

Board – ICSE

Class – 8

Topic – TRANSPORT IN PLANTS

1. Multiple choice questions: Tick the correct choice.

- Movement of water in the plant body takes place through
(a) xylem (b) vascular tissues
(c) phloem (d) stomata

Ans. (a) xylem

- Prepared food material is carried through
(a) xylem (b) vascular tissues
(c) phloem (d) stomata

Ans. (c) phloem

- Water from the soil enters the root xylem by the process of
(a) diffusion (b) evaporation
(c) osmosis (d) transpiration

Ans. (d) transpiration**2. Fill in the blanks.**

- Water passes into a root by the process called _____.
- Osmosis occurs through a _____ membrane.
- Water is lost from the leaves by _____.
- Upward movement of water takes place through _____.
- _____ tissue is involved in transportation of food in plants.

Ans. 1. Osmosis 2. Semi-permeable 3. Stomata 4. Xylem 5. Phloem**3. Write true or false in front of the statements given below:**

- In Spirogyra, transport of materials take place through osmosis.
- Xylem and phloem are vascular tissues.
- 'Girdling experiment' demonstrates food synthesis in plants.
- Water enters root-hair by osmosis
- Transpiration is the loss of water from the roots of the plants.

Ans. 1. T 2. T 3. F 4.T 5.F

4. How does transport of materials take place in unicellular plants?

Ans. In unicellular plants like Chlamydomonas, transport of material takes place by a process called diffusion. It is a major method of transport in unicellular plants.

5. What are root hairs? Mention the function performed by root hairs.

Ans. Root hairs are the microscopic, unicellular structures. These hairs develop from epidermis. Root hairs greatly increase the surface area for the absorption of water and minerals.

6. How does movement and absorption of water take place through root?

Ans. In plants, movement of water and minerals from roots to stems takes place through a conducting tissue called xylem. Water and minerals in roots are absorbed by root hairs from the soil. And in these root hairs water passes by a process called osmosis.

“Osmosis is the movement of water molecule from high concentration region to low concentration region “through a partially permeable membrane.”

Osmosis in plant cells. In plants, water absorb through root hairs by the process of osmosis. Cell membrane of the plant cell is partially permeable membrane and the cell sap inside the cell is a strong solution. Due to this strong solution, water enters in the cell through partially permeable membrane by the process of osmosis. Now this cell sap is weaker than the second cell. Again osmosis takes place between these cells and this process is going on.

7. Name the process by which water loss takes place through leaves.

Ans. Transpiration is the process by which loss of water takes place.

8. Mention the significance of transpiration.

Ans. Transpiration is a necessary evil because there is loss of water in the form of water vapour. But it also has many significance which are as follows:

(i) Transpiration stream. When water is lost through leaves in the form of water vapour than water is sucked up from the xylem vessels and xylem vessels from roots. So, there is a continuous flow of water from roots to leaves. This movement of water is called transpiration stream.

(ii) Transport of salts. With the absorption of water some mineral salts are also absorbed and carried from root to leaves.

(iii) Cooling. Due to rapid transpiration of water from leaf surface and the consequent absorption of latent heat from the leaf tissue help in keeping the temperature low.

9. What is transpiration?

Ans. Transpiration is the loss of water from leaves in the form of vapour into the atmosphere. It is a necessary evil.

10. What is translocation?

Ans. Translocation is the movement of food molecules formed during photosynthesis throughout the plant through phloem.

11. Define wilting.

Ans. During transpiration, when water is absorbed more quickly than their absorption rate then plant cell will lose water. In this condition, the leaves, the stem and the flowers will drop. This condition is called wilting.

12. What is active transportation of minerals?

Ans. The movement of minerals through membranes in living cells, often against a concentration gradient is called active transportation of minerals. This process requires energy. Although, minerals are transported through xylem to all parts of the plants.