Single Nose)

With Coarse focusing only, 10 x Eye Piece & 10 x Objective. Complete in a thermocol box with accessories.

Student Microscope: RH-24A (Single Nose)

Same as RH-24, but with a triple revolving nose piece. Two objectives 1 Ox & 20X/45x.

Student Microscope: GE-29

With Coarse & fine focusing. Fixed condenser with iris Diaphragm. 10 x & 15x Huy. Eye Piece. Obj.: Ach. 10 x, 45x (SL). Complete with accessories In a wooden box with thermocol packing.

Student Microscope (Junior Medical): Model: GE-34

Same as GE-29 but with Condenser moveable by rack & pinion motion. Slow motion knob graduated drum type with 1 div.= 0.002 mm.

Student Inclined Microscope : Model RH-50

Student Microscope with Inclined Monocular Tube, built in 15w 220v bulb Two Objective 10 x & 45x (SL). Eyepiece 10 x W/F, complete with accessories In a wooden box.

833. Millikan's Oil Drop Apparatus :
Built in automiser. Microscope with micrometer scale. An adjustable lamp house. Condenser. All supported on stable cast iron base.

834. Long Telescope Spectrometer :
Specially designed for ultrasonic waves experiments. Scale dia 7.5". Telescope length 20" with R-F Oscillator.

SILICON RUBBER TUBING

835. Silicon Rubber Tubing coil Length 5 metre or 10 metre.

Inner Dia ± 0.5 mm	Wall Thickness ± 0.2mm	Rates per Meter
2	1	
3	1	
3	1.5	
4	1	
4	1.5	
5	1	
5	1.5	
6	1	
6	1.5	
6	2	
6	3	
7	1.5	
7	2	
8	1.5	
8	2	
8	3	
9	2	
10	2	
10	3	
12	3.5	
12.5	2.5	
14	3	
15	4	
16	3	

836. Pressure Tube Green

Inner Dia ± 0.5 mm Wall Thickness ± 0.5 mm

837. Corrugated Rubber Sheet

Size 350 x 150 mm

838. Rubber Cone for Filtration Flask

250 ml
500 ml
1 Lt.
2 Lt.
5 Lt.
10 Lt

839. Silicon Rubber Cork (Translucent)

No.	Bottom Dia ± 0.2 mm	Top Dia ± 0.2 mm	Height ± 0.2 mm
9	9	11.5	20
11	11	14	24
13	13	16	24
15	15	18	24
17	17	20	26
18	18	21	26
19	19	22.5	28
23	23	25.5	28
25	25	28.5	28
27	27	31	32
29	29	33	32
31	31	36	35
33	33	38.5	38.5

LABORATORY RUBBER TUBING & CORKS

It is extremely soft and conforms to the Government specifications. In addition to softness, it is resistant to dilute Acid, Alkalies, Ammonia etc.

840. Rubber Tubing (Extra Soft Quality 10 Mtr Coils)

Approx Bore	Wall Thickness
4.0	1.0
5.0	1.5
6.0	1.5
7.0	1.5
8.0	1.5
9.0	2.0
10.0	2.0
12.0	2.0

187. Potentiometer 10-Wires : Brass C.P.

Thick connecting strips and terminals fitted on nicely polished plywood base with sliding jockey with full Sunmica sheet on base, superior quality.

188. Pencil Jockey Superior Quality

For Wheatstone Bridge and Potentiometer work, bakelite moulded handle, brass C.P. contact with locating notch a heavy lock type brass plated terminal is provided for connection with lead. The shape of the jockey is large and easy to handle. Supplied without lead wire.

HYDROSTATICS & PNEUMETICS

189. Air Pump

C.P. single barrel, fitted on wooden base, aluminium plate with stop cock, Air inlet scrow and a connection for rubber pressing tubing.
Dia
5"
6"
8"

190. Air Pump

Rest specification are same but with brass plate with stopcock.
Dia
5"
6"
8"

191. Pascal's Law Apparatus

(Weinhold's) To show that pressure of liquid depend upon their height and surface of bottom of the columns and note on capacity of vessel. With glass vessels of 4 different shapes mounted in metallic collars aluminium.

192. Pascal's Law Apparatus

Rest specification are same but metal parts are of brass instead of aluminium.

193. Magdeburgs Hemisphere

To demonstrate pressure of the atmosphere to brass cups having dia meter 75mm are provided with handle and stop cock.

194. Water Level Apparatus

For showing that the level of the liquid in communicating tubes is the same regardless of their shapes. It consist of four differently shaped glass tube connected at the bottom mounted on a bakelite/plastic stand.

195. Boyle's Law Apparatus

Comprising two glass tubes, one closed at the top and other tube open. Their lower ends are drawn out and connected together by 1 meter of rubber tubing. Both tubes are mounted on sliding brackets which may be locked in any position on the metal supporting rods. Seasonal wood board 44" high carries a meter scale graduated from 0 to 100 cm fitted on heavy iron base with levelling screws. Supplied without mercury and rubber tube.

196. Boyle's Law Tube Set of two, ordinary glass tube.

197. Apparatus to show Pressure of liquid (Simple Pascal Law)

For showing that pressure is transmitted equally in all direction. It consists of a hollow metal brass ball 5cm in dia having small holes along one circumference and a branch tube with piston when held with the holes in a horizontal plane and piston is pushed in water will stream out the same distance from each hole.

198. Bell Experiment Apparatus

For demonstrating that sound can not be transmitted in a vacuum. It consists of a 2-litre bell jar with a rubber stopper fitted with binding posts and connections from which an electric bell is suspended. It operates on 3 to 6 volts, using either battery or a transformer.

199. Ganong's light Screen (Brass)

ENGINES

200. Petrol Engine 2-Stroke College Type

201. Petrol Engine 4-Stroke College Type

202. Diesel Engine 2-Stroke College Type.

203. Diesel Engine 4-Stroke College Type.

204. Steam Engine Model
Horizontal pattern, Small

205. Steam Engine Model
Horizontal pattern, Big

206. Steam Engine Model
Same as above but with aluminium cylinder section cut.

207. Steam Engine Model (Horizontal with Electric Heater)

MECHANICS

208. Inertia Table
It consists of an aluminium disc of approximately 6" dia with a groove. The circular aluminium disc supports five semi-circular masses which just fit into a groove, concentric with the circumference. It can be suspended by a steel wire pivoted at the centre of a long frame work, provided with circular base which is also fitted with levelling screws. Supplied with four different shapes of masses (Rectangular, square, circular, triangular).

209. Inertia Disc
Consisting of a brass disc about 15 cm diameter, 6 mm thick size with arrangement for clamping a split chuck. Supplied without wall bracket.

210. Inertia bar
It consists of a solid brass rod of length 30 cm and diameter 1.5 cm, with centre split chuck for clamping and suspending.

211. Inertia Apparatus
All metal, superior quality, showing Newton's first law of motion.

212. Fly Wheel
Comprising of carefully machined and balanced cast iron wheel and steel spindle is supported on the ball bearings in strong iron brackets. The sides of wheel is smoothly red painted. The top of wheel is chrome plated and is marked with a thick red line. A pointer is fixed to one of the brackets. Diametric hole is drilled in the shaft to take a pin and cord. The base is provided with four holes so that the apparatus can be fixed to wall complete with cord and hook.

- (a) 15 cm. wheel dia
- (b) 20 cm. wheel dia
- (c) 25 cm. wheel dia

213. Bifilar Pendulum
It consists of a heavy cast iron rectangular plate of dimension 15x10x1.5 cm. The plate has six holes, two holes on top, two holes on front side and two holes on the third side of the top. The plate is suspended by means of two strings of equal lengths from a rigid support (i.e. a heavy T shaped clamp with two split chuck is provided on the heavy base. The plate is suspended freely, two strings will be equally inclined to the horizontal force of the plate.

214. Inclined Plane
This is most economical form of inclined plane consisting of 60x7.5 cm board either with glass top or sunmica top, hinged to the base board of size 45 x 7.5 cm. The pulley is attached to one end of the upper board. The upper board (plane) can be set at any angle by clamping the wing nut. Complete with graduated aluminium arc and iron N.P. roller.

215. Cork Pressure :
With made of Cast Iron with hammer paint.

216. Inclined Plane
Same as above having brass arc and brass N.P. roller.

217. Inclined Plane (4 Inch width)
For 10 cm width plane please add extra.

813. Spirit Lamp (Stainless Steel) Made S.S. sheet, die pressed, capacity 125 ml.

814. Burette Clamp - Die pressed sheet made of mild steel chrome plated or powder coated to hold one burette.

815. Burette Clamp - Die pressed sheet made of mild steel chrome plated or powder coated to hold two burette.

816. Retort Clamp-MADE OF AL-ALLOY DIE CASTING quality hold upto 75mm dia provided with 7" mild steel rod cork lined finish powder coated.

817. Retort Clamp-MADE OF BRASS CASTING chrome plated.

818. Condenser Clamp- MOULDED AL-ALLOY three finger jaws adjustable by two independent screw mild steel rod 12"x3/8" chrome plated.

819. Co-Axial Clamps-MOULDED JAWS MADE OF ALLOY and painted with asbestos sleeves spring controlled adjustable by co-axial brass nut hold upto 75mm dia articles rod length 12"x3/8" chrome plated.

820. Co-Axial Clamps-MOULDED JAWS MADE OF BRASS and chrome plated with asbestos sleeves spring controlled adjustable by co-axial brass nut hold upto 75mm dia articles rod length 12"x3/8" chrome plated.

821. Retort Ring Made of mild steel rod with black paint and T type chrome plated screw.
2"
2½"
3"
4"
5"
6"

822. Tripod Stand Made of HEAVY CAST IRON TRIANGULAR TOP with blank wrinkle paint and rods are zinc plated with plastic feet.
7 x 4"
8 x 4"
8 x 6"

823. Boss Head DIE PRESSED POWDER COATING hold upto 16mm dia.

824. Boss Head MADE OF BRASS CASTING chrome plated.

825. Retort Stand - Made of mild steel with levelling screw powder and rod is chrome plated.

Base size	Rod size
6x4	18" x 3/8"
7x5	24" x 3/8"
8x5	24" x 3/8"
9x6	30"x1/2"
10x6	30"x1/2"
12x7	30"x1/2"

INTRODUCING

826. Solar Bulb Working Model in two parts Box one Part with Solar Cell and other is with Bulb. (L.E.D.)

827. Solar meter Same as above but with D.C. micro-ammeter for current indication. The part with solar cell is placed in sun light.

828. Solar Fan This working Model;s in two part box. The part with solar cell is placed in sun light and Fan portion is kept in shade or class room.

829. Wind Mill Working model to show the conversion of wind energy into electrical energy.

830. Generation of Electricity By moving a magnet in a coil. Working model for demonstration purpose.

831. Primary Colours & Composite Colours Working Model for demonstration purpose only.

832. Solar Energy Kit: Working Model
It consists of a solar cell that converts solar energy into electrical energy for charging Nickel Cadmium battery provided with kit then its subsequent for lighting, running motor and playing music.

- 800. Buchner Funnel.** Superior Quality
- 2"
 - 2.5"
 - 3"
 - 6"

- 801. Pestle & Mortar** Superior Quality
- 3"
 - 4"
 - 5"
 - 4"

OTHER CHEMISTRY LAB REQUISITES

- 802. Cork Borer Best Quality** All brass C.P.
- Set of 3
 - Set of 6
 - Set of 12

- 803. Beaker Tong (Stainless Steel).** These tongs were designed to handle breakers containing hot or corrosive liquids. The tongs are made of stainless steel which are tough, resist bending and does not rust. Jaws are covered with either asbestos or cork sheet. Size approx.12" long.

- 804. Flask Tong (Stainless Steel).** These tongs were designed to handle laboratory flasks containing hot or corrosive liquids. Neither the flask nor the tongs themselves can slip or get out of the grip. The tongs are made of stainless steel to resist corrosive fumes and to prevent rusting. Approximately size 12" long.

- 805. Crucible Tongs.** Crucible tongs which are listed below, are all of new improved style. The tongs are made of a heavy material. The joints are flattened at the rivet to prevent the handles from shifting out of alignment. The tips are carefully formed. The finger grip are roomy to facilitate handling. These tongs are made from a variety of different materials to meet every laboratory requirement.

Length	Iron	Brass	SS
a. 6"			
b. 8"			

- 806. Hoffman's Screw Clip** 25 mm Brass C.P.

- 807. Pinch Clip Heavy Pattern (Rectangular Wire).** For tubing upto 5/8 inch in diameter. The flat wire gives a broad clamping surface and flat discs attached to the ends allow more positive manipulation.

- 808. Spatula.** Made from superior quality stainless steel sheet, which are corrosive resistant. The S.S. sheet used is flexible so that the spatula is especially convenient for handling materials which are to be weighed. Either both ends are flat or one end spoon.

- 6"
- 8"
- 10"
- 12"

- 809. Watch Glasses.** These Watch Glasses are moulded with same radius of curvature so that they will stack conveniently. The edges are ground and annealed to remove strain.

- 2"
- 3"
- 4"

- 810. Wire Gauge.** Protection & support of glass vessels while heating them over a flame may be accomplished by using a wire gauge. Concentrated heat, such as that from a Bunsen flame, will be spread over a wider area by them, giving more even heating. These gauges will not warp. The asbestos has been securely anchored to the mesh by pressing it through the gauge. As a result the asbestos centre will not pull off. The life of these gauges is greatly increased over unprotected gauges. Proper size 6"x6" , superior quality.

- 811. Wire Gauge with Metal Frame.** but provided with rectangular frame to the gauge.

- 812. Spirit Lamp (Brass)** As above, but brass die pressed drawn from one single piece, capacity 125ml.

- 218. Parallelogram of Force App.Wall Type**
For demonstrating the principles of parallelogram. The apparatus comprises a strong drawing board 45x30 cm fitted with two hooks for fixing to a wall. The whole board is black painted. The board is supplied with two Z-Type pulley and 3 set of iron C.P. slotted weight (50x5gm) but without cords.

- 219. Parallelogram of Force App. Wooden Stand Type**

This item is similar to the wall type but is intended for use in laboratories where wall space is limited. At thick polywood piece of thickness 12 mm having dimension 45x30 cm on a substantial wooden stand supplied with 2 set of z-pulley and 3 set of (50x5gm) slotted weights.

- 220. Maxwell Vibration Needle**

For experiment on rigidity. Two solid and two hollow cylinders each 10 cm long accurately fitting the bore of a hollow brass tube 40 cm long are provided. The tube is also fitted with wire chuck and mirror, graduated scales and verniers on sliding weights. Complete with ceiling attachment without stand.

- 221. Wall Bracket for Vibration Needle**

A heavy cost metal L shape strip with chuck nuts and two holes for fixing on the wall.

- 222. Torsion Pendulum (5" Brass Disc)**

The one end of suspension wire hangs from the Universal Clamp with the help of a chuck nut and another end of wire is clamped to solid brass disc of 12.5 cm dia and 1.25 cm thick with the help of chuck nut. A heavy metal ring of the same metal (brass) and the same outside diameter as the disc is included. When ring is placed on the disc, the moment of inertia and therefore the period of vibration of system is increased.

- 223. Spirit level** Aluminium

- 4"
- 6"

- 224. Torsion Apparatus Searle's Type**

Horizontal bench pattern. The wheel moving on ball bearing is provided with a chuck to hold the rod under test. The other end of the rod is clamped tightly to a bracket. The pointers and scales are graduated in single degree and can be clamped at any position. Complete with ribbon, hook and rods of steel and brass, but without weights.

- 225. Torsion Apparatus Searle's Horizontal Pattern (One Meter Long)**

Same as Cat.No 290 but one meter long.

- 226. Torsion Apparatus Searle's (Vertical Pattern) or Barton's Apparatus**

A steel frame mounted on a heavy cast iron base with levelling screws. Upper end of rod 900 mm length and 5 mm dia is clamped by a 3-jaw chuck and the lower end is clamped into the axis of a torsional drum can be rotated by putting load in the scale pan passing over two frictionless pulley. Freely sliding three circular scales graduated in single degrees can be clamped to any position. Three pointers for clamping to the test rod are provided. Complete with three test rods, strings and two scale pans, but without weight.

- 227. Bending of Beam Apparatus**

Consisting of two G. clamp with knife edge top. Comprising a metal chrome plated bar of 100 cm length having width 25 cm and thickness 4.5 cm. Sharp knife edge with hanger is also provided which moves on metal bar. A spherometer fitted on a cast iron stand with electric contacts is also provided, supplied wlo weights.

- 228. Cantilever Apparatus**

A hook is provided to one end of steel C.P. bar having dimation 100x18xO.3 cm. The whole metallic bar is marked with lines or holes. The Cantilever bar is held horizontally keeping its breadth in horizontally position.

229. 'G' Clamp For laboratory use.

Size: (a) 2"

Size: (b) 3"

Size: (c) 4"

Size: (d) 5"

Size: (e) 6"

230. Compound Pendulum (Steel C.P.)

It consists of a chrome nickel steel bar pendulum is provided with two removable knife edges passing through anyone of the holes. Complete with wall bracket.

231. Compound Pendulum (Brass C.P.)

A chrome plated brass bar of dimension 100x25x0.6 cm bored of equal intervals of 5 cm and provided with removable knife edge. Complete with wall bracket.

232. Kater's Reversible Pendulum (Steel C.P.)

It is a compound pendulum constructed on the principle that centre of oscillation and centre of suspension are interchangeable. It consists of a steel rod of 120 cm long and 1.0 cm dia capable of two adjustable knife edges facing each other. Two metal weight (made of cast iron) of dimension 7.5x3.75 cm (length x diameter) and (3.5 cm x 3.75) respectively can be made to slide along the length of bar and can be clamped in any position. Two wooden weights exactly similar to metal weights can also slide along the bar. With the help of this apparatus one can find acceleration due to gravity at a place.

233. Kater's Reversible Pendulum (Brass)

Specifications are same as above but it consists of brass or stainless rod instead of steel C.P. rod. Two metal weights are also made of brass instead of cast iron.

234. Stand for Kater's Reversible Pendulum or Compound Pendulum

This stand is suitable for all types of compound pendulums or Kater's pendulums listed above. heavy type stand having approx. height 52 inches.

PULLEYS

235. Aluminium Pulley (2" diameter, Brass Frame)

Comprising a 50 mm diameter aluminium pulley with a wide groove for whip cord etc. The pulley is mounted in a brass frame, common spindle.

a) Single pulley, single hook

b) Single pulley, double hook

c) Double pulley, supplied in parallel mount, double hook.

d) Triple pulley, supplied in parallel mount, double hook.

236. Aluminium Pulley (1.5" diameter, Brass Frame)

a) Single pulley, single hook.

b) Single pulley, double hook.

c) Double pulley, supplied either in parallel mount or in line mount.

d) Triple pulley supplied either in parallel mount or in line mount.

237. Pulley Clamp Pattern (Z-Pulley)

This pulley is specially designed for screwing to a parallelogram of force apparatus. It consists of 37 mm diameter aluminium pulley with a narrow groove, mounted in cast iron painted frame, designed for clamping the edge of a board with pulley in a vertical plane. The clamp wall accept 25 mm thick board.

238. Differential Pulley

Frame and pulleys made of aluminium reducing dia 38,50 & 62 mm with hook.

ELASTICITY OF STRETCHING-YOUNG MODULUS

239. Young's Modulus Apparatus (Iron Frame)

It is a famous instrument for determining the Young's modulus of a wire and is indispensable where most accurate measurements are desired. The instrument consists of two iron frame connected by a

ROCKS & MINERALS

778. Rocks Set of 20

(a) in card board box

(b) in show case

779. Rocks set of 50 in show case

780. Minerals set of 30

(a) in card board box

(b) in show case

781. Minerals set of 50 in show case

782. Minerals set of 70 in wooden cabinet

783. Minerals set of 100 in wooden cabinet

784. Earthy Minerals set of 20

(a) in card board box

(b) in show case

785. Metallic Ores set of 20

(a) in card board box

(b) in show case

786. Alloys set of 20

(a) in card board box

(b) in show case

787. Metal & Alloys set of 24

(a) in card board box

(b) in show case

788. Metals set of 12

(a) in card board box

(b) in show case

789. Rocks and Minerals set of 50 in show case

790. Test Tube Holder. Zinc coated. Superior Quality

791. Test Tube Holder (Brass). Made of brass sheet. Export Quality.

792. Staining Rack Seasoned Wood

a. For 12 dropping bottles of 30 ml

b. For 12 dropping bottles of 60ml

c. For 12 dropping bottles of 125 ml

793. Staining Rack Seasoned Wood

a. For 6 dropping bottles of 30 ml

b. For 6 dropping bottles of 60 ml

c. For 6 dropping bottles of 125 ml

794. Burette Stand Seasoned Wood

a. For Single Burette

b. For Double Burette

795. Funnel Stand Seasoned Wood

a. For Single Funnel

b. For Double Funnel

796. Aluminium Test Tube Stand. Made from thick sheet of Aluminium.

No. of Holes. Diameter of Holes

a. 12 12

b. 12 15

c. 12 18

d. 12 25

e. 24 12

f. 24 15

g. 24 18

h. 24 25

i. 36 12

j. 36 15

k. 36 18

l. 36 25

797. Spectrometer: For Research Laboratory Heavy cast iron base & body. Brass Scale, Brass pipes, prism table & other fittings. Sharp slit & cross wires. All the spectrometers are provided with built in light system to read the verniers.

(a) 6"

(b) 7.5"

(c) 10"

PORCELAIN WARE

798. China Dish Superior Quality

a. 2"

b. 2.5"

c. 3"

d. 4"

799. Crucible with Lid. Superior Quality

a. 15cc

b. 25cc

ZOOLOGY MODELS

741. **Frog heart** On base
742. **Frog Brain** On base
743. **Frog Dissection Large size** 181X24" on Board
744. **Frog Dissection Small size** 10"x16" on Board
745. **Frog Development 16 Stages** on Board
746. **Fish Dissection** 10"x16" on Board
747. **Amoeba** 10"X16" on Board
748. **L.H.Silk Worm** 10"x16" on Board
749. **L.H. House Fly** 10"x16" on Board
750. **Earth Worm** 10"x16" on Board
751. **Hydra** 10"x16" on Board
752. **L.H. Mosquito** 10"x16" on Board
753. **L.H. Buttery Fly** 10"x16" on Board
754. **Paramecium** 10"x16" on Board
755. **Animal Cell** 10"x16" on Board
756. **Animal Cell Division (Mitosis)** 16"X24" on Board set of 10 Models
757. **Animal Cell Division (Meiosis)** 16"x24" on Board set of 10 Models
758. **D.N.A.** 18"x24" set of 4 Model on Board
759. **R.N.A.** 18"x24" set of 3 Model on Board
760. **Macropus, Kangaroo** As natural specimen three dimensional view mounted on base.

761. **Tachyglossus or Echidna or Spiny Ant Eater** As natural specimen three diamentional view mounted on base.
762. **History of Man: Evaluation of man** set of 4 models on individual base three diamentional view very instructive model.
763. **Ornithorhynchus (Platypus) or Duckbill :** As natural specimen three dimensional view mounted on base.
764. **Grasshooper:** Disection with internal and external organs clearly shown mounted on stand.

BOTANY MODELS

765. **Plant Cell Division (Mitosis)** Set of 10 Models 16"x24" on Board
766. **Plant Cell Division (Meiosis)** Set of 10 Models 16"x24" on Board
767. **Ovul** Set of 4 Models on Board 20"x28"
768. **Plant Cell** 10"x16" on Board
769. **Dicot Leaf** 10"x16" on Board
770. **Monocot Leaf** 10"x16" on Board
771. **Dicot Stem** 10"x16" on Board
772. **Monocot Stem** 10"x16" on Board
773. **Dicot Root** 10"x16" on Board
774. **Monocot Root** 10"x16" on Board
775. **Placentation** Set of 6 151x20" on Board
776. **Flower** on Board
777. **Flower** on Stand all parts detachable

link. The frames are fitted with self centering chucks. An accurately graduated micrometer screw to read .01 mm is fitted on frame. One end of asensitive spirit level is pivoted to one of the frame, the other end rest on the points of a micrometer screw fitted in other frame. Complete with iron C.P. chucks, cast iron ceiling attachment and torsion weight but wlo case.

240. **Young's Modulus Apparatus (Brass Frame Brass Fitting)**
Same as above but all parts are of brass except torsion weight (Le. rectangular frame, pin,vice, ceiling attachment screws, rings etc. all are of brass).
241. **Young's Modulus (Vernier Type)**
Simple form but efficient. Consists of a brass scale 10 em long and vernier to read 1/10 mm with V slide clamps guides for wire, ceiling attachment and torsion weight.
242. **Hook's Law Apparatus**
It consists of a support with mounted millimeter scale, a spiral spring, a hanger for weights. The scale is 15 mm long, engraved on a plane mirror to permit parallax illumination by reflection and mounted with elevation adjustment on a support rod. The steel spring 1 em in diameter and 30 mm long when unstretched is suspended from a hook above the scale. Weights are not included.
243. **Hook's Law Apparatus** Same as above but OSAW Type
244. **Rigidity Apparatus (Searle's Pattern)**
One can find the modulus of rigidity and Young's modulus for the material of a wire by Searle's method. The 30 cm long wire under test is connected to two brass rods about 30 cm long of their mid points by two screws fitted of the ends of the wire. The rods are suspended from hooks. Complete with three test wires with connecting screws.

245. **Rigidity Apparatus (Dynamical Method)**
It consists of an iron rod having length 16" and diameter 1". The circular rod is graduated 15-0-15 cm. The circular weight with thumb screw fits into the rod are provided.

SURFACE TENSION AND TERMINAL VELOCITY

246. **Slow Motion Stand (Rising Table)**
A machine cast aluminium table 10 cm dia having a stem of 12 cm can be lowered or raised to desired height and can be tightened with a thumb screw. In addition to coarse this movement fine adjustment is also provided by a flush in arrangement. The whole arrangement is fitted on a heavy circular base with three levelling screws.
247. **Rising Table Hand Operated**
248. **Quink's Surface Tension Apparatus**
This method is usually used for the determination of surface tension of mercury. It comprises a circular metallic plate with three levelling screws and a sensitive spirit level.
249. **Searle's Surface Tension Balance**
A cast iron base carries a vertical pillar tEirminating in a horizontal frame. A chrome plated steel wire is stretched across the frame. A light weight metal pointer approximately 200 mm long with an adjustable counterpoise is attached to the centre of wire by means of a small clamp. A plastic scale is carried on the end of an arm extending from the torsion frame and is calibrated 5-0-5 cm. A small mass pan of 40 mm dia is attached to the pointer. The sensitivity of the balance is ultimately dependent upon the modulus of elasticity of the torsion wire and supplied with wire.
250. **Jaeger's Surface Tension Apparatus**
This method is suitable for example for the

purpose of studying the variation of surface tension, with concentration of solution of common salt in water. Complete with manometer tube fitted on the stand, conical flask with side tube, dropping funnel, three different bore jets and a beaker etc.

251. Poiseuille's Viscosity Apparatus

With the help of this apparatus one can find the co-efficient of viscosity of water by noting its flow through a capillary tube of uniform bore. A capillary tube of fine bore is fitted on a wooden board. Then two ends are joined by rubber tubing and it joints to two upright glass L-shaped tubes forming the manometer with scale. With the help of a pinch cock, a steady flow of water is maintained complete with a three limbed constant level tank of brass on stand with rubber tube glass parts are made of coming glass.

252. Viscosity Apparatus Stoke's Method

This method is based on the application of Stoke's law to the fall of spheres through the liquid. With the help of this apparatus, we can determine the viscosity of a transparent liquids like glycerine or castor oil. A corning glass tube of 35mm dia and one meter long is made to stand firmly in between two upright bars with the help of clamps on a heavy cast iron base. Both sides of tubes are open. The lower side of tube is closed with a rubber plug and upper side is with rubber cork.

253. Viscosity by Rankine Method

This method was first described by Prof. A.C. Rankine in 1910 and one can find viscosity of gasses with this method. Consists of half elongated circular bent quill tubing of 3 to 3.5 mm bore. The free ends are joined by rubber tube to a capillary tube 0.1 to 0.2 mm diameter and 50 cm long. The whole arrangement is mounted on a wooden board.

254. Rayleigh Surface Tension Apparatus

255. Mayer's Viscosity Apparatus

By this apparatus one can determine viscosity of a liquid by oscillating disc method described by a.E. MAYER. A flat disc is suspended horizontally by a phosphorous bronze suspension which is attached to a rod rigidly fastened to the centre of the disc. This rod carries a cross bar whose ends have a screw thread, along which two masses are screwed to balance the disc horizontally. A small concave mirror is fastened to the rigid support complete mounted on base, but without lamp and scale outfit.

256. Viscosity of a Liquid by the Co-axial Cylinder (Viscometer Searle's Pattern)

The value of the co-efficient of viscosity for a liquid such as glycerine may be obtained at any desired height and inner cylinder is graduated in mms and slot is covered by a transparent cover, complete with scale pans and releasing pins.

257. Ring and Ball (Hand Form)

It consists of a brass ball of 25 mm in diameter, secured to a mounted brass ring by a chain. The ring is mounted on a brass rod with a superior quality wooden handle. When both ball and ring are of the same temperature, the ball passes easily through the ring. When the ball is heated, it will no longer fit until cooled or until ring itself is heated.

258. Bar and Gauge

Comprising a bar of iron 108 mm long x 11.5 mm diameter mounted on its mid-point on a support rod fitted with a wooden handle, and a brass gauge 150x28 mm with a cut out, with a wooden handle, which just admits the bar lengthways. Two holes are provided on brass gauge, which passes the circular bar endways when cold.

259. Compound Metal Strip

It consist of two different type of metal strips, joined together for their full length, with a wooden handle attached to one end. As the thermal expansion of the two materials is

728. Dummy With Maniken : Size app. 21"x21"x10". It is made of unbreakable material, i.e. Fibre glass reinforced-polyester-resin (FRP) which is a strong, durable, light weight, waterproof and unbreakable plastic, placenta and cord are with manikin. Every thing is being depicted in a natural way. Highly recommended for training 'Dais'.

729. Period of Gestation A set of 9 separate models. Most accurate showing Pregnant Uterus from 1 to 9th months on stand or on board. Consists of following stages :

1. An embryo about 6 days, old considerably enlarged.
2. Uterus with the embryo in the 1st month or gestation.
3. Uterus with embryo in the 3rd month of gestation.
4. Uterus with foetus in the 4th and 5th month.
5. Uterus with foetus, placenta and umbilic cord.
6. Uterus with foetus in 5th month.
7. Uterus with foetus in the 7th month of pregnancy.
8. Uteris with foetus in the 8th month of pregnancy.
9. Human Sperm.

730. Human Nose: Enlarged especially instructive double model to make clear the complicated structure of bones and the nasal cavity covered by muscous membrane. Different colouring of the individual cartilage and bone elements on base (with key card).

731. Human Nose L.S. On base with key card medium quality.

732. Human Reproductive System (Female) : (Section through female Pelvis). A very carefully prepared model showing all important reproductive Organs numbered clearly. Mounted on board. (with key card)

733. Human Reproductive System (Female): (Section through female Pelvis). A very carefully prepared model showing all important reproductive Organs numbered clearly. Mounted on board. SOMSO in 2 parts (with key card)

734. Human Reproductive System (Male) : (Section through male Pelvis). Showing all the important reproductive organs. Clearly numbered and may be identified with the attached key card. Mounted on board.

735. Human Male Reproductive System (Section through male Pelvis). Showing all the important, reproductive organs. Clearly numbered and may be identified with the attached key card. Mounted on board...SOMSO in 2 parts.

736. Female Pelvis With Baby (Female) showing engagement of child's head in vertical section of abdomen with pregnant uterus in the 9th Month, child could be taken out in order to show the exact position of placenta with its blood vessels. Mounted on base with key card. Dimensions overall app. 40x30x40 cms.

737. Uterus With fallopian tube with internal details clearly shown on base. Specially for Higher studies.

738. Endocrine System: Pituitary, thyroids, thymas, adenol, glands etc. Clearly shown. Large size.

739. Endocrine System: Pituitary, thyroids, thymas, adenol, glands etc Clearly shown. Medium size.

740. New Born Baby Approximately same size and weight of 6 week old baby, suitable for bathing in warm water with ball joints. So the arms and legs can be moved easily.

715. Human Digestive System (Elementary Canal) Extra Large size showing whole system from Buccal Cavity to Rectu Highly improved model, very instructive. Dissectable in three parts Size app 36"x16" (with key card)

716. Human Digestive System: (Elementary Canal) showing whole system from Buccal Cavity to Rectu. Highly improved model, very instructive. Dissectable in three parts. Medium Size app 24"x10" approximately. None Dissectable (with key card)

717. Human Nervous System: Extra large size showing all parts of central nervous system and their relation with skull, vertiberal column etc. size app. 16x36"(withkeycard)

718. Human Nervous System: Size 10x24" showing brain and detail of spinal cord and the nerves in their natural position in the body mounted on board. (with key card).

719. Human Respiratory System : With diaphragm Half Lung Dissected and other Lung shows complete outer structure Very instructive. Large model. Mounted on base (with key card)

720. Human Respiratory System: Showing clearly all important parts. Mounted on Board (with key card)

721. Human Skeleton System: Showing clearly the position and structure of all the bones in their natural position in the body. Mounted on board with key card. Dimensions overall 65x25x6 em. Size 10"x24" approx.

722. Human Skeleton: Life size. Height of Skelton is app. 5"-6". Material used is Synthetic plastic and Fibre glass Ariculation is done with utmost care so that movement of joints can be conveniently demonstrated. Articulated wi1hout stand.(with key card) medium quality.

723. Human Skeleton Articulated: Natural cast of the bones of a male adult in "SUMAPLAST" showing Life size. All the Anatomical details of the bone structure, skull with removable roof and lower Jaw (3 parts) Joints mounted and movable, upper and lower extremities removable. The right and left foot can be detached from the leg. Mounted upright on a stand. Best Quality.

724. Human Skeleten Mini with stand.

725. Human Skeleton (Mini) in plastic case fully labelle.

726. Demonstration Doll-Female: Full size (Nursing Training). This is equipped with meature, nasal passages and is painted with natural colours. A model suitable for the demonstration of the correctness position application of truses etc. It has an additional advantage of being equipped with urethral, vaginal and rectal passages, leading into an internal reservoir. Catheterisation, rectal anema, vaginal dooshing and insertion of cather in urethra can be demonstrated. Head'is movable in all directions arm and legs are flexible. Injection sites are marked. This model is made of fibre glass reinforced-polyester-resin (FRP) which is a strong, durable, light weight and unbreakable plastic.

727. Demonstration Doll (male): Full size. Nursing Training. This is equipped with meature, nasal passages and is painted with natural colours. A model suitable for the demonstration of the correctness position application of truses etc. It has an additional advantage of being equipped with urethral, vaginal and rectal passages, leading into an internal reservoir. Catheterisation, rectal anema, vaginal dooshing and insertion of cather in urethra can be demonstrated. Head is movable in all directions arm and legs are flexible. Injection sites are marked. This model is made of fibre glass reinforced-polyester-resin (FRP) which is a strong, durable, light weight and unbreakable plastic.

unequal, the bar bend when heated-. Four different types of compound metal strips are available.

- (a) Iron & Aluminium
- (b) Iron & Brass
- (c) Iron & Copper
- (d) Brass & Copper

260. Oxygen Generator

Body made of heavy chrome plated brass with separate brass head and delivery tube, held tightly by means of screw clamp. Superior quality.

261. Linear Expansion Apparatus (Horizontal or Vertical Pattern)

In addition to providing data of good precision, leading to accurate determination of the co-efficient of expansion, this apparatus illustrates and gives the students experience in a practi cal application of the spherometer, as a measuring tool. The appt. consists of steam jacket (brass pipe) 50 cm long and 2.5 cm dia with inlet and outlet tubes for steam and opening for thermometer, fitted with spherometer. The spherometer read to 0.01 mm. The exact setting at which it contacts rod may be indicated, if desired by using an electric contacting circuit, such as dry cell or buzzer. Complete with 3 test rods.

262. Searle's Apparatus for Thermal Conductivity of Copper

Comprising a copper bar of 25 mm in diameter and 300 mm in length fitted with a steam jacket heater at one end to be supplied from a steam boiler, and a copper water cool spiral at the other end. The bar has tubes for inlet of water and for thermometers. Fitted in a superior quality wooden case. Packed with felt for thermal insulation and with removable from the front showing the construction. Supplied without steam boiler and thermometer.

263. Searle's Apparatus for Thermal Conductivity of Copper

Same as Cat.No. 337 but with copper bar of 37 mm in diameter.

264. Lees' and Charlton's Apparatus

For determining the relative conductivity of thin layers of materials, it consists of cylindrical brass slab of 11 cm dia and 10.5 mm thick. On this, rest 4.5 cm deep brass hollow cylinder (steam chest) of the same dia with inlet and outlet tubes for steam. A hole for thermometer is drilled radially in each, and the cylindrical brass slab is fitted with eyelets to enable it to be suspended by three strings from stout annular ring. The ring is held on a heavy Retort Stand complete as above with accessories but without thermometer.

265. Searle's Appartus for Thermal Conductivity Copper

Same as Cat. No. 337 but with copper bar of 37 mm in diameter.

266. Lee's and Charlton Appartus

For determing the relative conductivity of thin layers of materials of cylindrecaal brass slab of 11cm dia and 10.5 mm thick. On this, rest 4.5 cm deep brass hollow cylinder (steam chest) of the same dia with inlet and outlet tubes for steam. A hold for thermomter is drilled radially in each, and the cylindrical brass slab is fitted with eyelets to enable it to be suspended by three string form stout annular ring. The ring is held on hevey Retort Stand complete as above with accessories but without thermometer.

267. lees' and charlton's Appartus

Same as above, only brass cylindrical slab is replaced by iron cylindrical slab.

268. Thermal Conductivity of Metal Apparatus

Comprising strips of copper, iron, aluminium and brass with nominal thermal conductivities of 395,72,240 and 128 Wm'K' respectively mounted on a wooden ring.

269. Copper Calorimeter (Wooden)

It consists of a rectangular wood box fitted with thermometer holder and packed with felt for thermal insulation. It consist of c.opper vessel of 3"X2" size. Supplied with copper stirrer but without thermometer.

- 270. Copper Calorimeter (Wooden):**
Same as above but with copper vessel of 4"X3" size.
- 271. Joule Calorimeter (3"X2")**
It consist of copper vessel of 31X2" with outer vessel as a superior wood box fitted with bakelite lid with hole for thermometer and stirrer. Supplied w/o thermometer.
- 272. Joule Calorimeter (4"X3")**
Same as above but with copper vessel of 4"X3" size.
- 273. Constant level Tank**
Brass C.P. on metal stand.
- 274. Spherical Calorimeter**
A copper sphere 50mm diameter for the verification of Newton Laws. The sphere is drilled with an 8mm diameter radial hole to take a thermometer and is provided with several hooks. Supplied without thermometer.
- 275. Capillary Tube Apparatus**
For demonstrating the different thermal expansions of various liquids. Comprising five Capil-lary Tubes, mounted in a frame and supported in unbreakable PLEXI GLASS container. The frame has clamps to secure it to the container.
- 276. Hypsometer Copper**
Comprising a copper boiling vessel with a steam jacket in a tube. A lid with a tubule is provided which holds the thermometer under test in a cark, supplied w/othermometer.
- 277. Hope's Apparatus**
Comprising a cylindrical vessel, surrounded by annular trough, in which a mixture of ice and salt. The respective temperature of the water of the top and bottom of inner cylindrical vessel are measured over a period as the water cools. Supplied without thermometer. Made of :
(a) G.I. Sheet
(b) Brass

- 278. Steam Boiler, Copper**
Cylindrical body with conical top and short neck for bung. Fitted with steam outlet tube for rubber tubing. Available with three different capacities.
(a) 1 Litre
(b) 2 Litre
- 279. Steam heater Copper**
Comprising a cylindrical copper boiler of size 150mmx1 00 mm with an inclined brass heating chamber 25mm diameter, closed by sliding inner tube provided with bakelite top. On raising the inner tube slightly the heated material slides down, the chute into the calorimeter. Thick copper jointless pot is used. The body is provided with a long steam outlet tube to prevent any possibility of scalCling the user's hand.
- 280. Newton's Law of Cooling Apparatus**
Consists of two copper calorimeter 21X1" resting inside a trough which stand in an outer tank. The latter is fitted with a wooden top with two holes for thermometer, without thermometer, but with stirrer. The outer tank is made from G.I. Sheet.
- 281. Newton's Law of Cooling Apparatus**
Same as above but outer tank is made of Brass sheet,
- 282. Newton's Law of Cooling Apparatus (University Pattern)**
Comprising two units each having a double walled jointless brass vessels richly nickel plated and highly polished with non conduction cover through which is suspended 7.5x5 em size copper calorimeter from dust and heat losses. The annular spaces between the double walled veseels are connected by T Tubes, which enable water of some temperature to be kept circulating through them, superior quality.
- 283. Constant Volume Air Thermometer**
This is very economical but dependable form of Air Thermometer. It consist of a vertical wooden board fixed to a horizontal wooden

parts. Export quality. School pattern small size. But teeth is not removable (with key card)

700. Human Upper And Lower Jaw:
Showing various positions of teeth in the upper and lower jaws, internal wall is removed to show the incisors, permanent Canine and permanent pre molilers milk canine, milk premollers, permanent incisors in full view an also the arteries, veins and nerves serving them complete model mounted on a base. (with key card)

701. Model of A Set of Teeth (Tooth Care Model) : Enlarged Approx. 3 times with large tooth brush, to demonstrate how to brush one's teeth in 'SUMAPLAST' without stand and base. Model shows the Denture and palate of an adult.

702. Human Skin and Hair Modol : Three hundred times enlarge V.S. Showing the three layers, Subaceous and sweet glands, the hair follicles, errator muscles, arteries, nervious and veins etc. which are clearly number and be identify with the attach key card.

703. Human Larynx : Dissectable into two parts, showing clearly the arteries, veins, nerves cartilages, ligaments and attachments of muscules. All parts clearly numbered and may be identified with the attached key card. On base.

704. Human Heart: Extra Large size and highly detailed model carefully coloured and finished,

dissectable into 2 parts showing heart on diaphragm. Complete model of heart mounted on base. Showing all the important features complete with key card.

705. Human Heart: 4 times enlarged. Set on stand separatable into 5 parts very detailed depicting minute details of heart 4 chambers and their communicators, valves in details,

pulmoncry and with their valves.On the back trachea can be see. (with key card).

706. Heart Model-2 : 2-3 times enlarged dissectable into 2 parts. Showing clearly the main blood vessels. All structure of auricles and ventricles. All imported internal structure can be seen and be identified with the key card mounted on stand.

707. Heart Model-4: 2-3 times enlarged dissectable into 4 parts. Showing clearly the main blood vessels. All structure of auricles and ventricles. All imported internal structure can be seen and be identified with the key card mounted on stand.

708. Lungs Model: Life size 1 lungs dissectable in 2 parts on stand.

709. Human Lungs With Heart: Diaphragm & Larynx Model. Novel model, Dissectable into 6 parts with Dissectable Larynx, Heart Dissectable and removable to show more Elaborate details. Attached with Diaphragm. Most Instructive, Best quality on base (with key card)

710. Human Lungs With Heart: Dissectable into 4 parts heart, both lungs can be taken out on base. (with key card)

711. Kidneys Model dissectable in 2 parts on stand.

712. Kidney with Bladder Model: One Kidney dissected showing internal details.

713. Human Blood Circulatory System: Extra Large size, showing blood circuliJtory system in Arteries and Veins Very instructive model on base Size 36"x16" approximately (with key card).

714. Human Blood Circulatory System: Showing blood circulatory system in Arteries and Veins. Very instructive model on base Size 10"x24" approximately (with key card)

- 686. Human Body Of Youngman** (With partial musculature) Natural height (90 cms approx.) set on pedestal with head with sterno abdominal wall; in 11 parts approx. all sections visceral organs detachable individually with further sections for lung, heart, kidney, skull cap is detachable to expose brain in 2 parts. One side depicts Muscles and other side skin level complete with Arms & legs. (with key card)
- 687. Human Head & Neck :** Set on stand. Both external and longitudinal section through skull, brain nasal chamber, buccal cavity, laryngeal and pharyngeal regions. (with key card).
- 688. Human Head & Neck L.S. :** Showing the sectional view, the bones of the cranium the cavities, cerebrum, cerebellum spinal cord, nose and throat cavities, larynx, tongue, palate. Oesophagus are visible in medium section on base (with key card)
- 689. Human Brain- 2 :** Brain separatable into 2 parts without base detachable to study brain in detail viz Medulla, Pons, cerebellum, cerebrum different ventricles etc. Life size (with key card)
- 690. Human Brain :** Brain separatable into 2 parts on stand detachable to study brain in detail viz Medulla, Pons, cerebellum, cerebrum different ventricles etc Life size (with key card)
- 691. Human Brain-4 :** Brain separatable into 4 parts detachable to study brain in detail viz Medulla, Pons, cerebellum, cerebrum different ventricles etc. Life size (with key card).
- 692. Brain & Skull :** Set on base. Brain detachable into 2 parts can be taken of the skull to study the interior of skull, brain in detail viz medulla, pons, cerebellum, cerebrum different ventricles etc. (with key card).
- 693. Human Eye :** Highly improved and extra enlarged model sculptured to illustrate fine details in 3 dimensional presenting many featured not found in ordinary model The model is separatable into 7 parts with tears gland on base. (with key card)
- 694. Eye Model:** 5 times enlarged dissectable in 7 parts.
- 695. Human Eye With Orbit:** Mounted on stand provided with an orbit to give clear idea of eye.
- 696. Human Ear:** Enlarged 4 to 5 times. Set on board dissectable into 5 parts showing external, middle and Internal position Oscles and Labyrinth can be taken out. All parts clearly numbered and may be identified with the attached key part. For higher studies, (With key card)
- 697. Human Ear:** Set on base dissectable into 3 parts showing external middle and internal position. Osciles and Labyrinth can be taken out. All parts clearly numbered may be identified with the attached key part. School pattern (with key card)
- 698. Human Lower JawWith Teeth:** Enlarged internal wall is removed to show the incisors, milk, canine, milk, premolars, molars, permanent incisors, permanent canine and permanent premolars in full view as also the arteries, vein and nerves serving them on a large board. All important parts are clearly numbered any may be identified with the attached key card Dissectable, into 3 parts Export quality (with key card)
- 699. Human Lower Jaw with Teeth:** Enlarged internal wall is removed to show the incisors, milk, canine, milk, premolars, molars, permanent incisors, permanent canine and permanent premolars in full view as also the arteries, vein and nerves serving them on a large board. All Important parts are clearly numbered any may be identified with the attached key card. Dissectable into 3

base. A meter scale is fixed to a vertical board with its zero marked at the lower most position. Three glass parts, a bulb of 4 mm dia approx. an elbow tube and a straight glass tube are connected by 3-way stopcock and rubber tubing. Adjustment of mercury level is accomplished by sliding long glass tube in its clamp until the level in the short tube has reached some arbitrary reference line. Copper vessel 1 Ox7.5 cm surrounding the bulb supported by detachable shelf mounted on the same wooden stand in the form of mercury tray. All glass parts are of corning glass. Complete with pressure rubber tubing and copper vessel.

284. Constant Pressure Air Thermometer

Comprising a glass U- Tube of 1 Omm diameter tubing. The left hand limb of V-tube is graduated 0.60 ml and connected to a detachable Air Thermometer bulb having 4 cm dia via 3-way stopcock and sliding indicator on right hand limb to obtain level. U-tube is connected by rubber tubing to reservoir tube sliding on a vertical rod. Copper vessel 1 Ox7.5 cm surrounding the bulb supported by detachable shelf mounted on superior quality polished wooden stand with base in the form of mercury tray. Glass parts made of corning glass.

SOUND

285. Wave Motion (24-Pulleys)

It consists of 24 nos. aluminium disc supporting a series of iron-nickel rods. By revolving the handle, the motion is transmitted successively from one rod to the next, operating as a wave travelling to the top and back, by this, movement of waves can be observed. All metal parts fitted on a superior quality polished wooden board.

286. Siren with Indicator With a carefully pivoted siren disc and double indicator.

287. Reflection of Sound Apparatus

For proving that angles of incidence and reflection are equal for any setting. A

protractor (actual D) is screen printed on a superior quality polished board. It consists of two independent arms containing 12" long stainless steel pipes. When one arm is set at any arbitrary angle and other is adjusted until, one listen the maximum sound. At the position of maximum sound two angles will be equal as indicated by the Dreading.

288. Ripple Tank

Having metallic trough of about 30x30 cm size only. With electrically operated control box for operating the ripple producer as well as for lighting the reflecting unit with Speed control is actuated by a wire wound potentiometer. Instructions manual included. Superior Quality
12"x12"
18"x18"

289. Sonometer (Teak wood Brass fitting)

Comprising superior resonance box 1140x125x100 mm with meter scales one meter long sub-divided in millimeters. One each brass and steel wires of S.W.G. 26 and 24 respectively, attached to a fixed bridge and tensioned by fine adjustment pegs; two moveable bridges, pulley and fixed screw to enable a third wire to be fixed for tensioning by weights. Wooden Resonance Box is made of teak wood and all metal parts are of brass.

290. Sonometer (Seasonal wood Brass fitting)

Same as above but resonance box size is 1140x100x80 mm. and made of superior seasonal wood.

291. Sonometer (Seasonal wood Aluminium fitting)

Same as above but resonance box size is 1140x100x80 mm. and made of superior seasonal wood and brass parts is replaced by Aluminium.

292. Slotted Weight

For use with above type of sonometers. Capacity 500x5 gm iron black painted.

- 293. Resonance Apparatus (Brass Pipe)**
A brass tube 1 .10 mm in length x 25 mm dia is mounted on stand. Brass tube and meter scale is fitted on a superior quality polished wooden board. The lower end of the brass tube is sealed into a metal cup having a side tube connected by rubber tubing to a brass reservoir, also mounted on the support rod but with elevation adjustment.
- 294. Tuning Fork**
C.P. set of 8, frequency marked on each tuning fork in velvet case.
- 295. Tuning Fork (PYE Type)** Superior quality, set of 8 chrome plated, each tuning fork marked with its number of vibrations.
- 296. Tuning Fork (RAG's Type)** Superior quality, set of 8 chrome plated.
- 297. Tuning Fork (WELCH Type)** Superior quality set of 8 in velvet case.
- 298. Tuning Fork (WELCH Type, Heavy Weight)**
Superior quality set of 8 in velvet case.
- 299. Rubber Pad** For striking tuning fork.
- 300. Rubber Hammer** For striking tuning forks
- 301. Spiral Spring**
For demonstrating the wave motion, this is a closely coiled iron spring, having ideal characteristic for demonstration wave motion.
- 302. Spring Constant Apparatus**
Half meter scale with spring and pointer, fitted on painted cast iron base. With steel C.P. Rod approx. 1 meter long without slotted weight.
- 303. K.Constant Spring Apparatus**
25mm dia and 20cm. long spring suspended in a chucknut in a heavy metal stand. A pointer is provided in the spring which moves on graduated aluminium square pipe 2.5 em.

for accurate reading. Supplied without weight.

- 304. Melde's Apparatus (INCO Pattern)**
A sturdy streamlined base with provision for horizontal or vertical views.
- 305. Vibrating Bar**
The vibrating bar also gives stronger and more sustained vibrations. Energised through a 6V electromagnet. On a heavy wooden base. 12" bar chrome finished.

POLARIMETER

- 306. Student Polarimeter (Half Shade)**
Specially designed, easy to use, moderately priced for colleges and research laboratories for determining the specific rotation of optically active substance. Our polarimeters are now extensively used in Industrial laboratories as well. A corning glass tube is enclosed in a circular aluminium tube with top door for access and exclusion of external light. The circular scale is attached near to analyzer and a range of measurement is 0-360°. Vernier moveable on the scale enables reading of optical rotation to 60 seconds. Worm and gears combines rough and fine adjustment, provided with HALF WAVE MICA PLATE giving three parts field for easy setting adjustable half shadow angles. The instrument can be used on monochromatic light. The light when passes through a polarized sheet and then through the solution. The emerging light is then observed through a rotatable polarized lens analyser which is used as eye piece. The angle of light is rotated and read directly of the circular scale. Supplied on the adjustable stand, packed in cardboard box.

- 307. Student Polarimeter (Bi-Quartz)**
Same as above fitted with Bi-Quartz in place of mica, giving coloured distinction, accuracy $\pm 5^\circ$.

- 308. Plywood Cabinet**
Spare plywood cabinet for above type of polarimeters.

bottom, hinged top lined with printed index sheet and bottom with velvet. Fitted with brass clips and index card holder. Spirit polish finish.

- a) Cap. 100 slides
b) Cap. 50 slides
c) Cap. 25 Slides

- 668. Slide Tray-Aluminium**
Anodized aluminium fabrication. To hold 75mmx25mm glass slides in horizontal position. Cap 20 slides.

GENERAL BIOLOGICAL INSTRUMENTS

- 669. Arc Indicator**
All metal but small size
- 670. Arc Indicator**
All metal big size.
- 671. Auxonometer** With new machinery having start and stop system. Aluminium pull and plate provided with brass clamp for adjustable fitting a point and recorder and fitted with fix rod on heavy Cast Iron base. **2700.00**
- 672. Clinostat** Fitted with new machine on heavy metal base.
- 673. Clinostat Electrical** : Philips Harris Pattern Superior Quality.
- 674. Dissecting Box** 17 instruments of stainless steel.
- 675. Dissecting Box** 17 instrument Most superior quality.
- 676. Dissecting Tray** Rectangular with flanged edge made from thick G.I. sheet rust proof. Without wax.
Size: (a) 8"x10"
Size: (b) 10"x12"
- 677. Dissecting Tray** Rectangular with flanged edge made from thick G.I. sheet nicely painted

inside white and outside black. LEAK PROOF. Without wax.

Size: (a) 8" x 10"
Size: (b) 10" x 12"

- 678. Dissecting Tray** Enamelled Made from thick mild steel sheet, nicely enamelled.
Size: 30x25x5 cms

- 679. Dissecting Board**
Soft wood with heavy lead lining
Size:(a) 20x15 cms
(b) 25x20 cms

- 680. Thermocouple** fitted on wooden base
A. Copper + Constantan
B. Copper + Iron
C. Antimony + Bismuth

- 681. Solar Cooker** Small pattern, Demonstration model.

- 682. Water Turbine with Dynamo** : Made of cast iron & fan is made of plastic with water inlet and outlet. Bulb will glow when water flows through its inlets. Working model.

- 683. Wind Mill Model** Operated by hand working model.

FIBRE GLASS MODEL HUMAN ANATOMICAL MODELS

- 684. Human Torso With Head:** Natural size, dissectable into 13 parts approximately, on pedestal, without sterno-abdominal wall but with ribs, sternum, clavicle with their attachments. Thoracic and abdominal organs detachable individually. Lungs, heart, intestine further sectioned for detailed study; half of skull cap removed and brain can be taken out exposing the interior of the skull. Sectioned head and neck depicts internal organs of the region sexless (with key card).

- 685. Human Torso:** in 10 parts approximately.

647. Liquid Lens Pointer It consist of 4" Brass metal alongwith ring to hold suitable any retort stand. Supplied without retort stand and lens.

MICROSCOPE ACCESORIES

648. Optics set Two eye pieces 10x, 15x or 5x and two objective 10x and 45x spring loaded made from superior lenses accurately mounted. Most superior quality.

649. Huygenian Eye Pieces

Huygenian 10x or 15x

650. Pointer Eye Piece

10x or 15x Huygenian eyepiece accurately centered & fitted with fine pointer. Supplied in Velvet Case.

651. Pointer Eye Piece Spare 5x

pointer Huygenian in velvet box.

652. Wide Field Eye Piece 10x very superior

quality Plain coated.

653. Achromatic Objectives

- (i) Spare 5x objective
- (ii) Spare 10x objective
- (iii) Spare 45x objective (Spring Loaded)

654. Oil Immersion Superior Quality

100x spring loaded German Silver.

655. Micrometer Eye Piece

1 Ox(H)(0-1 00) Ocular

656. Micrometer Eye Piece

10x Cross line

657. Micrometer Eye Piece

10x Graph

658. Condenser

- A) Two lens NA 1.2 with iris diaphragm for Studet Microscope.
- B) For Medical/Research Microscope.

659. Camera Lucida (Mirror Type)

By this apparatus it is possible to draw the image seen in the microscope. The mirror reflects the Pencil point image into an able

prism clamped over the eye piece and super imposes it upon the specimen image. The prism box is hinged for quick change of eye piece for normal observation complete in velvet box.

660. Camara Lucida (Prism Type)

Consist of optical glass prism bloomed and aluminised. It can be fitted to eye-piece tube of any microscope to examine or plot the image of specimen duly enlarged on the screen. Complete in velvet box.

661. Detachable Mechanical Stage

It can be fixed to all standard Microscope. Heavy pattern, superior quality.

662. Microscope Reflector

50 mm dia plane and concave mirror mounted in metal ring best quality.

663. Metallic Arc

To hold 50 mm dia reflector, Brass C.P.

664. Micro Cover Glasses

- A. Square Size 18 mm x 18 mm
- B. Round 18 mm

665. Iris Diaphragm

Made from Phosphorus Bronze sheet, highly oxidised.

SLIDE BOX

666. Slide Box

For keeping 75 mm x 25mm glass slides in vertical position in serially numbered wooden grooves individually. Teakwood frame, sun mica top, plywood bottom, hinged top lined with printed index sheet and bottom with velvet. Fitted with brass clips and index card holder.

- a) Cap. 100 Slides
- b) Cap 50 Slides
- c) Cap. 25 Slides

667. Slide Box-Routine

For keeping 75 mmx25 mm glass slides in vertical position in Alluminium grooves individually. wooden frame, plywood top &

309. Spare Polarimeter Tubes

With bulb in the centre, 100 mm or 200 mm in velvet lined case. The ends of the tubes are threaded to receive the interchangeable brass cap.

310. Newton's Ring Microscope

Compact form with all the necessary arrangements for conducting Newton's ring experi-ment. A standard microscope unit with 30x magnification and rotatable cross line, complete with beautiful storing cabinet.

311. Newton's Ring Apparatus

A pair of glasses, one plane and the other slightly convex of 50 mm dia in metal frame with three screws for applying pressure.

SPECTROMETER

312. Spectrometer

College pattern brass parts, most superior quality designed to give maximum accuracy; with duco painted body in beautiful strong cabinet scale 6" Brass

313. Spectrometers

Deluxe Model, designed to give maximum accuracy protected circle of stainless steel. Vernier reading to 1 minute or 30 seconds. With Special Micrometer heads to move the Telescope adn Colli meter in the vertical plane, for alignment adjustments. Highly recommended for precision work. Complete in polished cabinet with lock and key scale 6" Brass

ACCESSORIES FOR USE WITH SPECTROMETERS

314. Polariser and Analyser (Polaroid)

This apparatus comprises two identical units each provided with polaroid disc mounted in a rotatable mount, with and aperature of 25mm. Both rotatable mounts have a lever to add rotation and a pointer which traverses

a 75mm diameter brass silvered scale divided into 360° x 1°. Size is universal and can fit to any size of collimator and telescope.

315. Sodium Vapour lamp GE/Osram/Philips - a) 35 Watts

b) 55 Watts

316. Wooden Box for Sodium Vapour Lamp/ Mercury Vapour Lamp

The box is rectangular in shape and provided with slits on four sides equally spaced to enable four experiments to be performed. simultaneously using one light source. Each slit is provided with a cover so that it can be closed when not required. Bulb holders of finest quality is fitted in wooden box with special cord.

a) Wooden Box for 35 W lamp

b) Wooden Box for 55 W lamp

317. Sodium Vapour Lamp Transformer

High grade laminations are used to avoid losses. This transformer is an Auto Leak type, giving a starting voltage 440V which automatically reduces when the lamp has struck.

a) 35 Watt

b) 55 Watt

318. Single Slit

All matallic diffraction grating clamp type and is fitted on prism table of spectrometer for interference of light experiment.

319. Double Slit

All metallic diffraction grating clamp type and is fitted with two micrometers screw slides forming a double slit with fine edges in the centre of the vertical clamp holding device. Very superior quality.

320. Gauss eye piece

Ramsden eye piece with a plain glass plate held between lens and eye lens at an angle of 45°.It can be replace the normal spectrometer eye piece when aligning the instrument.

321. Hollow Glass Prism

Made of ordinary glass plates properly cemented with optical cement. Two different sizes.

- a) 38 x 38 x 38mm
- b) 50 x 50 x 50mm

322. Diffraction Grating

Hilger & Watt type size 38x50 mm
Approximately 15000 lines per inch for use in the standard holder in the spectrometer table.

323. Spectrometer Prism: Equilateral two face polished 32 x 32mm height

Nature of Glass
R. Index Approx.

- a) Borosilicate Crown Glass Prism
1.51
- b) Dense Flint Glass Prism
1.62
- c) Extra Dense Flint Glass Prism
1.65
- d) Double Extra Dense Flint
1.70

324. Spare 10 Ramsden Eyepiece

Superior quality 10x Ramsden eyepiece, suitable for all reading telescope, vernier microscope and spectrometers.

325. Ramsden Eyepiece 10x with Holder

Complete with Cross-wire graticule along with brass holder and eyepiece.

READING TELESCOPES**326. Reading Telescope**

Focussing from one meter to infinity, provided with high class optical combination and brass C.P. fittings, nicely duco painted. Complete with perspex scale.

327. Reading Telescope Standard

Same as above but provided with up and down motion.

328. Reading Telescope Deluxe: Improved Design

Same as above but with extra heavy base and provided with up and down and to and fro motion. Complete with high class optical combination and perspex scale. with cross line graticule for better performance with cross line hair

ASTRONOMICAL CUM TERRESTRIAL TELESCOPE**329. Astronomical cum Terrestrial Telescope Combined**

Length of telescope is about 67cm. and fitted with 50mm dia glass objective 60x with large size. High powered eye piece, mounted on C.P. Brass Pillar, universal mount on painted metal stand. The telescope is provided with an extra erector tube which can be screwed into the main tube after removing eye piece. Packed in velvet lined case.

A) With achromatic lenses and superior fittings

OPTICAL BENCH**330. Optical Bench Double Rod Standard Pattern (One Meter Long)**

For Research works consists of two rods of different metals as per requirement, supported by heavy cast iron feet, provided with 4 metal riders and 4 accessories. Two of the sliders have transverse motion and one rod is engraved in mms. Improved design one meter long.

- a) Having both steel C.P. rods.
- b) Having both brass pipes inside shafting.
- c) Having both S.S. rods instead of steel rod.

331. Optical Bench Double Rod Standard Pattern (1.5 Meter Long)

Specifications are same as above but the rods are supplied with 1.5 meter length.

- a) Having both steel C.P. Rods

BIOLOGY

METER SCALE**635. Meter Scale**

Made from Seasoned wood, machine graduation in cm both side with clear and accurate division
one meter long
half meter long

WEIGHT BOXES AND ACCESSORIES**636. Analytical Weight (A Grade)**

Brass C.P. weights with brass forceps, in beautiful cabinet polished wooden box with superior packed.

- Capacity 1 mg
- a) 50 gm
 - b) 100 gm
 - c) 200 gm
 - d) 500 gm

THERMOMETERS**637. Clinical Thermometer**

This is a four inch, oral type one minute clinical thermometer magnified column with construction in bore to retain mercury. The range is 94°F to 108°F in 0.2°F division. A carrying case is included.

638. Maximum and Minimum Thermometer

For indicating the maximum and minimum temperature reached since the previous settings. This is the most economical and practical instrument to mount in or out of doors. the plastic scale has a large easy to read scales and numerals. Mercury filled tube on plastic scale with black graduations. Mounted on a superior quality wooden frame, deluxe quality.

639. Wet and Dry Bulb Thermometer

Comprising two thermometer on plastic scales graduated - 10°C to 50°C mounted on a wooden frame. One thermometer bulb is covered with muslin wick connected to water reservoir which keeps it moist.

640. Wall Thermometer

On wooden base with superior quality screen printed scale.

GEOMETRICAL MODEL AND FIGURE**641. Geometrical Instrument Box**

A pair of set squares, protector, divider, scale and a duster housed in a beautiful wooden box. All the instruments made from superior seasonal wood.

642. Geometrical Instrument Box

Same as above but all the instruments are made of plastic.

- a) Superior Quality
- b) Routine Quality

643. Specific Gravity Bottle Borosil Glass

Spherical Pattern. The volume of the bottle at 27°C is accurately adjusted to the value etched on the surface. The bottle and capillary stopper are numbered for identification made from corning glass. Cap.

25cc

50cc

100cc

644. Butterfly Net/Faraday's Bag

For showing that an electrostatic charge is always on the outer surface. The conical shaped silk net is attached to a ring mounted on an insulating stand and may be turned inside out by means of attached strings.

MIRROR & LENSES**645. Cover Slip** 18 mm superior quality in 10 gm pack. Blue Star.

A. Round (20 pes.)

B. Square (20 pes.)

646. Set of six lenses Set of six different lenses in superior velvet lined case.

629. Constant Temperature Refrigeration Liquid Bath RH-273
Chamber size: 500 x 250 x 250mm.

Optional Accessories: (Extra Cost)
l) Digital temperature controller-cum-Indicator instead of contact thermometer.

630. Refrigerated Liquid Bath RH-274
Chamber Sizes: 450 x 300 x 300 mm.

631. Water Bath Incubator Shaker RH-275 (Metabolic Shaking Incubator)
Inner chamber sizes In mm:
a) 275 x 275 x 150
b) 405 x 300 x 150

Optional Accessories: (Extra Cost)
Shaking Tray for 25ml, 50ml and 100ml anyone.

632. CHEMICAL BALANCE : 'NATIONAL' MAKE

	<u>Capacity</u>	<u>Sensitivity</u>
a) Gunmetal Beam Sunmica Base	200gm	1/5mgm
b) Gunmetal	200gm	1/5mgm

All Parts are
Nickled

633. ANALYTICAL BALANCE : 'NATIONAL' MAKE

	<u>Capacity</u>	<u>Sensitivity</u>
a) Magnesium flat beam sunmica base	200gm	1/10mgm
b) Gunmetal flat beam Bunge type sunmica base	200gm	1/10mgm
c) Air damping device (Triangular beam Sunmica base	200gm	1/10mgm

634. ANALYTICAL CHAINOMATIC : 'NATIONAL' MAKE

	<u>Capacity</u>	<u>Sensitivity</u>
a) Analytical chainomatic Balance sunmica base	200gm	1/10mgm
b) Air damping device type sunmica base	200gm	1/10mgm
c) Air damping device with Rider facility (01gm to 1gm)	200gm	1/10mgm

b) Having both brass pipes inside shafting.

c) Having both S.S. rods instead of steel rod.

ACCESSORIES FOR OPTICAL BENCH

332. Ground Glass Screen with stand.

333. Universal Lens Holder Metallic (moulded from aluminium alloy) nicely finished for mirrors and lenses, with adjustable stand pye type heavy pattern.

334. Auto Action Lens Holder All brass, heavy type spring action lens holder useful for Bi-Prism and many other laboratory experiments with stand.

335. Parallax Pin Iron C.P. rust proof 1/4"x4"

336. Parallax Pin On adjustable. A base stand 1/4".

337. Candle Holder All metal on adjustable stand.

BI-PRISM ASSEMBLY

338. Bi-Prism Assembly without Optical Bench

Consist of following apparatus:

a) BIPRISM HOLDER: has fine radial motion by a fine pitch screw.

b) AUTO ACTION LENS HOLDER: with automatic spring action for equal opening & closing of both sides.

c) MICROMETER EYEPIECE: Ramsden Eyepiece, 10x is carried on a slider which moves

along a micrometer screw. Perfectly made.
d) OPTICAL SLIT: Optical true, precision ground stainless jaws, spring action for opening of jaws eliminated to ensure original accuracy even after prolonged use. Jaws open uniformly all along through a milled head, Jaw alignment tested for optical accuracy.

Made for a lifetime of accurate use.

339. Bi-Prism Assembly complete with Optical Bench double rod standard pattern 1½ meter long of brass pipe. (Inside shafting)
Complete with optical bench of Brass pipes and Bi-Prism assembly but without Fresnel Bi-Prism.

340. Fresnel's Bi-Prism Low angle

a. 32x40mm
b. 40x50mm

NODAL SLIDE ASSEMBLY

341. Nodal Slide Assembly

Consist of following items:

(a) NODAL UPRIGHT: Consists of a combination of Single & double lens holders on a mounting rotating along the vertical axis. The combination lens holders are adjustable in height, and the single & twin lens hold-ers can either be moved together by rack & pinion or relative to each other by sliding. These motion are read by individual pointers on a mm scale. The whole mount can rotate along its vertical axis and the degree of rotation read on a circular scale with 3" steel C.P. stem.

(b) MIRROR: Plain, inclinable with 3" steel C.P. stand.

(c) OPTICAL SLIT: with fine machined cross slit, one surface white & the other optical black, with 3" steel C.P. stem.

(d) LAMP HOUSE: an electric bulb is encased in a metal case with cord & pin. It works on 220V.

342. Nodal Slide Assembly complete with Double rod standard Optical Bench 1½ meter of Brass Pipes (inside shafting).
Complete with optical bench of brass pipes (inside shafting) as per above and Nodal Slide Assembly.

MODELS BELONGING TO OPTICAL SECTION

343. Model of Compound Microscope New Design export quality.

We also deal in :

Laboratory Chemicals, Glasswares, Maps,

Charts, Models & Geographical items

- 344. Model of Astronomical Telescope** New designed export quality.
- 345. Model of Gallileon Telescope** New designed export quality.
- 346. Model of Terrestrial Telescope** New designed export quality.
- 347. Newton Colour Disc** Stand with driving wheel, belt and handle.
- 348. Pin Hole Camera** Brass N.P.
- 349. Kaleidoscope** Brass N.P.
- 350. Periscope** Made from seasoned wood, superior quality.

MIRROR & LENSES

- 351. Convex or Cancave Mirror** Highly silvered optically true, special quality FL 10,15, 20, 25
Diameter A. 50 mm
B. 75 mm
- 352. Lens** Spherical highly polished and well edged, manufactured from glass plate dia 50 mm
Focal length : Double Convex
5 cm
10 cm
15, 20, 25, 30, 50 & 100 cms
Focal length : Double Concave
5 cm
10 cm
15, 20, 25, 30, 50 & 100 cms
- 353. Hand Megnifier** Chrome Plated with handle Superior Quality
50 mm
75 mm
100 mm
- 354. Glass Slab** Moulded block for refraction experiments, all sides polished edges slightly bevelled. 75x50x18mm

- 355. Glass Prism** Equilateral or right angled with polished faces.
38mm
50mm
- 356. Glass Prism** Equilateral or right angled. Superior quality bubble free.
38mm
50mm
- 357. Gas Jar Cover** Ground glass well edged size 75mm
- 358. Cover Slip** 18 mm superior quality in 10 gm pack. Blue Star.
A. Round (20 pes.)
B. Square (20 pes.)
- 359. Set of six lenses** Set of six different lenses in superior velvet lined case.
- 360. Mirror Strip**
A. 75x50 mm
B. 100 x 25mm
- 361. Oscilloscope 10 MHz**
Oscilloscope with frequency bandwidth of 0-10 MHz and sensitivity of 10m V /DIV -5V/DIV. Equipped with 10:1 probe could obtain 50V/div. Sweep rate at 0.1S/DIV - 0.1S/DIV on horizontal system. The oscilloscope is easy to operate, and highly reliable. It also provide many convenient feature and special functions which make itself an ideal instrument for research, production, education, and development in electronic device or circuitry.
- 362. Oscilloscope 20 MHz**
Oscilloscope are dual-channel oscilloscope with maximum sensitivity of 1m V/DIV. The time base provides a maximum sweep time of 0.2S / DIV. When magnified by 10, the sweep speed is 20nS/DIV. Each of these oscilloscope employs a 6-inch rectangular type cathode-ray tube with red internal graticule. These oscilloscopes are sturdy, easy to operate and exhibits high operational reliability.

- ii) 400x250mm
iii) 450x300mm
iv) 600x450mm
Optional Accessories: (Extra)
a) Energy regulator.
b) Digital temperature Indicator cum-Controller.

c) PID Microprocessor Indicator Cum Controller **P.O.R.**
- 619. Slide Warming Table** RH-160 Standard sizes available.
a) 300x250mm
b) 400x250mm.
c) 450x300mm

AUTOCLAVE : UNILAB

- 620. Autoclave Laboratory (Portable)** RH-/62
Sizes :Dia x height in mm:
a) 300 x300
b) 300 x 375

Autoclave (Vertical) RH-163
Chamber Size mm
450x600 Double Wall
450x600 Triple Wall

Autoclave (Horizontal) RH-164H. High Pressure Autoclave Chamber Size mm.
c) 400x1100 156 ltr.

WATER BATHS : UNILAB

- 621. Serological Water Bath** RH-165 Stainless Steel)
a) 300 x 175 x 175 mm
b) 300 x 250 x 175 mm
c) 375 x 300 x 175 mm
d) 455 x 300 x 175 mm

Optional Accessories: (Extra Cost):
i) Digital temperature indicator,
ii) Digital indicator cum-temperature controller.
iii) PID Microprocessor Indicator Cum Controller **P.O.R.**
- 622. Water Bath Rectangular (Double Wall)** RH-166 Thermostat Control

- a) 6 holes
b) 12 holes
- 623. Water Bath Rectangular (Single Wall)** RH-167 a) 6 holes
b) 12 holes
- 624. Water Bath Precision (Constant Temperature Control)** RH-168
a) 425x250x225 mm
b) 450x375x375 mm
c) 600x450x450 mm
- 625. Water Bath Paraffin** RH-169
a) 4 cups & 6 sleeves.
b) 6 cups & 8 sleeves.
c) 12 cups & 14 sleeves.
- 626. Water Bath Tissue Flotation** RH-170
Chamber sizes in mm:
a) 200 x 75
b) 250 x 125
- 627. OIL BATH (High temperature)** RH-271
Chamber size in mm : (Stainless Steel)
a) 250x250x250
b) 300x300x250
c) 350x350x250

Optional Accessories: (Extra Cost):
i) Digital temperature indicator.

ii) Digital temperature indicator-cum-controller

iii) PID Microprocessor Indicator Cum Controller **P.O.R.**
- 628. Universal Water Bath (Dual Purpose)** RH-272 Chamber sizes in mm
a) 300 x 225 x 175
b) 450 x 300 x 175

Optional Accessories: (Extra Cost)
i) Stirring arrangement SS rod & blades

ii) Digital temperature Indicator.

iii) Digital temperature Indicator-cum-controller.

- 1606.** Projection Screen (Map Type) For hanging on the wall
 A. 60" X 60" or 52" X 72".
 B. 60" X 60" or 52" X 72" (Non reflective Projection Cloth).
 (Instalock Pull out & Motorised screen can also be supplied on specific requirements)
- 607.** Transparencies: Duly mounted in cardboard. App. size 11 "x14"
 a. Hand Coloured
 b. Fully Process Coloured
 Transparencies making kit:
 Useful kit for the users for making their own transparencies. Packed In a carrying case.
- 608.** Laser painter : A very compact pen type laser pointer for pointing the subject matter on the screen, range 1 00 feet, dual effect.

ORGAN BATH : UNILAB

- 609.** Student Organ Bath: RH-124.
 Bath Chamber made out of thick Transparent acrylic sheets, chemically welded to make them leak proof. The chamber is measuring 9"x6"x8" and is fitted on a metallic stand. Bath temperature is thermostatically controlled with sensitivity 0.1 deg C. A compact control panel has been provided with independent switches for malns, stirrer and heater. Bath consists of an electric stirrer and complete set of accessories such as two sets of glass inner vessels, oxygen tubes, warming coils, fix it levers, X blocks, four stainless steel upright with boss heads Student Organ Bath (Double Unit): RH- 125 Same as above but Bath size 12" x9" x8"

CENTRIFUGAL MACHINES : UNILAB

- 610.** Centrifugal Machine Electrical RH-142.
 A) 4x15 ml. Tubes.
 B) 6x15 ml. Tubes.
 C) 8x15 ml. Tubes.

Optional Accessories:
 Automatic 0-60 minutes timer.

- 611.** Clinical/Medico Centrifuge RH-143
 Conical body.
 A) 4/6/8 x 15 ml. Tubes.
 B) 4/6/8 x 15 ml. Tubes. With ball bearing & C.R.C Motor
- 612.** Centrifugal Machine, Hand RH-144
 A) 2 Tubes
 B) 4 Tubes.
- 613.** Laboratory Centrifuge Machine RH-148, with timer
 a) 14/6/8 x15 ml. Tubes.
 b) 112/16 x15 ml. Tubes.
- 614.** Centrifuge Non- Refrigerated: RH-149, 5500 RPM
 a)16 Tubes x15 ml.
 b)12 Tubes x15 ml.
 c) 8 Tubes x15 ml.
- 615.** Centrifuge Refrigerated: RH-150, 20,000 RPM
 a) 8 Tubes x15 ml.
 b) 12 Tubes x15 ml.

STIRRERS : UNILAB

- 616.** Lboratory Stirrer RH-152
 Automatic 0-60 min timer
 Magnetic Stirrer RH-154, Magnetic stirrer with hot plate & energy regulator.
 a) 1.0 Litre
 b) 2.0 Litre
 c) 5 Litres

HOT PLATES : UNILAB

- 617.** Hot Plate Round RH-156
 A. Hot Plate Round Single Dia 8"
 B. Hot Plate Round Double Dia 8"
- 618.** Hot Plate Rectangular RH-158
 Specification as above but plates is rectangular in shape. Following standard sizes are available:
 i) 300x250mm

- 363. Brass Sextant**
 Arc radius 6.7/16". Scale divided into 130 degrees. Spherometer least count 12 secs.

- 364. Stand for Sextant**
 Sturdy Steel iron grip. Heavy cast iron base.

EDUCATIONAL ELECTRONIC INSTRUMENTS (Characteristic Curve Apparatuses)

- 365. Diode Valve**
 EZ 80 (or similar) mounted on base with diagram engraved on the front panel.

- 366. Diode Valve**
 6H6 Mounted on base with diagram engraved on the front panel.

- 367. Triode Valve**
 ECC 82 (or similar) mounted on base.

- 368. Triode Valve**
 6J5 Mounted on base with diagram engraved on the front panel.

- 369. Tetrode Valve**
 EF89 Mounted on base with diagram engraved on the front panel.

- 370. Pentode Valve**
 As above. Mounted on base with diagram engraved on the front panel.

- 371. Diode Characteristic Apparatus with IC Regulated Power Supply**
 Same as above. With Two Meters One for measuring anode volts and filament volts and the second for anode current. Both H.T. and L.T. voltages are variable.

- 372. Triode Characteristic Apparatus with IC Regulated Power Supply**
 With Three Meters one to read anode voltage, second to read anode current and third to read grid bias voltage. Complete in all respects.

- 373. Pentode Characteristics Apparatus with I.C. Regulated Power Supply:**
 With five meters to read anode volts, anode current, Screen Volts/ current and grid volts. Complete in all respects with appropriate variable Power supplies for anode, Screen and grid voltages.

- 374. Tetrode Characteristic Apparatus with I.C. Regulated Power Supply** Same as above and Five Meters

- 375. Junction Diode**
 A.P.N. Junction diode on Board with diagram engraved on the front panel.

- 376. P.N. Junction Diode/Semi Conductor Diode Characteristic Apparatus**
 The unit consists of Two Meters for measurement of volts and current of Diode in forward as well as in reverse direction. A complete demonstrative unit with dual power supplies. Termini-nals of meters and power supplies output are provided on the front panel to make the connections externally with the help of connecting wires.

- 377. P.N. Junction Diode/Semi Conductor Diode Characteristic Apparatus**
 Same as above but with four meters.

- 378. Transistor on Board**
 A transistor mounted on board with schematic diagramme engraved on Front Panel.

- 379. Transistor Characteristic Apparatus**
 This is a complete unit comprising of two independent power supplies for base-emitter and collector-emitter junctions. Three Meters are provided along with a transistor on the front pannel. Input and output characteristic experiments can be performed by mak-ing suitable connections of power supplies, meters and transistor. Rugged construction compact unit with self explanatory users manual.

- 380. Transistor Characteristic Apparatus**
Same as above but with FOUR ROUND METERS.
- 381. To study the characteristics of a NPN Transistor in Common Emitter mode and to find out its input impedance, output impedance and current again.**
- 382. Zener Diode on Board**
A Zener diode mounted on board.
- 383. Zener Diode Characteristic Apparatus**
The unit consists of dual power supplies. Two meters are provided for taking the readings in forward as well as in reverse Direction of Zener Diode. A complete demonstrative unit with schematic diagramme.
- 384. Zener Diode Characteristic Apparatus**
Same as above but with FOUR METERS.
- 385. Field Effect Transistor Characteristic Apparatus**
The apparatus is designed to draw the characteristic of a F.E.T. Complete with power supply of its own. It is provided with THREE METERS to read different parameters.
- 386. Photo Transistor Characteristic Apparatus**
It is provided with Regulated power supply. Two Meters are provided to read voltage and current. Fully self contained unit.
- 387. UJT Characteristic Apparatus**
It is provided with Two Power Supplies and Three Meters to draw input/output characteristic of the UJT.
- 388. Silicon Controlled Rectifier Characteristic Apparatus**
It is provided with three meters to read Anode current. Anode cathode Voltage and gate/cathode current. Complete with two Built-in power supplies.

- 389. Characteristic of Diac**
The instrument is provided with variable IC regulated power supply. Two meters are provided to read voltage and current. Switch is provided to select different ranges.
- 390. Characteristic of Triac**
It is provided with two I.C. Regulated power supplies. Two meters are provided to read voltage and current ranges. Fully self contained.
- 391. Photo Cell Characteristic Apparatus (Valve type)**
A complete unit is assembled on hylum sheet alongwith a cell on front panel and schematic diagram me to demonstrate the working. The unit consists of power supply two meters and light source.
- 392. Photo Cell Selenium Characteristic Apparatus.**
A complete unit is assembled on hylum sheet alongwith a cell on Front panel, two meters and light source.
- 393. Thyatron Valve:** Fitted on base.
- 394. Thyatron Valve Characteristic Apparatus:**
Unit consists of built-in power supplies and meters to read different voltages and current.
- 395. Planks Constant Apparatus**
The unit consists of built-in power supply, and two meters, to read current and voltage. Set of three filters, Photo Cell Type 868 or equivalent, Light Source etc.
- 396. To Study Ionisation Potential of Mercury Vapour using Thyatron Valve**
Unit consists of two built in power supplies and Meters to read different voltage and current.
- 397. Thermistor**
Mounted on base with separate terminal for each electrode on bake lite panel and schematic diagramme.

598. High Pressure Rubber Tubing (Superior Quality 10 Mtr Coils)

Approx Bore mm	Wall Thickness mm
3.0	4.5
4.5	4.5
6.0	4.5
8.0	4.5
9.0	4.5
12.0	6.5

599. Rubber Corks (Per 100 Nos.)

Top Dia ± 0.2 mm	Bottom Dia ± 0.2 mm	Height ± 0.2 mm	No.
9.0	6.0	16.0	000
13.0	9.0	15.5	0
14.0	11.0	18.5	1
16.5	13.0	20.0	2
19.0	14.0	21.0	3
21.0	15.0	22.0	4
22.5	17.0	23.0	5
24.5	20.0	24.0	6
26.0	20.0	27.5	7
26.5	21.0	27.5	8
28.0	21.5	31.0	9
30.0	26.0	33.0	10
33.0	29.0	32.0	11
34.0	30.0	34.5	12
38.5	31.0	37.0	13
41.5	32.0	42.5	14
42.0	38.0	40.5	15
45.0	35.0	36.5	16
49.5	40.0	40.5	17
53.5	48.0	33.5	18
58.0	44.0	45.0	19
60.0	51.0	56.5	20

Rubber Corks Hole Charges extra. 24 Paise one hole & 40 paise two hole.

- 600. LCD Projector :**
Imager 0.55" Active matrixpoly silicon TFT (x3), Resolution: 800x600 pixels (SVGA) Brightness: 100 Lumens, Colours: 16.7 millions. Zoom Lens: 1.2: 1 zoom ratio Screen Size:30" (minimum) to 300" (maximum), Lamp: 130/132 Watt UHB Lamp Life: 2000 Hours (3000 hours in whisper

mode) Power : 200-240V AC, 50-60Hz Cordless Remote Control, electronic Keystone Correction Zoom and Focus. Three input channels for simultaneous connections of one computer and two video signals Intelligent image scaling technology for SXGA, XGA, VGA resolution and video. Height adjustment knobs. (These are tentative prices. Please confirm before giving quotations).

PROJECTOR ACCESSORIES : UNILAB

- 601. Overhead Projector Stand:**
Metallic stand with adjustable height, having sturdy platform, on which the projector can be kept while using.
- 602. Overhead projector trolley:**
Fabricated out of laminated board. Cupboard with lock on one side where O.H.P. can be kept when not in use. Wheels for easy movement. Fitted with electric points.
- 603. LCD Projector Stand:** Fabricated out of iron pipes duly powder coated. Sufficient space for LCD projector & Laptop. Wheels for easy movement.
- 604. Projection Screen (Tripod Model) Deluxe:**
Projection screen with tripod stand and steel metal housing with automatic spring roller system.
A. 60" X 60" or 52" X 72" (Routine Quality)
B. 60" X 60" or 52" X 72" (Non-reflective Projection Cloth).
- 605. Projection Screen (Wall and ceiling model) Deluxe:**
Equipped with a wall mounting designed metal housing automatic spring roller system.
A. 60" X 60" or 52" X 72" (Routine Quality)
B. 60" X 60" or 52" X 72" (Non reflective Projection Cloth).

Capacity(ml)	Watts
a. 50	60
b. 100	60
c. 250	150
d. 500	200
e. 1000	300
f. 2000	450

SILICON RUBBER TUBING

591. Silicon Rubber Tubing coil Length 5 metre or 10 metre.

Inner Dia ± 0.5 mm	Wall Thickness ± 0.2mm	Rates per Meter
2	1	
3	1	
3	1.5	
4	1	
4	1.5	
5	1	
5	1.5	
6	1	
6	1.5	
6	2	
6	3	
7	1.5	
7	2	
8	1.5	
8	2	
8	3	
9	2	
10	2	
10	3	
12	3.5	
12.5	2.5	
14	3	
15	4	
16	3	

592. Pressure Tube Green

Inner Dia ± 0.5 mm Wall
Thickness ± 0.5 mm

593. Corrugated Rubber Sheet

Size 350 x 150 mm

594. Rubber Cone for Filtration Flask

250 ml
500 ml
1 Lt.

2 Lt.
5 Lt.
10 Lt.

595. Silicon Rubber Cork (Translucent)

No.	Bottom Dia ± 0.2 mm	Top Dia ± 0.2 mm	Height ± 0.2 mm
9	9	11.5	20
11	11	14	24
13	13	16	24
15	15	18	24
17	17	20	26
18	18	21	26
19	19	22.5	28
23	23	25.5	28
25	25	28.5	28
27	27	31	32
29	29	33	32
31	31	36	35
33	33	38.5	38.5

LABORATORY RUBBER TUBING & CORKS

It is extremely soft and conforms to the Government specifications. In addition to softness, it is resistant to dilute Acid, Alkalies, Ammonia etc.

596. Rubber Tubing (Extra Soft Quality 10 Mtr Coils)

Approx Bore	Wall Thickness
4.0	1.0
5.0	1.5
6.0	1.5
7.0	1.5
8.0	1.5
9.0	2.0
10.0	2.0
12.0	2.0

597. Suba Seal Rubber Stoppers

Auto-clavable with turn over Flange Plain or Serration for test tube.

Size

12 mm
15 mm
18 mm
25 mm

398. Thermistor Characteristic Apparatus

A complete unit is assembled on Hylam Sheet alongwith Thermistor on Front Panel with power supply and two meters.

399. Photo Cell

Valve type, nicely mounted on base and schematic diagramme on bake lite panel.

400. Photo Voltic Cell

Selenium mounted and enclosed in valvet lined case with schematic diagramme.

401. Charging & Discharging of Condensor

Complete with built in regulated Power Supply. Two Meter's, three capacitors and three Resistances for different combinations of Rand C.

402. Photo Electric Relay Unit

A complete unit is assembled on a hylum sheet along with a LDR on front panel. The sensitivty control is also on the panel to set initial setting of relay. The unit is capable to deliver 6 volts or 220 volts AC to operate any electric gadget. Make and Break through fight and dark source. All solid state.

403. Energy Gap From Variation of Reverse Current

Complete in all respect with Built in Power supply, temperature, controlled oven and Meters for measurement of voltage and current and the thermometer to measure temperature.

404. Solar Cell Characteristic Apparatus

The Unit comprises of two moving coil meters, Solar cell mounted on Front Panel and light source.

405. LED Characteristic Apparatus:

Complete in all respects with Built in Power Supply and two meters for measurement of voltage and current.

406. Photo Diode Characteristic Apparatus:

With Built in Power Supply and two meters

for measurement of voltage and current.

407. LDR Characteristic Apparatus:

With Built in regulated Power Supply and two meters. Complete in all respects.

408. Study of OPTO-Coupler :

Complete in all respect with Built in regulated Power Supply and four meters for measurement of voltage and current.

409. LCR Resonance Apparatus:

Instrument comprises of 3 Capacitors, 3 Resistances, 3 Inductances and One AC Moving Coil meter to measure current.

410. Conversion of Galvanometer into Voltmeter:

With Built in Regulated Power Supply and two meters.

411. Conversion of Galvanometer into Ammeter:

Instrument comprises of Regulated Power Supply two D.C. Meters and Set of Shunts mounted behind the Panel.

412. Voltage Doubler and Triplier Circuit:

The unit comprises of AC Power Supply, meter and various components.

413. Flashing and Quenching of Neon Apparatus:

Complete in all respect with built in high Voltage Power Supply, Capacitances and Neon Lamp.

414. LCR Impedence Circuit: Complete in all respect with Built in AC Power Supply, AC Moving Coil Meters, Resistances, Capacitances and Inductance.

415. Study of Half Wave / Full Wave and Bridge Rectifier:

With Capacitances, Resistances and Filter Choke without meters

- 416. Stefen's Constant Law Apparatus:**
With Stablized Power Supply with two meter.

GENERAL ELECTRONIC SECTION

417. e/m By Thompson Method (Bar magnet)

The apparatus is designed to work on mains, 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 and compact in size. Fully self contained.

418. e/m By Magnetron Valve method

The apparatus is designed to work on Mains, with Built-in H.T. Power Supply. It is provided with other accessories such as solenoid Rheostat.

419. e/m by Helical Method

The apparatus is designed to work on main with built in power supply. It is provided with solenoid, cathode Ray tube etc. Fully self contained.

POWER SUPPLIES

420. Variable I.C. Regulated Power Supply

The unit consists of two Meters. One to read H.T. voltage/current and second to read bias voltages.

Output	Volts	
(i) H.T.	0-300	D.C. at 30 mA
(ii) Bias	0-30	D.C. at 10mA
(iii) L.T.	6.3	A.C. at 2.5 Amps
(iv) Line Regulation : 1% for 10% change in mains.		
(v) Ripple and Noise : Less than 0.1 volts RMS		

421. Stabilised Power Supply

Same as above but with Three meters for independent readings of voltage, current and bias voltage. Most to suitable to draw the characteristics of Diode Valve and Triode Valve.

422. Stabilised Power Supply

Dual Power Supplies for Tetrode/Pentode Valve Characteristic Experiment, stabilisation is 1%. Unit is enclosed in nicely painted steel cabinet. Input 220 volts A.C. The unit consists of five round meters.

Output	Volts	
(i) H.T 1	0-300	D.C. at 30 mA
(ii) H.T2	0-150	D.C. at 15 mA
(iii) Bias	0-30a	D.C. at 10 mA
(iv) L.T.	0-5-6.3	A.C. at 2.5 Amps.

423. Stabilised Power Supply

Solid state and fully protected against short circuit and overload. It consists of two Meters. one for output voltage and second for current.

Output	: 0 - 30 volts
Stability	: 0.1 %
Ripple contents	: Less than 5mV.
Output Current	: 0.5 amp
	1 amp.
	2 amps.

424. Dual Tracking Power Supply (With Four meters)

It has two power supplies mounted on a single chasis. All other specifications are identical to above

- (a) $0 \pm 15V$ 1 Amp
- (b) $0 \pm 15V$ 2 Amps
- (c) $0 \pm 30V$ 1 Amp
- (d) $0 \pm 30V$ 2 Amps

425. Dual Power Supplies (Without Meters)

± 5 volts or 6 volts	0.5 Amp
± 5 volts or 6 volts	1 Amp
± 5 volts or 6 volts	2 Amps
+ 12 volts & -12 volts	0.5 Amp
+ 12 volts & -12 volts	1 Amp
+ 12 volts & -12 volts	2 Amps

426. Fixed Output IC Regulated Power Supplies:

Ideal for conducting practical of OP-AMP Logic Gates etc. circuit and overload. Specifications

spring controlled adjustable by co-axial brass nut hold upto 75mm dia articles rod length 12"x3/8" chrome plated.

- 576. Co-Axial Clamps-MOULDED JAWS MADE OF BRASS** and chrome plated with asbestos sleeves spring controlled adjustable by co-axial brass nut hold upto 75mm dia articles rod length 12"x3/8" chrome plated.

- 577. Retort Ring** Made of mild steel rod with black paint and T type chrome palted screw.
2"
2½"
3"
4"
5"
6"

- 578. Tripod Stand** Made of HEAVY CAST IRON TRIANGULAR TOP with blank wrinkle paint and rods are zinc plated with plastic feet.
7 x 4"
8 x 4"
8 x 6"

- 579. Boss Head** DIE PRESSED POWDER COATING hold upto 16mm dia.

- 580. Boss Head** MADE OF BRASS CASTING chrome plated.

- 581. Retort Stand** - Made of mild steel with levelling screw powder and rod is chrome plated.

Base size	Rod size
6x4	18" x 3/8"
7x5	24" x 3/8"
8x5	24" x 3/8"
9x6	30"x1/2"
10x6	30"x1/2"
12x7	30"x1/2"

DIFFERENT TYPES OF BURNER

- 582. Bunsen Burners:** Cast Iron Bast Brass Pipe with extra deco finish, very fine in working, extra heavy base. This type of burner is recommended wherever low cast is more

importance than highest temperatures and maximum operating efficiency. For Petrol Gas/L.P. Gas. Chrome Plated screw type cum regulator powder coated.

- 583. Bunsen Burner with stopcock** Same as above but with heavy brass stopcock. for Petrol Gas/L.P. Gas

- 584. Mecker Burner** Made of special Brass Pipe C.P. heavy Cast Iron base powder coated. Length 180 cm. approx. to p dia 25 mm without stop cock. For Petrol Gas/L.P.Gas

- 585. Mecker Burner with Stopcock** Same as above but fitted with heavy brass stop cock. LARGE SIZE. For Petrol Gas/L.P. Gas

- 586. TECLU Burner** Made of Brass Pipe Chrome plated base powder coated.

- 587. TECLU Burner** Same as above with stop Cock.

GAS TAPS

- 588. Gas Tap** Best quality brass CP heavy pattern
One way
Two way
Three way
Four way

- 589. Gas Tap** GOLI TYPE STOP COCK with lock made of brass chrome plated.

One way
Two way
Three way
Four way

HEATING MANTLES & STIRRERS

- 590. Heating Mantles**, made of yarn to provide uniform heating of flasks upto 400°C built-in, Energy regulator, fitted in nicely painted metallic box.

558. Water Bath Copper. It is made of heavy copper with a cover formed of concentric rings to provide various openings. There is a cover with knob in the centre of each set. Each ring is recessed to take the next smaller ring.

- a. 4"
- b. 5"
- c. 6"
- d. 8"

559. Watch Glasses. These Watch Glasses are moulded with same radius of curvature so that they will stack conveniently. The edges are ground and annealed to remove strain.

- a. 2"
- b. 3"
- c. 4"

560. Wire Gauge. Protection & support of glass vessels while heating them over a flame may be accomplished by using a wire gauge. Concentrated heat, such as that from a Bunsen flame, will be spread over a wider area by them, giving more even heating. These gauges will not warp. The asbestos has been securely anchored to the mesh by pressing it through the gauge. As a result the asbestos centre will not pull off. The life of these gauges is greatly increased over unprotected gauges. Proper size 6"x6" , superior quality.

561. Wire Gauge with Metal Frame. but provided with rectangular frame to the gauge.

562. Spirit Lamp (Brass) As above, but brass die pressed drawn from one single piece, capacity 125ml.

563. Spirit Lamp (Stainless Steel) Made S.S. sheet, die pressed, capacity 125 ml.

564. Universal Clamp SHEET MADE DIE PRESSED ALL CHROME PLATED spring controlled cork lined jaws to hold upto 12 mm to 50 mm dia with brass wing nut screw locked by spring.

565. Universal Clamp - BRASS SHEET MADE DIE PRESSED ALL CHROME PLATED spring controlled cork lined jaws to hold upto 12 mm to 50 mm dia with brass wing nut screw locked by spring.

566. Burette Clamp - Die pressed sheet made of mild steel chrome plated or powder coated to hold one burette.

567. Burette Clamp - Die pressed sheet made of mild steel chrome plated or powder coated to hold two burette.

568. Three Finger Clamp-MADE OF AL-ALLOY DIE CASTING quality capacity hold upto 90mm dia provided with M.S. 7" rod chrome plated articals jaws are rubber covered finish power coated.

569. Three Finger Clamp-MADE OF BRASS CASTING and chrome plated capacity hold upto 90mm dia provided with M.S. 7" rod chrome plated articals jaws are rubber covered finish power coated.

570. Four Finger Clamp-MADE OF AL-ALLOY DIE CASTING quality hold upto 90mm provided with M.S. 7" rods chrome plated cork lined finish powder coated.

571. Four Finger Clamp-MADE OF BRASS CASTING chrome plated.

572. Retort Clamp-MADE OF AL-ALLOY DIE CASTING quality hold upto 75mm dia provided with 7" mild steel rod cork lined finish powder coated.

573. Retort Clamp-MADE OF BRASS CASTING chrome plated.

574. Condenser Clamp- MOULDED AL-ALLOY three finger jaws adjustable by two independent screw mild steel rod 12"x3/8" chrome plated.

575. Co-Axial Clamps-MOULDED JAWS MADE OF ALLOY and painted with asbestos sleeves

LOAD REGULATION : Better than 0.1%
LINE REGULATION : Better than 0.1%
OUTPUT

5 or 6 Volts	500 mA
5 or 6 Volts	1 Amp
5 or 6 Volts	2 Amps
9 or 12 Volts	500 mA
9 or 12 Volts	1 Amp
9 or 12 Volts	2 Amps
15 or 18 Volts	500 mA
15 or 18 Volts	1 Amp
15 or 18 Volts	2 Amps

427. Power supply IC regulated : 2 volts 1 Amp load regulation better than 1%. With overload & short-circuit protection.

ELECTRONIC CELL SUBSTITUTES

428. Weston Cadmium STD Cell Substitute
1.018V

429. Leclanche Cell Substitute
1.5V

430. Daniel Cell Substitute
1.08V

431. 2 Volts 200mA for Potentiometers Expts.

MEASURING INSTRUMENTS & EQUIPMENTS

Signal Generators

432. Audio Frequency Function Generator
This is very useful and Versatile Laboratory instruments with three basic wave forms Sine, Square and Triangular. This is completely I.C. Based with frequency range from 1 Hz to 100 KHz in five decade ranges. The instrument is housed in a Sturdily built steel cabinet.

433. Function generator
Having output SINE/SQUARE/TRIANGULAR Wave forms. Freq. Range 0.1 Hz to 1 MHz in 6 Ranges. Output Voltage 0 . 20V p/p.

434. Fixed Frequency Oscillator}
Having Frequency Output 1 KHz Bine Wave. Output 0-10 V Continuously variable (other frequencies available at extra cost)

ANALOG MEASURING INSTRUMENTS

435. FET Volt-ohm Meter (VTVM)
This is an electronic instrument for quick and precise measurement of DC and AC voltages as well as resistance. There are seven ranges in each Parameter which makes it Ideal for a Laboratory Workshop and testing Bench.

436. DIGITAL A.C. MILLI VOLTMETER :
Range: 199.9 mV, 1.999V, 19.99V
AC. Accuracy: 0.5% + 2 digits
Frequency Response: 10Hz to 100 KHz

DIGITAL TRAINING BOARDS

Digital Training Boards have been developed with a view to organise a basic Training Schedule. The electronic design has been kept as simple as possible. The complete circuit is engraved on front panel. Sockets are provided to make the connection with plugs. Complete with Power Supply, Output Indicator, Logic Inputs etc.

437. BASIC LOGIC GATES: To study and verify truth table for TIL AND, NAND, OR, NOR, NOT, EX-OR Gates Six in One

438. To study and Verify truth table for TIL OR, NOT and NOR Gates.

439. To study and Verify truth table for TIL AND, NOT and NAND Gates.

440. To study and Verify truth table for TIL NOT Gates.

441. To study and Verify truth table for AND and OR Gates using discrete components.

442. To study and Verify truth table for AND, OR and NOT Gates using discrete components.
443. To study and Verify truth table for **AND, NAND, OR, NOR** and **NOT** Gates using discrete components. **Five in one.**
444. To study and Verify truth table for **AND, NAND, OR, NOR, NOT** or **EX-OR** Gates (**Any Single Gate**)
445. Verification of **Boolean Identities** and **Demorgan's Theorem** by various Gates.
446. Verification of Truth Tables .of Logic Gates using **NAND** Gates.
447. Study of **4 Bit Adder & Subtractor** : Using **Ic.**
448. **Digital Training Board** : To verify Truth Table of **Half Adder** using various Gates.
449. **Digital Training Board** : To verify Truth Table of **Half Subtractor** using various Gates.
450. **Digital Training Board** : To verify Truth Table of **Full Adder** using various Gates.
451. **Digital Training Board** : To verify Truth Table of **Full Subtractor** using various Gates.
452. **Digital Training Board** : To verify Truth Table of **Full/Half Adder** and **Full/Half Subtractor.**
All in One.
453. Study of 'RS', 'D' Type, 'T' Type, 'JK' and **JK Master Slave Flip Flops** using IC's.
454. Study of 'JK' and **JK Master Slave Flip Flops** using **Ic's.**

455. Study of **4 Bit Ripple Counter** Forward & Reverse.
456. Study of **Ripple Counter** (Forward, Reverse & Modulo)
457. **Study of 4 Bit Up-Down Counter** : The Unit consists of Built in Regulated Power Supply, 1 Hz Mono-Shot Clock Pulse, Output Indicators, Logic Inputs etc.
458. Study of 4 Bit BCD Counter using 7490.
459. **Study of SHIFT REGISTER** : The Unit consists of Regulated Power Supply, Input Logic Selector Switches, Output Indicators, 1 Hz Mono-shot Clock Pulse Generator.
460. Study of **Encoder** and **Decoder** Circuits
461. **Digital Training Board** : To study and verify the Truth Tables of
(i) TTL Logic Gates (ii) Boolean Expressions (iii) Flip Flops (iv) Adders, Subtractors (v) De-Morgan's Theorem
462. **Digital Training Board:** To study and verify the Truth Tables of
(i) TTL Logic Gates
(ii) Boolean Expressions
(iii) Adders, Subtractors
(iv) De-Morgan's Theorem
(v) Flip Flops Various Types
(vi) Counters, Shift Registers
(vii) Encoders, Decoders
(viii) Multiplexer's & De-Multiplexers

ELECTRONIC TRAINING BOARDS

The Training Boards are supplied with instruction manual giving full details about the objects, apparatus required and procedure. These prewired boards are supplied with detailed diagram engraved on the front panel and components assembled on it. All boards provided with I.C. Regulated power supply.

544. **Pestle & Mortar** Superior Quality
a. 3"
b. 4"
c. 5"
d. 4"

OTHER CHEMISTRY LAB REQUISITES

545. **Cork Borer Best Quality** All brass C.P.
a. Set of 3
b. Set of 6
c. Set of 12

546. **Beaker Tong (Stainless Steel).** These tongs were designed to handle breakers containing hot or corrosive liquids. The tongs are made of stainless steel which are tough, resist bending and does not rust. Jaws are covered with either asbestos or cork sheet. Size approx.12" long.

547. **Flask Tong (Stainless Steel).** These tongs were designed to handle laboratory flasks containing hot or corrosive liquids. Neither the flask nor the tongs themselves can slip or get out of the grip. The tongs are made of stainless steel to resist corrosive fumes and to prevent rusting. Approximately size 12" long.

548. **Crucible Tongs.** Crucible tongs which are listed below, are all of new improved style. The tongs are made of a heavy material. The joints are flattened at the rivet to prevent the handles from shifting out of alignment. The tips are carefully formed. The finger grip are roomy to facilitate handling. These tongs are made from a variety of different materials to meet every laboratory requirement.

Length	Iron	Brass	SS
a. 6"			
b. 8"			

549. **Hoffman's Screw Clip** 25 mm Brass C.P.

550. **Pinch Clip Heavy Pattern (Rectangular Wire).** For tubing upto 5/8 inch in diameter. The flat wire gives a broad clamping surface and flat discs attached to the ends allow more positive manipulation.

551. **Spatula.** Made from superior quality stainless steel sheet, which are corrosive resistant. The S.S. sheet used is flexible so that the spatula is especially convenient for handling materials which are to be weighed. Either both ends are flat or one end spoon.
a. 6"
b. 8"
c. 10"
d. 12"

552. **Blow Pipes Brass C.P.** With nipple and nozzle heavy pattern
a. 8"
b. 10"
c. 12"

553. **Charcoal Blocks** These charcoal blocks are made uniform in shape and size for convenient use in blow pipe experiments. The surface skin is easily broken to make a cavity for holding the specimen. Each block is approximately 4"x 1"x3/4".

554. **Deflagrating Spoon.** All brass. This spoon has a heavy brass bowl and heavy brass handle, which enables it to serve for many more combustions than ordinary spoons for the purpose.

555. **Sodium Spoon.** For holding sodium under water. Chrome plated wire stem and strong wire gauge cage to safety enclose the sodium.

556. **Platinum Loop Holder.** Made of brass with adjustable chuck, in bakelite handle.

557. **Platinum wire (Flame Test)** Consists of a 3m of No.34 platinum wire set into a 10 cm glass handle.

528. Maximum and Minimum Thermometer
For indicating the maximum and minimum temperature reached since the previous settings. This is the most economical and practical instrument to mount in or out of doors. the plastic scale has a large easy to read scales and numerals. Mercury filled tube on plastic scale with black graduations. Mounted on a superior quality wooden frame, deluxe quality.

529. Wet and Dry Bulb Thermometer
Comprising two thermometer on plastic scales graduated - 10°C to 50°C mounted on a wooden frame. One thermometer bulb is covered with muslin wick connected to water reservoir which keeps it moist.

530. Wall Thermometer
On wooden base with superior quality screen printed scale.

GEOMETRICAL MODEL AND FIGURE

531. Geometrical Instrument Box
A pair of set squares, protector, divider, scale and a duster housed in a beautiful wooden box. All the instruments made from superior seasonal wood.

532. Geometrical Instrument Box
Same as above but all the instruments are made of plastic.
a) Superior Quality
b) Routine Quality

533. Gas Jar Cover Ground glass well edged size 75mm

534. Test Tube Holder. Zinc coated. Superior Quality

535. Test Tube Holder (Brass). Made of brass sheet. Export Quality.

536. Staining Rack Seasoned Wood
a. For 12 dropping bottles of 30 ml
b. For 12 dropping bottles of 60ml
c. For 12 dropping bottles of 125 ml

537. Staining Rack Seasoned Wood
a. For 6 dropping bottles of 30 ml
b. For 6 dropping bottles of 60 ml
c. For 6 dropping bottles of 125 ml

538. Burette Stand Seasoned Wood
a. For Single Burette
b. For Double Burette

539. Funnel Stand Seasoned Wood
a. For Single Funnel
b. For Double Funnel

540. Aluminium Test Tube Stand. Made from thick sheet of Aluminium.

	No. of Holes.	Diameter of Holes
a.	12	12
b.	12	15
c.	12	18
d.	12	25
e.	24	12
f.	24	15
g.	24	18
h.	24	25
i.	36	12
j.	36	15
k.	36	18
l.	36	25

PORCELAIN WARE

541. China Dish Superior Quality
a. 2"
b. 2.5"
c. 3"
d. 4"

542. Crucible with Lid. Superior Quality
a. 15cc
b. 25cc

543. Buchner Funnel. Superior Quality
a. 2"
b. 2.5"
c. 3"
d. 6"

463. Verification of Thevenin's Theorem : Board consists of Regulated Power Supply, Two Meters and Set of Resistances. Fully Self Contained.

464. Verification of Norton's Theorem : Unit consists of Regulated Power Supply, Meters and Set of Resistances.

465. Verification of Super Position Theorem : Instrument consist of Two Regulated Power Supplies, Meters and Set of Resistances.

466. Verification of Maximum Power Transfer Theorem : Instrument consists of Regulated Power Supply, Two Moving Coil Meters, Potentiometer and Set of Resistances.

467. Verification of Reciprocity Theorem : Unit consists of Regulated Power Supply, Two Moving Coil Meters and Set of Resistances.

468. Verification of Network Theorems : To verify Thevenin's, Norton's, Superposition and Maximum Power Transfer Theorem on Single Board. Fully self contained.

469. Study of Voltage Regulation using Zener Diode and Transistor: Unit consists of Various Components, Variable DC Power Supply, Meters, Load Resistance, Filter Circuit etc.

470. To Construct a Regulated Power Supply with Bridge Rectifier and Zener Diode: Study current and voltage regulation characteristics.

471. Study of Voltage Regulation using I.C. : Same as above but Regulation circuit is made up of Ic's.

472. Study of Kirchoff's Voltage and Current Laws : With built in regulated power supply, meters and set of resistances.

473. Free Running Multi Vibrator (Transistorised) : Instrument consists of D.C. Regulated Power Supply and Various Components required to perform the experiment.

474. Bi-stable multi-vibrator (transistorised)

475. Mono-stable multi-vibrator (transistorised)

476. Hartley Oscillator

477. Colpitt's Oscillator

478. Phase Shift Oscillator

479. Wein Bridge Oscillation using Ic 741

480. Relaxation Oscillation using UJT

481. Study of Transistor Amplifier Circuits: To study Frequency Response of **Common Emitter, Common Base and Common Collector Amplifiers.**

482. Common Collector Amplifier

483. Common Base Amplifier

484. Common Emitter / R.C. Coupled Amplifier

485. Two Stage R.C. Coupled Amplifier

486. Transformer Coupled Amplifier

487. Transistorised Push Pull Amplifiers

488. Biasing of Transistor in Class 'A' Operation

489. Biasing Techniques of Transistor

OPERATIONAL AMPLIFIER

- 490. Study of Operational Amplifier :** As Inverting and Non- Inverting Amplifier. Board consists of Power Supplies and set of Resistances.
- 491. Study of Operational Amplifier :** As Adder and Subtractor.
- 492. Study of Operational Amplifier :** As Summing, Difference, Integrator and Differentiator Amplifier
- 493. Operational Amplifier KIT :** Unit consists of Regulated Power Supplies, One Bread Board and Two Dual Range Meters to perform number of experiments based on characteristics and application of Operational Amplifier
Optional ACC : Function Generator

INTRODUCING

- 494. Solar Bulb** Working Model in two parts Box one Part with Solar Cell and other is with Bulb. (L.E.D.)
- 495. Solar meter** Same as above but with D.C. micro-ammeter for current indication. The part with solar cell is placed in sun light.
- 496. Solar Fan** This working Model;s in two part box. The part with solar cell is placed in sun light and Fan portion is kept in shade or class room.

LOADING INDUCTORS

- 497.** These are wound with dual coated H-Class Copper wire. High Grade Laminations are used for minimum Electrical Losses. To provide rigidity and durability the loading inductors are designed with several fixed steps and one continuously variable step. Fixed steps are precisely calibrated to give accurate reactive load. A Robust E-I moving mechanism with minimum hissing sound is employed for the continuously variable step.

LOADING INDUCTOR Single Phase 240 Volts A.C.

Wattage In KVAR	Max. current in Amps.	No.of Steps	Variable
		1A 2A 4A	Step 0.1A-1A

2.4	10A	1	4	1
3.6	15A	2	2	2
4.8	20A	1	1	4

LOADING INDUCTOR Three Phase 415 Volts 4 Wire System

Wattage In KVAR	Max. current in Amps.	No.of Steps	Variable
		1A 2A 4A	Step 0.1A-1A

7.2	10A	1	4	1
10.8	15A	2	2	2
14.4	20A	1	1	4

Main Switch, Selector Switch, Fuses and terminals are fitted on Front Panel.

LOADING CAPACITANCE BANK

- 498. Loading Capacitance Bank** These are made with high quality capacitors. The Unit consists of Main Switch, Selector Switch, Fuses and terminals which are fitted on the front panel.

Rated Voltage	: 415 Volts
Max. Watt in KVAR per phase	: 2.3
Total KVAR	: 7
Max. Load Current per phase	: 9.8 A
No. of Steps : 1 KVAR	: 7

Rated Voltage	: 3 Phase Delta
Max. Watt in KVAR per phase	: 3.3
Total KVAR	: 10
Max. Load Current per phase	: 14.0 A
No. of Steps : 1 KVAR	: 4
No. of Steps : 2 KVAR	: 3

Rated Voltage	: Connection
Max. Watt in KVAR per phase	: 5.0
Total KVAR	: 15
Max. Load Current per phase	: 21.0 A
No. of Steps : 1 KVAR	: 5
No. of Steps : 2 KVAR	: 5

CHEMISTRY

METER SCALE

520. Meter Scale

Made from Seasoned wood, machine graduation in cm both side with clear and accurate division
one meter long
half meter long

WEIGHT BOXES AND ACCESSORIES

521. Analytical Weight (A Grade)

Brass C.P. weights with brass forceps, in beautiful cabinet polished wooden box with superior packed.

Capacity 1 mg	a) 50 gm
	b) 100 gm
	c) 200 gm
	d) 500 gm

522. Fractional Weight Set Analytical

These are good quality aluminium weights from 1 mg to 500 mg. These weights are supplied in a beautiful round plastics case.

523. Rider Aluminium

For analytical balances specify 5 mg or 10 mg size. **doz**

THERMOMETERS

524. Chemical Thermometer

These permanently filled thermometers have been subjected to tests under rigid conditions. Easier reading stem white back and mercury filled thermometers. Length of thermometer is approximately 12 inches and diameter is 7 to 8 mm. All of the thermometers listed below are for partial immersion.

CENTIGRADE SCALES

- a) 0 to 50°C
- b) -10 to 110°C
- c) -10 to 110°C
- d) 0 to 250°C
- e) 0 to 360°C
- f) 0 to 400°C

FAHRENHEIT SCALE

- g) 220°F
- h) 400°F
- i) 600°F

525. Precision Chemical Thermometer

These thermometers are calibrated in fractional degrees and therefore can be used for more precise work. Very accurate permanent marked clear reading stem. The outer diameter of the stem is 7 to 8 mm.

- a) 0 to 5°C x 1/5
- b) 0 to 50°C x 1/10
- c) -10 to 110°C x 1/5
- d) -10 to 110°C x 1/10

526. Prismatic Chemical Thermometer

The thermometer capillary is of prismatic type and graduation on the thermometer is done in such a way so that the divisions are on the one surface and numerals are on the other surface. These thermometers are easier to read than the above type of thermometer. Mercury filled and top suspension rings.

FAHRENHEIT SCALE

- (a) 220°F
- (b) 400°F
- (c) 600°F

CENTIGRADE SCALES

- (d) 0 to 50°C
- (e) -10 to 10°C
- (f) -10 to 110°C
- (f) 0 to 250°C
- (h) 0 to 360°C
- (i) 0 to 400°C

527. Red Alcohol Thermometer

This is an engraved stem Centigrade/Fahrenheit thermometer filled with red spirit instead of mercury. It is intended for use when a general utility thermometer which is extremely easy to read is desired.

- (a) 50°C
- (b) 110°C
- (c) 150°C
- (d) 220°F

499. L. B. Photometer :

Consists of 4 prisms perfectly aligned & fixed in the form of a cube. Two sharp circles indicating difference in light sources are seen through the telescope.

500. Fabry Perot Interferometer :

Two etalons are mounted parallel to each other. One fixed and the other adjustable & travel on a slide.

500a. OVERHEAD PROJECTORS :

UNILAB

Model RH-131 :

24V-250W halogen bulb illumination. Equipped with good quality double Fresnel lens to ensure optimum brightness & most efficient cooling system. Working stage 250mm x 250mm. focusing by rack & pinion. With all accessories: Nicely packed In Styrofoam packing Inside a sturdy cardboard box.

1. With single bulb.
2. With twin bulbs, (for Interruption free presentation)

Model RH-132:

Same as Model RH-131 but with better quality fresnellens, & with micro switch for current cut-off when stage of projector is open.

1. With single bulb.
2. With twin bulb, (for interruption free presentation).

Model RH-132D:

Same as Model RH-132 but very lightweight ABS body & attractive outlook. Twin bulb.

Model RH-134:

Same as our model RH-132 but with superior & large fresnellens A4 size. Working stage area is 285 x 285mm. Single element lens system, with twin bulb.

Model RH-134D:

Same as our model RH-134 but with very light weight ABS body & attractive outlook.

Lens system triplet varifocal for a very good projection.

Model RH-136: Portable Overhead Projector
A very compact & light weight Over Head Projector which can be folded to be kept In a carrying case for easy portability.

501. LCD Projector :

Imager 0.55" Active matrix poly silicon TFT (x3), Resolution: 800x600 pixels (SVGA) Brightness: 100 Lumens, Colours: 16.7 millions. Zoom Lens: 1.2: 1 zoom ratio Screen Size: 30" (minimum) to 300" (maximum), Lamp: 130/132 Watt UHB Lamp Life: 2000 Hours (3000 hours in whisper mode) Power : 200-240V AC, 50-60Hz Cordless Remote Control, electronic Keystone Correction Zoom and Focus. Three input channels for simultaneous connections of one computer and two video signals Intelligent image scaling technology for SXGA, XGA, VGA resolution and video. Height adjustment knobs. (These are tentative prices. Please confirm before giving quotations).

PROJECTOR ACCESSORIES : UNILAB

502. Overhead Projector Stand:

Metallic stand with adjustable height, having sturdy platform, on which the projector can be kept while using.

503. Overhead projector trolley:

Fabricated out of laminated board. Cupboard with lock on one side where O.H.P. can be kept when not in use. Wheels for easy movement. Fitted with electric points.

504. LCD Projector Stand: Fabricated out of iron pipes duly powder coated. Sufficient space for LCD projector & Laptop. Wheels for easy movement.

505. Projection Screen (Tripod Model) Deluxe: Projection screen with tripod stand and steel

metal housing with automatic spring roller system.

A. 60" X 60" or 52" X 72" (Routine Quality)

B. 60" X 60" or 52" X 72" (Non-reflective Projection Cloth).

506. Projection Screen (Wall and ceiling model) Deluxe:

Equipped with a wall mounting designed metal housing automatic spring roller system.

A. 60" X 60" or 52" X 72" (Routine Quality)

B. 60" X 60" or 52" X 72" (Non reflective Projection Cloth).

507. Projection Screen (Map Type) For hanging on the wall

A. 60" X 60" or 52" X 72".

B. 60" X 60" or 52" X 72" (Non reflective Projection Cloth).

(Instalock Pull out & Motorised screen can also be supplied on specific requirements)

508. Transparencies: Duly mounted in cardboard. App. size 11 "x14"

a. Hand Coloured

b. Fully Process Coloured

509. Transparencies making kit:

Useful kit for the users for making their own transparencies. Packed In a carrying case.

510. Laser painter : A very compact pen type laser pointer for pointing the subject matter on the screen, range 1 00 feet, dual effect.

TRAVELLING MICROSCOPE : UNILAB

511. TRAVELLING MICROSCOPE: RH - 212

Consisting of a heavy cast iron base with leveling screws. Can travel horizontally and vertically. With Stainless Steel scale. Both vernier reading having sensitivity of .01 mm, 10x Ramsden's eyepiece with cross line graticule. Complete with accessories in a wooden box.

512. VERNIER MICROSCOPE 'DELUXE' : RH - 214

Same as RH-212, but special arrangement for transverse motion also.

SPECTROMETER : UNILAB

513. SPECTROMETER: RH - 221

Consisting of a telescope & a collimator mounted on a heavy cast iron base with leveling screws. The protected 150 mm (6.0") scale divided into 0-360 deg gives accuracy of one minute or 30 seconds of an arc. 10x Ramsden's eyepiece with cross line graticule. Stainless still scale. Complete with accessories in a wooden box.

514. SPECTROMETER STANDARD 'DELUXE': UNILAB RH - 224

Same as RH-221 but fine adjustment provided to the telescope & collimator bot vertically and laterally for adjusting alignment.

READING TELESCOPE : UNILAB

515. READING TELESCOPE: RH - 226

The telescope is carried on a 16mm dia & 44cm high steel chrome plated rod fitted on a C.I. base. A 25mm clear aperture achromatic objective & 110x Ramsden's Eyepiece with cross wire. Supplied complete with scale and scale holding attachment.

516. ADVANCE READING TELESCOPE: UNILAB RH - 228

Same as RH-226, but with up & down, to & fro (universal motion) motion.

OPTICAL BENCH : UNILAB

517. OPTICAL BENCH DOUBLE ROD: RH - 234

Consist of two steel C.P. Rods 1 meter long, one rod graduated in mm. Four sliders (2 with fine transverse motion and 2 fix), two universal lens holder and two pins.

A) Same as Model RH - 234 but rods 1.5 meter long

B) Same as Model RH - 234 but 1 meter rods covered with brass C.P pipe to avoid erosion by rusting.

C) Same as Model RH - 234 but rods 1.5 meter long, covered with brass C.P pipe.

BALANCES

518. PHYSICAL AND XILO BALANCE : 'NATIONAL' MAKE

Capacity Sensitivity

a) Gunmetal 250gms 1mgm

Hollow Beam
with extended
Support

b) Gunmetal 250gms 1mgm

Pams are S.S

c) Gunmetal 250gms 1mgm

Air damping
Sunmica Base

d) Gunmetal 500gms 5mgm

Beam

e) Gunmetal 1000gms 10mgm

Beam

519. TRIPLE BEAM BALANCE : 'NATIONAL' MAKE

Capacity Sensitivity

a) Direct 3kgs 100mgm

Reading with
Sliding Weights

Support

b) Direct 3kgs 100mgm

on Metal Base Knife

c) Direct 111gms 10mgm

Reading with
Sliding Weights

d) Direct 211gms 10mgm

Reading with
Sliding Weights

FORTIN'S BAROMETER - WITHOUT MERCURY
MERCURY FOR BAROMETERS - TRIPLE DISTILLED

We also deal in :

Laboratory Chemicals, Glasswares, Maps,

Charts, Models & Geographical items