

Coordination, homeostasis and plant responses: practice questions

6 questions • 18 marks • mark scheme at the back

For Pearson Edexcel International GCSE Biology 4BI1 and Science (Double Award) 4SD0. **Biology only** is not in the Double Award and is only examined on Paper 2.

Name

Total / 18

1 Which of these is an effector? [1 mark]

- A. ☐ A temperature receptor in the skin
- B. ☐ A muscle in the arm
- C. ☐ The brain
- D. ☐ A hot object

2 A person touches a hot pan and pulls their hand away. Name the stimulus, a receptor and an effector in this response. [3 marks]

3 What is meant by homeostasis? Give two examples of conditions that are controlled by homeostasis. [3 marks]

Mark scheme

One mark for each point unless a maximum is given. Words in brackets are not needed for the mark.

1. [1]

B B (1)

2. [3]

- stimulus: heat / high temperature / hot pan (1)
- receptor: temperature receptor (in the skin) (1) allow heat receptor
- effector: muscle (in the arm) (1) do not accept brain

3. [3]

- maintenance of a constant internal environment (1) allow keeping conditions inside the body constant
- body water content (1)
- body temperature (1)

4. [4]

- root grows downwards (1) allow towards gravity
- this is positive geotropism / gravitropism (1)
- shoot grows upwards (1) allow away from gravity
- this is negative geotropism / gravitropism (1)

5. [1]

B B (1)

6. [6]

Level 3 5-6	A clear, ordered explanation that states where auxin is made, how its distribution changes, its effect on cell growth, and the resulting bending towards the light. Scientific terms are used accurately.
Level 2 3-4	Some of the explanation is given, such as auxin moving to the shaded side and the cells growing more, but the sequence is incomplete or a link is missing.
Level 1 1-2	Isolated statements, such as auxin is a hormone or the shoot grows towards light, with little or no explanation.

Indicative content

- the response is positive phototropism
- auxin is made in the tip of the shoot
- light from one side causes auxin to move to the shaded side
- auxin makes cells elongate
- the cells on the shaded side elongate more / grow faster than on the lit side
- so the shoot bends towards the light
- this gives the leaves more light for photosynthesis