OCR GCSE 21ST CENTURY BIOLOGY B · J257

BIOLOGY



EXAM QUESTION PACK

B4.4 HOW IS PLANT GROWTH CONTROLLED? (FOUNDATION)

SCORE	PERCENTAGE
/19	%

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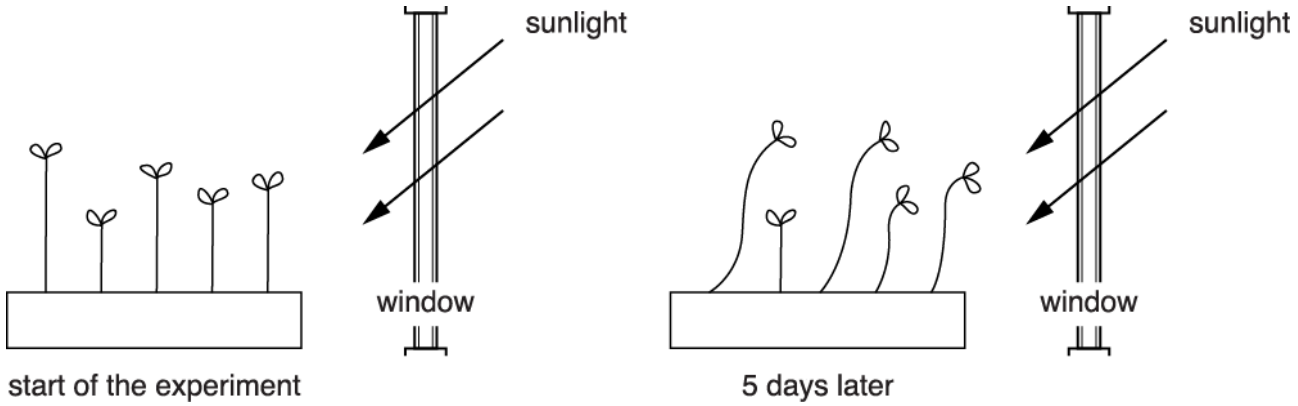
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1. James investigates the effect of light on shoot growth.

He places a tray of 5 cress seedlings on a windowsill and leaves them for 5 days.

He notes the appearance of the seedlings at the start of the experiment and again 5 days later.



all cress seedlings grow upright

only 1 cress seedling is growing upright

James concludes that the seedlings have grown towards the sunlight. James thinks that there are problems with his experimental design.

Evaluate the experimental design. In your answer you should:

- identify some of the problems
- suggest how the experiment could be improved.

The quality of written communication will be assessed in your answer.

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[6]

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2. If a plant only receives light from one direction, then it will grow towards the light.

This is called phototropism.

Phototropism increases the plant's chance of survival.

Explain why.

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[2]

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3. Phototropism is one way in which plants respond to light.

Brian wants to investigate phototropism.

He has two pots of cress seedlings, two cardboard boxes and two lamps.

Explain how he would set up his experiment and the results he would get.



The quality of written communication will be assessed in your answer.

You may use the space to draw a diagram to support your answer.

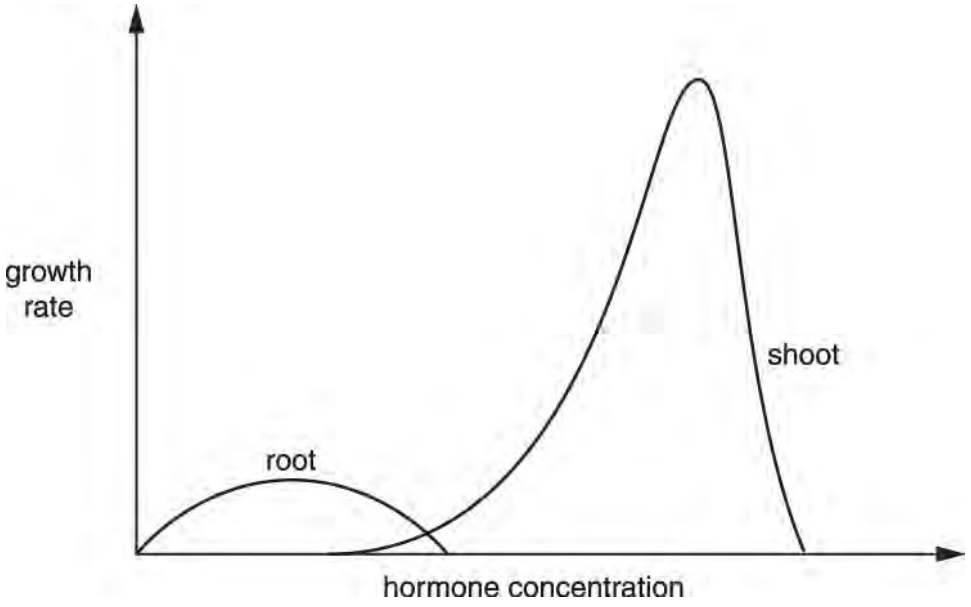
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4(a). A plant hormone affects the growth of shoots and roots.

Look at the graph.

It shows the effect of different concentrations of this hormone on shoot growth and root growth.



Two of these are correct conclusions from the data.

Put ticks (?) in the boxes next to the **two** correct conclusions.

Root growth requires lower concentration of hormone than shoot growth. ☐

Increasing the hormone concentration has no effect on shoot growth. ☐

Roots and shoots both grow at very high hormone concentrations. ☐

All hormone concentrations increase the growth rate of shoots. ☐

The hormone causes a greater rate of shoot growth than root growth. ☐

[2]

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(b). Shoot growth is also affected by light.

Write down the name of a shoot's growth response to light.

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[1]

(c). This growth response increases the plant's chance of survival.

Explain why.

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[2]

END OF QUESTION PAPER

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