

CELL- STRUCTURE AND FUNCTIONS

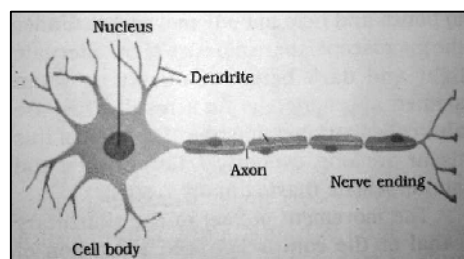
1. Indicate whether the following statements are True or False.

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|--|-------|
| a. Unicellular organisms have one celled body. | True |
| b. Muscle cells are branched. | False |
| c. The basic living unit of an organism is an organ. | False |
| d. <i>Amoeba</i> has irregular shape. | True |

2. Make a sketch of the human nerve cell. What function do nerve cells perform?

The nerve cells receive and transfer messages (impulses), thereby helping to control and coordinate the working of different parts of the body.

Nerves made up of nerve cells take messages from sense organs to the brain. They also take the messages from the brain to the muscles for action.



3. Write short notes on the following.

a. Cytoplasm: It is the jelly like substance present between the cell membrane and the nucleus. The cytoplasm contains various parts of the cell called organelles. These organelles are mitochondria, Golgi bodies, ribosomes, chloroplasts, nucleus etc. These organelles perform various functions in the cell.

b. Nucleus of a cell: Nucleus is a very important part of the cell. It is spherical and generally in the centre of the cell. It is covered by the nuclear membrane. The nucleus contains thread like structures called chromosomes. These chromosomes carry genes which control our characters and transfer these characters from parents to the offspring. Nucleus also controls the activities of the cell.

4. Which part of the cell contains organelles?

Cytoplasm which is the jelly like substance present inside the cell contains the cell organelles. Some of these organelles are mitochondria, chloroplasts, Golgi bodies, ribosomes etc.

5. State the difference between eukaryotes and prokaryotes.

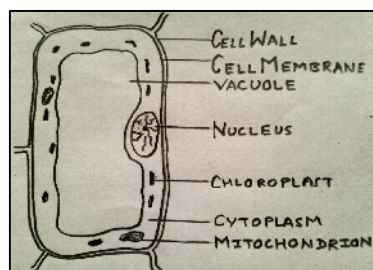
Prokaryotes: Those organisms whose cells do not have well organized nucleus are called prokaryotes. The nuclear membrane is absent. Examples: Bacteria and Blue Green algae.

Eukaryotes: Those organisms whose cells have well organized nucleus with nuclear membrane are called eukaryotes. The eukaryotic cells are generally larger and have many cell organelles. Examples: All plants and animals including human beings.

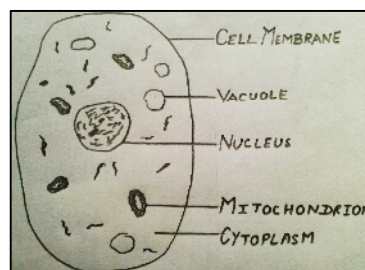
6. Where are chromosomes found in a cell? State their function.

Chromosomes are found in the nucleus of the cell. These are thread like structures. These are seen in the nucleus only when the cell divides. The chromosomes carry genes which control our characters. These chromosomes also help in inheritance that is transfer of characters from the parents to the offspring.

7. Make sketches of animal and plant cells and state three differences between them.



Plant Cell



Animal Cell

PLANT CELL	ANIMAL CELL
Plant cell has cell wall as the outer covering layer.	1. Animal cell has cell membrane as the outer covering layer.
Plant cell has chloroplasts.	2. Animal cell does not have chloroplasts.
Plant cell has a large vacuole in the centre of the cell.	3. Animal cell has smaller vacuoles which are distributed in the cell.

8. 'Cells are the basic structural units of living organisms.' Explain.

Cells are just like bricks of a building. The bricks are joined to make walls, which make up the room. Different rooms join up to form the house.

Similarly, cells are the basic structural units of all multicellular organisms. The cells are grouped together to form a tissue. Many tissues join up to form an organ. The organs join up to form the organ system just like the digestive system. Different organ systems join up to form the body of the multicellular organism.

Cells → Tissue → Organ → Organ System → Body of the organism

9. Explain why chloroplasts are found only in plant cells?

Chloroplasts are the cell organelles found only in plant cells because they are concerned with the process of photosynthesis which takes place in the leaves of green plants.

The chloroplasts are present mainly in the leaf cells. They contain the green pigment chlorophyll, which is necessary for the process of photosynthesis.

10. Write a note on the following

a. Genes: Genes are present on the chromosomes. The genes control our characters and also help in transfer of characters from parents to the off springs. Different combinations of genes of the parents results in difference between the off springs of the same parents.

b. Shape of the cells: The shape of the cells depends on their functions. The Red Blood Cells are spherical so that they can move easily with the blood in the blood vessels. The nerve cells are elongated like wires to receive and transfer messages between sense organs, brain and muscles.

c. Cell wall: Cell wall is the outermost covering layer of the plant cells. It gives support to the plant cell. It also protects the cell from changes in the environment like high temperature, high wind speed etc.

d. Parts of the cell: The cell has three main parts: i. The cell membrane, ii. Cytoplasm, which contains smaller components called cell organelles and iii. The nucleus.