6. Plant nutrition

6.2 Leaf structure

Paper 1 and 2

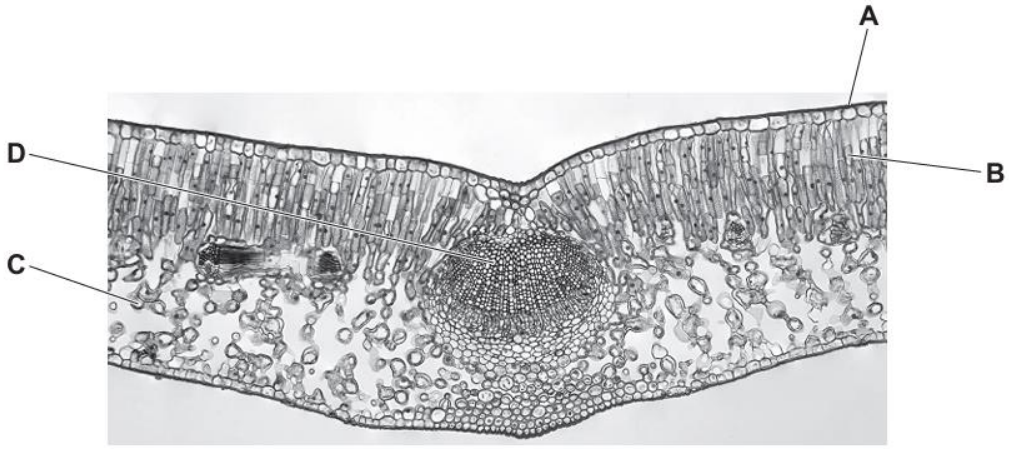
Question Paper

Paper 1

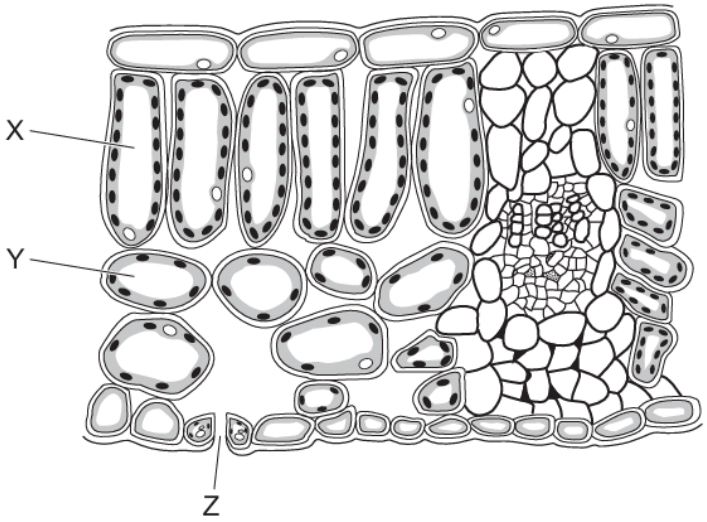
Questions are applicable for both core and extended candidates

1 The photomicrograph shows a cross-section through a leaf.

Which structure is the cuticle?



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

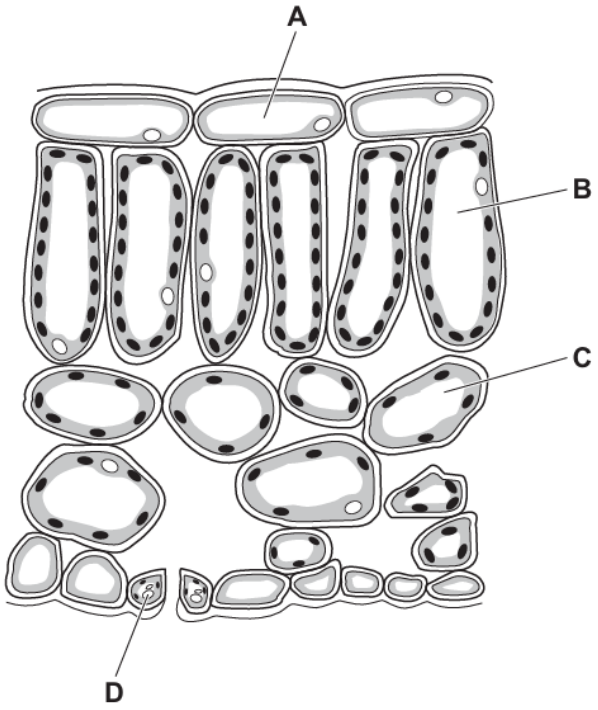


Which row shows the correct labels?

	palisade mesophyll cell	spongy mesophyll cell	stoma
A	X	Y	Z
B	X	Z	Y
C	Y	X	Z
D	Y	Z	X

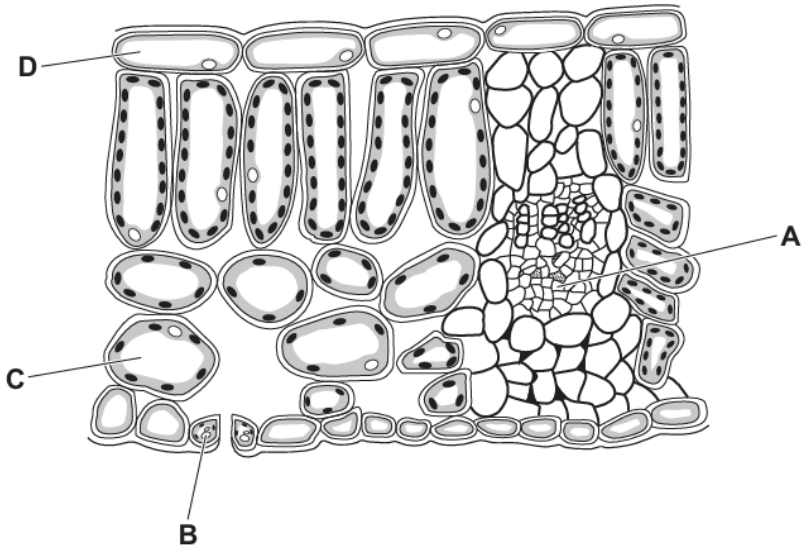
3 The diagram shows a cross-section of a leaf.

Which type of cell controls the entry of carbon dioxide into the leaf?



4 The diagram shows a cross-section of part of a leaf.

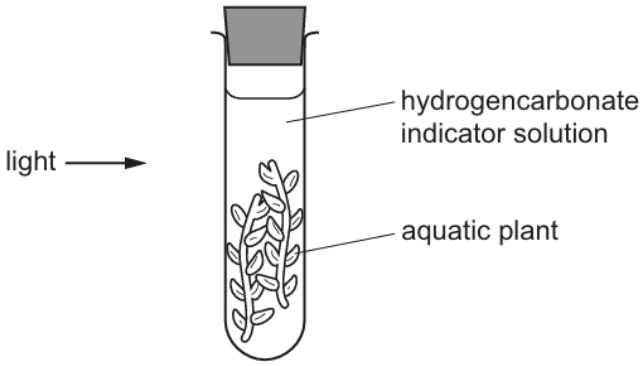
Which cell controls the rate of gas exchange?



5 Which features of a leaf allow more diffusion of carbon dioxide into the palisade cells for photosynthesis?

	number of stomata	thickness of the leaf
A	few	thick
B	few	thin
C	many	thick
D	many	thin

6 An experiment is set up to investigate gas exchange in aquatic plants.



The hydrogencarbonate indicator solution is orange at the start.

Which colour is it after three hours?

A blue-black

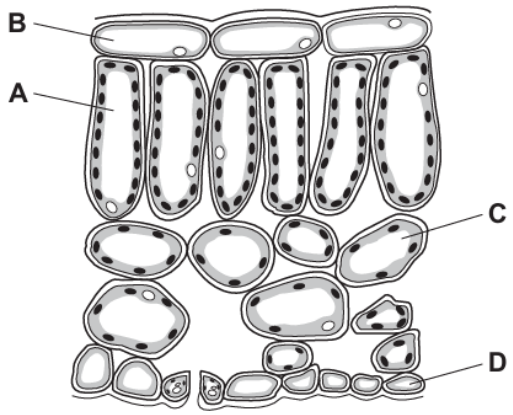
B orange

C purple

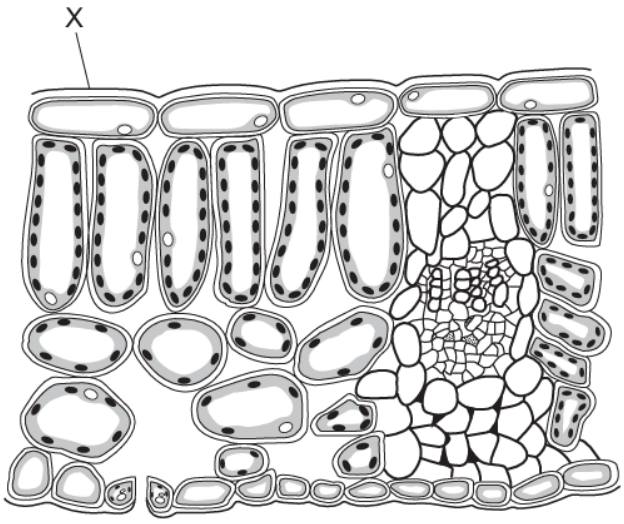
D yellow

7 The diagram shows a cross-section of part of a leaf.

Which type of cell carries out the most photosynthesis?



8 The diagram shows a cross-section through a leaf.



What is the structure labelled X?

A cuticle

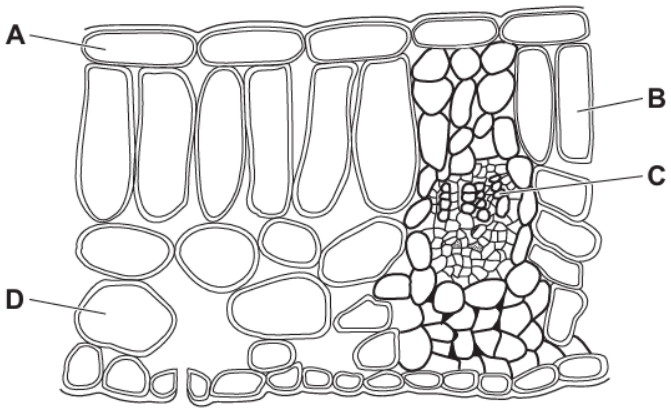
B palisade mesophyll

C spongy mesophyll

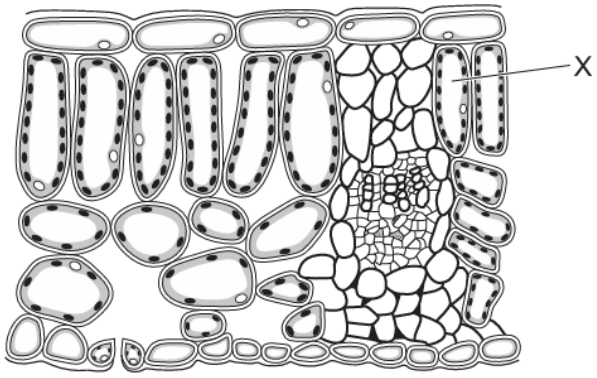
D stomata

9 The diagram shows a section through the leaf of a plant.

Which label shows a palisade mesophyll cell?



10 The diagram shows a cross-section of a leaf.



What is the name of cell X?

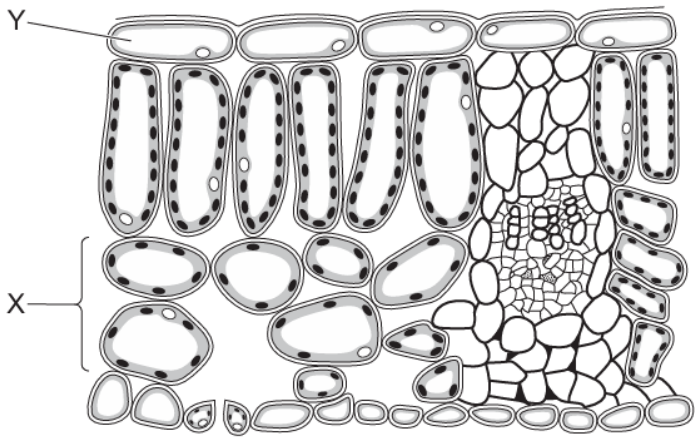
A epidermal

B guard

C palisade mesophyll

D spongy mesophyll

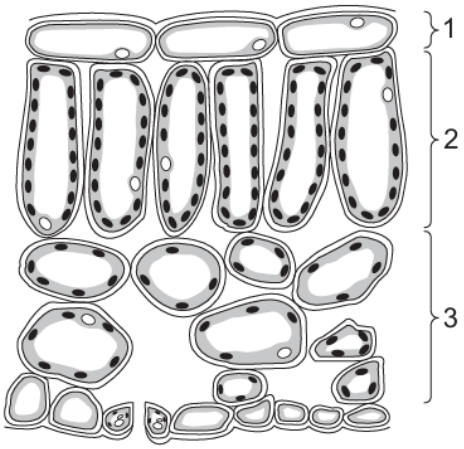
11 The diagram shows a section through a leaf.



Which row correctly identifies tissues X and Y?

	X	Y
A	palisade mesophyll	cuticle
B	palisade mesophyll	upper epidermis
C	spongy mesophyll	cuticle
D	spongy mesophyll	upper epidermis

12 The diagram shows a leaf as seen in cross-section under the microscope.

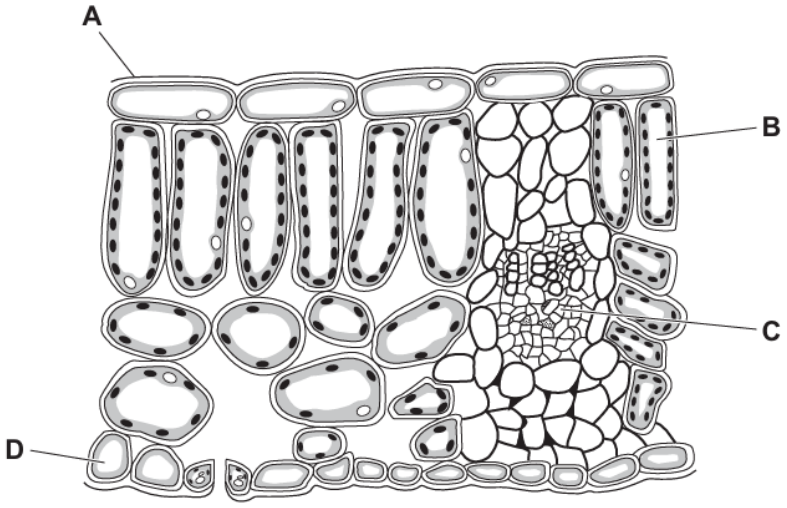


What are tissues 1, 2 and 3?

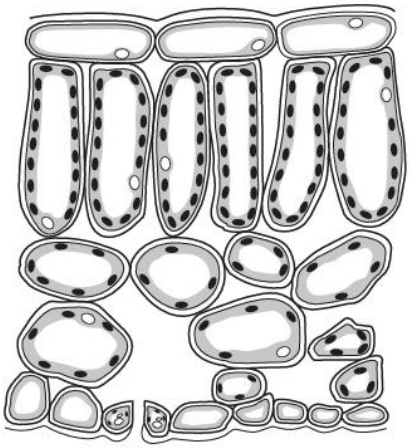
	1	2	3
A	epidermis	palisade mesophyll	spongy mesophyll
B	epidermis	spongy mesophyll	palisade mesophyll
C	palisade mesophyll	epidermis	spongy mesophyll
D	spongy mesophyll	palisade mesophyll	epidermis

13 The diagram shows a cross-section of a leaf as seen under a microscope.

Which structure is a palisade mesophyll cell?



14 The diagram shows a cross-section of a leaf.



Which tissue is immediately below the upper epidermis?

A cuticle

B guard cells

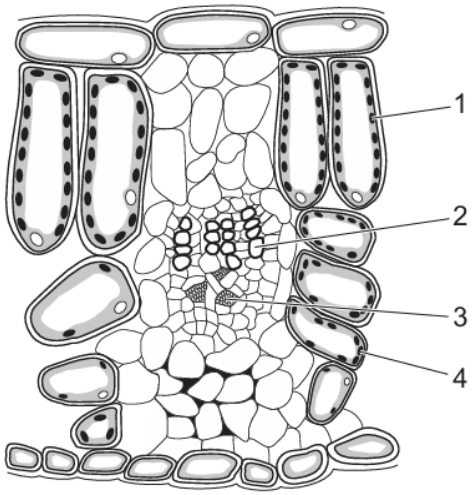
C palisade mesophyll

D spongy mesophyll

Paper 2

Questions are applicable for both core and extended candidates

15 The diagram shows a section through the leaf of a flowering plant.



Where does photosynthesis take place?

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

16 Which sentence explains the importance of vascular bundles for photosynthesis?

A Vascular bundles transport carbon dioxide to the leaf.

B Vascular bundles transport oxygen to the leaf.

C Vascular bundles transport starch to the leaf.

D Vascular bundles transport water to the leaf.

17 The photograph shows a water lily plant, which is a hydrophyte.

Which statement explains why the stomata are located on the upper surface of the leaf?

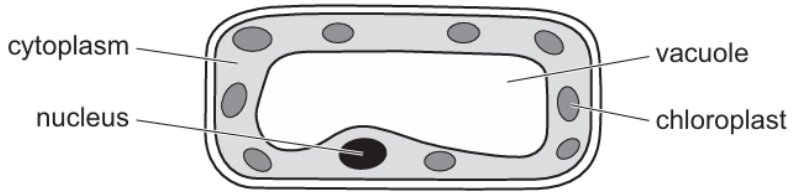
A to allow carbon dioxide from the air to enter the leaf for use in photosynthesis

B to allow carbon dioxide produced by photosynthesis to leave the leaf

C to allow oxygen from the air to enter the leaf for use in photosynthesis

D to allow oxygen from the water to enter the leaf for respiration

18 The diagram shows a type of plant cell.



In which tissue is this cell found?

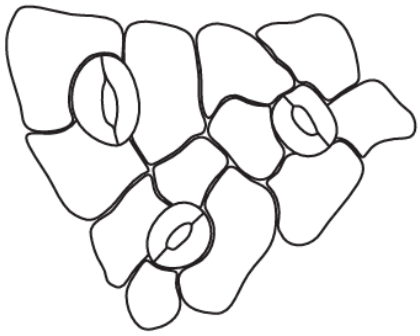
A leaf epidermis

B palisade mesophyll

C root epidermis

D xylem

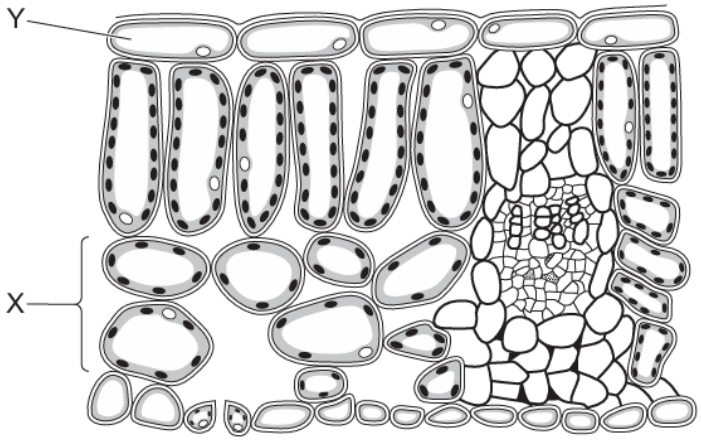
19 The diagram shows the surface view of part of the epidermis of a leaf.



How many guard cells are present?

A 0 **B** 3 **C** 6 **D** 12

20 The diagram shows a section through a leaf.



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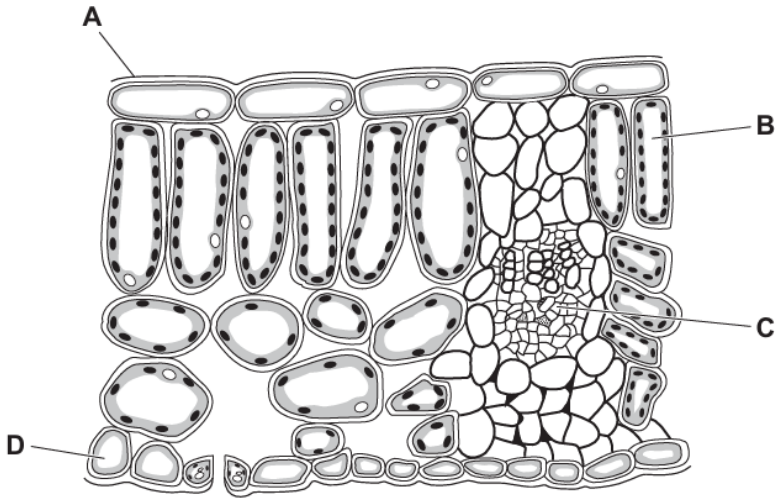
Which structure is a palisade mesophyll cell?



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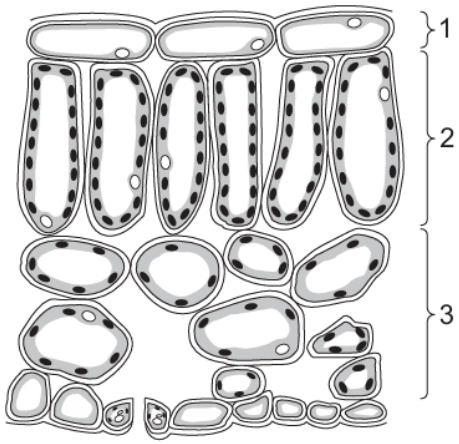

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B	epidermis	spongy mesophyll	palisade mesophyll
C	palisade mesophyll	epidermis	spongy mesophyll
D	spongy mesophyll	palisade mesophyll	epidermis