**25th May, 2020 JESUS AND MARY SCHOO AND COLLEGE MODULE 2**

**SUBJECT : BIOLOGY**

**CLASS- 9**

**CHAPTER : THE CELL**

**Explanation of cell wall :**

A cell wall is the wall of a cell in plants , bacteria , fungi ,algae . Animal cells do not have cell walls .The cell wall is the tough , usually flexible but sometimes fairly hard (rigid) layer that surrounds some types of cells . It is situated outer the cell membrane.

**Functions:-** The function of the cell wall is to give the cell strength and structure and to filter molecules that pass in and out of the cell.

**Explanation of Cell membrane:-**

The cell membrane (also known as the plasma membrane or cytoplasmic membrane ) is a biological membrane that separates the interior of all cells from the outside environment. The cell membrane consists of lipid and protein.

**Functions:- (a**) Provides shape to the cell

**(b)** Regulates the transport of substances in and out of the cell.

**Explanation of Cytoplasm:-**

In cell biology, the cytoplasm is cell of the material within a cell enclosed by the cell membrane except for the cell nucleus. The main components of the cytoplasm are cytosol – a gel –like substance .The cytoplasm is about 80% water and usually colourless.

Functions: Cytoplasm is responsible for giving a cell its shape. It helps to fill out the cell and keeps organelles in their place.

**Explanation of Endoplasmic reticulum:-**

The endoplasmic reticulum is a type of organelle made up of two subunits:

**1.** Rough endoplasmic reticulum (RER)

**2.** Smooth endoplamic reticulum (SER)

If ribosomes are attached to it , then it is called RER. It ribosome are not attached to it then it is called SER.

**Functions :-** It plays a major role in prosuction processing , and transport of proteins and lipids .

The main function of RER is to produce proteins in the cells.

The main function of SER to produce lipids and also detoxify toxins in the body in liver and kidney cells.

**Explanation of Ribosome:-**

Ribosome are important cell organelle. A ribosome is a mixture of protein and RNA. Each ribosome has two subunits one big and the other is small.

**Function :** They help in protein synthesis.

**Explanation of Golgi apparatus:-**

Golgi apparatus also called Golgi complex or golgi body .These are membrane bound organelles of eukaryotic cells, and made up of a series of flattened ,stacked pouches called cisternae.

**Functions:-** Help in the formation of enzymes and hormones . They help in the formation of yolk in the egg cell.

**Explanation of Lysosome:**

A Lysosome is a membrane bound organelle found in many animal cells. Lysosomes are also called as “suicidal bags of the cell”. Since they can digest the whole cell components by releasing the hydrolytic enzymes contained in them.

**Functions:-**

**1.** Intracellular digestion .

**2.** Removal of dead cells.

**3.** Help in protein synthesis.

**4.** Help in fertilization .

**Explanation of Mitochondria:-**

Mitochondria are organelles or part of a eukaryotic cells. They are in the cytoplasm not in the nucleus . A mitochondrion contains two membranes. These are made of phospholipid double layers and proteins. Sac –like structure with inner membrane thrown on to folds called cristae.

**Function:-** The major roles of mitochondria are to produce the energy currency of the cell ATP through respiration , and to regulater cellular metabolism. Therefore mitochondria are called the power house of the cell.

**Explanation of Plastids:-** Plastids are double – membrane organelle which are found in the cells of plants and algae. Three types of plastids are chloroplasts , Leucoplasts and chromoplasts.

**Function:-**

**1.** **Chlorolplasts:-** These are important for photosynthesis in plants . It is also known as “Kitchen of the cell”.

**2.** **Leucoplasts:-** It store materials such as starch , oils and protein granules.

**3. Chromoplasts:-** It impart colour to flowers and fruits.

**Explanation of Centrosome:-** A cell organelle without a membrane presents near the nucleus containing two cylindrical centrioles.

**Function :-** Its main function is to organize the microtubules and provide a structure of the cell. It initiates cell division.

**Explanation of Nucleus:-**

The nucleus is an organelle found in most eukaryotic cells the exception being red blood cells. A double membrane bound cell organelle whose shape depends upon the shape of the cell. It is known as “Brain of the cell”.

**Functions:-** It controls the heredity characteristics of an organism.

It is responsible for protein synthesis cell division.

**Explanation of Nucleoli :-** Nucleoli is just plural for “nucleolus” . The nucleolus are consists of DNA,r RNA and ribosomal proteins . It is present in nucleus.

**Function:-** It help in the formation of ribosomes.

**Explanation of Vacuoles:-** Vacuoles are storage bubbles found in cells . They are found in both animal and plant cells but are much layer in plant cells.

**Functions:-**

**1.** Containing waste products.

**2.** It maintains the pH value inside the cells.

**3.** Help the storage of food and water etc.

**WORKSHEET 2**

**1.** Give any four important differences between plant cell and animal cell.

**2.** Give any four similarities between plant and animal cells.

**3.** Give one significant function of the following:-

**a)** Cell wall **b)** Mitochondria **c)** Lysosome **d)** Ribosome

**e)** Endoplasmic reticulum **f)** Vacuoles **g)** Centrosome

**4.** What is Cytoplasm?

**5.** Define nucleus of a cell?

**6.** Where are proteins synthesized inside the cell.

**7.** Which organelle is known as the power house of the cell?

**8.** Name the parts of the cell?

**9.** What are Vacuoles?

**10.** Name the organelle known as “suicide bags of the cell”.

**Note- Please do all this work in your “Copies” OR “Notebooks” which will be checked when school reopens. Please consider this important.**

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