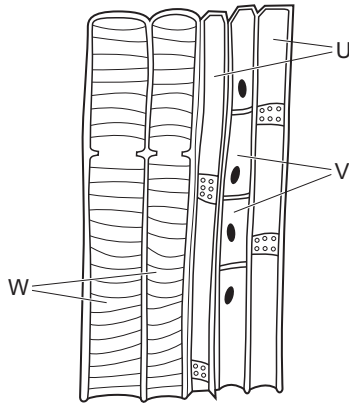


26 The diagram shows a vertical section through part of the stem of a dicotyledonous plant. Three types of structures are labelled.



What are the structures U, V and W?

	companion cells	phloem sieve tube elements	xylem vessel elements
A	U	W	V
B	V	U	W
C	U	V	W
D	W	V	U

27 Which features of xylem vessels help to reduce the resistance to water flow?

- 1 Lignin forms an incomplete secondary wall.
- 2 There are **no** cross walls between the vessel elements.
- 3 The xylem vessels form narrow tubes.

A 1, 2 and 3 B 1 and 2 only C 2 only D 3 only

28 What causes water to move from the root hair cells to the endodermis?

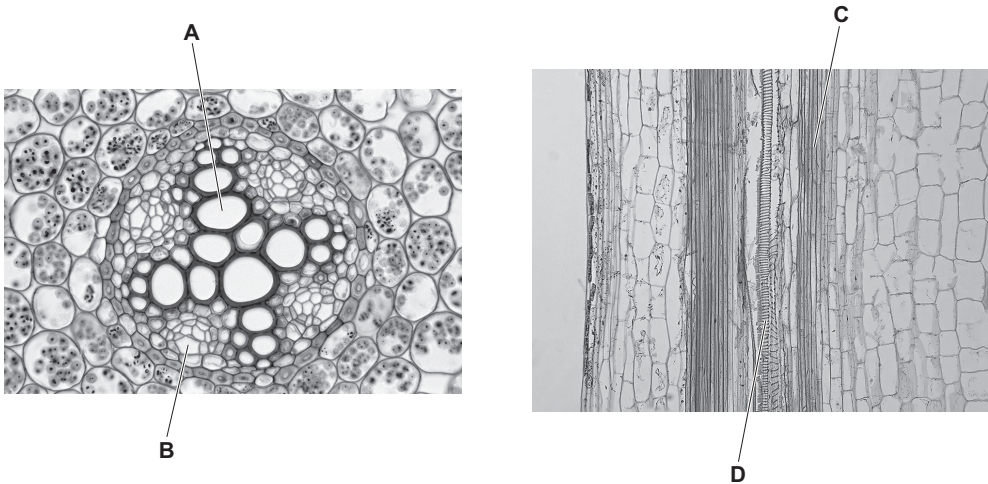
- A diffusion through cell walls and osmosis down a water potential gradient in the cytoplasm
- B diffusion through the symplast and osmosis and root pressure through the apoplast
- C osmosis from cell vacuole to cell vacuole and active transport into the endodermis
- D osmosis through the intercellular spaces and diffusion in cell walls and cytoplasm

29 Which changes occur as carbohydrate is moved into a sink?

	water potential of the sieve tube element becomes	volume of liquid of the sieve tube element
A	lower	decreases
B	lower	increases
C	higher	decreases
D	higher	increases

28 The photomicrographs show sections of two organs of a plant.

Which letter identifies a cell found with companion cells in a tissue in a root?



29 Which row correctly describes the pressure in the xylem and the water potential in the root hair cells used in the transport of water in a transpiring plant?

	pressure in the xylem	water potential in root hair cells
A	positive	negative
B	positive	positive
C	negative	negative
D	negative	positive

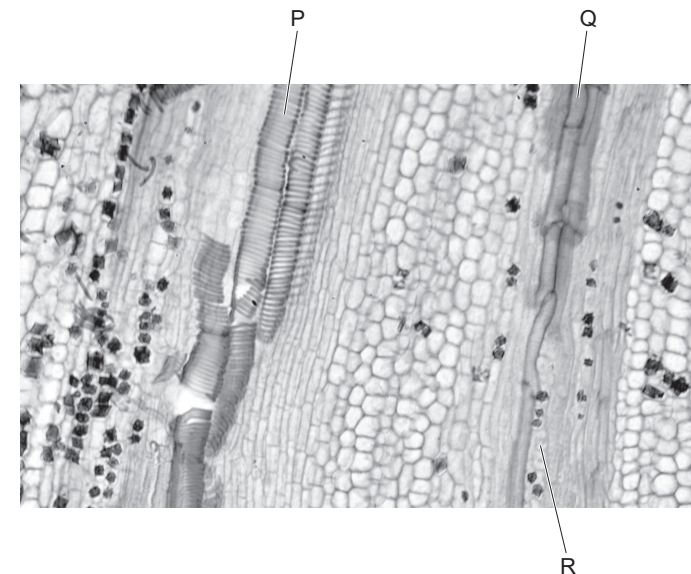
30 Which row correctly identifies the definitions for each of the key terms used in transpiration?

	attraction between water molecules and walls of the xylem vessel	effect created by evaporation of water from the surface of the leaf
A	cohesion	adhesion
B	adhesion	tension
C	cohesion	tension
D	tension	cohesion

31 Which combination of features is characteristic of a phloem sieve tube element immediately after it is loaded from a source?

	water potential of the phloem sieve tube element	lignification of the cell wall
A	higher than source	not present
B	higher than source	present
C	lower than source	not present
D	lower than source	present

28 The photomicrograph shows a longitudinal section of part of a plant stem.



Which row correctly identifies structures P, Q and R?

	P	Q	R
A	phloem sieve tube element	companion cell	xylem vessel element
B	phloem sieve tube element	xylem vessel element	companion cell
C	xylem vessel element	phloem sieve tube element	companion cell
D	xylem vessel element	companion cell	phloem sieve tube element

29 Which statement about the pathway taken by a water molecule travelling from the soil to the xylem is correct?

- A A water molecule in a cortex cell that takes the symplast pathway must enter the next cortex cell by passing between two adjacent phospholipid molecules in a cell surface membrane.
- B A water molecule can pass into xylem vessels either through pits or through the cell wall of the xylem vessel elements by osmosis.
- C A water molecule would pass into the cytoplasm of the endodermal cell if it always takes the apoplast pathway all the way to the xylem.
- D A water molecule that has left the endodermal cells can travel by either the apoplast pathway or symplast pathway.