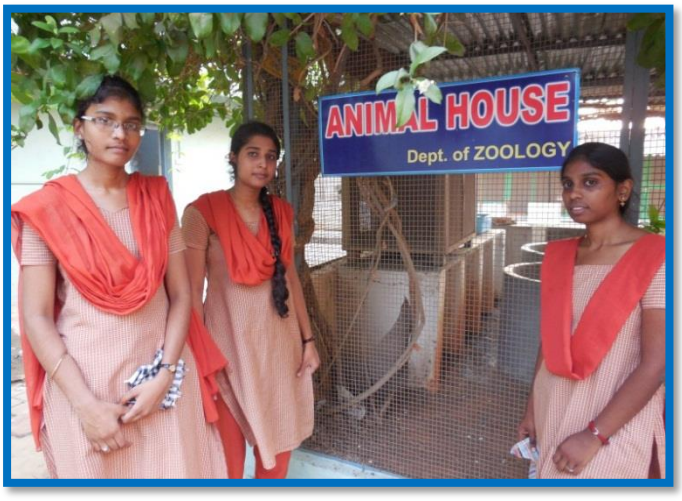
VERMICOMPOSTING UNIT

MULBERRY GARDEN

ANIMAL HOUSE



STAFF ROOM

LABORATORY

MUSEUM

DEPARTMENT LIBRARY

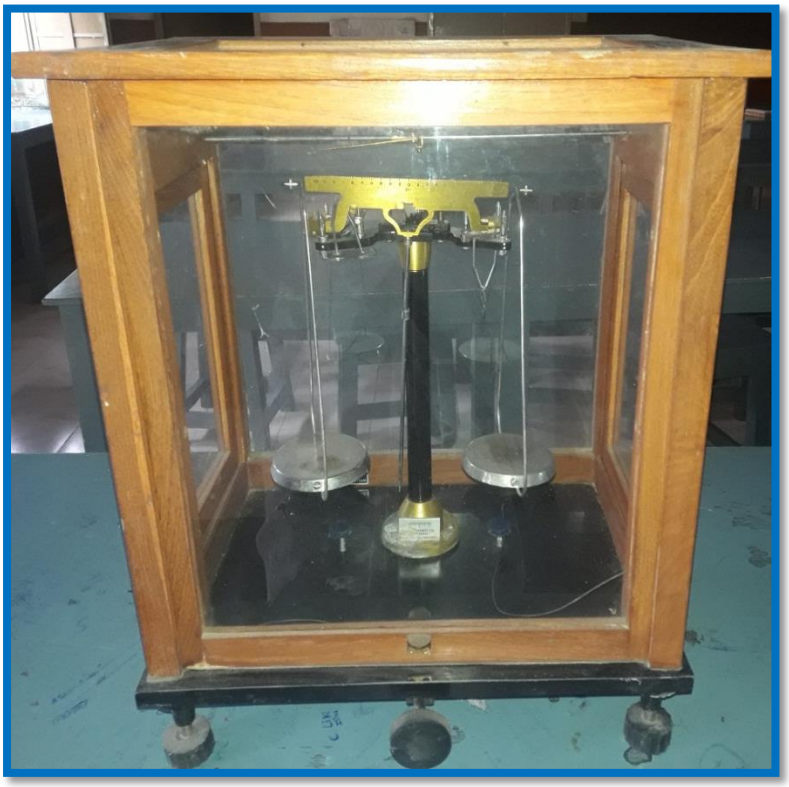
MAJOR LAB EQUIPMENT

1. Analytical Balance

An **Analytical Balance** (often called a "lab balance") is a class of balance designed to measure small mass in the sub-milligram range. The measuring pan of an analytical balance (0.1 mg or better) is inside a transparent enclosure with doors so that dust does not collect and so any air currents in the room do not affect the balance's operation.

This enclosure is often called a draft shield. The use of a mechanically vented balance safety enclosure, which has uniquely designed acrylic air foils, allows a smooth turbulence-free airflow that prevents balance fluctuation and the measure of mass down to 1 μg without fluctuations or loss of product.

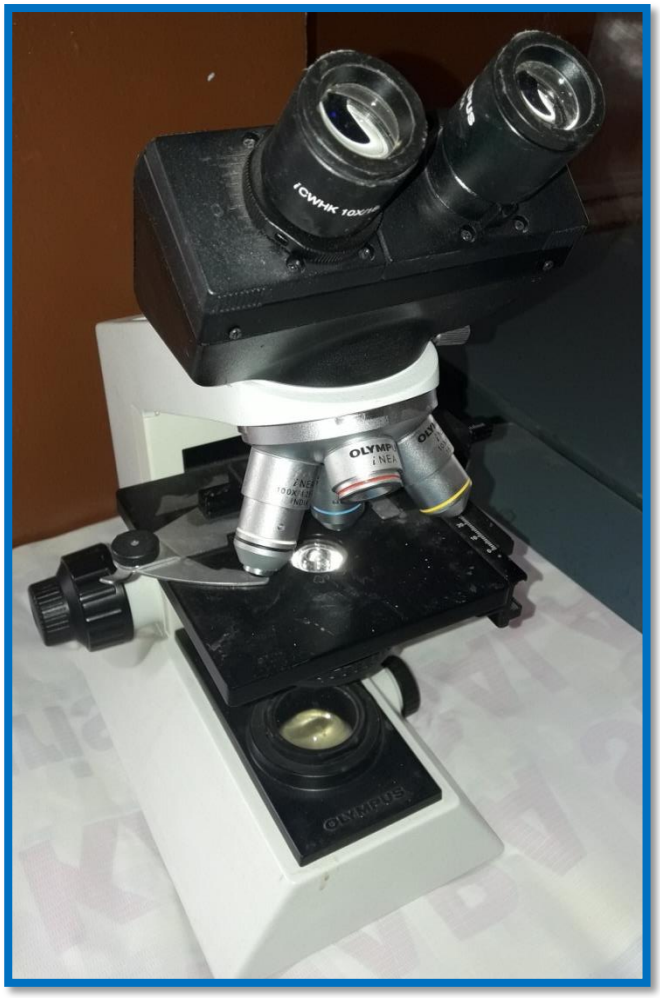
Also, the sample must be at room temperature to prevent natural convection from forming air currents inside the enclosure from causing an error in reading. Single pan mechanical substitution balance maintains consistent response throughout the useful capacity is achieved by maintaining a constant load on the balance beam, thus the fulcrum, by subtracting mass on the same side of the beam to which the sample is added.



2. Binocular Microscope:

A binocular microscope is simply a microscope that uses two eyepieces instead of the traditional one used in many other types of microscopes. This binocular view offers a number of advantages and the costs are comparable to a single eyepiece instrument. The popularity of the binocular microscope has grown over the years and currently represents that vast majority of units sold.

The term *binocular* comes from two different words, with *bi* meaning two and *ocular* meaning related to vision. Together, these two words apply very well to a microscope with two eyepieces. Due to the fact the technology between a monocular microscope and binocular microscope is nearly identical; the only difference in cost between the two is simply the cost of additional materials.

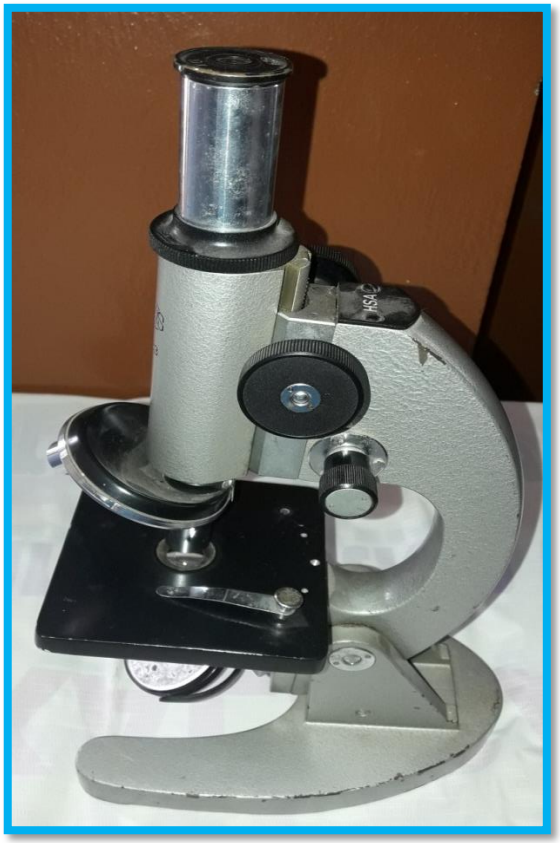


3. Compound Microscope:

The word compound means multiple, mix, or a combination of both. A compound microscope is a microscope which uses more than one lens. Devised with a system of combination of lenses, a compound microscope consists of two optical parts, namely the objective lens and the ocular lens. The objective lens uses short focal length to enlarge an image. Therefore animal cells, plant cells, protozoa, bacteria can be easily viewed and studied with the help of compound microscoope.

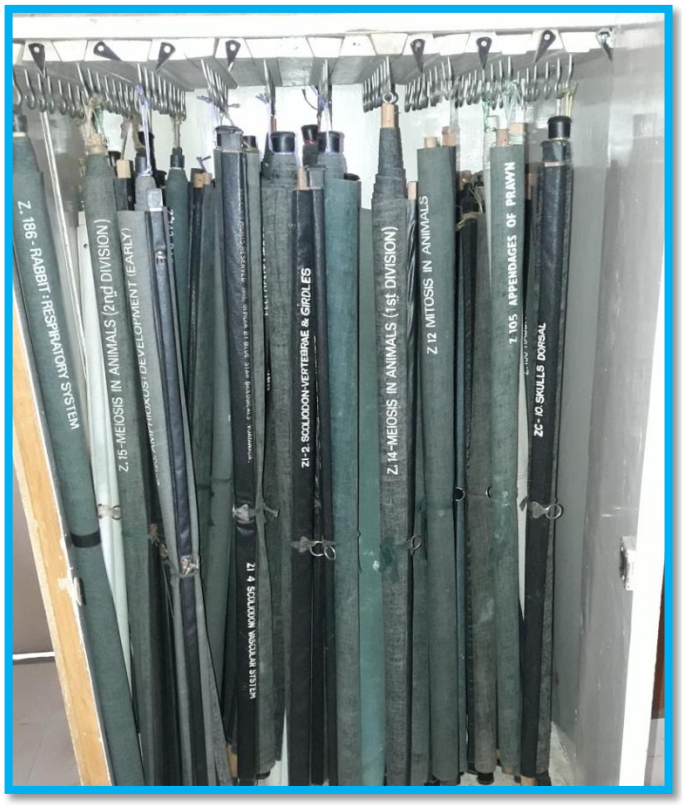
A compound microscope can be categorized into an upright microscope and an inverted microscope. An upright microscope is just like an ordinary microscope with the lens system, followed by the stage where the specimen is kept, and then the light source. An inverted microscope, as the name suggests, is upside down.

A compound microscope can be used for varied purposes like medical research and education. It is, however, essential to know the basics of a compound microscope and remember them when in use.



4. Charts Cabinet:

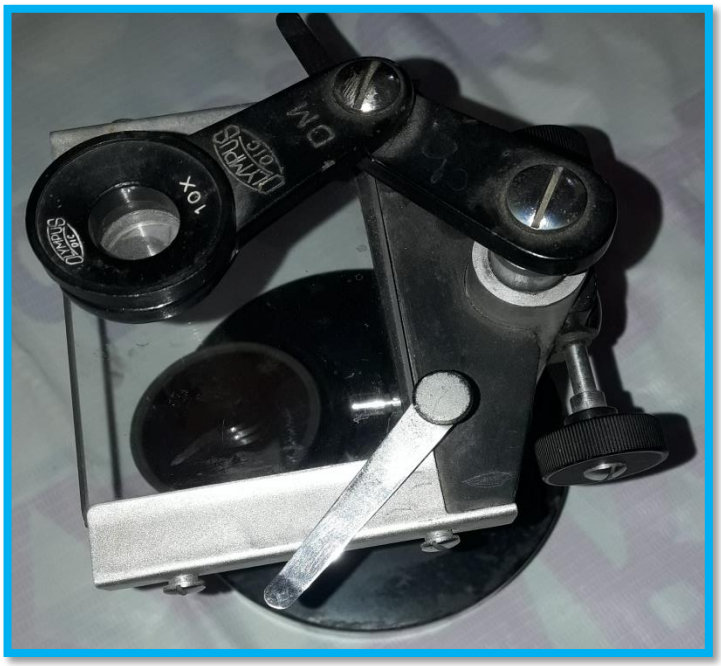
For keeping 20 charts in rolled & hanging position.10 hangers with 10 hooks on each hanger provided inside top. Hangers slide on wooden channels for convenient sorting of charts. Hinged door with locking arrangement.



5. Dissection Microscope:

A dissecting microscope is a microscope of a design which facilitates the magnification and examination of three dimensional objects, rather than samples prepared on slides. As the name implies, dissecting microscopes are commonly used in the dissection of specimens.

The stage of a dissecting microscope is typically large, and it may have a depression for securing specimens. The magnification may be fixed or zoom in style, and people typically cannot reach a very high level of magnification with this type of microscope. Lighting is provided primarily through reflected light which bounces off the object, rather than transmitted light coming from beneath the stage.



6. Haemocytometer:

The hemocytometer (or haemocytometer) is a counting-chamber device originally designed and usually used for counting blood cells.

It consists of a thick glass microscope slide with a rectangular indentation that creates a chamber. This chamber is engraved with a laser-etched grid of perpendicular lines. The device is carefully crafted so that the area bounded by the lines is known, and the depth of the chamber is also known. By observing a defined area of the grid, it is therefore possible to count the number of cells or particles in a specific volume of fluid, and thereby calculate the concentration of cells in the fluid overall. A well-used type of hemocytometer is the *Neubauer* counting chamber.

7. Sahli's Hemoglobinometer

a. **Sahli's graduated hemoglobin tube** (marked in grams percent g% (2-24) and percentage %(10-140)
b. **Comparator** with a brown glass standard. Opaque white glass is present at the back to provide uniform illumination.
c. **Sahli's pipette or hemoglobin pipette** (marked at 20µl or 0.02 ml). No bulb
d. **Stirrer:** Thin glass rod.

8. Over head projector:

An overhead projector works on the same principle as a 35mm slide projector, in which a focusing lens projects light from an illuminated slide onto a projection screen where a real image is formed. For the latter purpose, the projector includes a mirror just before or after the focusing lens to fold the optical system toward the horizontal. That mirror also accomplishes a reversal of the image in order that the image projected onto the screen corresponds to that of the slide as seen by the presenter looking down at it, rather than a mirror image thereof. Therefore, the transparency is placed face up (toward the mirror and focusing lens), in contrast with a 35mm slide projector or film projector (which lack such a mirror) where the slide's image is non-reversed on the side *opposite* the focusing lens.

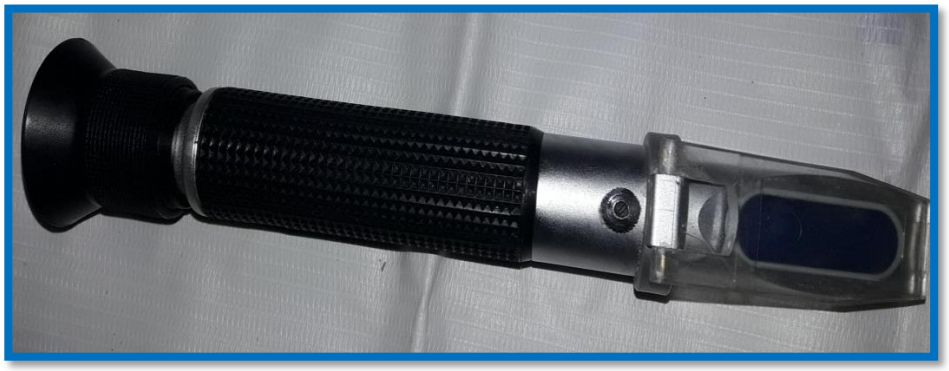
9. Remicentrifuge:

A centrifuge is a piece of equipment that puts an object in rotation around a fixed axis (spins it in a circle), applying a force perpendicular to the axis of spin (outward) that can be very strong. The centrifuge works using the sedimentation principle, where the centrifugal acceleration causes denser substances and particles to move outward in the radial direction. At the same time, objects that are less dense are displaced and move to the center. In a laboratory centrifuge that uses sample tubes, the radial acceleration causes denser particles to settle to the bottom of the tube, while low-density substances rise to the top.[1]

There are three types of centrifuge designed for different applications. Industrial scale centrifuges are commonly used in manufacturing and waste processing to sediment suspended solids, or to separate immiscible liquids. An example is the cream separator found in dairies. Very high speed centrifuges and ultracentrifuges able to provide very high accelerations can separate fine particles down to the nano-scale, and molecules of different masses.

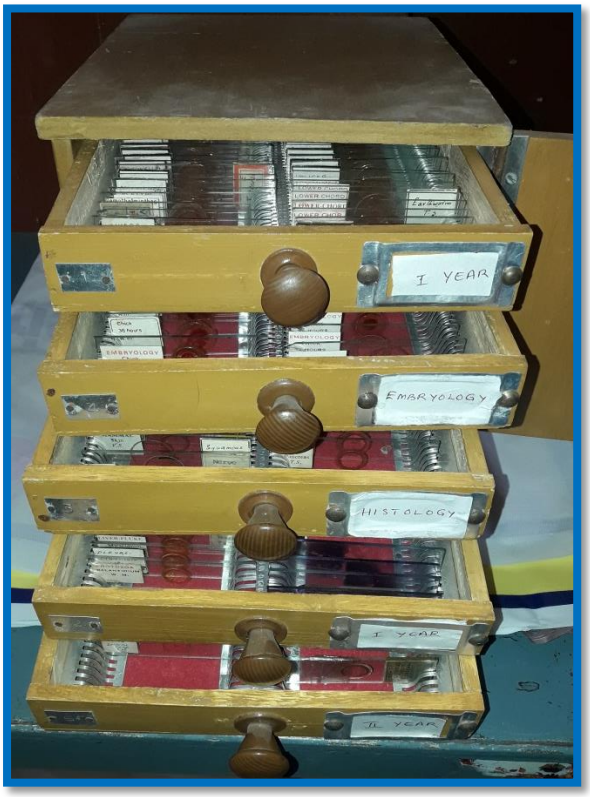
10. Salinity hand Refractometer:

Hand Held salinity meter with dual specific gravity and part per thousand (0/100) scales. Designed specifically for aquariums, this unit is ideal for rapid, accurate salinity determinations.
Using a soft cloth to clean the prism and testing prism, take a few drops of solution, put it on the prism, close the cover plate, escape from bubbles, to make the solution over the surface of the prism.
Put the instrument into the version of alignment or light department, eyes can observe the field through Eyepiece. Rotate eyepiece to adjust hand wheel. to make the field of view of blue and white points clear. The scale of the demarcation line is the density of the solution.



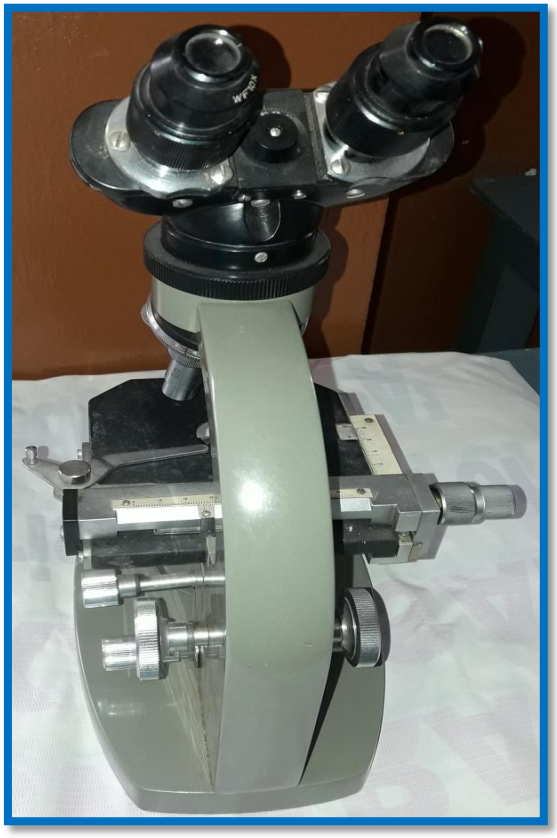
11. Slide cabinet:

Slide cabinets are aesthetically designed for storage and safe handling of the micro slides.
The slide cabinet consists of various slides of cytology, histology, embryology and various slides of invertebrates and vertebrates.



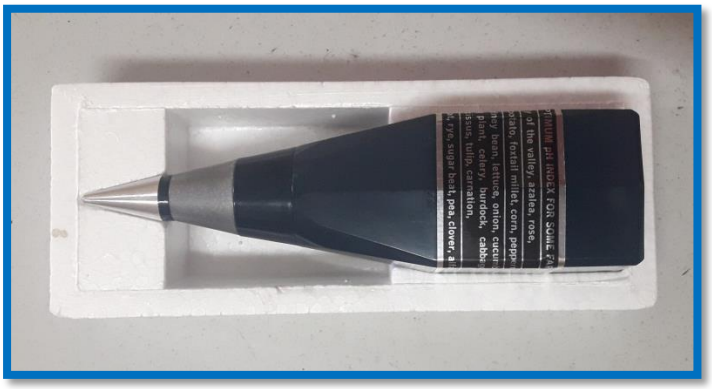
12. Stereomicroscope:

The stereo, stereoscopic or dissecting microscope is an optical microscope variant designed for low magnification observation of a sample, typically using light reflected from the surface of an object rather than transmitted through it. The instrument uses two separate optical paths with two objectives and eyepieces to provide slightly different viewing angles to the left and right eyes. This arrangement produces a three-dimensional visualization of the sample being examined. Stereomicroscopy overlaps macrophotography for recording and examining solid samples with complex surface topography, where a three-dimensional view is needed for analysing the detail.



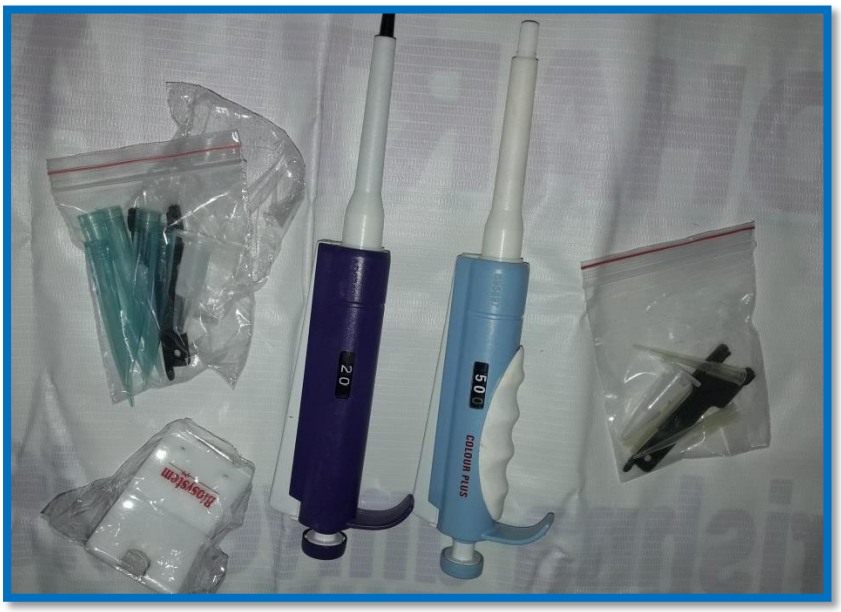
13. Soil p^{H} Tester:

A soil pH tester is a device or tool used to determine the pH of a particular plot of soil. Soil pH can either be neutral, acidic, or alkaline. pH testers determine the acidity or alkalinity of soil.



14. Micropipette:

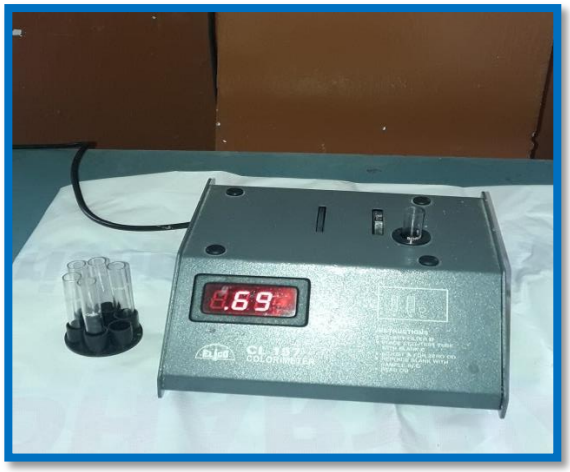
A micropipette is used under a microscope to microinject liquid directly into a cell. Micropipettes are made of glass and have a microscopic tip. Tip apertures can be as narrow as 0.1 µm.



15. Colorimeter:

A colorimeter is a light-sensitive device used for measuring the transmittance and absorbance of light passing through a liquid sample. The device measures the intensity or concentration of the colour that develops upon introducing a specific reagent into a solution.

There are two types of colorimeters — colon densitometers, which measure the density of primary colours, and colour photometers, which measure the colour reflection and transmission.



16. Refrigerator:

Appliance/Type: Refrigerator
Brand: Godrej
Model/Year: RD EDGE PRO 190CT 5.2/2016
Type: Direct Cool
Gross Volume: 190 Litres
Storage Volume 182 Litres
Star Rating: 5 Star

Electricity Consumption: 200 units per year

Label Period: 1st January 2015- 31st December 2016

DESCRIPTION:

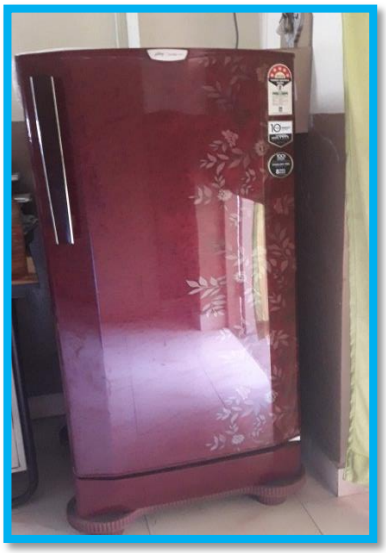
Godrej RD EdgePro 190CT is a single door Refrigerator. It has 5 Star rating, Direct cool Technology with 190 litre capacity. The star rating indicates the energy consumption of a refrigerator.

It has a feature of direct cool defrosting type. It is having a voltage capacity of 230V and the power consumption of 140-260 Watts. Features like humidity controller, Direct Cool Technology, and Stabilizer free operation are important to note in this model.

USAGE IN LAB:

We store samples, chemicals in the refrigerator.

PHOTOGRAPH:



17. Laminar Airflow Chamber

A Laminar air flow cabinet is one of the sterilization equipment carefully designed to prevent contamination of Biological samples, Culture media or any other sensitive materials. Cabinet is usually made of stainless steel with no gaps where bacteria and spores may invade. Air is drawn through HEPA filter and blown in a very smooth, laminar flow towards user.

18. Autoclave

An Autoclave is a pressure chamber used to carry industrial and scientific processes requiring elevated temperature and pressure. Autoclaves are used in medical applications to perform sterilization. Autoclaves are used to sterilize equipment by subjecting them to pressurized steam at 121^{o} C for around 15-20 minutes depending on the size of the contents.

19.Hot air oven

Hot air ovens are electrical devices which use dry heat to sterilize. They were originally developed by Pasteur. Generally they use thermostat to control temperature. Their double walled insulation keeps the heat in and conserves energy, inner layer being a poor conductor, outer being metallic. There is also air filled space in between to aid insulation. An air Circulation fan helps in uniform distribution of heat.