

Board – ICSE

Class – 9

Topic – CELL:UNIT OF LIFE

1. Differentiate prokaryotic and eukaryotic cells.

Prokaryotic Cell	Eukaryotic Cell
1. Size: Generally, small (1 – 10 μ m) (1 μ m = 10 ⁻⁶ m)	1. Size: Generally large (5 – 100 μ m)
2. Nuclear region is poorly defined due to absence of a nuclear membrane and known as nucleoid.	3. Nuclear region well define and surrounded by nuclear membrane.
3. There is a single chromosome.	3. There is more than one chromosome.
4. Membrane-bound cell organelles absent.	4. Membrane-bound cell or organelle present.

4. Make a comparison and write down ways in which plant cells are also different from animal cells.

Ans:

Plant Cell	Animal Cell
1. Plant cells have cell wall.	1. Animal cells don't have a cell wall.
2. They contain chloroplast.	2. They don't have chloroplasts.
3. They do not have centriole.	3. Centriole is present in them.
4. Vacuole is large and present in centre of the cell.	4. Vacuole is small.
5. Nucleus is present in the side of the plant cell.	5. Nucleus is present in the centre of the animal cell.

5. What are plastids? Name the different types of plastids found in plant cell.

Ans: Plastids are organelles found only in plants. They are:

- (a) Chloroplast-Containing chlorophyll
- (b) Chromoplast-Containing carotenoids and xanthophyll (coloured plastids)
- (c) Leucoplast-White or colourless plastids.

6. How do fungi and bacteria can withstand much greater changes in the surrounding medium than animal cells?

Ans: The cell wall present in fungi and bacteria permits these cells to withstand very dilute external medium without bursting.

The cells take up water by osmosis, swells, and build the pressure against the cell wall.

The wall exerts an equal pressure against the swollen cell. It is because of cell wall,

such cells can withstand much greater changes in the surrounding medium than animal cells.

7. What are the Function of different types of plastids

Ans: Plastids are present only in plant cells. There are two types of plastids chromoplasts (coloured plastids) and leucoplasts (white or colourless)

Chromoplast—Consists of coloured pigments and gives different colours to flowers, fruits and leaves.

The green colour pigment present in leaf is called chlorophyll which helps in the photosynthesis and a plastid with chlorophyll is called chloroplast.

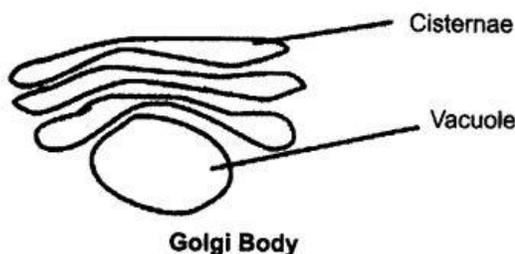
Leucoplast—It stores starch, oil and protein granules in it.

8. Explain the structure and function of Golgi bodies.

Ans: Structures: Golgi bodies consist of a system of membrane-bound vesicles arranged in stacks parallel to each other called cisterns. These membranes have connections with the membrane of endoplasmic reticulum (ER).

Functions:

- The material synthesized near the ER is packaged and dispatched to various target inside and outside the cell through Golgi apparatus.
- It also stores, modifies and helps in the packaging of products in vesicles.
- In some cases, complex sugars may be made from simple sugars in it.
- It also helps in the formation of lysosomes.



9. What are ribosomes? Where are they located in the cell? What is their function?

Ans: Ribosomes are spherical organelles present in the cells which are either freely distributed in the cytoplasm or may be attached to the endoplasmic reticulum.

It consists of ribosomal RNA (Ribonucleic acid) and proteins.

Functions of Ribosomes: It helps in the synthesis of proteins.

10. What is the difference in chromatin, chromosomes and gene?

Ans: (1) Chromatin: It is a fine network of thread-like structure made up of DNA or RNA. It condenses to form chromosomes at the time of cell division

(2) Chromosome: The chromosomes are made from chromatin material and are located in the nucleus.

(3) Genes are found in chromosomes.

11. Why do plant cells have more in number and big-sized vacuoles as compared to the animal cells?

Ans: Plant cells attain turgidity and rigidity due to the more number of vacuoles as well as large-sized vacuoles help the plant cells to withstand the wear and tear, external environmental conditions.

They also help in the storage of essential material required by plants for their growth like amino acids, sugar and various organic substances.

12. Explain the following terms:

(a) Plasma membrane (b) Cytoplasm (c) Nucleus.

Ans: **(a) Plasma membrane:** It is a thin membrane which controls the passage of materials in and out of the cell. It is also called as selectively permeable membrane. It makes the outer boundary of the cell and is made up of lipo-protein,

(b) Cytoplasm: It is transparent jelly-like thick substance present in the cell. It makes the ground substance of the cell in which all the cell organelles are suspended.

(c) Nucleus: It is a double-layered membrane structure which contains chromosomes required for the inheritance of characteristics from one generation to the other.

13. What is membrane biogenesis?

Ans: The endoplasmic reticulum helps in the manufacture of proteins and fat molecules or lipids which are important for the cell function. These proteins and lipids help in the building of the cell membrane. This process is known as membrane biogenesis.

14. Which organelle is known as powerhouse of the cell?

Ans: Mitochondria is known as powerhouse of the cell because they store energy in the form of ATP. [Adenosine Triphosphate]

15. What are genes?

Ans: Gene is a segment of DNA. They are located on chromosomes in linear fashions. One gene may perform one or more function. Genes are carrier of genetic codes.

16. Why are lysosomes known as suicide bags?

Ans: When the cell gets damaged, lysosomes may burst, and the enzymes digest their own cell. Therefore, lysosomes are known as suicide bags.

15. What is cell theory?

Ans: The cell theory states three points

BIOLOGY



Assisted Practice | Expert Guidance | Personalized Insights

An Innovative Learning Methodology by IITians.

- 1.The cell is the unit of structure of all living things.
- 2.The cell is the unit of function of all living things.
- 3.All cells develop form pre- existing cells.