Write your name here

Surname	Other names

Scholarship Paper 2026

Subject: Biology

Time: 1 Hour

You must have:	Total Marks
Pen Pencil	50

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name.
  Answer the questions in the answer sheets provided**.**

Information

- The total mark for this paper is **50**
- The marks for **each** question are shown in brackets

use this as a guide as to how much time to spend on each question.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Write your answers neatly and in good English.
- Try to answer every question.
- Check your answers if you have time at the end.

1 (a) Different groups of organisms have different features.

Complete the table by placing a tick [✓] in the boxes to show which features are present in each group of organisms.

Some have been completed for you.

Group	Cells have a cell wall	Cells are eukaryotic	Can carry out saprotrophic nutrition
Fungi			
Bacteria	✓		
Plant		✓	

(3 marks)

(b) Plants are able to store carbohydrates in their cells as starch or sucrose.

(i) Explain how plants are able to synthesise starch.

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(2)

(ii) Describe the test that could be carried out to determine whether or not a plant cell contains starch.

(2)

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(c) One of the features of plant cells is that they contain chloroplasts.

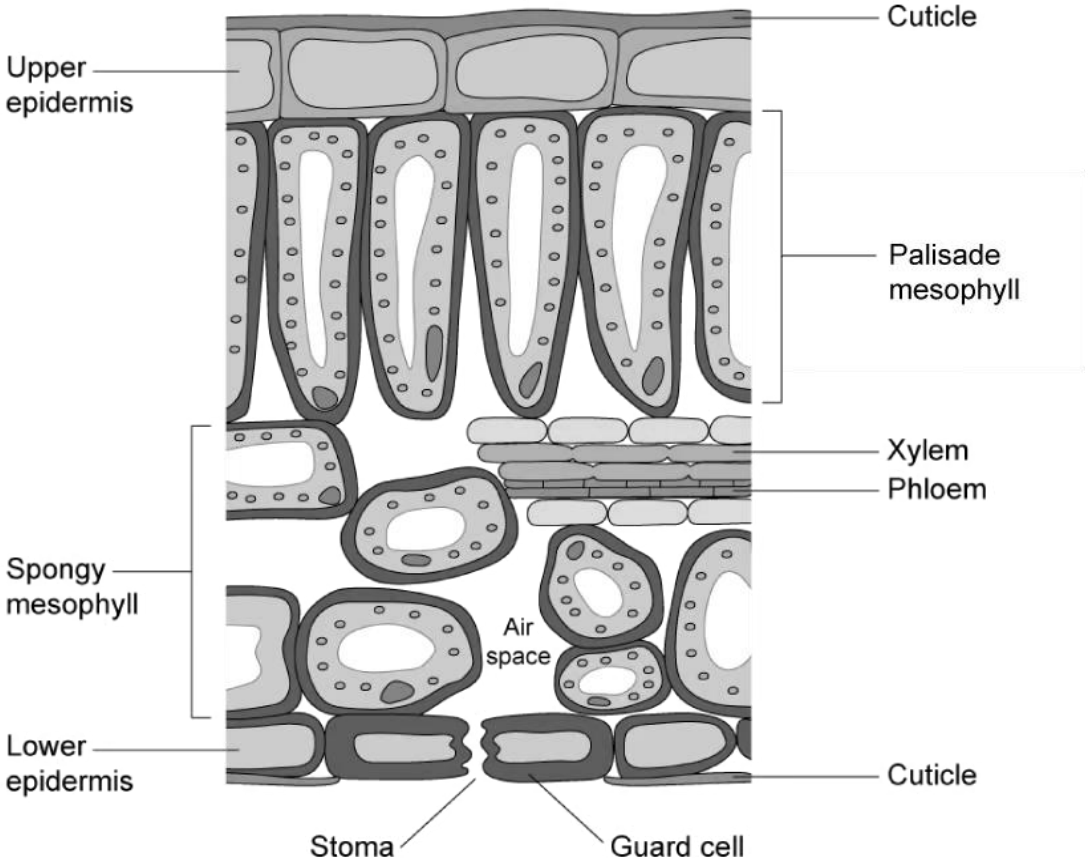
Suggest why root hair cells in plants do not contain chloroplasts.

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(2 marks)

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2 The image below shows the structure of a leaf in a green plant magnified 220 times.



For the image above:

(i) Name **one** type of organelle visible.

(1)

(ii) Name **two** types of cell visible.

(2)

(iii) Name **two** types of tissue present.

(2)

(b) Explain why the leaf shown in part (a) is an example of an organ.

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(2 marks)

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(c) The leaf image in part (a) measures 6 cm from top to bottom.

Use the formula below to calculate the actual thickness of the leaf. Give your answer in mm.

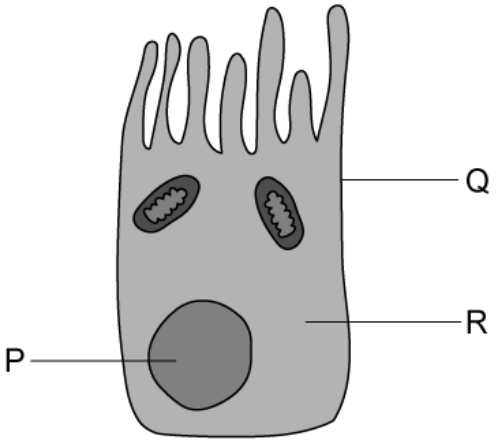
$$\text{Actual thickness} = \frac{\text{Image thickness}}{\text{Magnification}}$$

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(2 marks)

.....

3 The diagram below shows the structure of a ciliated epithelial cell from the airways of a mammal.



(i) Name structures **Q** and **R**.

(2)

(ii) State the function of **one other** cellular structure that is visible in the diagram.

(1)

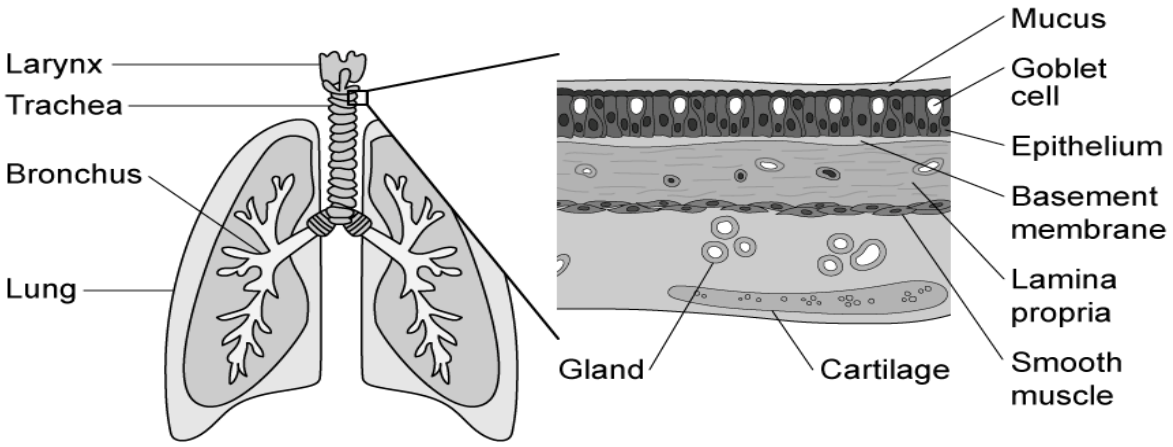
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(b) The ciliated epithelial cell in part (a) can be found in the lining of the trachea, also known as the windpipe.

Some of the structures associated with the trachea of a mammal are shown in the diagram below.

Note that you are not expected to be familiar with all of these structures.



Use information in the diagram to complete the table below.

Level of organisation	Example from diagram
Cell	Ciliated epithelial cell (found in the epithelium)
Cell	
Tissue	
Organ	
	Respiratory system

(4 marks)

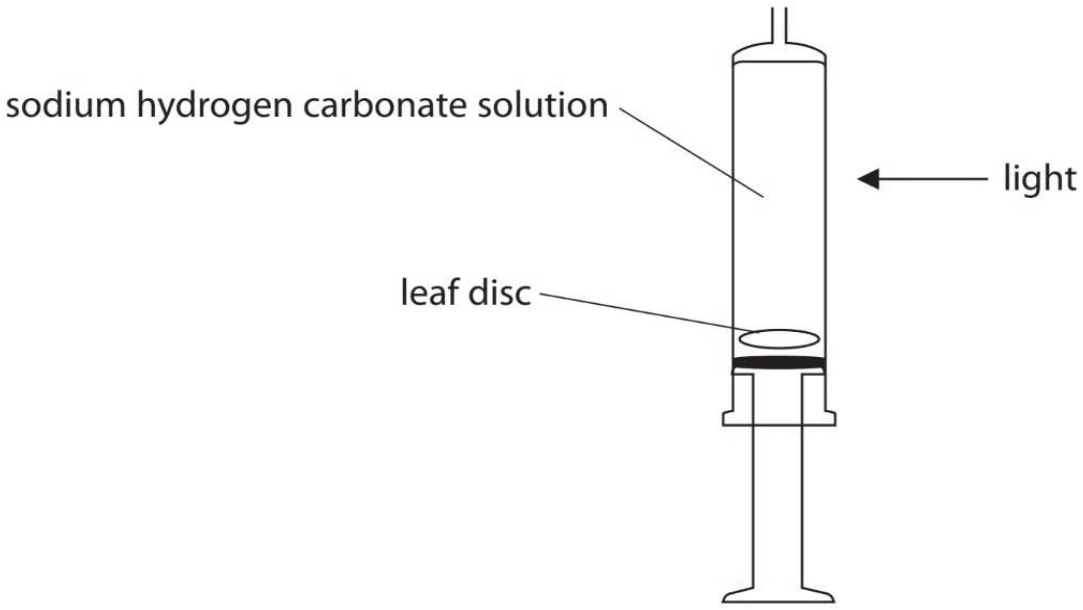
4 (a) A student investigates the effect of light intensity on photosynthesis in leaf discs.

This is the student's method.

- Cut equal sized discs from a leaf
- Remove the plunger from a 20 cm^3 syringe and place a disc into the syringe
- Replace the plunger in the syringe and fill the syringe with 2 % sodium hydrogen carbonate solution, which provides carbon dioxide
- Place your thumb over the end of the syringe and pull the plunger back until the disc sinks
- Position the syringe vertically
- Place a lamp five centimetres from the syringe
- Record the time taken for the leaf disc to rise to the top of the syringe Repeat
- the experiment with the lamp at increasing distances from the syringe

The leaf discs rise in the solution due to the production of gas during photosynthesis.

The diagram shows some of the apparatus used.



Give the balanced chemical symbol equation for photosynthesis.

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(2 marks)

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(b) (i) State how the student could improve the reliability of their results.

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(1)

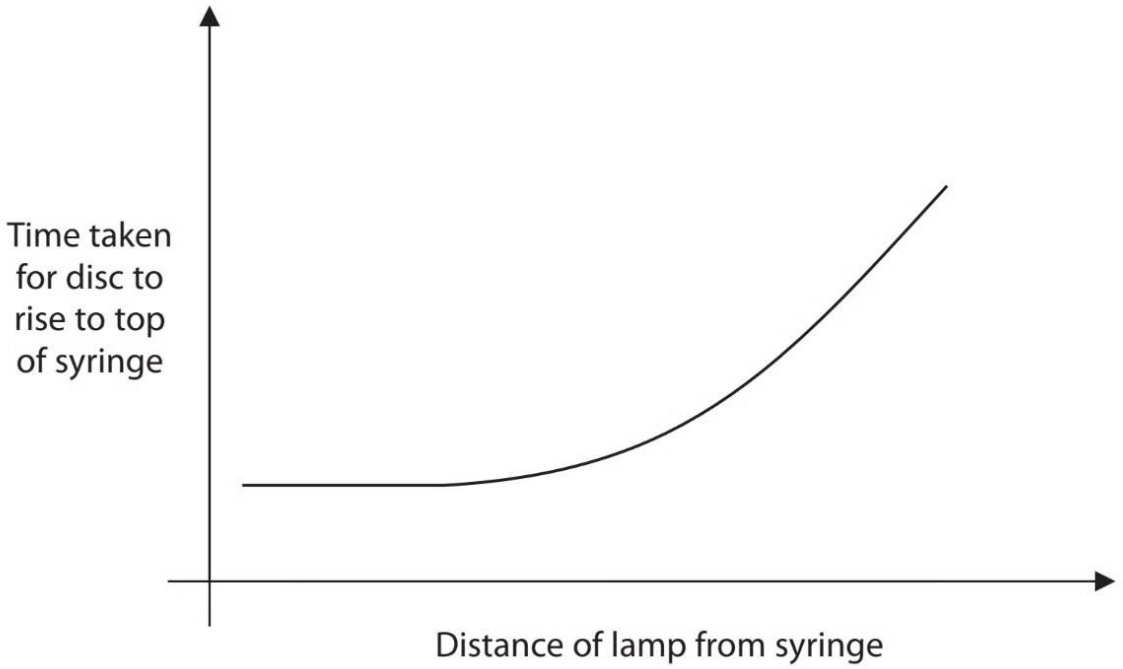
(ii) Give the dependent variable in the investigation.

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(1)

(2 marks)

(c) The graph shows the results of the investigation.



Explain the effect of increasing the distance of the lamp on the time taken for the leaf disc to rise to the top of the syringe.

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(4 marks)

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(d) Describe how the student could test the leaf discs for the presence of starch.

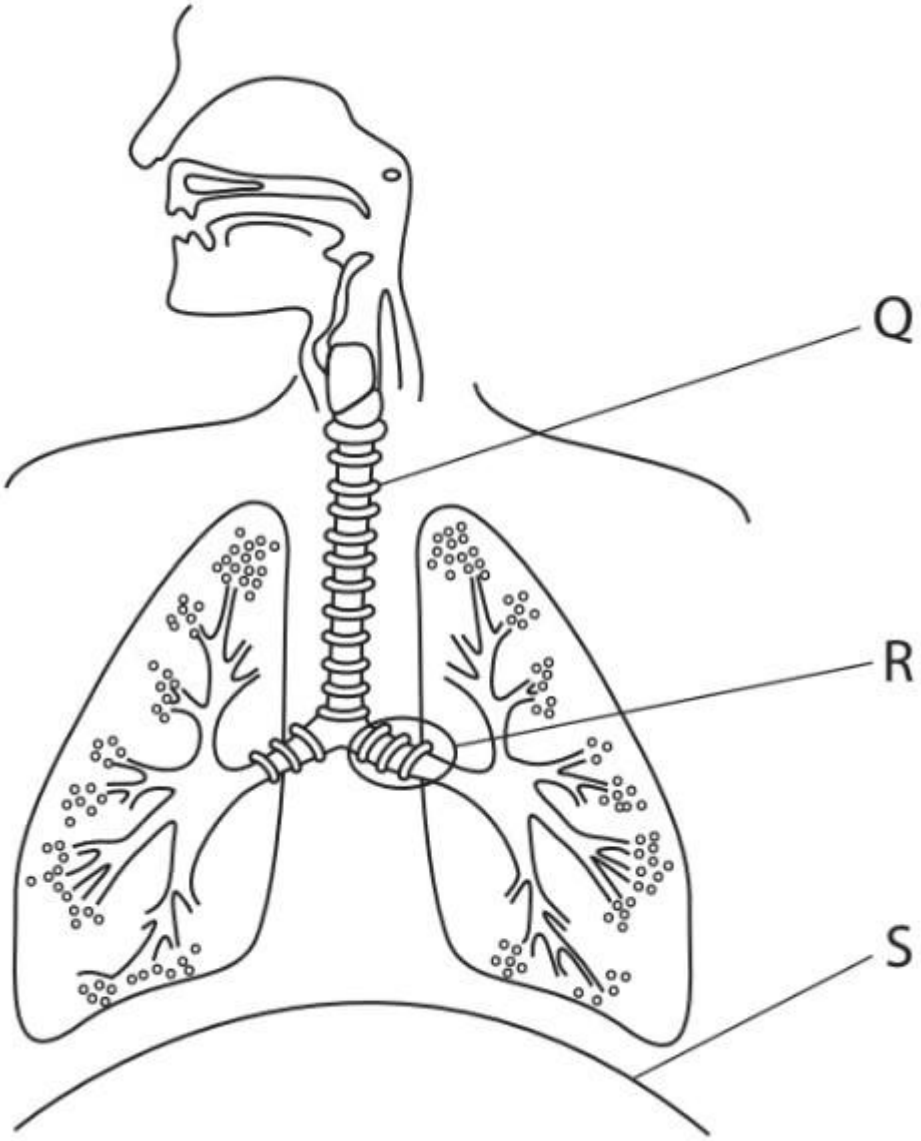
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(3 marks)

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5 (a) The diagram shows the human thorax.



(i) Name structures Q and R.

(1)

		Q	R
☐	**A**	bronchiole	trachea
☐	**B**	bronchus	trachea
☐	**C**	trachea	bronchiole
☐	**D**	trachea	bronchus

(ii) Explain how structure S helps a person to exhale.

(3)

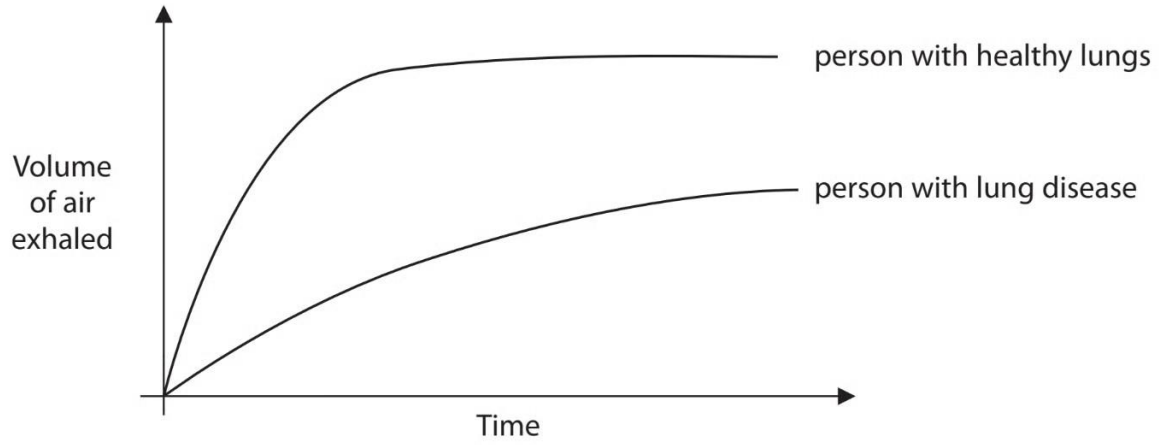
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(b) The graph shows how the volume of air exhaled varies with time during one breath.

This is shown for a person with lung disease and a person with healthy lungs.



Explain why a person with lung disease is often breathless and unable to exercise.

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(3 marks)

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6 (a) Which of the following correctly shows the levels of organisation in an organism in order of size from the smallest to the largest?

☐	**A**	Organelle, cell, organ, tissue, organ system
☐	**B**	Organelle, cell, tissue, organ, organ system
☐	**C**	Cell, organelle, tissue, organ, organ system
☐	**D**	Cell, tissue, organelle, organ, organ system

(1 mark)

(b) State the meaning of the term **organ**.

.....

(2 marks)

.....

(c) Name an example of an organ found in the following groups of organisms:

(i) Plants

.....

(1)

(ii) Animals

.....

(1)

(d) Give two differences between organisms in the plant group and organisms in the animal group.

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(2 marks)