

BIOLOGY - CHAPTER 1

CELL

I VERY SHORT ANSWER TYPE (2 Marks)

1. What is endocytosis? (T. Bk Q: 10)

Ans Endocytosis is the process by which cells actively engulf substances, forming vesicles to transport them into the cell.

2. Why is light microscope called a compound microscope? (T. Bk Q: 20)

Ans A light microscope is called a compound microscope because it uses two convex lenses, the objective lens and the eyepiece lens to magnify the object.

3. Define Plasmolysis (T. Bk Q: 23)

Ans The shrinkage of plant cell contents away from the cell wall due to the loss of water.

II SHORT ANSWER TYPE (3 Marks)

1. How can you calculate the Magnification of a microscope? (T. Bk Q: 2)

Ans Magnification is the number of times an object appears enlarged when viewed through a microscope. Eg: A compound microscope can magnify an object up to about 1,500 times (1500x)

2. There would be no plant life if chloroplasts did not exist. Justify (T. Bk Q: 5)

Ans Chloroplasts contain chlorophyll, which traps sunlight for photosynthesis. During photosynthesis plants prepare their own food. Without chloroplasts plants would not be able to make food or obtain

energy for survival. Therefore, plant life would not exist without chloroplasts.

3. Why are peroxisomes mostly found in kidney and liver cells? (T. BK Q 11)

Ans Because these cells carry out detoxification and produce many harmful substances. Peroxisomes help break down toxins and harmful chemicals, protecting the cells from damage.

4. What do you mean by plasmodesmata? (T. BK Q 12)

Ans Plasmodesmata are tiny channels that connect adjacent plant cells and allow the movement of substances between them.

5. If you are provided with some vegetables to cook, you generally add salt into the vegetables. After adding salt, vegetables release water. Why? (T. BK Q 18)

Ans When salt is added to vegetables, water comes out of the cells by exosmosis because the salt solution outside the cells is more concentrated. Therefore the vegetables release water.

6. Differentiate between benign and malignant tumors (T. BK Q 21)

Benign Tumor	Malignant Tumor
* Non-cancerous	* Cancerous
* Grows slowly	* Grows rapidly
* Does not spread to other parts of the body.	* Can spread to other organs (metastasis)

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III LONG ANSWER TYPE QUESTIONS (5 MARKS)

1. Perform the following Experiment: (T. BK @: 6)
- Take four potato halves, and hollow them out to make potato cups. The boiled potato should make one of these potato cups.
 - Place each potato cup into a trough with water.
 - Pour the water into the trough.
- a) Keep cup A empty b) Add one teaspoon of sugar to cup B
- c) Add one teaspoon of salt to cup C d) Add one teaspoon of sugar to a boiled cup D.

Answer the following questions:

- i) Describe why water collects in B and C hollowed portions.

Ans

⇒ Due to osmosis

⇒ The sugar/salt creates a higher solute concentration inside the cavity. Pulling water inward through the living potato cells.

- ii) Why is potato A required for this experiment?

Ans

⇒ It acts as a control

⇒ It proves that a hollow cavity cannot gather water on its own without a solute concentration difference.

- iii) Explain why water doesn't collect in the hollowed out portion of A or D

Ans

In A: It is empty, so there is no concentration gradient to move water.

In D: The potato was boiled which kills the cells & destroys the selectively permeable membrane. Since, a living membrane is required for osmosis, no water transport can happen.