

7.2 Transport Mechanisms

Question Paper

Course	CIEA Level Biology
Section	7. Transport in Plants
Topic	7.2 Transport Mechanisms
Difficulty	Easy

Time allowed: 20
Score: /10
Percentage: /100

Question 1

Where does the majority of the water evaporate from during transpiration?

- A. outer surface of the epidermal cell layer
- B. the surface of the palisade mesophyll
- C. the surface of the spongy mesophyll
- D. inside guard cells

[1 mark]

Question 2

Which of the following processes involving transport in the xylem requires the use of ATP?

- A. evapotranspiration from the leaves
- B. uptake of minerals from the soil
- C. capillary action in the xylem
- D. osmosis of water into the xylem

[1 mark]

Question 3

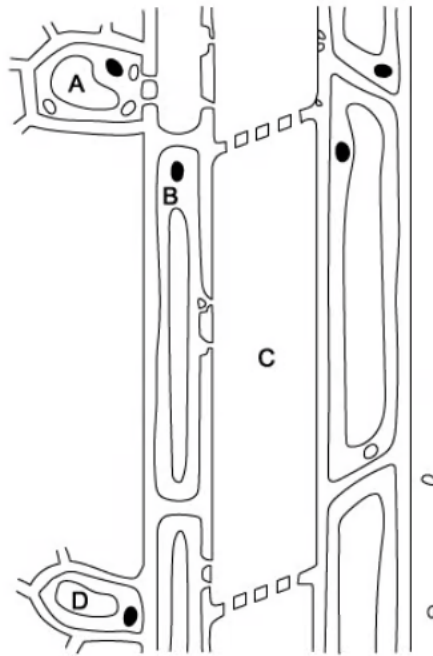
Why might land flooded by the sea not be suitable for growing plants even after the flood water has evaporated?

- A. not enough oxygen in the soil
- B. too much nitrogen in the soil
- C. too much CO₂ in the soil
- D. low water potential of soil

[1 mark]

Question 4

This diagram represents part of the phloem pathway, from leaf to root in a plant.



Which cell is a companion cell?

[1 mark]

Question 5

A student used a potometer to measure the rate of water loss from a plant by transpiration.

The internal diameter of the capillary tube and the distance moved by the bubble in fifteen seconds were recorded.

The results are shown in the table.

internal diameter of capillary tube / mm	distance moved by bubble in fifteen seconds / mm
1.2	7

Which calculation correctly shows how to determine the rate of transpiration in $\text{mm}^3 \text{min}^{-1}$?

- A. $\pi(1.2^2 \times 7) \times 4$
- B. $\pi(0.6^2 \times 7) \times 4$
- C. $\pi(1.2^2 \times 7) / 4$
- D. $\pi(1.2 \times 7) \times 4$

[1 mark]

Question 6

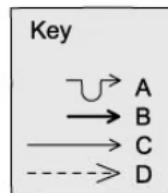
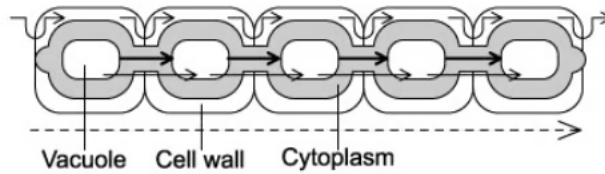
Which xerophytic adaptation does not directly reduce water loss in a desert dwelling plant?

- A. lower stomatal abundance
- B. sunken stomata
- C. hardened spines
- D. epidermal hairs

[1 mark]

Question 7

Which is the apoplast pathway?



[1 mark]

Question 8

What happens to the water potential and the hydrostatic pressure in the phloem when carbohydrate is moved into it?

	water potential	hydrostatic pressure
A	increases	decreases
B	increases	increases
C	decreases	increases
D	decreases	decreases

[1 mark]

Question 9

Which pathways in the root are blocked by the casparian strip?

- 1 apoplast
- 2 symplast
- 3 vacuolar

A. 1 and 2

B. 2 and 3

C. 1, 2 and 3

D. 1 only

[1 mark]

Question 10

Which process is not responsible for the upward movement of water through the xylem?

- A. root pressure
- B. capillary action
- C. transpiration pull
- D. translocation

[1 mark]