

Cell and Cell Organelles

EXERCISE [PAGE 74]

Exercise | Q 1.1 | Page 74

Who am I ?

I am ATP producing factory ?

Solution: Mitochondria

Exercise | Q 1.2 | Page 74

Who am I ?

I am single layered. but maintain cellular osmotic pressure.

Solution: Vacuole

Vacuoles are membrane-bound cell organelles present in the cytoplasm and filled with a watery fluid containing various substances.

Exercise | Q 1.3 | Page 74

Who am I ?

I support the cell, but I am not cell wall. I have a body resembling net.

Solution: Endoplasmic reticulum

Endoplasmic Reticulum is a complex network of tubular membranes exclusively present in the cytoplasm of the eukaryotic cell.

Exercise | Q 1.4 | Page 74

Who am I ?

I am chemical factory of the cell.

Solution: Chloroplasts

Chloroplast is an organelle that contains the photosynthetic pigment chlorophyll that captures sunlight and converts it into useful energy, thereby, releasing oxygen from water.

Exercise | Q 1.5 | Page 74

Who am I ?

Leaves are green because of me.



Solution: Chlorophyll

Exercise | Q 2.1 | Page 74

What would have happened ? If.....

RBCs had mitochondria.

Solution: RBC's are a type of cells which are found in blood. Their function is to carry oxygen to different cells and tissues of the body. They do not contain mitochondria for two purposes:

firstly, it saves the space in the red blood cells and so more of oxygen can bind to it
secondly, it prevents the use of oxygen which is bounded to RBC's.

If mitochondria would have been present in RBC's, the oxygen which is carried by them will be used up by the RBC's. Thus, there will be less or no oxygen left which can be transported to the cells and tissues.

Exercise | Q 2.2 | Page 74

What would have happened ? If.....

There had been no differences between mitochondria and plastids.

Solution: Mitochondria and plastids are two different structures and they have specific functions. Mitochondria are found in both plants and animals whereas plastids are found only in plants. The main role of mitochondria is to provide energy to the cells for carrying out their various functions. If, there would have been no difference between mitochondria and plastids, there would have been no structure which would provide energy and thus all the processes which take place in the cell would cease.

Exercise | Q 2.3 | Page 74

What would have happened ? If.....

Genes had been absent on the chromosomes.

Solution: Genes are hereditary structures which contain the information which is passed on from one generation to another. They are required for the transmission of information from one generation to another. They are responsible for the characteristics of all the living organisms. They store the information for the various processes which occur in all the living organisms.

Exercise | Q 2.4 | Page 74

What would have happened ? If.....

Plasma membrane had not been selectively permeable.

Solution: Plasma membrane is selectively permeable which means it allows the entry or exit of selective materials inside and outside the cell. In its absence, the regulated movement of substances in and out of the cell will be affected.

Exercise | Q 2.5 | Page 74

What would have happened ? If.....

Plants lacked anthocyanin.

Solution: Anthocyanin is a pigment which is present in plants and imparts them purplish colour. In the absence of this pigment, the structures which usually have purple colour due to its presence would appear colourless.

Exercise | Q 3.1 | Page 74

Who is odd man among us ? Give reason.

Nucleolus, mitochondria, plastids, endoplasmic reticulum

Solution: Plastids are the odd one out because they are organelles which are found only in plant cells. Rest all the organelles are found in both plants and animals.

Exercise | Q 3.2 | Page 74

Who is odd man among us ? Give reason.

DNA, Ribosomes, Chlorophyll

Solution: Chlorophyll is the odd one out because it is a type of pigment which is found in plants only. DNA and ribosomes are found in both plants and animals.

Exercise | Q 4.1 | Page 74

Give functions.

Plasma membrane

Solution: Functions of the plasma membrane:

- It gives shape and support to the cell.
- It acts as a mechanical barrier to protect the internal contents of the cell.
- It separates the contents of the cell from its surrounding medium.
- It performs physical activities such as diffusion and osmosis.

Exercise | Q 4.2 | Page 74

Give functions.

Cytoplasm

Solution: Functions of cytoplasm:

- It is the medium for all cellular chemical reactions.
- It is a medium in which the organelles remain suspended.
- It helps in the movement of the different cellular elements.

Exercise | Q 4.3 | Page 74

Give functions.

Lysosome

Solution: Functions of lysosomes:

- Lysosomes destroy foreign materials that enter the cell.
- Dead and worn-out organelles are removed by lysosomes.
- Cells are autolysed by lysosomes, and their contents are released within the cell.

Exercise | Q 4.4 | Page 74

Give functions.

Vacuole

Solution: Functions of vacuoles:

- The main function of vacuoles is to store food in a cell.
- They also help in storing and expelling wastes and toxic by products of metabolic reactions.
- They help in maintaining the turgidity and rigidity of a cell.

Exercise | Q 4.5 | Page 74

Give functions.

Nucleus

Solution: Functions of nucleus:

- It is the control centre of a cell as it controls all the activities of the cell.
- It also contains gene-containing chromosomes which are the units of inheritance in an organism.

Exercise | Q 5 | Page 74

Who gives me the colour? (Select the correct option)

a. Red tomato	1. Chlorophyll
b. Green leaf	2. Carotene
c. Carrot	3. Anthocyanin



d. Violet	4. Lycopene
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Solution:

a. Red tomato	4. Lycopene
b. Green leaf	1. Chlorophyll
c. Carrot	2. Carotene
d. Violet	3. Anthocyanin