

8. Transport in plants

8.1 Xylem and phloem

Paper 1 and 2

Question Paper

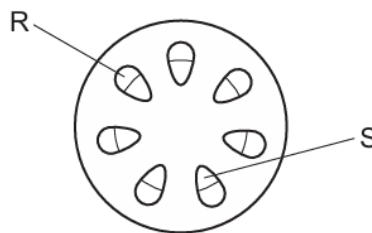
Paper 1

Questions are applicable for both core and extended candidates

1 Which row describes transport in a plant?

	transport tissue	transport tissue found in a vascular bundle	substances transported
A	phloem	yes	sucrose and amino acids
B	phloem	no	water and mineral ions
C	xylem	yes	sucrose and amino acids
D	xylem	no	water and mineral ions

2 The diagram shows a cross-section of a stem.



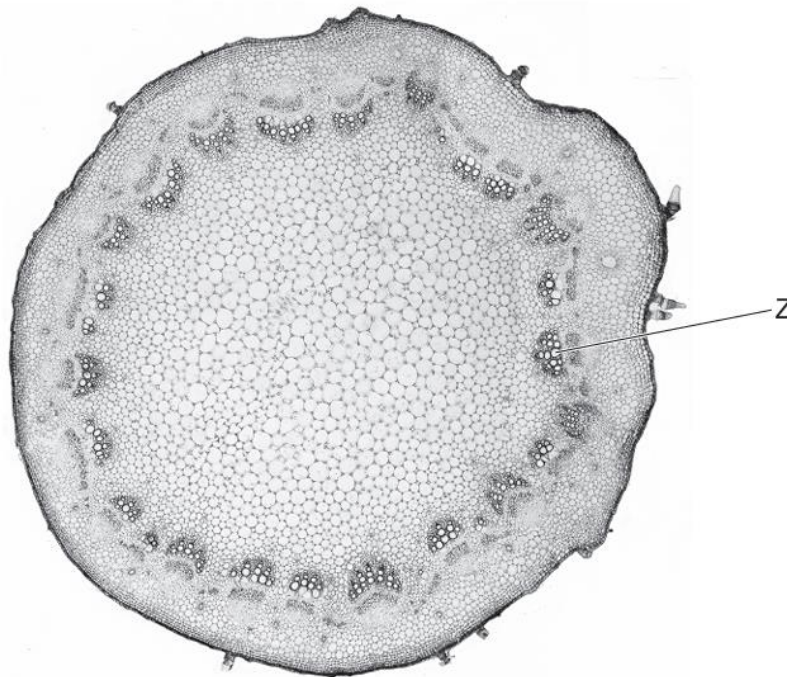
Which statement correctly describes the location and function of phloem?

- A** Structure R is phloem and transports amino acids and starch.
- B** Structure S is phloem and transports amino acids and starch.
- C** Structure R is phloem and transports amino acids and sucrose.
- D** Structure S is phloem and transports amino acids and sucrose.

3 What is present in a vascular bundle?

- A anthers
- B guard cells
- C palisade cells
- D xylem vessels

4 The photograph shows a cross-section through a sunflower stem.



What is the name and function of the tissue labelled Z?

	name of tissue	function of tissue
A	phloem	transport of mineral ions
B	phloem	transport of sucrose
C	xylem	transport of mineral ions
D	xylem	transport of sucrose

5 Which row shows the functions of xylem and phloem?

	transports amino acids	transports mineral ions	transports sucrose
A	phloem	xylem	phloem
B	xylem	xylem	phloem
C	xylem	phloem	xylem
D	phloem	phloem	xylem

6 What is the effect on a plant of **not** having any root hairs?

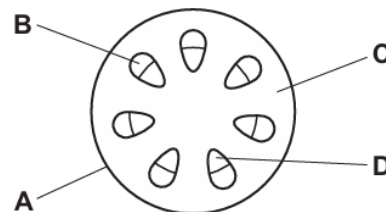
- A** The plant absorbs less water from the soil.
- B** The plant absorbs more water from the soil.
- C** The plant loses water to the soil.
- D** The plant loses mineral ions to the soil.

7 Which tissues are found in vascular bundles?

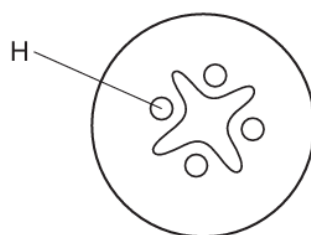
- A** palisade mesophyll and phloem
- B** palisade mesophyll and spongy mesophyll
- C** phloem and xylem
- D** spongy mesophyll and xylem

8 A non-woody plant stem is placed in water containing a red dye. It is left for one day and then a section of the stem is examined using a microscope.

Which tissue is stained red?



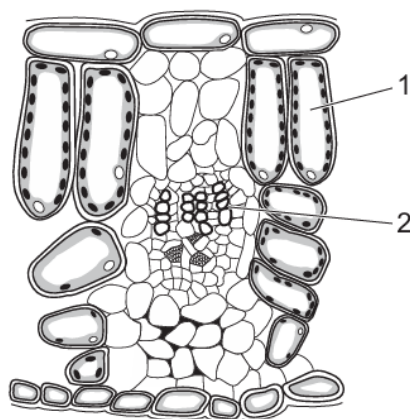
- 9 The diagram shows a cross-section of part of a plant.



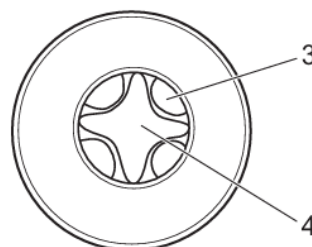
Which part of the plant is shown and what is the tissue labelled H?

	plant part	tissue H
A	root	phloem
B	root	xylem
C	stem	phloem
D	stem	xylem

- 10 The diagrams show sections of a leaf and a root.



section of a leaf



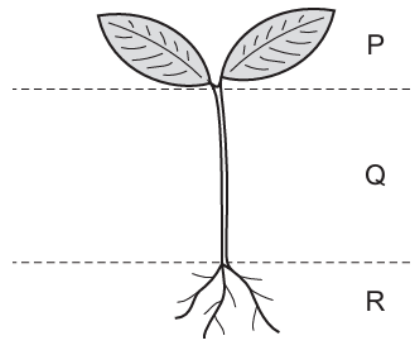
section through a root

not to
scale

Which two labelled structures identify xylem?

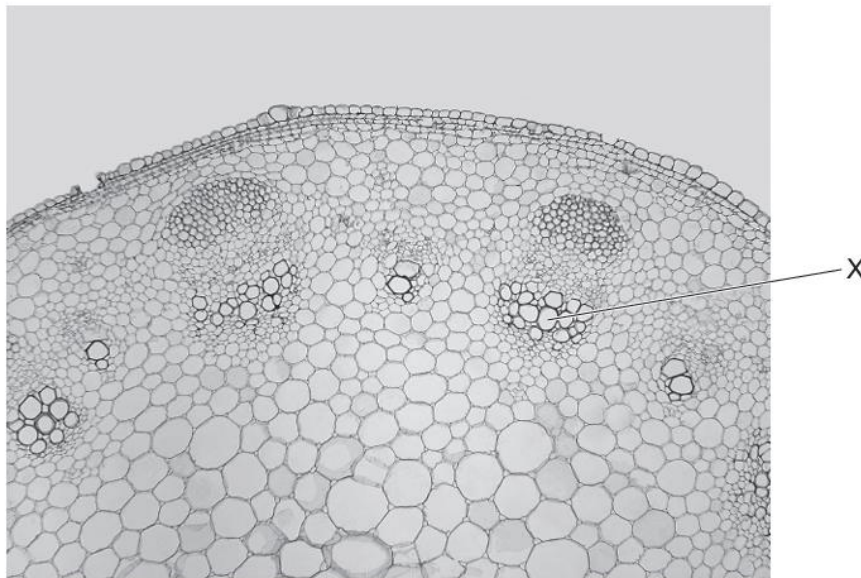
- A** 1 and 4 **B** 2 and 3 **C** 1 and 3 **D** 2 and 4

- 11 The diagram shows a young plant.



In which parts of the plant are xylem vessels found?

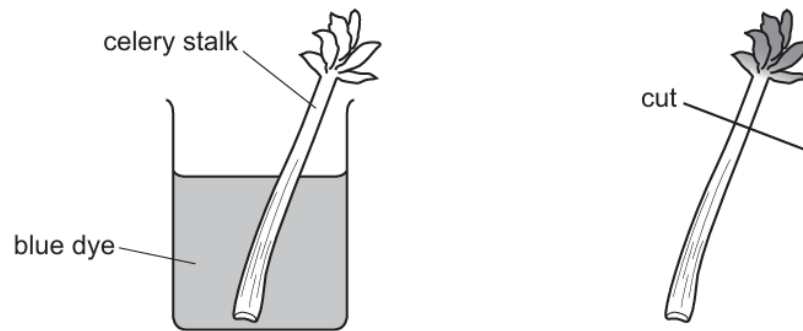
- A** P, Q and R **B** P and Q only **C** Q and R only **D** Q only
- 12 The photomicrograph shows a cross-section through a plant stem.



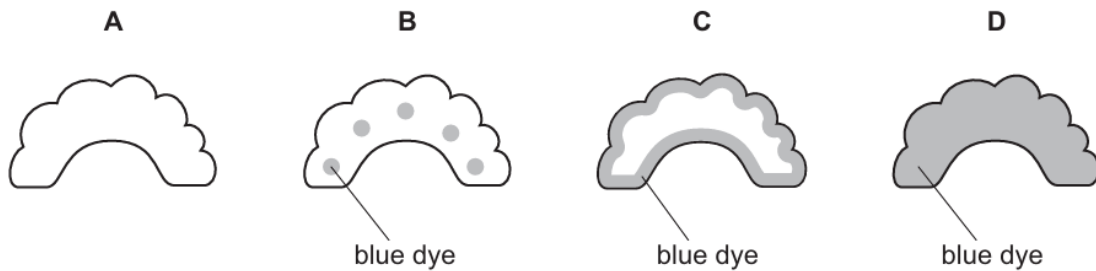
What is the name and function of the tissue labelled X?

	tissue	function
A	phloem	transports sugars
B	phloem	transports water and minerals
C	xylem	transports sugars
D	xylem	transports water and minerals

- 13 What is a function of phloem?
- A transports minerals to the roots
 - B transports starch to the roots
 - C transports sugar to the roots
 - D transports water to the roots
- 14 A celery stalk was placed into a beaker of blue dye. When the dye reached the leaves, the stalk was taken out and a section was cut, as shown in the diagram.



Which diagram shows the appearance of the cut end of the stalk?

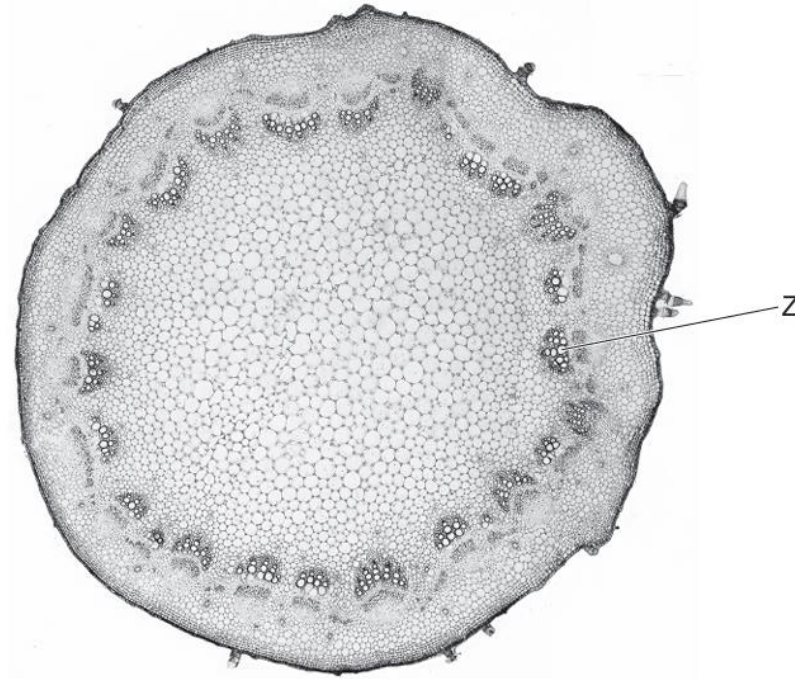


Paper 2

Questions are applicable for both core and extended candidates unless indicated in the question

- 15 Which feature of xylem vessels provides support to plants? **(extended only)**
- A cells are joined end to end
 - B no cell contents
 - C no cross-walls
 - D lignin present
- 16 Which substance strengthens the walls of xylem vessels? **(extended only)**
- A glycerol
 - B glycogen
 - C lignin
 - D starch

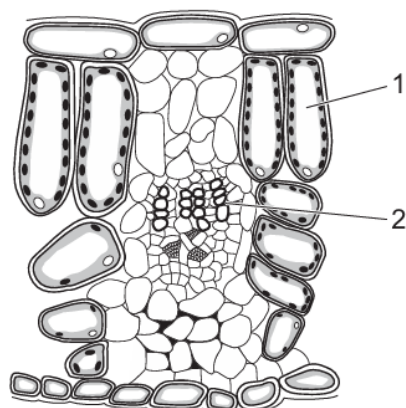
- 17 The photograph shows a cross-section through a sunflower stem.



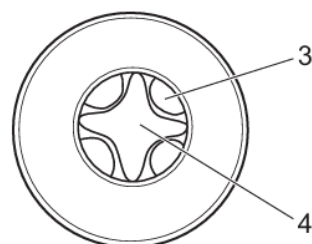
What is the name and function of the tissue labelled Z?

	name of tissue	function of tissue
A	phloem	transport of mineral ions
B	phloem	transport of sucrose
C	xylem	transport of mineral ions
D	xylem	transport of sucrose

18 The diagrams show sections of a leaf and a root.



section of a leaf



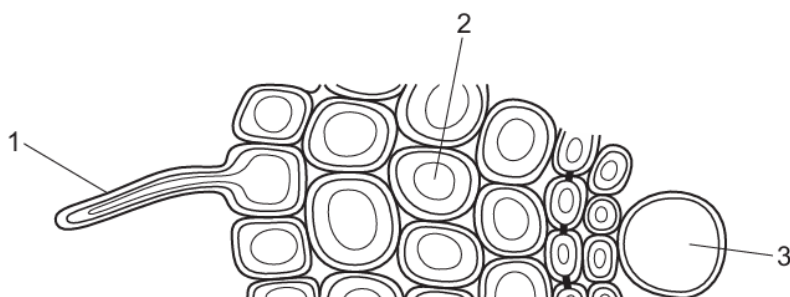
section through a root

not to
scale

Which two labelled structures identify xylem?

- A** 1 and 4 **B** 2 and 3 **C** 1 and 3 **D** 2 and 4

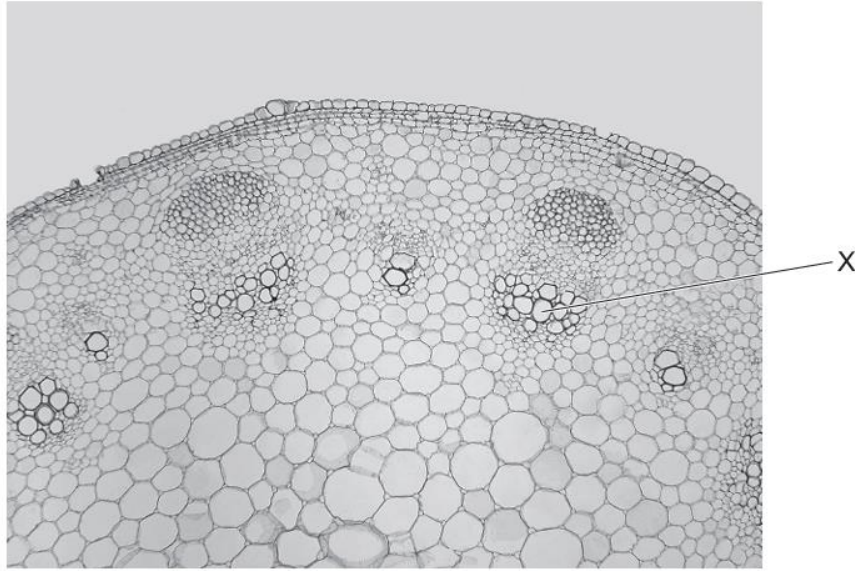
19 The diagram shows part of a cross-section of a root.



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

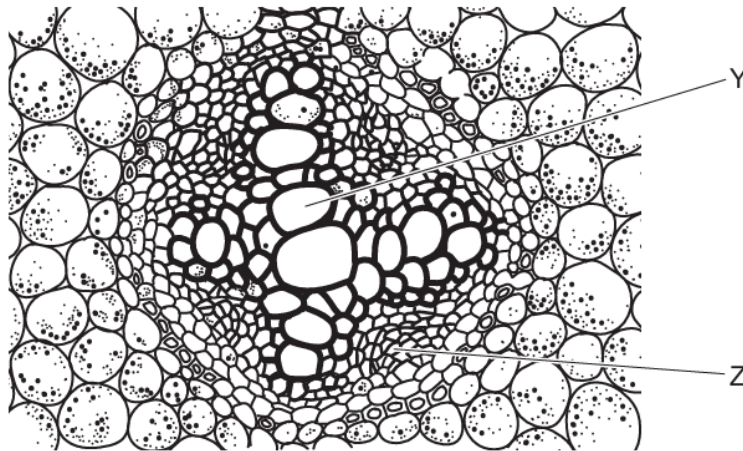
20 The photomicrograph shows a cross-section through a plant stem.



What is the name and function of the tissue labelled X?

	tissue	function
A	phloem	transports sugars
B	phloem	transports water and minerals
C	xylem	transports sugars
D	xylem	transports water and minerals

21 The diagram shows some of the transport tissues in a plant root.



Which row about tissues Y and Z in the diagram is correct?

	tissue Y		tissue Z	
	name	transports	name	transports
A	phloem	mineral ions & water	xylem	sucrose
B	phloem	sucrose	xylem	mineral ions & water
C	xylem	mineral ions & water	phloem	sucrose
D	xylem	sucrose	phloem	mineral ions & water