OCR GCSE 21ST CENTURY BIOLOGY B · J257

BIOLOGY



EXAM QUESTION PACK

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

SCORE	PERCENTAGE
/26	%

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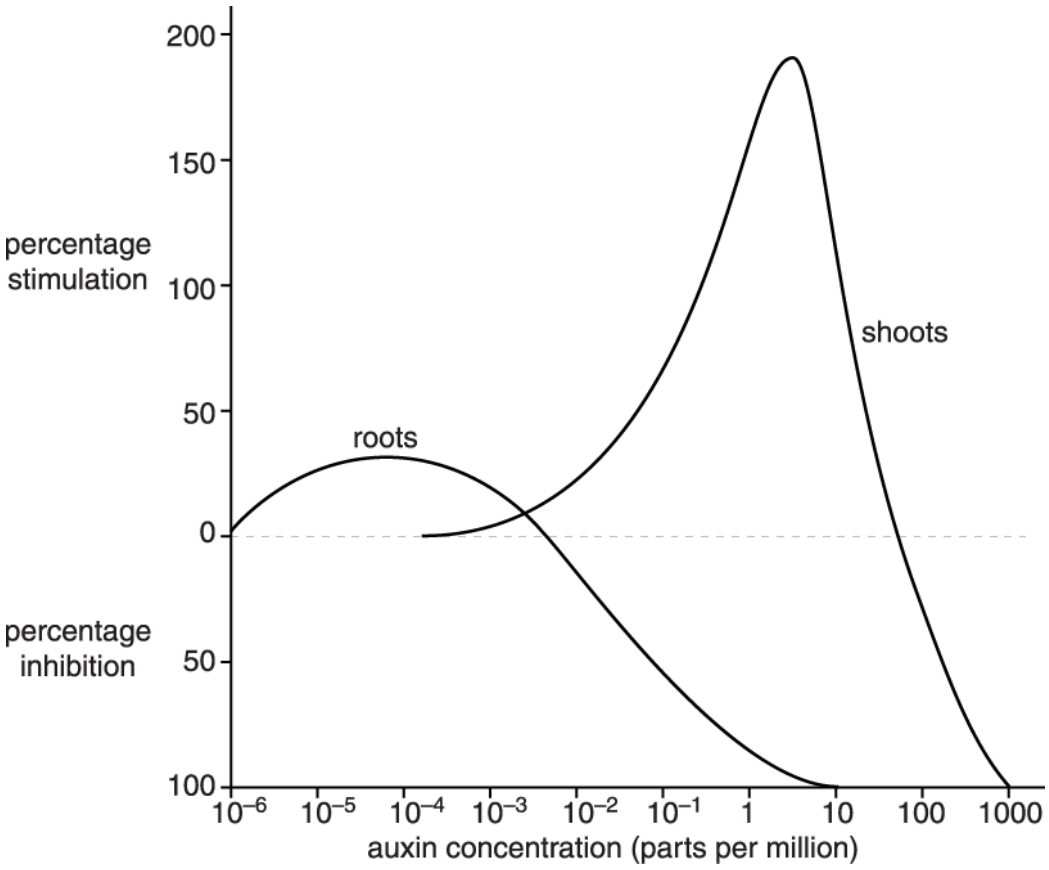
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1(a). Auxin is a plant hormone that can stimulate or inhibit the growth of shoots and roots.

Look at the graph.

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



The graph shows auxin concentrations ranging from 10^{-6} to 1000.

How much more concentrated is 1000 than 10^{-6}?

Show your working.

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answer = _____ [2]

(b). Write down three conclusions that can be made about **shoot growth** from this data.

conclusion 1 _____

conclusion 2 _____

conclusion 3_____

[3]

(c). Auxin is important in phototropism.

Explain how auxin causes phototropism in shoots.

[4]

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2. Plant hormones are produced naturally by the growing tips of plant shoots.

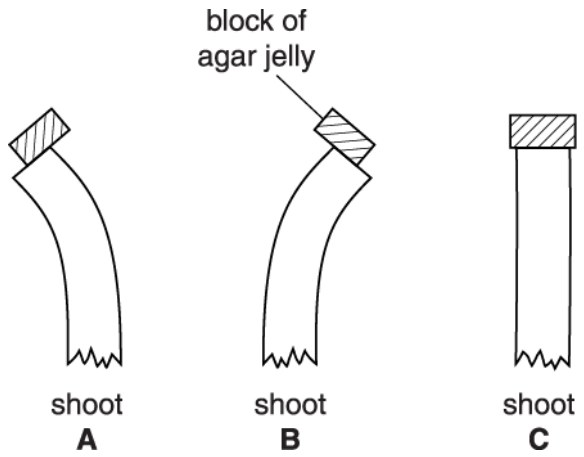
A researcher is studying the effect of plant hormones on the directional growth of plant shoots.

She cuts the tips off three plant shoots **A**, **B** and **C**.

Blocks of agar jelly, containing a plant hormone, are placed on the cut surfaces of the plant shoots.

The plant shoots are placed in a dark box for 12 hours.

After 12 hours, the shoots are removed from the box and the appearance of each shoot, **A**, **B** and **C** is recorded.



Describe and explain the differences in the three shoots, **A**, **B** and **C** after 12 hours.

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

[6]

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3.

(i) Plants grow towards a source of light.

Write down the name given to this directional growth.

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[1]

(ii) Explain why this directional growth benefits the plant.

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[1]

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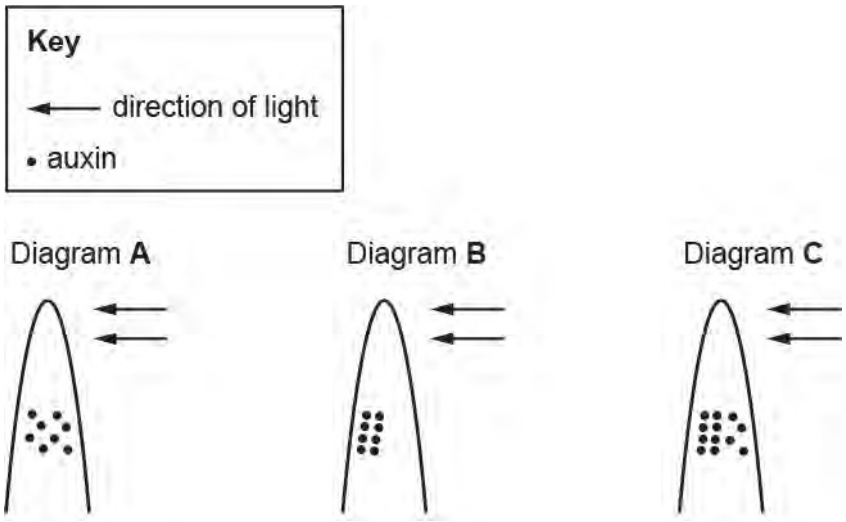
4(a). Plants respond to their environment.

(i) What term is used to describe a plant's growth response to light?

---------- [1]

(ii) The growth response to light can be explained by the distribution of the plant hormone auxin in the plant shoot.

Jamal finds three diagrams that could explain what happens in the plant shoot.



Which diagram, **A**, **B** or **C**, best explains what happens to make the plant shoot grow towards the light?

Explain your choice.

Diagram .....

Explanation ----------

---------- [2]

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(iii) Jamal's teacher gives him two boxes of cress seedlings, each box contains ten seedlings.

Describe an experiment Jamal could do to investigate the growth response to light in the cress seedlings.

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[4]

(b). A gardener is growing fruit. He wants to ripen his fruit quickly and decides to use the plant hormone gibberellin.

Do you agree with his choice of hormone?

Explain your answer.

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[2]

END OF QUESTION PAPER

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