8. Transport in plants

8.2 Water uptake

Paper 1 and 2

Question Paper

Paper 1

Questions are applicable for both core and extended candidates

1 What is the pathway taken by water from the soil to the leaf?

A root hair cells → root cortex → mesophyll → xylem

B root hair cells → root cortex → xylem → mesophyll

C root cortex→ root hair cells → mesophyll → xylem

D root cortex → root hair cells→ xylem → mesophyll

2 Parts of a plant are listed.

1 mesophyll cells

2 root cortex cells

3 root hair cells

4 xylem vessels

What is the pathway taken by water in the plant?

A 1 → 4 → 2 → 3

B 1 → 2 → 3 → 4

C 3 → 1 → 4 → 2

D 3 → 2 → 4 → 1

3 Which pathway is taken by water through a plant?

A root hair → root cortex → xylem → mesophyll → stomata

B root hair → xylem → mesophyll → root cortex → stomata

C stomata → root cortex → xylem → mesophyll → root hair

D stomata → root hair → root cortex → xylem → mesophyll

4 The substances listed are found in the leaf of a plant.

Which substance is obtained from the soil?

A carbon dioxide

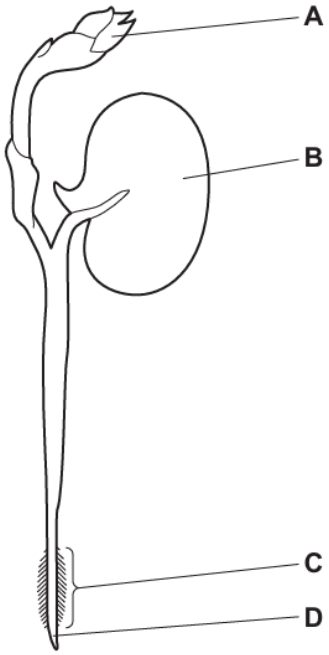
B chlorophyll

C glucose

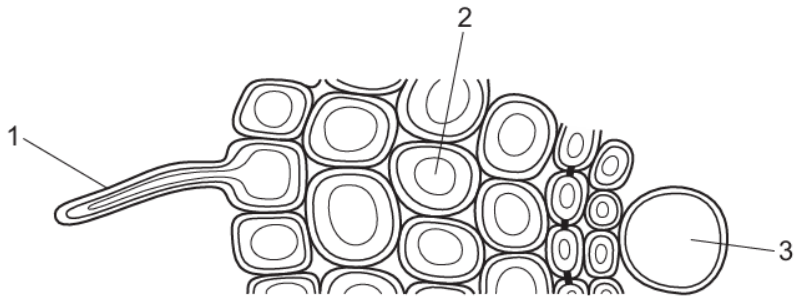
D mineral ions

5 The diagram shows a bean seedling soon after it has germinated.

Where is most water absorbed?



6 The diagram shows part of a cross-section of a root.



What are cells 1, 2 and 3?

	1	2	3
A	root cortex cell	root hair cell	mesophyll cell
B	root hair cell	root cortex cell	xylem
C	root hair cell	root cortex cell	mesophyll cell
D	root cortex cell	root hair cell	xylem

7 Which sequence describes the pathway taken by water as it moves through a plant?

A root hair cell → xylem → root cortex cell → mesophyll

B mesophyll → xylem → root cortex cell → root hair cell

C root cortex cell → root hair cell → xylem → mesophyll

D root hair cell → root cortex cell → xylem → mesophyll

8 In which order does water pass through these structures in a plant?

A mesophyll → root hair → xylem

B mesophyll → xylem → root hair

C root hair → mesophyll → xylem

D root hair → xylem → mesophyll

9 After passing through the root hair cells of a plant, what is the next tissue through which water passes?

A cortex

B epidermis

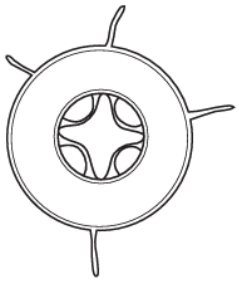
C mesophyll

D xylem

10 The diagrams show cross-sections through four roots.

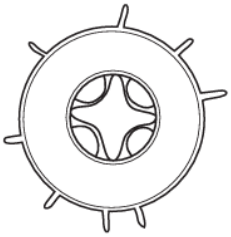
Which root is best adapted for absorbing water from the soil?

A

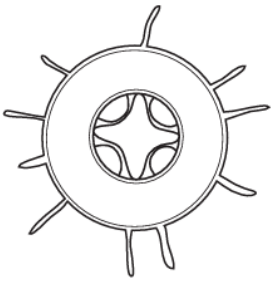


B

C



D



11 The table shows the rate of water flow through a tree over a 12 hour period.

time of day	rate of flow / cm per hour
7:00	100
9:00	120
11:00	140
13:00	250
15:00	300
17:00	260
19:00	180

What conclusion can be drawn from the table?

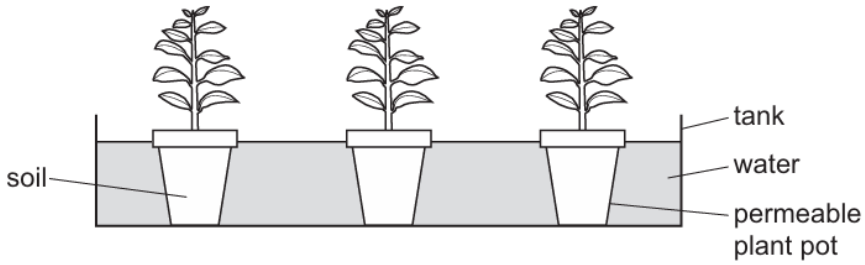
A Between 7:00 and 17:00 hours the rate of flow continuously increases.

B The greatest increase in rate of flow in a two-hour period is between 11:00 and 13:00 hours.

C Water does not flow up through a tree at night.

D Water flow is affected by humidity.

12 Potted plants are left for a week in a tank of water as shown.



Why do the plants die?

A The roots do not have enough oxygen.

B The roots do not have enough water.

C The roots have too much oxygen.

D The roots have too much carbon dioxide.

Paper 2

Questions are applicable for both core and extended candidates

13 Parts of a plant are listed.

1 mesophyll cells

2 root cortex cells

3 root hair cells

4 xylem vessels

What is the pathway taken by water in the plant?

A 1 → 4 → 2 → 3

B 1 → 2 → 3 → 4

C 3 → 1 → 4 → 2

D 3 → 2 → 4 → 1

14 Which sequence describes the pathway taken by water as it moves through a plant?

A root hair cell → xylem → root cortex cell → mesophyll

B mesophyll → xylem → root cortex cell → root hair cell

C root cortex cell → root hair cell → xylem → mesophyll

D root hair cell → root cortex cell → xylem → mesophyll

15 In which order does water pass through these structures in a plant?

A mesophyll → root hair → xylem

B mesophyll → xylem → root hair

C root hair → mesophyll → xylem

D root hair → xylem → mesophyll

16 Which change increases the rate of water uptake by the roots of a plant?

A decrease in evaporation of water from mesophyll cells

B decrease in length of root hairs

C decrease in water potential of root hair cells

D decrease in water potential of soil water