Chapter: 10

Q.1 **Find the odd one out** **2**

1 Nucleolus, Mitochondria, Plastids, Endoplasmic Reticulum

Ans **Nucleolus** is the odd one out as it is a part of nucleus while others are cell organelles.

2 DNA, Ribosomes, Chlorophyll, Cristae.

Ans **Chlorophyll** is the odd one as it is a pigment that imparts green colors to the plants while the rests are not pigment.

Q.2 **Match the pair** **2**

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

Column - A	Column - B
(i) Red tomato	(a) Chlorophyll
(ii) Green leaf	(b) Carotene
	(c) Lycopene

Ans

(i) Red tomato	Lycopene
(ii) Green leaf	Chlorophyll

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

Column 'A'	Column 'B'
(i) Carrot	(a) Chlorophyll
(ii) Violet	(b) Carotene
	(c) Anthocyanin

Ans

(i) Carrot	Carotene
(ii) Violet	Anthocyanin

Q.3 **Answer in one sentence** **2**

1 What would have happened? if Plants lacked anthocyanin.

Ans i. The organelle which gives color to the plant cells are known as plastids.
ii. Plastids are divided into leucoplast (colorless) or chloroplasts (colored plastids).
iii. If plants lacked anthocyanin pigment, then purple or blue color may not be present on the plant parts.

2 What would have happened? if Genes had been absent on the chromosomes.

Ans i. The functional segments on chromosomes are called genes.
ii. A gene is the basic physical and functional unit of heredity.
iii. If genes had been absent on the chromosomes then the off-spring would not be looking or behaving like the parent, as the hereditary characters would not have been transferred.

Q.4 **Write properties, uses, inferences, important factors, examples** **10**

1 State the Functions : Plasma membrane.

Ans **Plasma membrane :-**

i. Plasma membrane is selectively permeable as it allows some substances to enter the cell, while prevents other substances.

ii. Due to this property, useful molecules of water, salt and oxygen enter the cell and CO_2 exits the cell.

2 State the Functions : Nucleus.

Ans The functions of Nucleus are as follows:

i. Nucleus controls all metabolic activities of the cell and also the cell division.

ii. It is involved in the transmission of hereditary characters from parent to off-springs.

3 State the Functions : Cytoplasm.

Ans **Cytoplasm :-**

i. Cytoplasm is the medium for cellular reactions.

ii. The part of cytoplasm other than organelles is the cytosol. Cytosol stores the vital substances like amino acids, glucose, vitamins, etc.

4 State the Functions : Lysosome.

Ans The functions of Lysosomes are as follows:

i. Immune system-It destroys viruses and bacteria that attack the cell.

ii. Demolition squads-It destroys worn out cellular organelles and organic debris. (Autolysis)

iii. Suicide Bags-When a cell becomes old or is damaged, lysosomes burst and enzymes digest their own cells.

iv. During starvation, lysosomes digest stored proteins, fats

5 State the Functions : Vacuole.

Ans The functions of Vacuoles are as follows :

i. To maintain the osmotic pressure of the cell.

ii. To store metabolic byproducts and end products. (Glycogen, proteins, water, etc.)

iii. In animal cell, they store waste products and food, while in amoeba it stores food before digestion.

iv. In plant cell, vacuoles are full of cell sap and provide turgidity, rigidity to them.

Q.5 **Answer the following** **2**

1 What would have happened? if RBC's had mitochondria.

Ans i. If mitochondria were present in RBC's then it would have reduced the oxygen carrying capacity of the cell. Most of the oxygen would be utilized for the cellular respiration that occurs in the mitochondria

ii. Hence, mitochondria are absent in RBC's, and due to this, the oxygen which is carried by them is not used for themselves

Q.6 **Activity based question (3 mks)** **3**

1 Identify who am I ?

i. I am ATP producing factory.

ii. I am single layered but maintain cellular osmotic pressure.

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

iv. I am chemical factory of the cell.

v. Leaves are green because of me.

vi. i am an inner membrane that is deeply folded in the mitochondria.

Ans i. I am ATP producing factory - **Mitochondria.**

ii. I am single layered but maintain cellular osmotic pressure - **Vacuole.**

iii. I support the cell, but I am not cell wall. I have a body resembling net - **Endoplasmic Reticulum.**

iv. I am chemical factory of the cell - **Mitochondria.**

v. Leaves are green because of me - **Chlorophyll.**

vi. I am An inner membrane that is deeply folded in the mitochondria - **Cristae.**

Q.7 **Answer the following** **6**

1 What would have happened? if there had been no difference between mitochondria and plastids.

Ans i. Both mitochondria and plastids are cell organelles. They are bounded by double membrane. Both contain

DNA and RNA. Both can make their own copies by cell division.

ii. The differences between them are as follows :

a. Mitochondria help in cellular respiration while plastids help in photosynthesis.

b. Mitochondria releases energy in the form of ATP while plastids store energy in the form of glucose.

c. Mitochondria are found in all eukaryotic cells but plastids are found only in algae and plant cells

d. Mitochondria are the power house of the cell while plastids are the kitchen of the cell.

iii. So, if there had been no difference between two organelles, then they can survive as an independent cell as they have their own genetic material and are capable of synthesizing proteins required for their functioning and are said to be 'semi-autonomous organelles'.

2 What would have happened? if Plasma membrane had not been selectively permeable.

Ans i. If the plasma membrane had not been selectively permeable then there would be no restriction on what could enter or leave the cell.

ii. This would disturb the balance between the cell content and the environment outside the cell. Thus cell would not be able to maintain homeostasis.

iii. So, if the membrane was fully permeable, substances would enter constantly and the cell couldn't use or handle everything coming in, resulting in the death of the cell.

Q.8 **Extra data** **5**

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

Ans I support the cell, but I am not cell wall. I have a body resembling net - **Endoplasmic Reticulum.**

2 I am chemical factory of the cell.

Ans I am chemical factory of the cell - **Mitochondria.**

3 I am single layered but maintain cellular osmotic pressure.

Ans I am single layered but maintain cellular osmotic pressure - **Vacuole.**

4 I am ATP producing factory.

Ans I am ATP producing factory - **Mitochondria.**

5 Leaves are green because of me.

Ans Leaves are green because of me - **Chlorophyll.**