

9.1 Transport in the Xylem of Plants

Question Paper

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|------------|--------------------------------------|
| Course | DP IB Biology |
| Section | 9. Plant Biology (HL Only) |
| Topic | 9.1 Transport in the Xylem of Plants |
| Difficulty | Easy |

Time allowed: 10
Score: /5
Percentage: /100

Question 1

In plants, which two substances does the xylem carry primarily?

- A. Water and sugars
- B. Sugars and mineral ions
- C. Water and mineral ions
- D. Starch and mineral ions

[1 mark]

Question 2

Which of the following is **not** a consequence of the transpiration stream in plants?

- A. An increased rate of photosynthesis
- B. Plants remaining upright
- C. The plant retaining heat
- D. Supply of mineral ions to plant tissues

[1 mark]

Question 3

Which row of the table best summarises the interaction of water molecules during water uptake by a plant?

| | Water molecules pulling each other up | Water molecules sticking to the xylem walls | Capillary action |
|----|---------------------------------------|---------------------------------------------|------------------|
| A. | cohesion | adhesion | adhesion |
| B. | cohesion | cohesion | adhesion |
| C. | adhesion | adhesion | cohesion |
| D. | cohesion | cohesion | cohesion |

[1 mark]

Question 4

Which of the following is **not** a water-saving adaptation found in xerophytic plants?

- A. Sunken stomata
- B. High density of chloroplasts
- C. Rolled leaves
- D. Widespread root network

[1 mark]

Question 5

Which row of the table gives the best summary of the conditions in which mineral ions are taken up by plant roots?

| | Osmolarity in soil | Osmolarity in root hair cell cytoplasm | Transport mechanism |
|-----------|--------------------|----------------------------------------|--------------------------------|
| A. | Low | High | Water channels across membrane |
| B. | High | Low | Transporter proteins |
| C. | High | High | Via membrane bilayer |
| D. | Low | High | Transporter proteins |

[1 mark]