The Cell

1. **What is cell?**
   Ans. Cell is the basic structural and fundamental units of all living forms.

2. **Why it is called that Cell is the Structural and Functional units of living being?**
   Ans. Cell is called the structural unit because it makes the body of an organism.
   It is called functional unit of living body because it performs all the life processes such as reproduction, excretion and growth which are necessary for the several of an organism.

3. **The size of cell is measured by which unit?**
   Ans. Microns μ
   One μ = 0.001 millimetre

4. **What are the main units of a cell?**
   Ans. A cell contains three main units
   a. Cell Membrane
   b. Cytoplasm
   c. Nucleus

5. **What is Cell Membrane or Plasma Membrane?**
   Ans. Cell Membrane or Plasma Membrane is a thin delicate and living membrane, which is present in both animal and plant cells and which separates the cell from the surroundings and from other cells.
   It has fine pores through which only certain substances may flow from the cells.

6. **What are the functions of Cell Membrane?**
   Ans. The functions of cell membrane are
   a. It protects the cell from the surroundings
   b. It allows the movement of selective substances in and out of the cell.
   c. It gives the particular shape of the cell.

7. **What is Cell Wall?**
   Ans. The cell wall is the outermost covering of plant cells. It is present outside the cell membrane and is tough, flexible and sometimes rigid.

8. **What are the functions of Cell Walls?**
   Ans. The functions of Cell Walls are
   a. It gives a definite shape to the plant cells
   b. The rigidity of cell wall provides support to the plant.
   c. It permits free movement of all the substances through it.

9. **What is Nucleus?**
   Ans. Each cell has a small spherical body which is the functional unit of cell is called Nucleus.
   In animal cells nucleus is located in the centre of the cell and in plant cell nucleus is located on the periphery of cell.

10. What is the function of Nucleus.?

Ans. The nucleus is a very important part of a cell. It performs the following functions.

a. It is the control centre of a cell
b. It regulates all activities that occur within the cell
c. It directs growth of all cells
d. It is the carrier of characters from the parent to offspring.
e. It plays an important role in the division of cell.

11. What are the main parts of a Nucleus?

Ans. The three main parts of Nucleus are:

a. Nuclear Membrane
b. Nucleoplasm
c. Chromosome

12. What is Nuclear Membrane?

Ans. Nuclear Membrane is a thin and double layer which has pores through which various substances move in and out of the nucleus.

13. What is Nucleoplasm?

Ans. Nucleoplasm is a fluid which contains one or more small bodies of nucleolus.

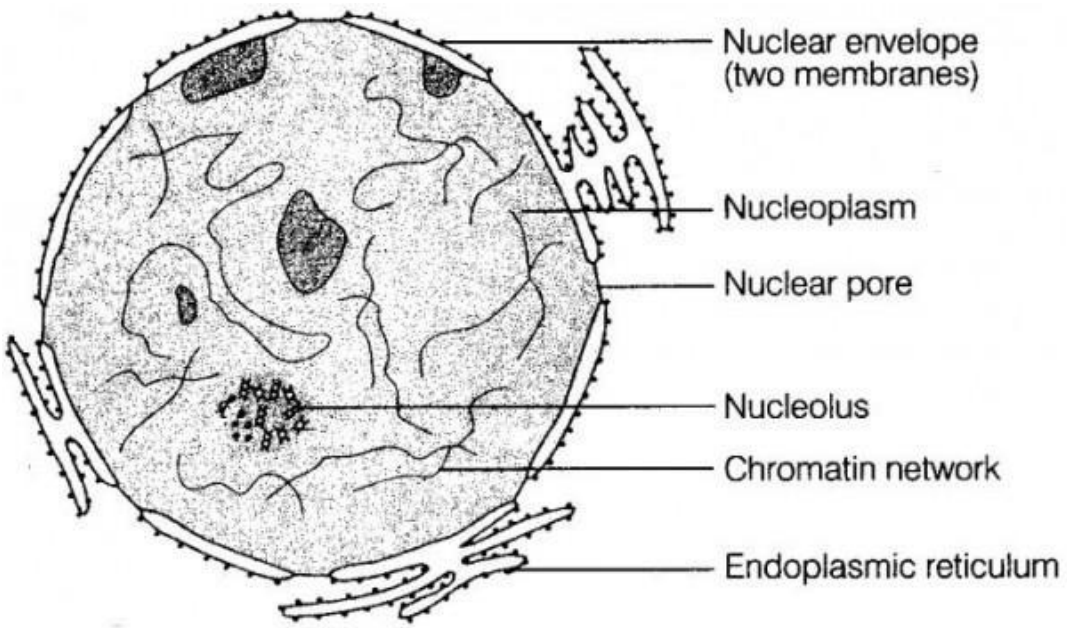
14. What is Chromosome?

Ans. When cell divides the chromatin in nucleus condenses in thread like structure, which carry genes and helps in the transmission of characters from the parent to the next generation is called Chromosome.

It contains various compounds such as carbohydrate, protein, fat, nitric acid and mineral salt.

15. Draw a line diagram of Nucleus and level it?

Ans.



A well labelled diagram of eukaryotic nucleus

16. **What are called Cell Organelles?**
Ans. Some smaller compounds of cell like Golgi Body, lysosome, vacuole, plastids etc. which are present in cytoplasm are called Cell organelles.
They are bounded by a membrane and perform specific functions.

17. **What are Vacuoles?**
Ans. Vacuoles are sac like structure which are filled with water and semi-solid or liquid substance

18. **What are the functions of Vacuoles?**
Ans. The functions of Vacuoles are:
    a. A vacuole stores salts, minerals, pigments and proteins within the cell.
    b. The vacuoles are completely filled with water and exert force on the cell wall. It provides shape to the cell and helps it to withstand extreme conditions.

19. **What are Plastids?**
Ans. Plastids are double-membrane organelle which are found in the cells of plants and algae. Plastids are responsible for manufacturing and storing of food. These often contain pigments that are used in photosynthesis and different types of pigments that can change the colour of the cell.

20. **Plastids are how many types?**
Ans. Plastids are three types:
a. Chloroplasts
b. Chromoplasts
c. Leucoplasts

21. **What are the differences between Chloroplast, Chromoplast and Leucoplast?**
Ans.

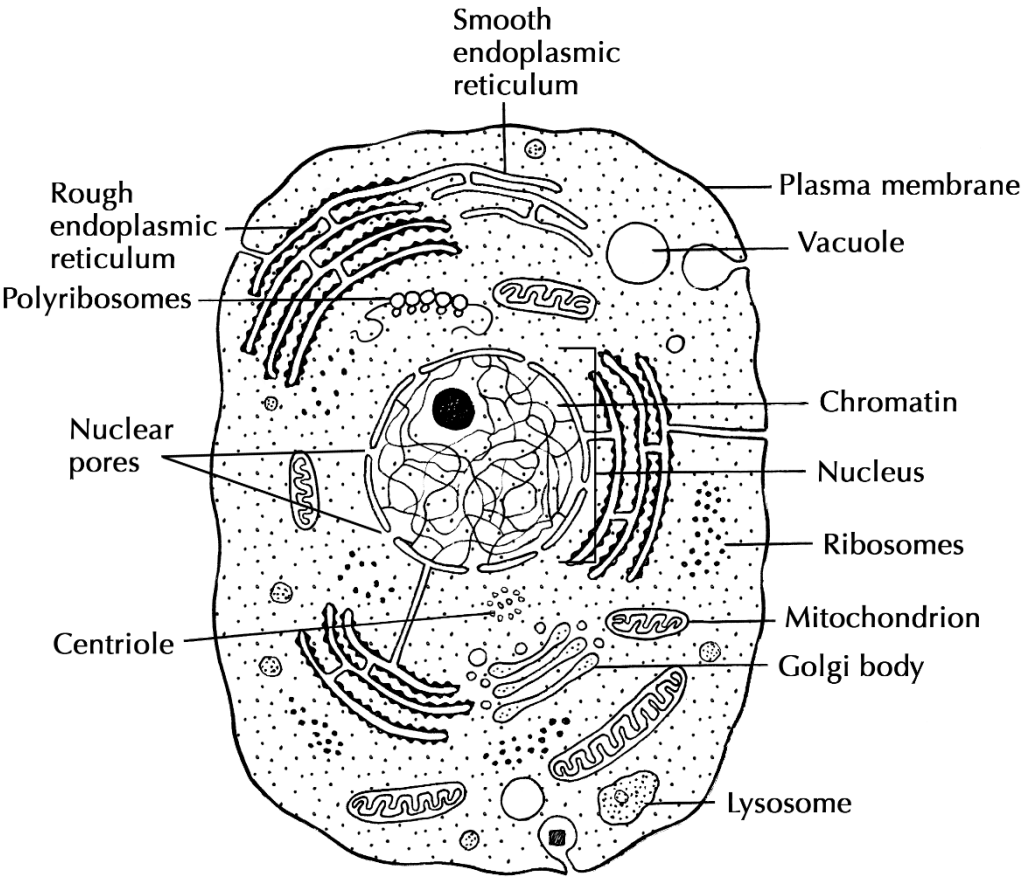
Chromoplasts	Chloroplasts	Leucoplasts
They are pigmented plastid other than green in colour, mostly yellow or red	It is a plastid, typically green in colour	They are colourless plastids
They contain carotenoids and xanthophylls. They lack chlorophyll	They contain chlorophyll and other carotenoids	They do not contain pigments
They provide distinct colour to the plant parts and have a role in pollination and seed dispersal	They perform photosynthesis	They are used to store starch, fat and proteins
Do not contain lamellar system and only remnants of thylakoids are present	They contain lamellar system, ribosomes and thylakoids	They have several nucleoids and uniform granular stroma

22. What are the differences between Plant Cell and Animal Cell?

Ans.

Plant Cell	Animal Cell
Cell Shape	
Square or rectangular in shape	Irregular or round in shape
Cell Wall	
Present	Absent
Plasma/Cell Membrane	
Present	Present
Endoplasmic Reticulum	
Present	Present
Nucleus	
Present and lies on one side of the cell	Present and lies in the centre of the cell
Lysosomes	
Present but are very rare	Present
Centrosomes	
Absent	Present
Golgi Apparatus	
Present	Present
Cytoplasm	
Present	Present
Ribosomes	
Present	Present
Plastids	
Present	Absent
Vacuoles	
Few large or a single, centrally positioned vacuole	Usually small and numerous
Cilia	
Absent	Present in most of the animal cells
Mitochondria	
Present but fewer in number	Present and are numerous
Mode of Nutrition	
Primarily autotrophic	Heterotrophic

23. Draw a line diagram of a Cell?
Ans.



1.
2. **Draw a diagram of Plant Cell?**
Ans.

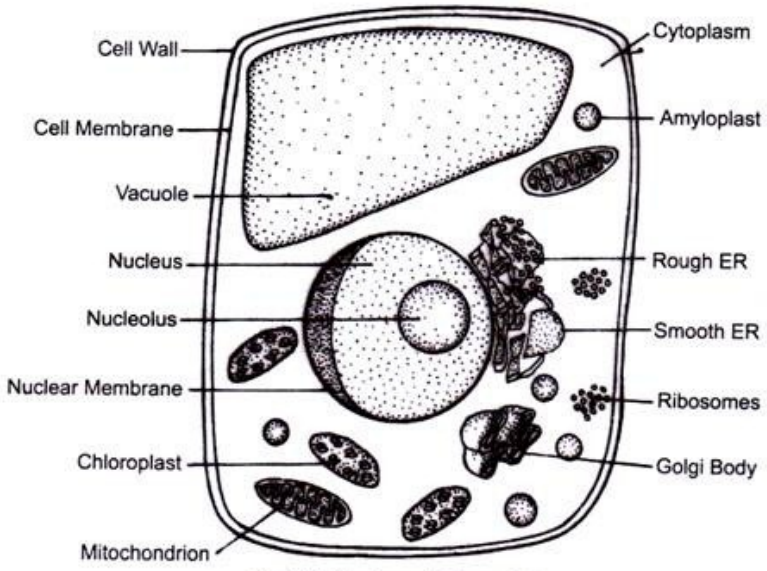


Fig. 2.1 Structure of Plant Cell