

**PARAGON CONVENT SCHOOL**

**SECTOR : 24B, CHANDIGARH**

**LESSON - 8**

**CELL : STRUCTURE AND FUNCTION**

**Summary :**

- The smallest structural and functional unit of an organism - cell.
- Cell theory states that all organisms are made of one or more cells and cells arise from pre - existing cells.
- Cells are complex living structures and are of different shapes and sizes.
- Depending upon the number of cells organisms can be unicellular or multicellular.
- Most cells are best studied under a compound microscope.
- The cell has three main parts: cell membrane, cytoplasm and nucleus.
- The cytoplasm has the presence of different organelles along with the nucleus.
- Organisms having cells which lack a proper nucleus is prokaryotes and organisms having cells which have a proper nucleus is eukaryotes.
- The basic structure of plant and animal cells is the same.
- Cell division helps in the growth of organisms and also replaces the dead or damaged cells with new ones.

**Multiple Choice Questions (Page No. 117, 118)**

1. (d)      2. (c)      3. (b)      4. (c)      5. (b)

**Multiple Choice Questions (Page No. 122)**

1. (c)      2. (d)      3. (c)      4. (a)      5. (a)



## **SECTION B**

### **Multiple Choice Questions**

1. (c)      2. (c)      3. (b)

### **Very Short Answer Questions**

Q1.- Name the instrument used to study cells.

Ans.- Microscope

Q2.- What is the unit for measuring the size of a cell?

Ans.- Micron or micrometre (um)

Q3.- Name the a) smallest and b) longest cell in our body.

Ans.- (a) Red Blood Cells (7 um)

(b) Nerve cells (100 cm)

### **Short Answer Type-I Questions**

Q1.- What is meant by staining?

Ans.- Staining is a method to colour the colourless and transparent cells for detailed observation of the cell and its internal structure under a microscope.

Q2.- Give an example each of

a) a spherical cell      b) a spindle shaped cell

c) an elongated cell      d) an oval shaped cell

Ans.- (a) Egg cells      (b) Smooth muscle cells

(c) Nerve cells      (d) Red blood cells/corpuscles

Q3.- What are the main functions of the cell membrane?

Ans.- The main functions of the cell membrane are -

(a) It is selectively permeable as it allows only selected substances to pass in and out of a cell.

(b) It provides an outer boundary to the cell and protects the cell from injury.

(c) It also separates cells from one another and from the surrounding medium.

Q4.- Why are chloroplasts found in plant cells only?

Ans.- Chloroplasts are green plastids that contain chlorophyll which helps in photosynthesis. Since, only plants perform photosynthesis, chloroplasts are present only in plants.

### **Short Answer Type-II Questions**

Q1.- What are unicellular and multicellular organisms? Give two examples of each.

Ans.- Organisms which are made up of only one cell are called unicellular organisms, whereas organisms which are made up of many cells are called multicellular organisms.

Examples of unicellular organisms are - Amoeba, Euglena / bacteria/ yeast and Paramecium and of multicellular organisms are insects and trees, grasses, human beings and animals.

Q2.- What are eukaryotic cells? Name any two eukaryotes.

Ans.- The cells which have a well - organised nucleus with a nuclear membrane are called eukaryotic cells. Examples are Hydra, insects, plants, animals, fungi and protozoa.

Q3.- Different organs work together to perform a specific life functions.

a) What is the association of different organs to perform a particular function called?

b) What should we learn from this association?

Ans.- (a) Organ system

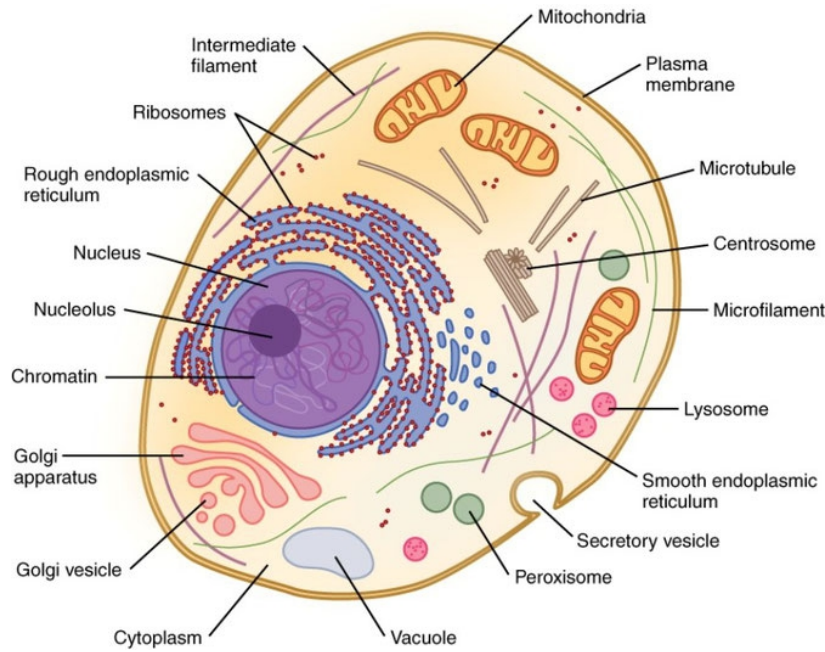
(b) We learn teamwork and cooperation from the association of the different organs to perform particular function.

**Long Answer Questions**

Q1.- a) Draw a labelled diagram of an animal cell.

b) Differentiate between an animal cell and a plant cell. Give any five differences.

Ans.- a)



**STRUCTURE OF AN ANIMAL CELL**

(b)

<b><u>Parameters</u></b>	<b><u>Animal cell</u></b>	<b><u>Plant cells</u></b>
(i) Size	Animal cells are smaller in size than plant cells.	Plant cells are larger in size with distinct outlines.
(ii) Cell wall	Cell wall is absent.	Cell wall is present.
(iii) Plastids	Plastids are absent.	Plastids are present.
(iv) Vacuoles	Vacuoles are absent. If present are small.	A large vacuole is present. It fills most of the space of cell.

(d) Golgi apparatus	Have a well developed golgi apparatus.	Many dictyosomes that are scattered in the cytoplasm are present near nucleus.
(vi) Centrosome	Centrosome is present.	Centrosome is absent.

Q2.- What is the function of the following in the cell?

- a) Mitochondria                      b) Cell membrane                      c) Vacuole  
d) Ribosomes                              e) Nucleus

Ans.- (a) Mitochondria: It provides energy for all the activities of a cell. The energy is produced by the oxidation of food (respiration). Thus, these are often called powerhouses of the cell.

(b) Cell membrane: It is selectively permeable membrane, i.e., allows only the entry and exit of selected substances. It also provides an outer boundary to the cell and separates the cells from one another and also from the surrounding medium.

(c) Vacuole: It stores soluble food, wastes and secretions of cell dissolved in water as cell sap.

(d) Ribosome: It takes part in synthesis of proteins.

(e) Nucleus: It controls all the metabolic activities of the cell. It is also responsible for passing genetic characteristics from parents to the offspring.