

Organization of the organism

IGCSE Biology Topical Question – Paper 1

May/June 2003

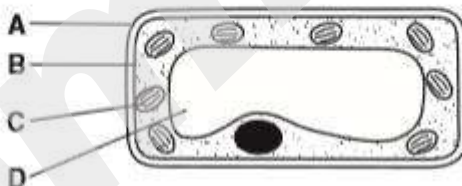
- 4 The table shows features that may be found in living cells.

Which features are found in a liver cell?

	large central vacuole	chloroplasts	cellulose cell wall
A	✓	✓	✓
B	✓	✓	x
C	x	x	✓
D	x	x	x

- 5 The diagram shows a section through a mesophyll cell of a leaf.

Which part is partially permeable?



6 The diagram shows four cells.



Which cells transport water?

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

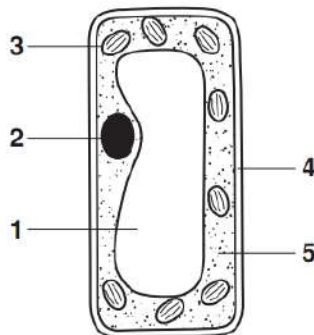
7 In the pancreas, there are groups of cells that make insulin.

What describes these cells?

- A an organ in an organism
- B an organ system in an organism
- C cells within a cell wall
- D tissue in an organ

Oct/Nov 2003

Use this diagram, which shows the structure of a palisade cell, to answer questions 3 and 4.



3 Which features are also found in a liver cell?

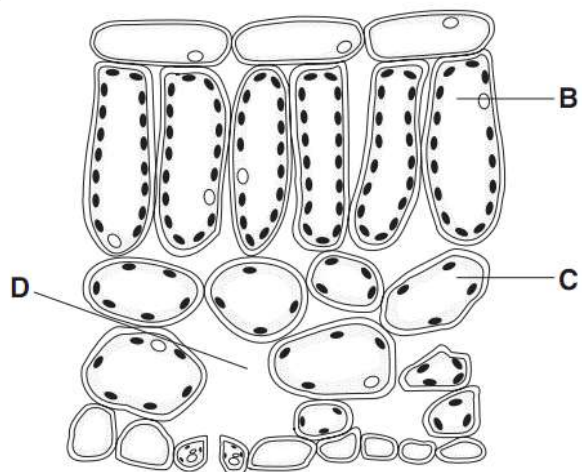
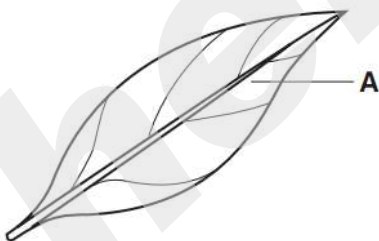
- A 1 and 2 B 2 and 5 C 3 and 4 D 4 and 5

4 In which part does photosynthesis take place?

- A 1 B 2 C 3 D 4

5 The diagrams show a leaf and a section through part of the same leaf.

Which label indicates an organ?



6 Which features are shown by a red blood cell?

	shape	nucleus
A	disc	absent
B	disc	lobed
C	irregular	absent
D	irregular	lobed

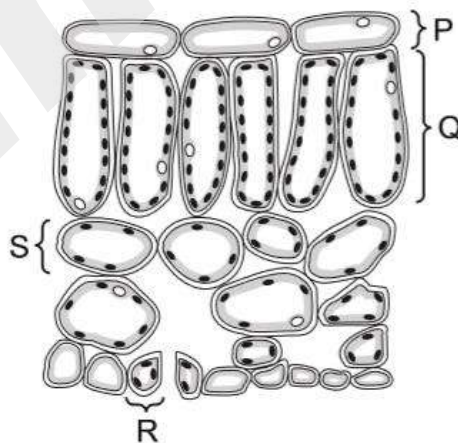
May/June 2004

4 Which structures are found in a human sperm cell?

	cell membrane	cell wall	haploid nucleus
A	✓	x	x
B	✓	x	✓
C	✓	✓	✓
D	x	✓	✓

key
✓ = present
x = absent

Use the diagram of a section through a leaf to answer questions 6 and 7.



7 The structures shown are all parts of the same

- A cell.
- B organ.
- C organ system.
- D tissue.

Oct/Nov 2004

4 Which part of a plant cell contains cellulose?

- A cell wall
- B chloroplast
- C cytoplasm
- D vacuole

5 The table shows the number of chloroplasts in three different types of leaf cell.

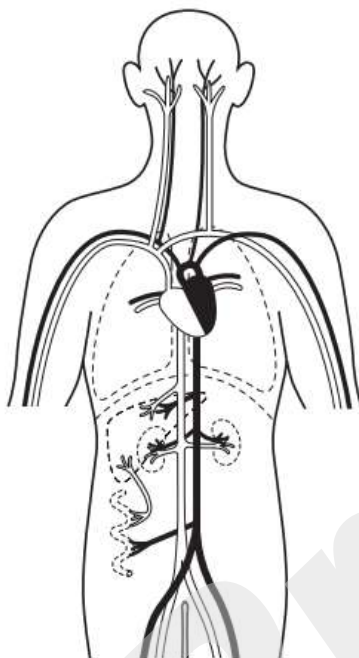
Which shows the correct numbers for each type of cell?

	epidermis	palisade mesophyll	guard cells
A	0	6	17
B	0	17	6
C	6	17	0
D	17	0	6

7 Which is an organ?

- A a group of ciliated cells
- B the liver
- C the nervous system
- D the xylem

- 8 The diagram shows some of the blood vessels and other structures in the human body.

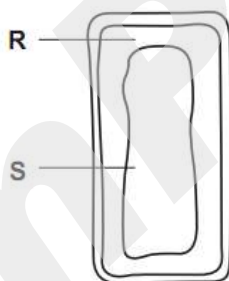


The blood vessels shown are all parts of the same

- A cell.
- B organ.
- C organ system.
- D tissue.

May/June 2005

- 5 Which does **not** contain cytoplasm?
- A liver cell
 - B palisade tissue
 - C red blood cell
 - D xylem vessel
- 6 Which parts are found in both plant and animal cells?
- A cell membrane, large vacuole
 - B cell membrane, cytoplasm
 - C cell wall, large vacuole
 - D cell wall, cytoplasm
- 7 The diagram shows parts of a mesophyll cell.



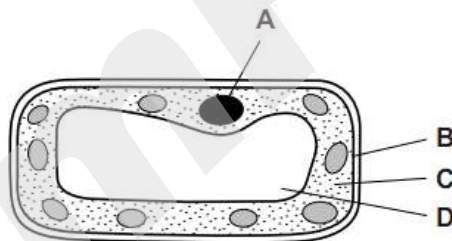
What are found in the parts labelled **R** and **S**?

	R	S
A	chloroplasts	nucleus
B	chloroplasts and nucleus	watery solution
C	nucleus	chloroplasts
D	watery solution	chloroplasts and nucleus

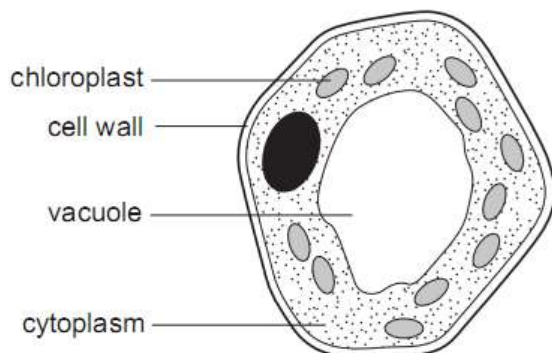
- 8 What is the heart?
- A a cell
 - B an organ
 - C an organ system
 - D a tissue
- 9 Which function is carried out by the ciliated cells in the respiratory tract?
- A filtering dirt from passing air
 - B making mucus
 - C moving carbon dioxide out of the lungs
 - D moving mucus to the throat

Oct/Nov 2005

- 5 The diagram shows a palisade cell.
- Which part contains chromosomes?



- 6 The diagram shows a cell from the stem of a plant.



Which of the parts would **not** be found in a cell from the root?

- A chloroplast
 - B cell wall
 - C cytoplasm
 - D vacuole
- 7 The table shows features that may be found in living cells.

Which features are found in a liver cell?

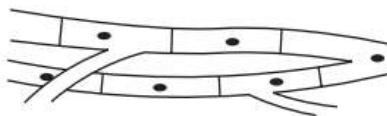
	large central vacuole	chloroplasts	cellulose cell wall
A	✓	✓	✓
B	✓	✓	x
C	x	x	✓
D	x	x	x

key

✓ = found

x = not found

- 8 The diagram shows some heart muscle cells.



Which describes the level of organisation of these cells and their specific function?

	level of organisation	specific function
A	organ	contraction
B	organ	support
C	tissue	support
D	tissue	contraction

- 9 Which features are present in red blood cells and are also present in nerve cells?

	cell membrane	nucleus
A	✓	✓
B	✓	x
C	x	✓
D	x	x

key

✓ = present

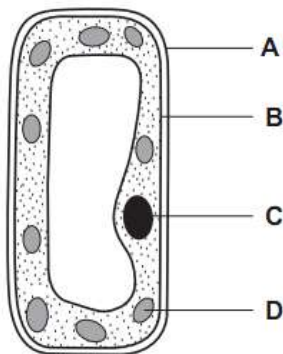
x = not present

May/June 2006

- 3 Which structure contains genes?
- A the cell membrane of an animal cell
 - B the cytoplasm of an animal cell
 - C the nucleus of a plant cell
 - D the vacuole of a plant cell

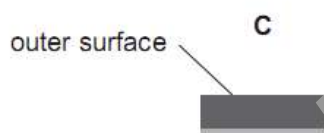
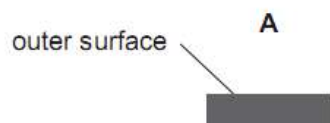
- 5 The diagram shows a plant cell.

In which part of the cell do carbon dioxide and water combine to form glucose?





- 6 The diagrams show the outer layers of cells.

Which is correct for an animal cell?



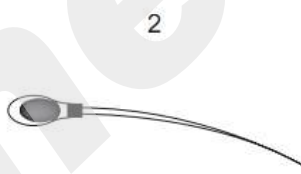
key

 = cellulose cell wall
 = cell membrane

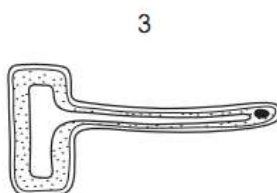
- 7 The diagrams show four different cells (not drawn to scale).



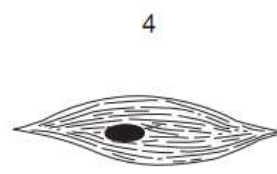
blood cell



sperm cell



root hair cell

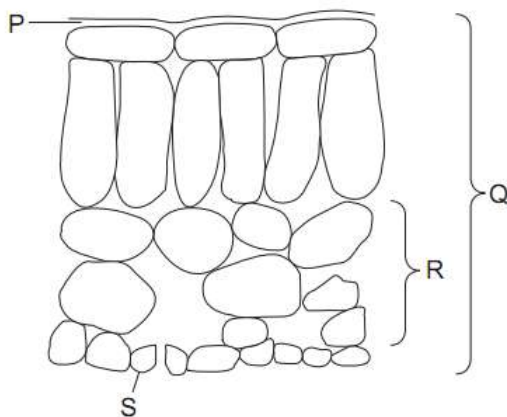


muscle cell

Which cells provide a large surface area for absorption?

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

8 The diagram shows a section through a leaf.

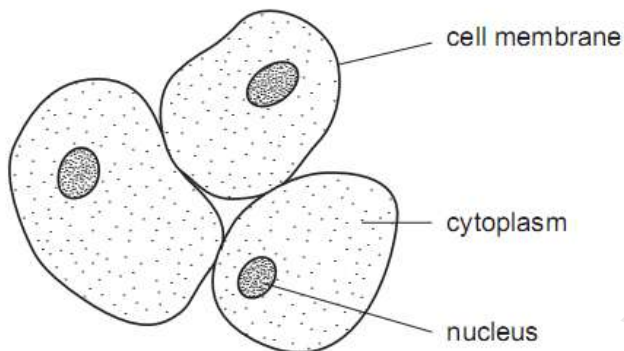


Which structure is an organ and which structure is a tissue?

	organ	tissue
A	P	S
B	Q	R
C	R	P
D	S	Q

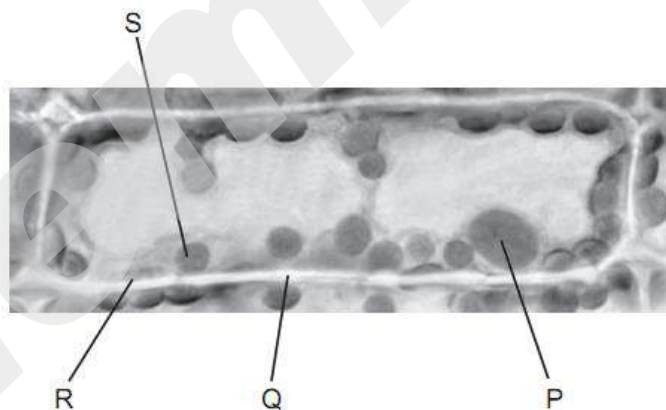
Oct/Nov 2006

- 3 The diagram shows some cells.



What are these cells?

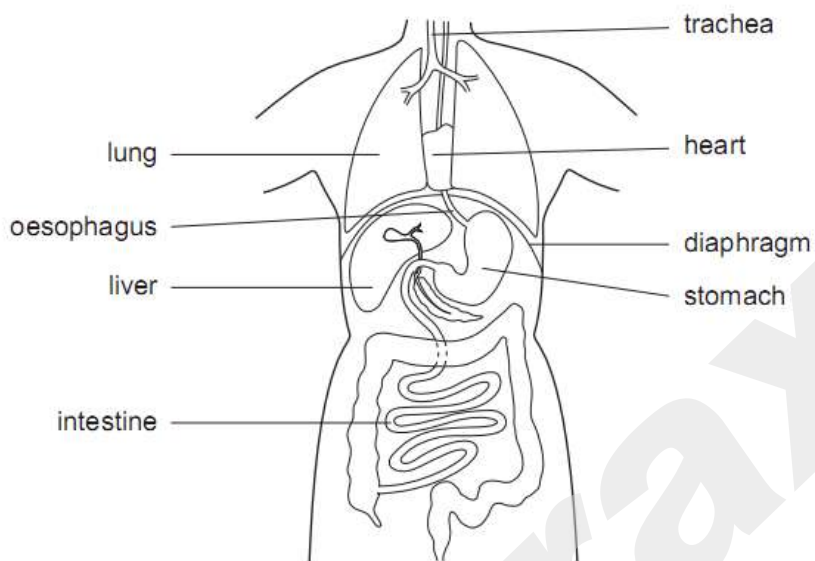
- A liver cells
 - B palisade cells
 - C red blood cells
 - D white blood cells
- 5 The photomicrograph shows a cell from a type of pondweed.



Which parts labelled on the diagram indicate that this is a plant cell?

- A P and R
- B P and S
- C Q and R
- D Q and S

6 The diagram shows some of the main organs in the human body.



Which group of organs belongs to the same organ system?

- A diaphragm, oesophagus, trachea
 - B heart, liver, lungs
 - C heart, stomach, trachea
 - D oesophagus, intestine, stomach
- 7 Why is the epidermis of a leaf an example of a tissue?
- A The cells all have a similar structure and function.
 - B The cells allow light to pass through.
 - C The cells allow water to enter them by osmosis.
 - D The cells are covered by a waxy cuticle.

May/June 2007

5 Which structures are found in a human sperm cell?

	cell membrane	cell wall	haploid nucleus
A	✓	x	x
B	✓	x	✓
C	✓	✓	✓
D	x	✓	✓

key

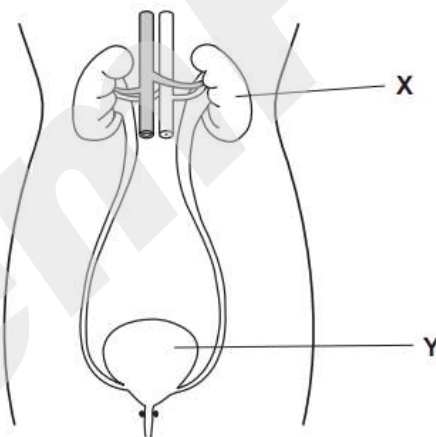
✓ = present

x = not present

6 What is cytoplasm?

- A** a fluid-filled space
- B** a jelly-like substance
- C** a surrounding wall
- D** a tiny green disc

7 The diagram shows some of the structures found in the human abdomen.



What type of structures are X and Y?

	X	Y
A	organ	organ
B	organ	organ system
C	organ system	tissue
D	tissue	organ system

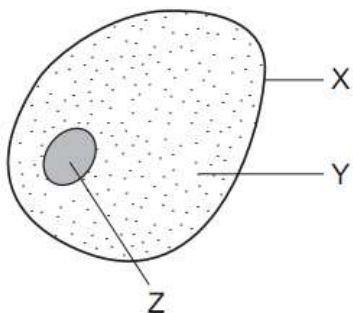
- 8 Cilia are present on the surface of the cells of the trachea. The cilia of a smoker work less effectively than those of a non-smoker.

How does this affect the smoker?

- A Less carbon dioxide is released.
- B Less oxygen is released.
- C More bacteria enter the lungs.
- D More mucus is removed from the lungs.

Oct/Nov 2007

- 5 The diagram shows a liver cell.



Which structures are also found in a root hair cell of a plant?

	X	Y	Z
A	✓	✓	✓
B	✓	x	x
C	x	✓	x
D	x	x	✓

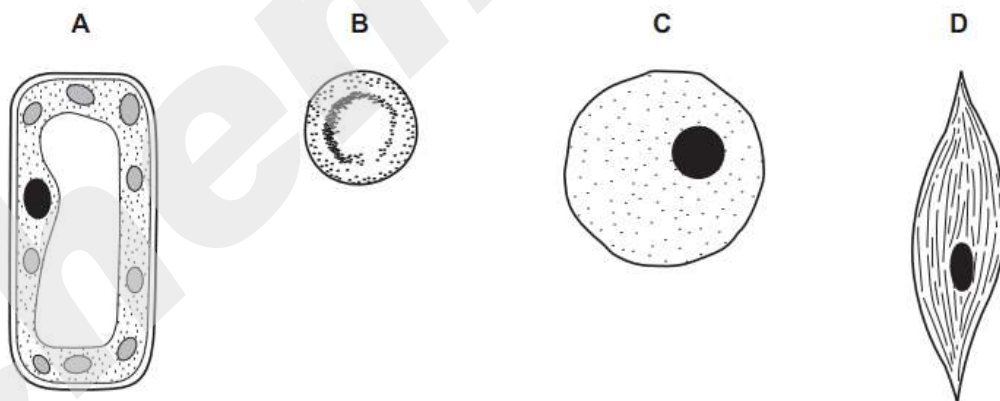
key

✓ = present in root hair cell

x = not present in root hair cell

- 6 The diagram shows four cells.

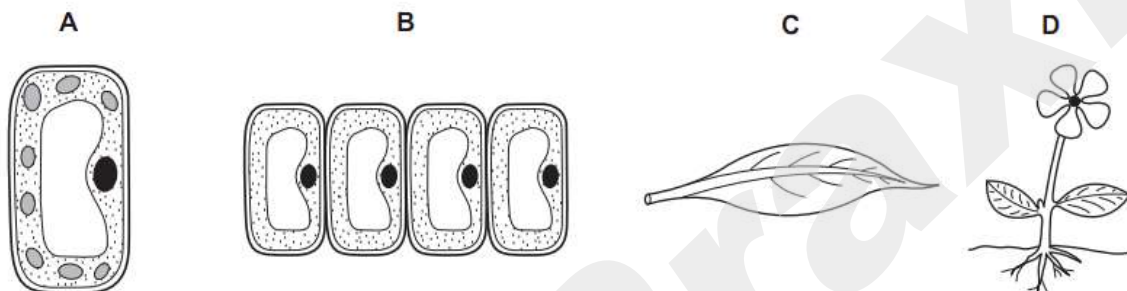
Which cell performs the function of contraction?



7 Which of these structures is a single tissue?

- A chloroplast
- B phloem
- C urethra
- D uterus

8 Which diagram shows one organ only?



May/June 2008

6 Which structure is found **only** in plant cells?

- A cell membrane
- B chloroplast
- C cytoplasm
- D nucleus

7 The table shows features that may be found in cells.

Which is true for a liver cell?

	large central vacuole	chloroplasts	cellulose cell wall
A	✓	✓	✓
B	✓	✓	x
C	x	x	✓
D	x	x	x

key

✓ = found

x = not found

Oct/Nov 2008

4 Which two functions does xylem perform?

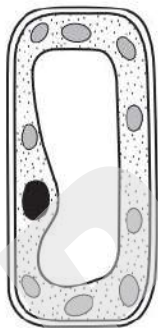
	absorption	conduction	contraction	support
A	✓	✗	✓	✗
B	✓	✓	✗	✗
C	✗	✗	✓	✓
D	✗	✓	✗	✓

key

✓ = performs

✗ = does not perform

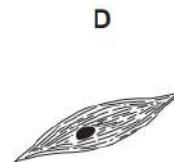
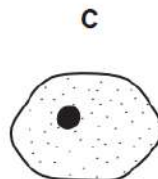
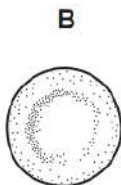
5 The diagram shows a cell.



What type of cell is shown?

- A** epidermis
- B** muscle
- C** nerve
- D** palisade

6 Which diagram shows a cell from the liver?

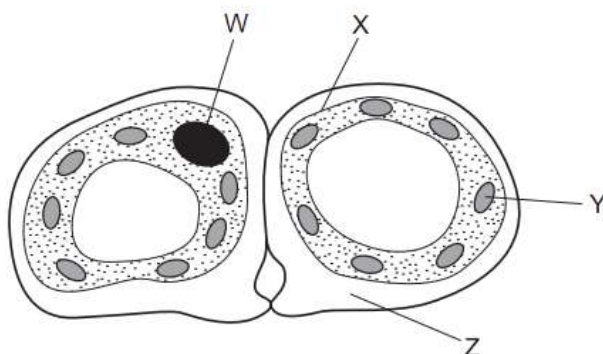


- 8 What is the main function of muscle?
- A absorption
 - B conduction
 - C contraction
 - D transport
- 9 Which two features are found in both a root hair cell and a red blood cell?
- A cell membrane and cytoplasm
 - B cell membrane and vacuole
 - C nucleus and chloroplast
 - D nucleus and cytoplasm
- 10 What controls the passage of substances into and out of plant cells?
- A the cell surface membrane
 - B the cellulose cell wall
 - C the chloroplasts
 - D the vacuole

May/June 2009

- 5 Which structure contains genes?
- A the cell membrane of an animal cell
 - B the cytoplasm of an animal cell
 - C the nucleus of a plant cell
 - D the vacuole of a plant cell

- 6 The diagram shows a cross section through two guard cells of a leaf.



Which labelled structures would also be found in an animal cell?

- A W and X B X and Y C Y and Z D Z and W
- 7 The diagram shows some cells from the lining of the trachea (windpipe) in the respiratory tract.



What is the function of the structures labelled X?

- A absorbing oxygen
B killing micro-organisms
C moving mucus
D trapping bacteria
- 8 Which structures contain a cell nucleus?

	red blood cell	root hair cell	xylem vessel
A	✓	✓	✓
B	✓	x	x
C	x	✓	x
D	x	x	✓

key

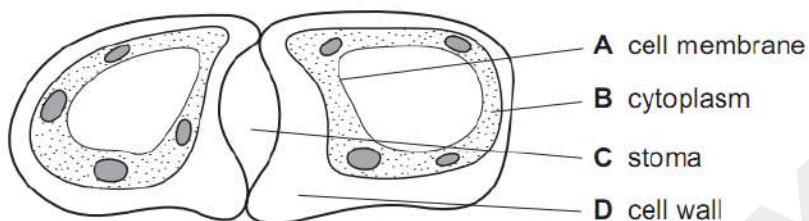
✓ = contains nucleus

x = no nucleus

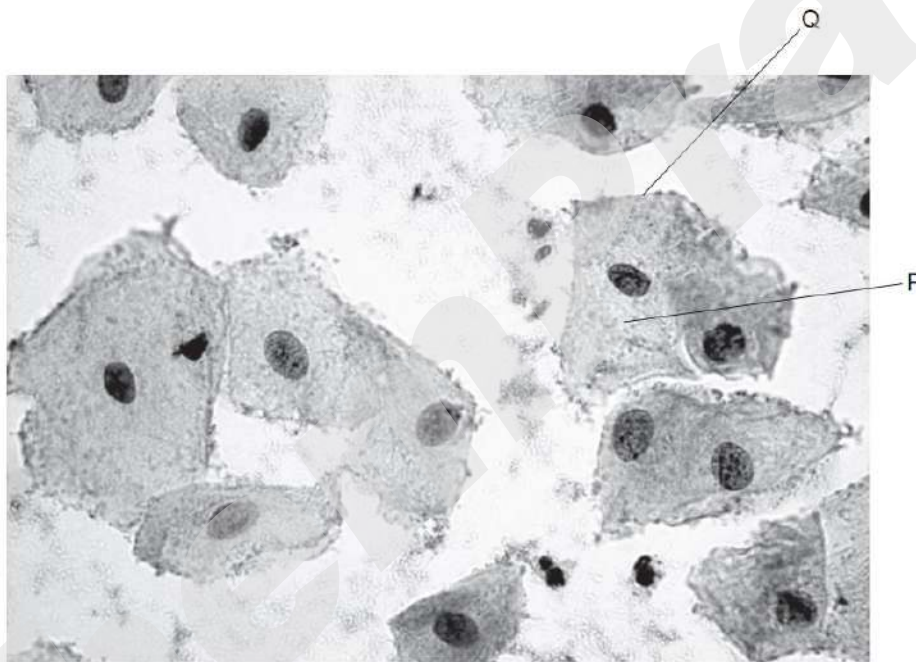
Oct/Nov 2009

- 5 The diagram shows a student's drawing of guard cells.

Which labelling line is **not** correct?



- 6 The photograph shows some human cells under the microscope.



What are structures P and Q?

	P	Q
A	cytoplasm	cell membrane
B	cytoplasm	cell wall
C	nucleus	cell membrane
D	nucleus	cell wall

7 Which cell moves dust particles out of the body?

- A ciliated
- B muscle
- C red blood
- D xylem

8 The diagrams show four types of tissues found in living organisms.

Which tissue is involved in contraction?

