Rewarding Learning

Centre Number

71	

Candidate Number

General Certificate of Secondary Education
2010–2011

Science: Double Award (Modular)

Living Organisms and the Processes of Life

End of Module Test

Foundation Tier

A

[GDA01]

GDA01

THURSDAY 24 FEBRUARY 2011, MORNING

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 twelve** questions.

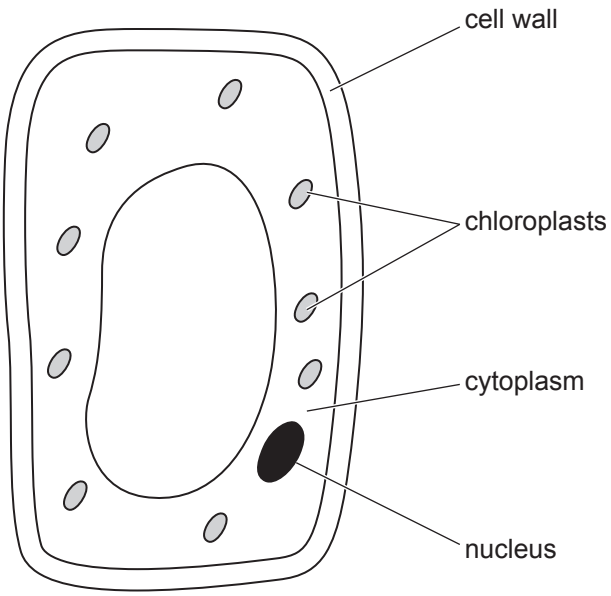
INFORMATION FOR CANDIDATES

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.

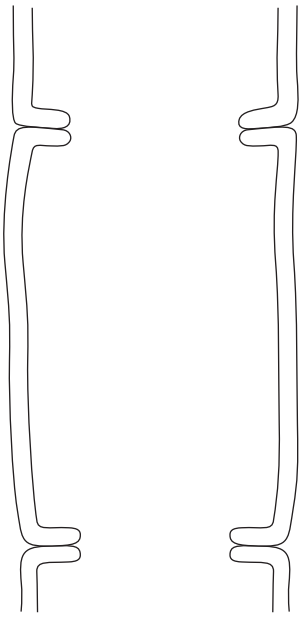
For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
Total Marks	

Examiner Only	
Marks	Remark

1 The diagrams show two plant cells.



palisade cell



xylem cell

(a) Name the mineral needed for cell wall formation.

_____ [1]

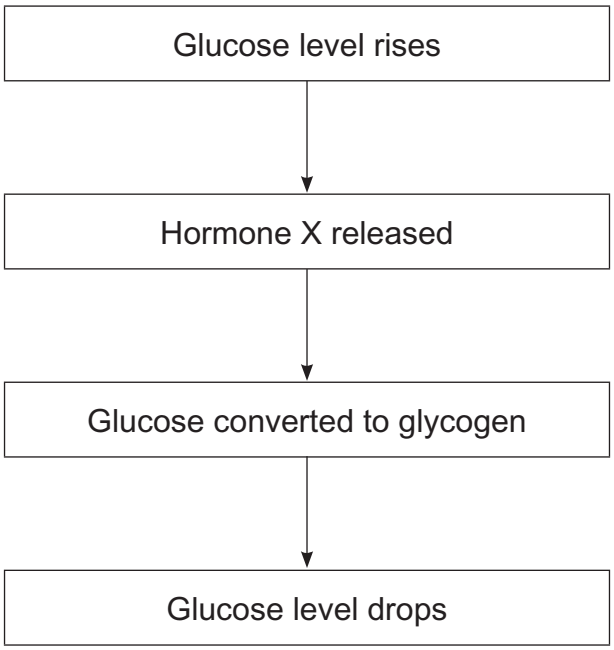
(b) Suggest why the xylem cell has no internal structures, e.g. no nucleus or cytoplasm.

_____ [1]

(c) In which part of the plant are palisade cells found?

_____ [1]

2 The flowchart shows how the level of glucose is controlled in the blood.



(a) Suggest what causes a rise in blood glucose levels.

_____ [1]

(b) Name hormone X.

_____ [1]

(c) Name the condition where the body does not produce enough of this hormone.

_____ [1]

(d) If a person does not produce enough hormone X then the person is treated with injections of this hormone (a protein).

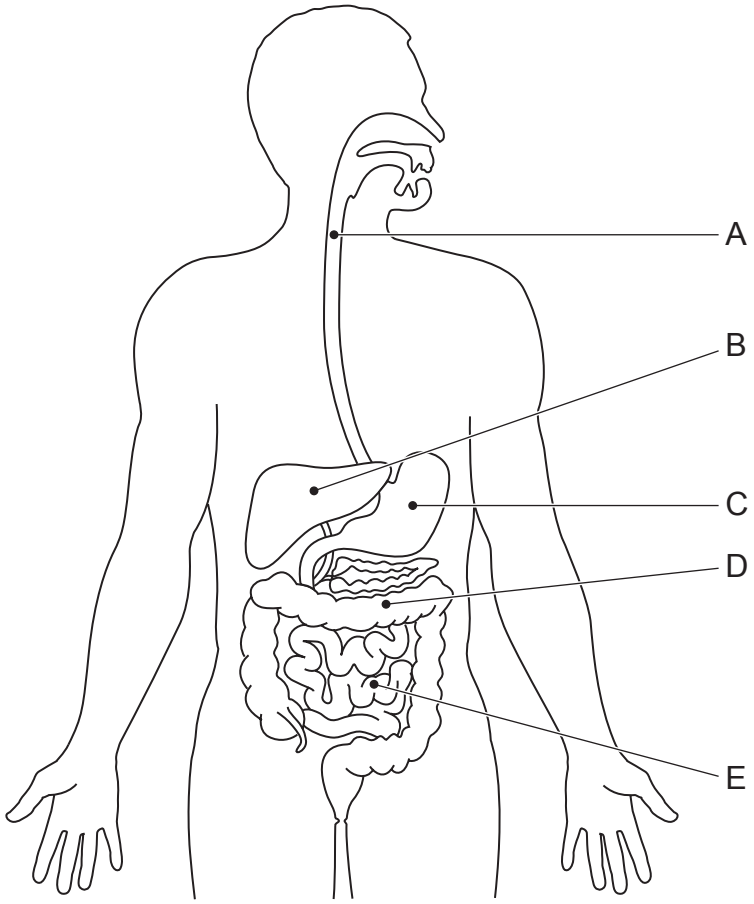
Suggest why this hormone cannot be taken in tablet form.

_____ [1]

Examiner Only

Marks	Remark

3 The diagram shows the digestive system.



(a) Explain why it is important that food is digested.

_____

_____ [2]

(b) Using letters from the diagram give the regions where protein digestion occurs.

_____ and _____ [2]

(c) What is the function of region D?

_____ [1]

Examiner Only

Marks	Remark

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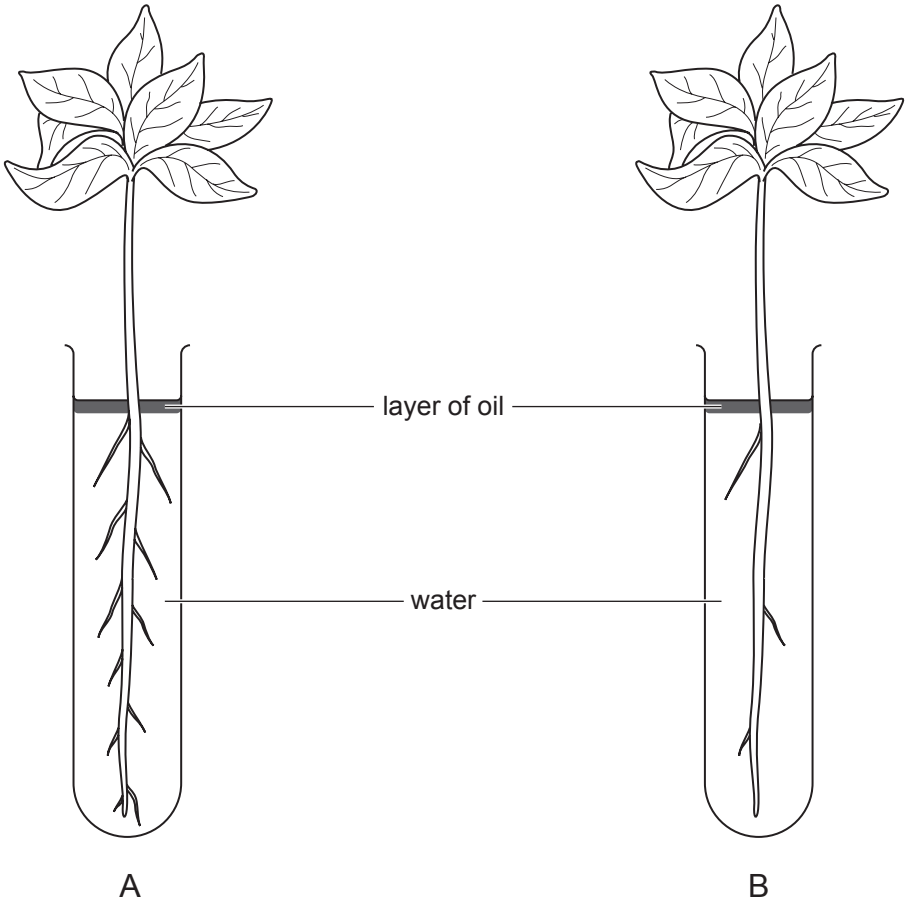
Examiner Only	
Marks	Remark

4 The diagram shows an experiment to investigate the loss of water from seedlings A and B.



The seedlings were placed in a bright room. The mass of each test tube was recorded at the beginning of the experiment and after 24 hours.

(a) Name the process where water is lost from the seedling leaves.

_____ [1]

(b) The results of the experiment are shown in the table.

Seedling	A	B
Mass at start/g	200	200
Mass after 24 hrs/g	152	176
Loss in mass after 24 hrs/g		
Rate of water loss g/hr		

Complete the table to show the loss in mass after 24 hours and the rate of water loss for A and B. [2]

(c) Describe and explain the results for the two seedlings.

Examiner Only	
Marks	Remark

_____

_____ [2]

5 A student examined the percentage of gases in inhaled and exhaled air. The results are shown below.

Gas sample	Percentage oxygen	Percentage carbon dioxide	Percentage nitrogen
A	16.1	4	79
B	20.5	0.04	79

(a) Use the information in the table to explain how you know sample A is exhaled air.

_____ [1]

(b) Suggest why the total percentage of the gas samples is slightly less than 100%.

_____ [1]

(c) Name the type of respiration that does **not** use oxygen.

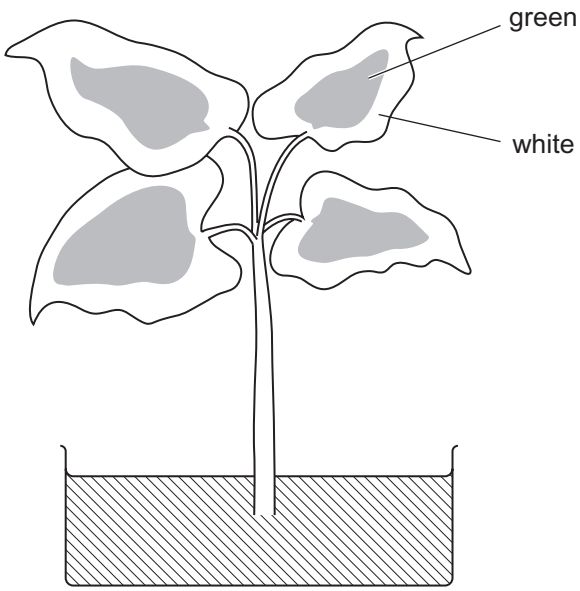
_____ [1]

Examiner Only

Marks	Remark

Examiner Only	
Marks	Remark

6 You are provided with a variegated plant (part of each leaf is green, the rest is white).



Using the plant and any other apparatus that is required, describe an experiment to show that chlorophyll is needed for photosynthesis.

_____

_____

_____

_____

_____

_____

_____

_____ [4]

7 Excretion is the removal of waste products from the body.

(a) Name **one** waste product of respiration.

_____ [1]

(b) Explain how the waste from respiration is removed from the body.

_____

_____

_____ [2]

Examiner Only	
Marks	Remark

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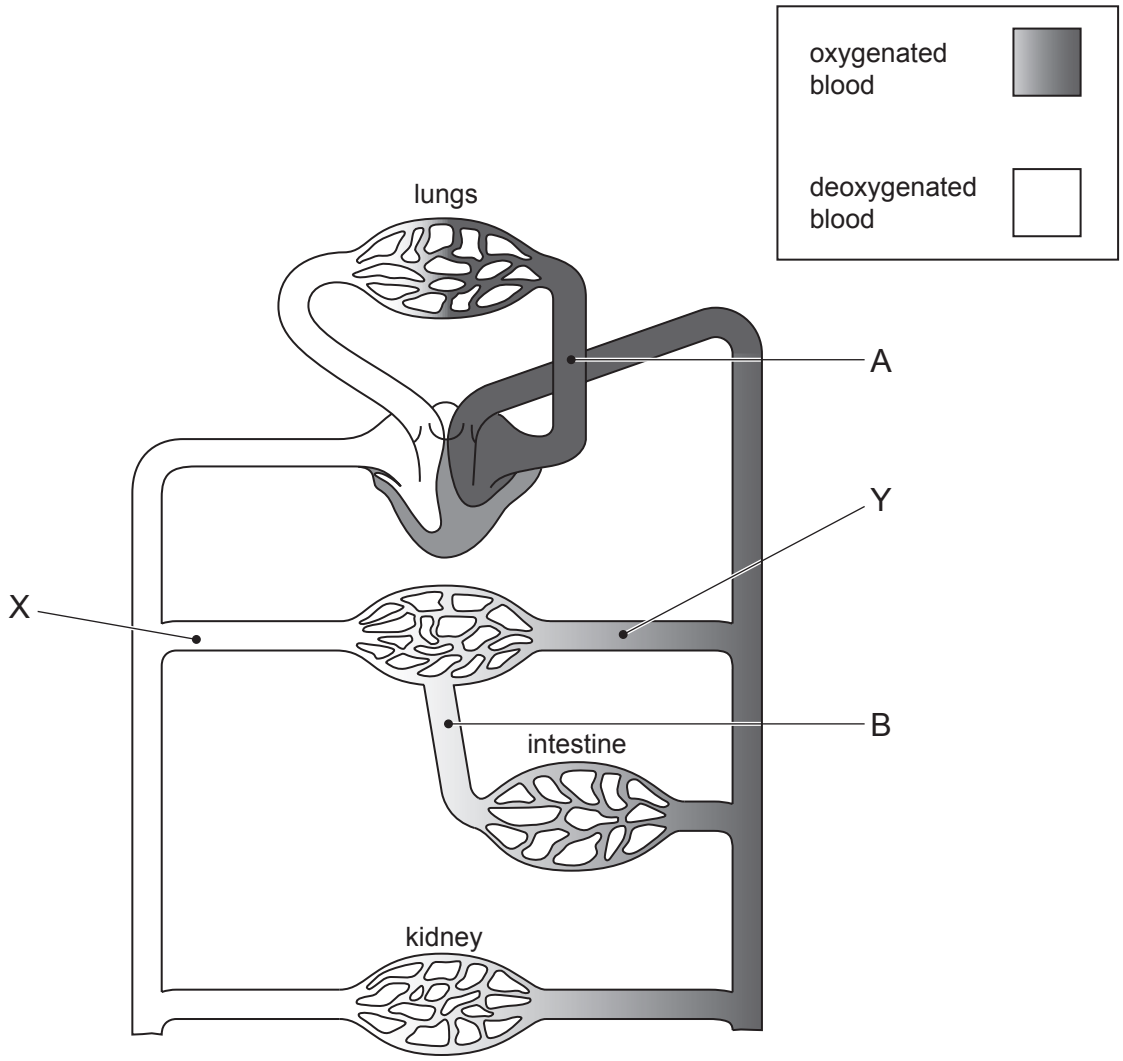
8 The diagram shows part of the circulatory system.



(a) What is meant by **double circulation**?

_____

_____ [1]

(b) Name the blood vessels:

A _____

B _____ [2]

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Marks	Remark

(c) Explain why the concentration of oxygen is lower in vessel X than in vessel Y.

Examiner Only

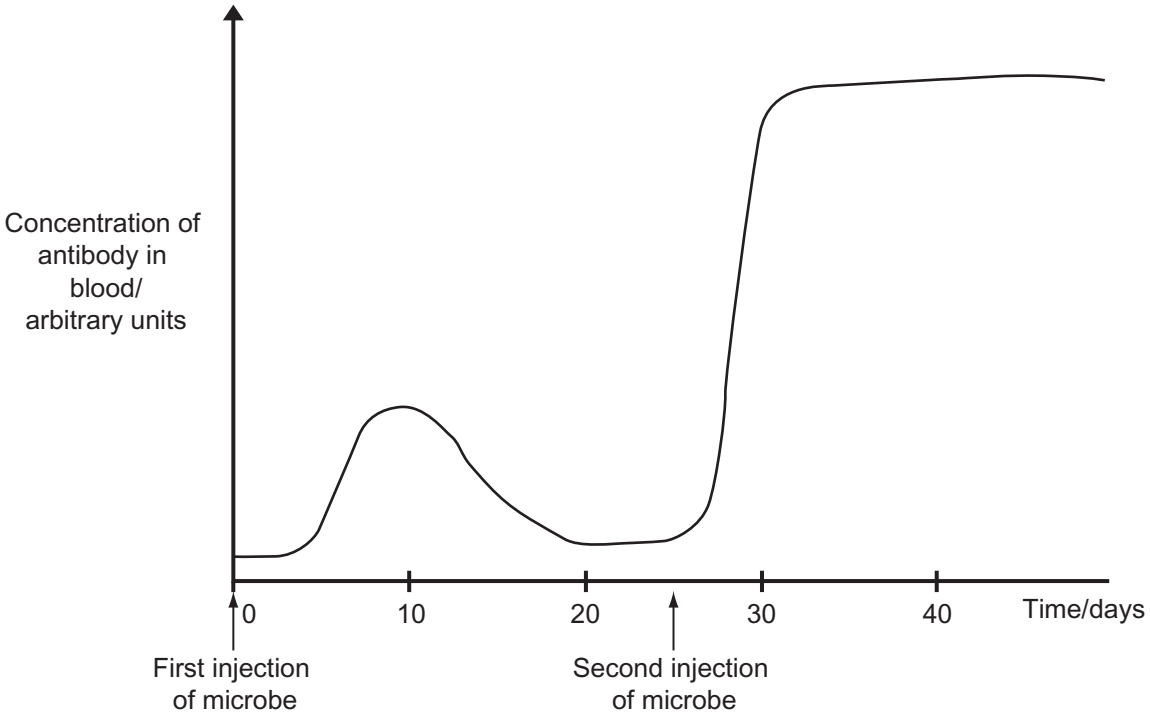
Marks	Remark

_____

_____ [2]

Examiner Only	
Marks	Remark

9 The graph shows the body's response to the injection of a microbe.



(a) Name the method of fighting disease where a weakened form of the microbe is injected into the body.

_____ [1]

(b) Use the graph to give two differences between the responses to the first and second injections.

1. _____

2. _____ [2]

(c) The antibodies connect with the microbes to form a clump. Name the process by which the body destroys the clump.

_____ [1]

10 In blood donation, blood is taken from a vein in a person's arm and used to treat patients who need a blood transfusion.

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The photograph shows a needle inserted into a blood vessel in a donor's arm.

(a) Suggest why the needle is inserted into a vein rather than an artery.

_____ [1]

(b) Use your knowledge of osmosis to explain why the blood cells could be damaged if water was added to the donated blood by mistake.

_____

_____

_____

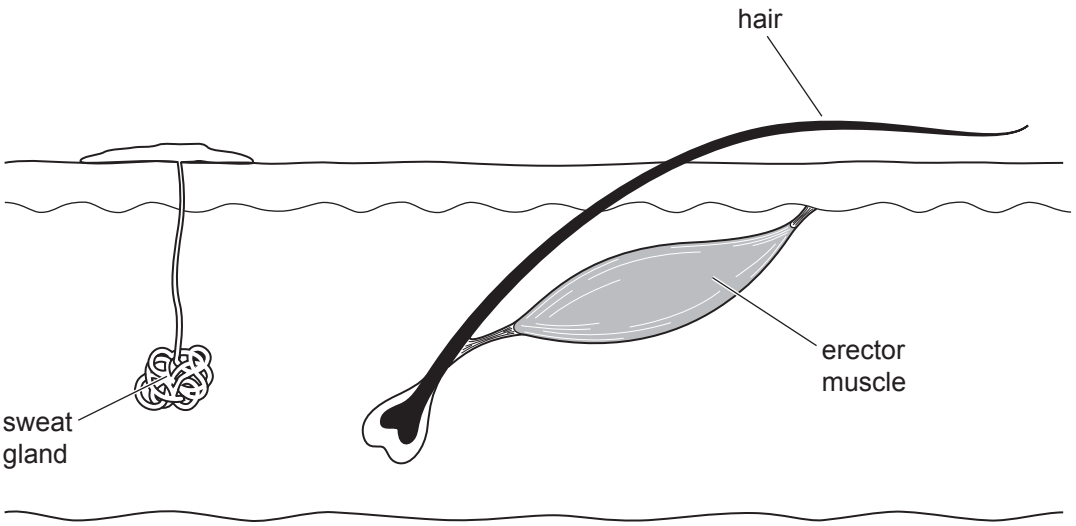
_____

_____ [4]

Examiner Only

Marks	Remark

11 The skin plays an important role in temperature regulation.



The diagram shows the skin on a hot day. Complete the table to show how the following actions help the body lose heat.

Action	How this helps heat loss
Hair lies flat	
Sweat is produced	

[4]

Examiner Only

Marks	Remark

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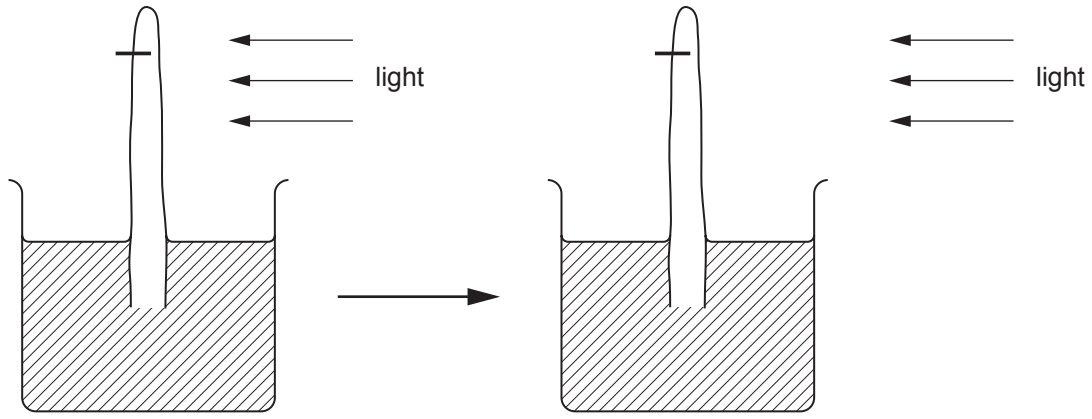
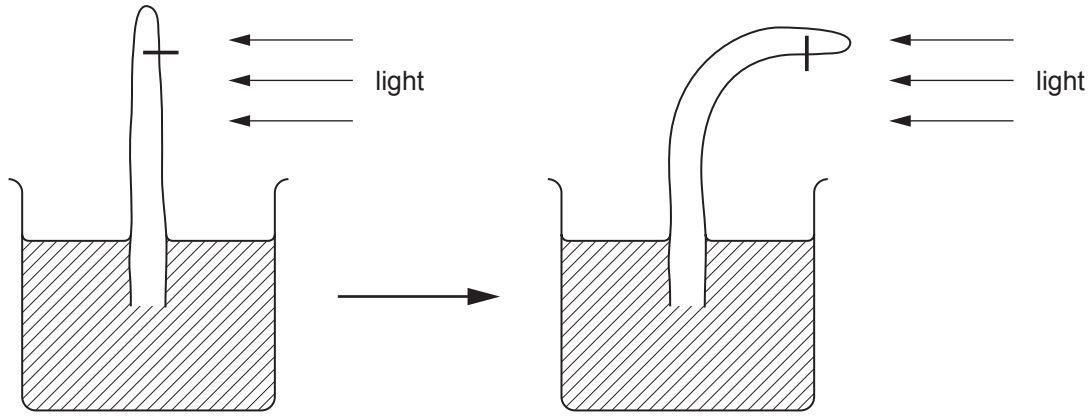
Examiner Only	
Marks	Remark

12 An experiment was carried out to investigate the effect of light shining from one side on a plant shoot.



Experiment A



Experiment B

(a) A plant hormone (auxin) causes the bending response. Auxin is produced in the tip and travels downwards to cause the cells to elongate. Use the results to explain which side of the shoot the auxin travels downwards in.

_____

_____ [2]

(b) (i) Name the response shown by the shoot in experiment B.

_____ [1]

(ii) Explain how this response will benefit the plant.

_____

_____ [2]

Examiner Only	
Marks	Remark

THIS IS THE END OF THE QUESTION PAPER

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