GCSE Biology B (Twenty First Century Science)

J257/03 Breadth in Biology (Higher)

Question Set 4

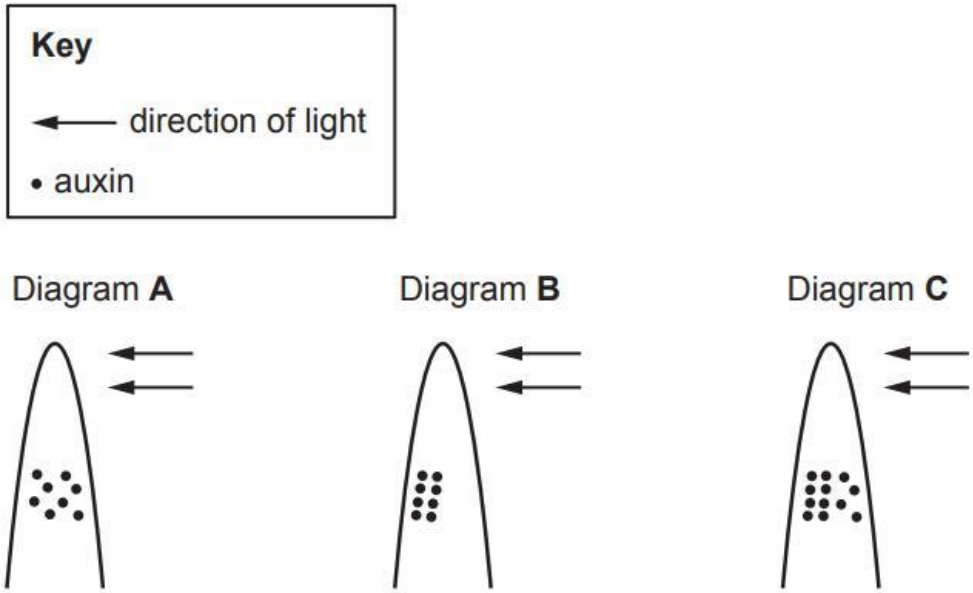
1 Plants respond to their environment.

(a) **(i)** What term is used to describe a plant's growth response to light? **[1]**

Phototropism

(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. **[2]**

C because there will be more auxin on the side in the shade

(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. **[4]**

Place one box of cress seedlings in an area with light. Don't use foil caps for this box as it is the control box.
The other box is placed in area with light but use foil caps to block the light.
Keep all other variables the same and allow it to grow for a week.

(b) A gardener is growing fruit. He wants to ripen his fruit quickly and decides to use the plant hormone gibberellin. **[2]**

Do you agree with his choice of hormone?

Explain your answer. No, because it promotes flowering and not fruiting.

(c) Plants can be infected by communicable diseases, so they need to protect themselves against pathogens.

Describe **one** chemical defence and **one** physical defence that plants have against pathogens. **[2]**

Chemical defence – antimicrobials
Physical defence – cell walls

(d) State the function of stomata in plants **[1]**

Site of gaseous exchange.

Total Marks for Question Set 4: 12

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