Rewarding Learning

Centre Number

71	

Candidate Number

General Certificate of Secondary Education
2011–2012

Science: Double Award (Modular)

Living Organisms and the Processes of Life

End of Module Test

Foundation Tier

A

[GDA01]

GDA01

MONDAY 27 FEBRUARY 2012
9.30 am–10.15 am

TIME

45 minutes.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
Write your answers in the spaces provided in this question paper.
Answer **all thirteen** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 50.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
Total Marks	

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Examiner Only	
Marks	Remark

1 Vitamins and minerals are needed as part of a balanced diet.

(a) Name the vitamin and mineral that are needed for healthy bone formation.

vitamin _____

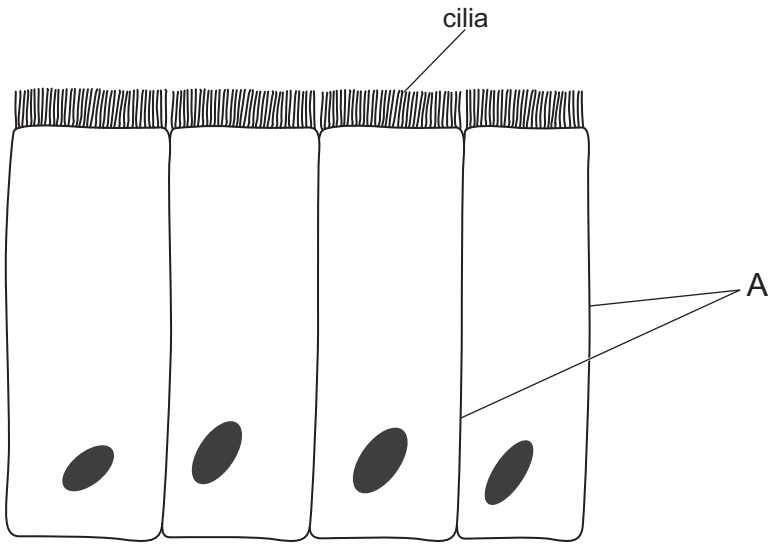
mineral _____ [2]

(b) Explain how the mineral iron is used in the body.

_____ [1]

Examiner Only	
Marks	Remark

2 The diagram shows ciliated epithelium cells.



(a) Name the part of the cell labelled A.

_____ [1]

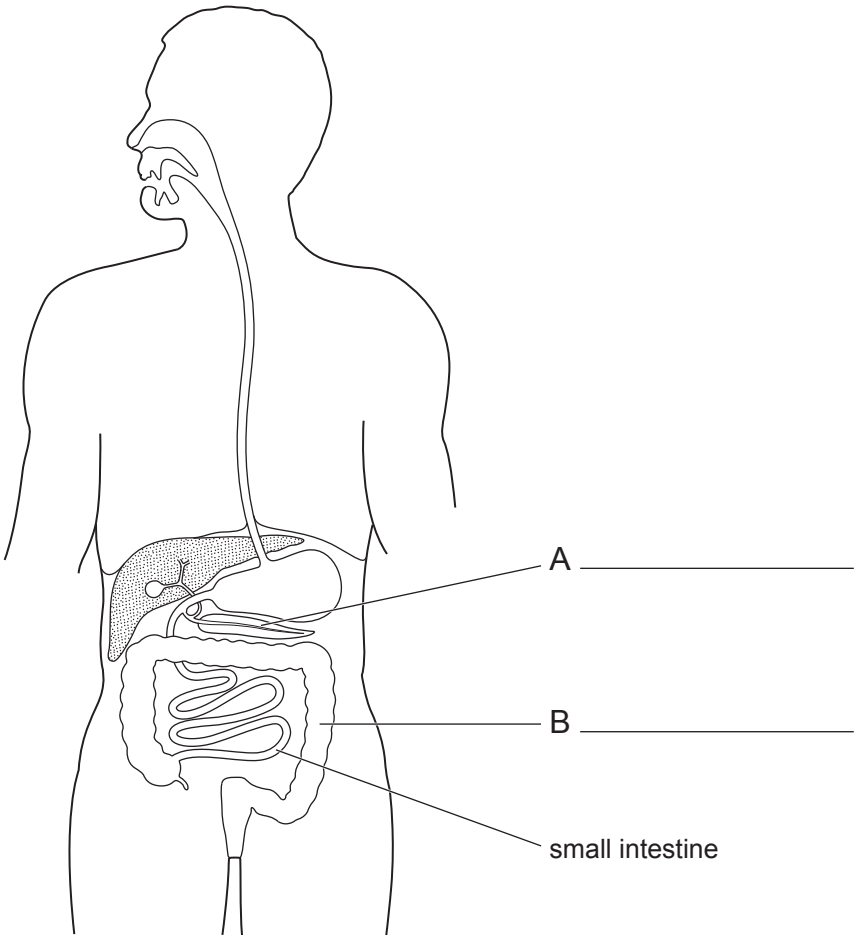
(b) Name **one** place where ciliated epithelium cells are found in the body.

_____ [1]

(c) State **one** difference in the structure of the ciliated cell (apart from presence of cilia) and a typical plant cell.

_____ [1]

3 The digestive system is shown in the diagram.



(a) On the diagram, label parts A and B. [2]

(b) Describe and explain **one** way in which the small intestine is adapted for its function.

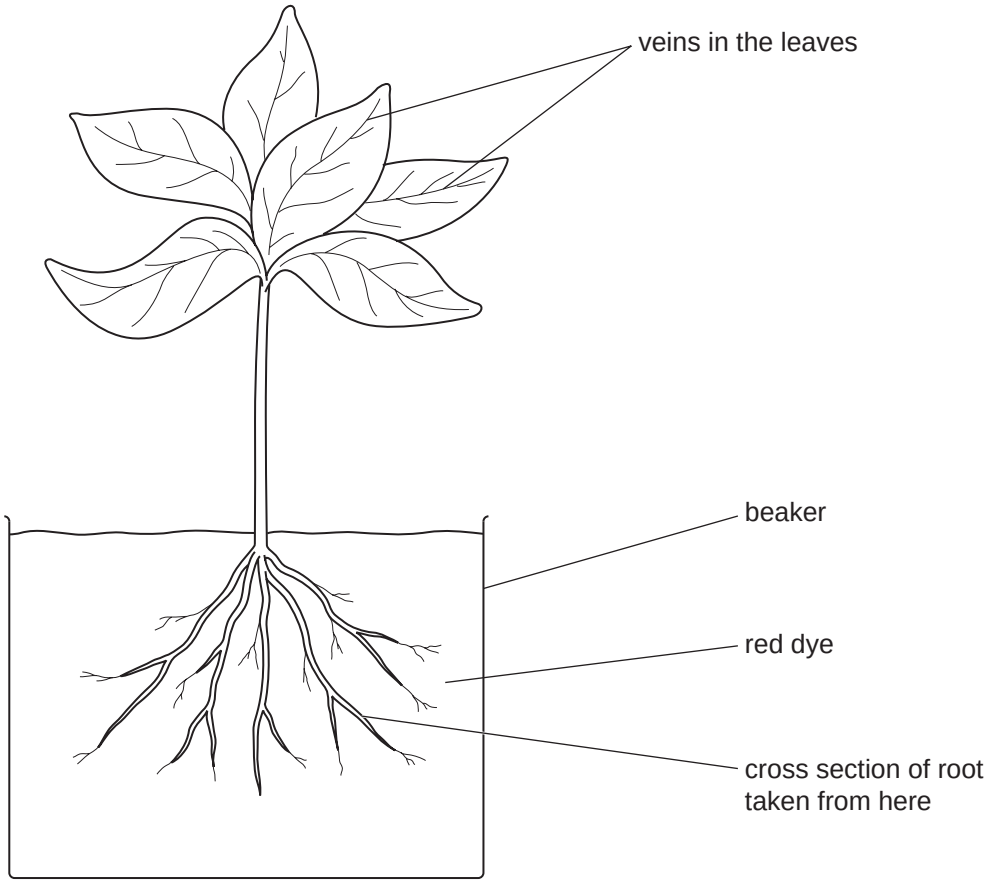
_____

_____

_____ [2]

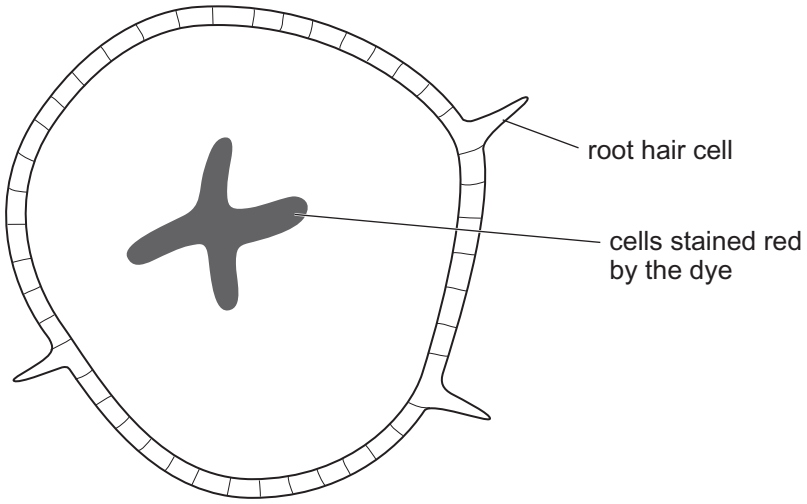
Examiner Only	
Marks	Remark

4 A student set up an experiment where he placed the root of a plant in a solution of water with a red dye added to it.



After 24 hours, he cut a very thin cross section of the root and examined it using the microscope.

He drew a diagram of his observations.



Examiner Only	
Marks	Remark

(a) Name the process by which the water with the red dye travels across to the centre of the root.

_____ [1]

(b) Name the type of cells in the centre of the root that would be stained red.

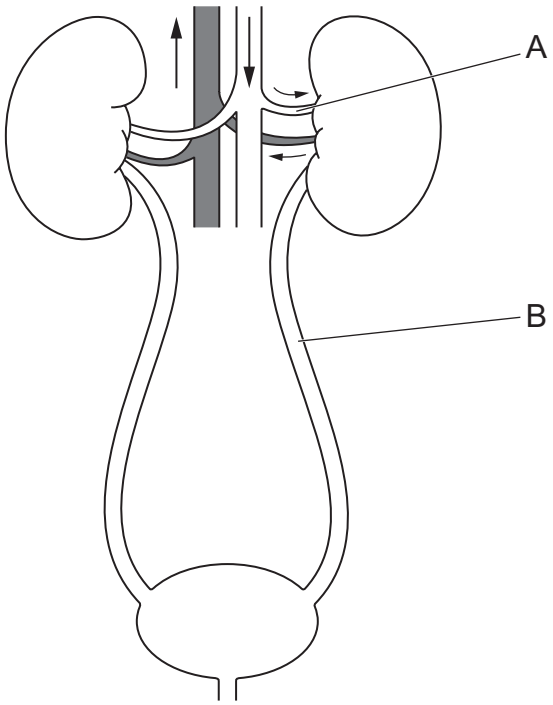
_____ [1]

(c) Explain why the red dye would be seen later in the veins of the leaves.

_____ [1]

Examiner Only	
Marks	Remark

5 The diagram shows part of the excretory system.



(a) Name blood vessel A.

_____ [1]

(b) Name the liquid carried in tube B.

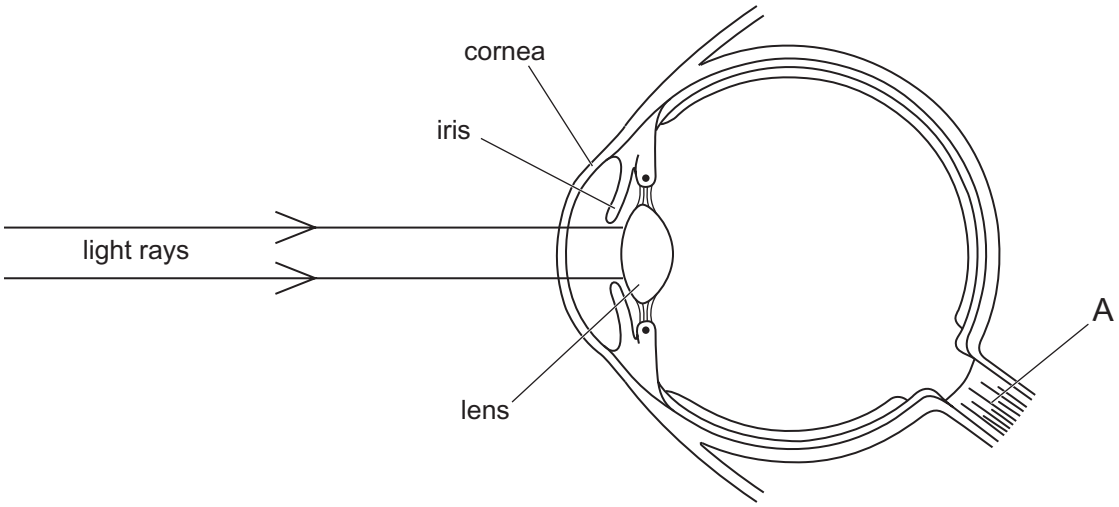
_____ [1]

(c) As well as removing waste (urea) from the blood, give **one** other function of the kidney.

_____ [1]

Examiner Only	
Marks	Remark

6 The diagram shows the eye.



(a) Name part A.

_____ [1]

(b) What is the function of the iris?

_____ [1]

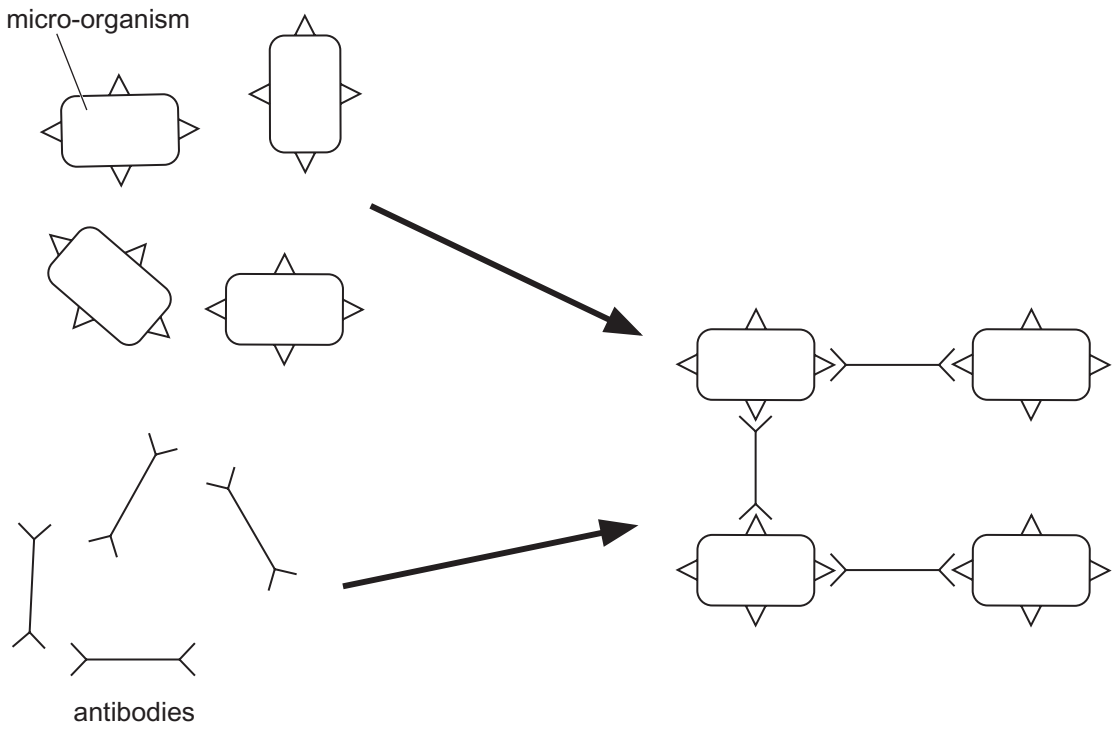
(c) Continue the light rays to show where they are focused. [1]

Examiner Only

Marks	Remark

Examiner Only	
Marks	Remark

7 The diagram shows the effect of antibodies, produced by the body, on micro-organisms.



(a) Use the diagram and your understanding to describe the role of antibodies in defence against disease.

_____

_____

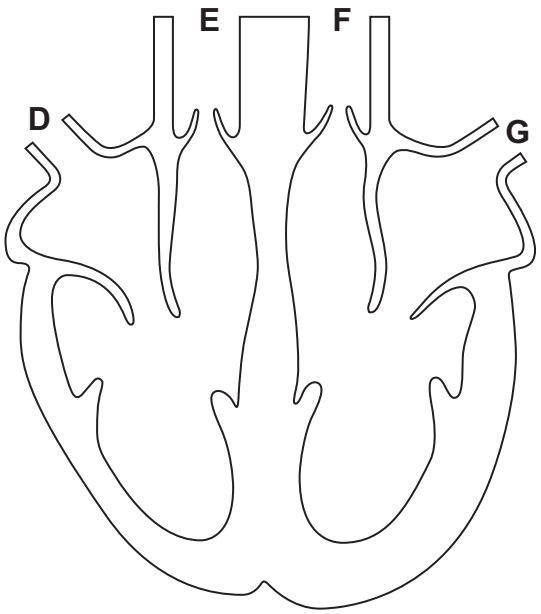
_____

_____ [3]

(b) Name the type of immunity shown in the diagram.

_____ [1]

8 The diagram shows a section through the heart.



(a) Which of the blood vessels, **D**, **E**, **F** or **G**:

(i) carries oxygenated blood back to the heart?

[1]

(ii) carries deoxygenated blood to the lungs?

[1]

(b) Draw arrows on the diagram above to show the direction of blood flow through **each side** of the heart. [2]

Examiner Only

Marks	Remark

Examiner Only	
Marks	Remark

9 Gaseous exchange takes place in the lungs.

(a) State two ways in which inhaled air is different from exhaled air.

1. _____

2. _____ [2]

(b) List two features of the alveoli, in the lungs, that make them efficient gas exchange surfaces.

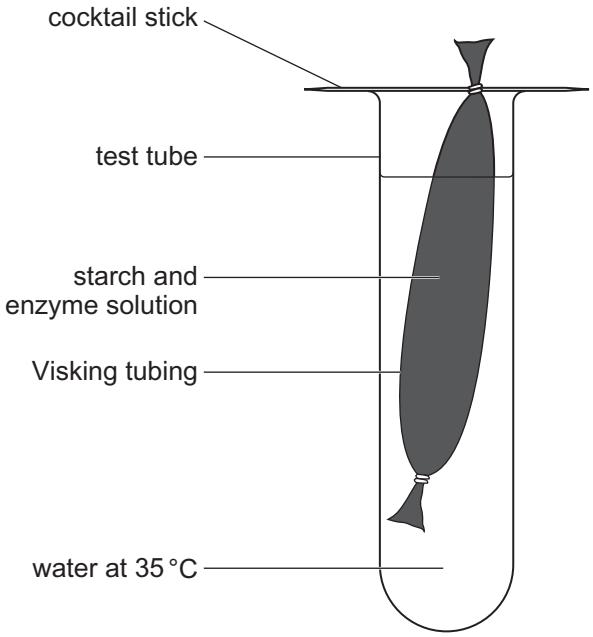
1. _____

2. _____ [2]

Examiner Only	
Marks	Remark

10 Visking tubing is a partially permeable membrane. Small molecules can pass through the pores of the membrane but large molecules will not pass through.

The apparatus was set up as shown in the diagram with starch and enzyme solution inside the Visking tubing.



The water in the test tube was tested for the presence of starch and sugar at the start of the experiment and again after one hour. The results of these tests are shown in the table.

	At start	After 1 hour
Starch	Absent	Absent
Sugar	Absent	Present

Explain the results of this experiment for:

(a) starch

_____ [1]

(b) sugar

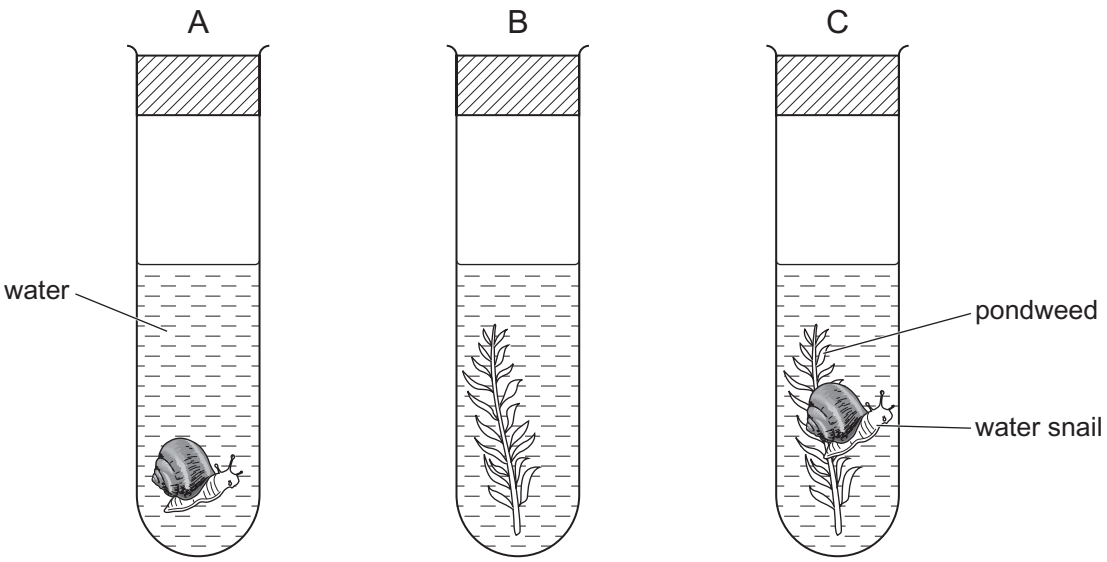
_____

_____

_____

_____ [3]

11 A student sets up an experiment as shown in the diagram.



The tubes were left in the light for four hours. They were then tested for carbon dioxide concentration.

Which tube would have had the highest carbon dioxide concentration after four hours? Explain your answer.

Tube _____

Explanation _____

_____

_____

_____

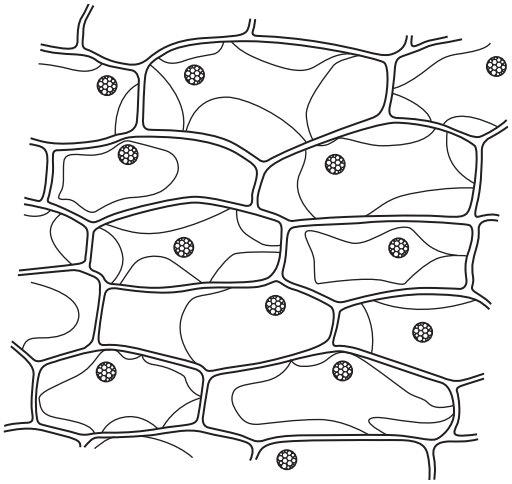
_____

_____ [4]

Examiner Only

Marks	Remark

12 The diagram shows onion epidermal cells that were placed in a strong sugar solution.



Describe and explain what has happened to the cells.

_____

_____

_____

_____

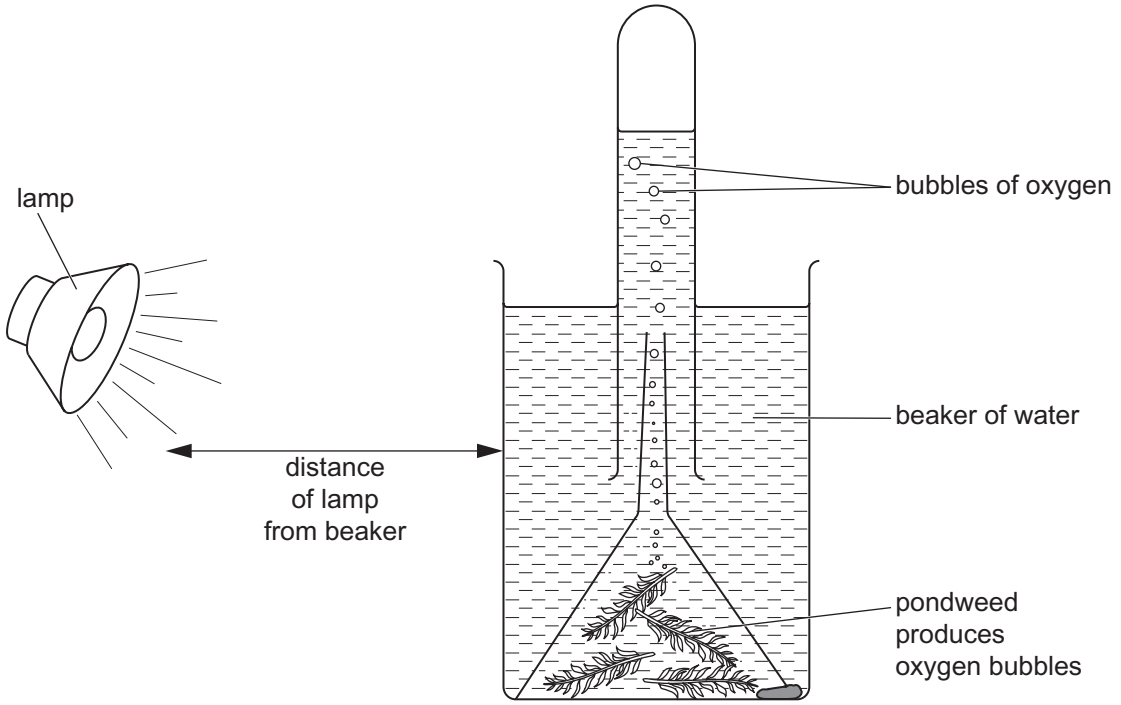
_____

_____ [4]

Examiner Only	
Marks	Remark

Examiner Only	
Marks	Remark

13 An experiment was set up to investigate the effect of light intensity on photosynthesis.



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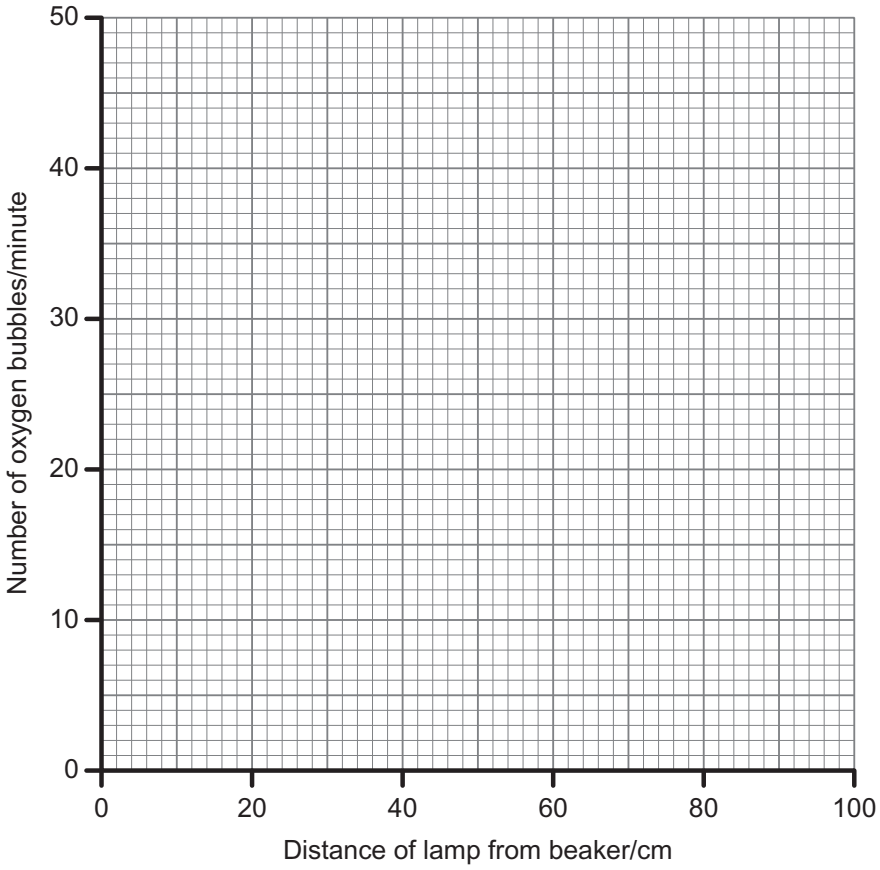
At a certain light intensity, the number of oxygen bubbles released in one minute was counted.

The experiment was repeated with the lamp placed at different distances from the beaker. The results are shown in the table.

Distance between lamp and beaker/cm	Number of oxygen bubbles/ minute
20	48
40	46
60	30
80	10
100	10

Examiner Only	
Marks	Remark

(a) Plot a line graph of these results.



[2]

(b) Use your graph to estimate the number of oxygen bubbles released per minute if the lamp was 50 cm away from the beaker.

_____ bubbles/minute [1]

(c) Describe the trend shown in the graph.

_____

_____ [1]

(d) **(i)** Describe **two** measures you could take to control variables in this experiment.

_____

_____

_____ [2]

(ii) How could you improve the reliability of this experiment?

_____ [1]

THIS IS THE END OF THE QUESTION PAPER

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