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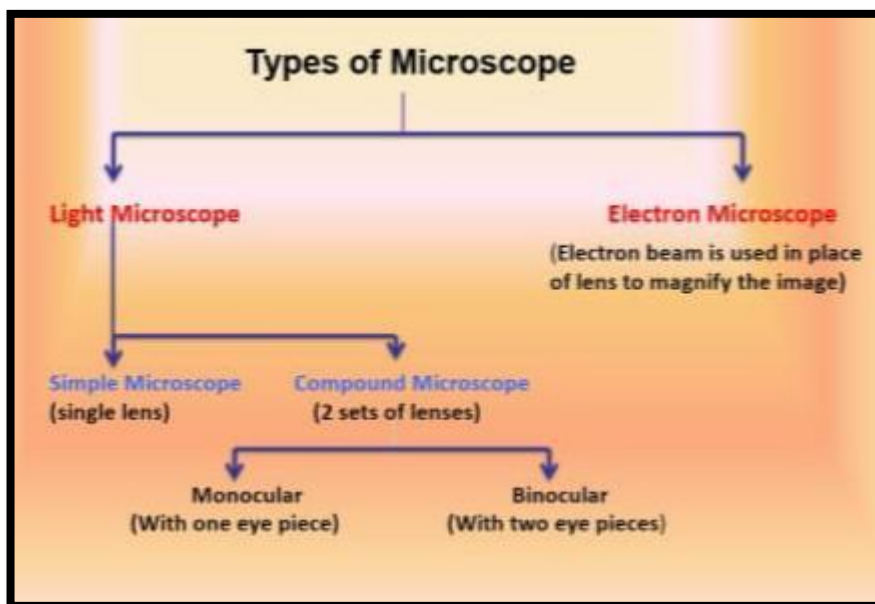
P.G. SEM – II, Zoology
(CC- 6) : Unit -I, 1.2
Microscopy.

INTRODUCTION : Microscope

The term Microscope('micron'= small or tiny, and 'scope' means = to view or to observe).Therefore, a microscope is an instrument that is generally used to study or to observe the very small organisms or tiny particles which are not visible by naked eyes.

In 1674, Antonie van Leeuwenhoek, made the microscope for the first time. This microscope has practically been made with the combination of two lenses so it is also termed as Compound Microscope.Compound deals with the microscope having more than one lens.The optical microscope often referred to as the light microscope, is a type of microscope that uses visible light and a system of lenses to magnify images of small subject.

Types of Microscope :



Light microscope :



Introduction and definition of Light Microscopy :

A **light microscope** uses focused light and lenses to magnify a specimen, usually a cell. In this way, a light microscope is much like a telescope, except that instead of the object being very large and very far away, it is very small and very close to the lens.

Light microscopes can be adapted to examine specimens of any size, whole or sectioned, living or dead, wet or dry, hot or cold, and static or fast-moving. They offer a wide range of contrast techniques, providing information on the physical, chemical, and biological attributes of specimens.

Light microscopes send light through a path that first focuses the light into a tight beam and then passes that light through a sample, which creates an image. That image then passes through one or more lenses to magnify it until it reaches the user's eye or a camera. Because light needs to pass through the sample, it must be either

very small or very thin. Most cells (bacterial or otherwise) are both small and transparent, and so light can easily pass through them.

There are two basic types of optical microscopes:

Simple light microscopes use a single lens to magnify an object and cannot reach high magnification.

- 1) **Compound light microscopes** use two sets of lenses - an objective lens and an eyepiece - to produce images.

Monocular microscopes have one eyepiece, while **binocular** microscopes have two eyepieces.



Fig1. Components of a Light microscope .

Following Parts and Components of a light microscopes are:

STRUCTURAL COMPONENTS :

The three basic, structural components of a compound microscope are the head, base and arm.

- **Head/Body** houses the optical parts in the upper part of the microscope
- **Base** of the microscope supports the microscope and houses the illuminator
- **Arm** connects to the base and supports the microscope head. It is also used to carry the microscope.
- **Eyepiece or Ocular**
- **Eyepiece Tube**
- **Objective Lenses**
- **Nosepiece**
- **Coarse and Fine Focus knobs**
- **Stage**
- **Stage Clips**
- **Aperture**
- **Illuminator**
- **Condenser**
- **Iris Diaphragm .**
- **Condenser Focus Knob**

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