

Plant tissues, organs and systems: practice questions

6 questions • 19 marks • mark scheme at the back

For AQA GCSE Biology 8461 and Combined Science: Trilogy 8464. **Triple only** is not in Combined Science. **Higher tier** is only on the Higher paper.

Name

Total / 19

1 Which plant tissue is found at the growing tips of shoots and roots? [1 mark]

- A. ☐ Xylem
- B. ☐ Phloem
- C. ☐ Meristem
- D. ☐ Epidermal tissue

2 Explain how a root hair cell is adapted for taking in mineral ions from the soil. [3 marks]

3 Compare the transport of substances in xylem and phloem. [3 marks]

4 Describe the role of stomata and guard cells in a leaf. [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]

C C (1)

2. [3]

- long root hair gives a large surface area (1)
- mineral ions are taken in by active transport (1)
- which needs energy from respiration / many mitochondria (1)

3. [3]

- xylem transports water and mineral ions (1)
- phloem transports dissolved sugars (1)
- xylem: from roots to stems and leaves; phloem: from the leaves to the rest of the plant (1)
- allow xylem has lignin / hollow tubes; phloem has pores in end walls

4. [3]

- stomata are pores that allow gases to move in and out / gas exchange (1)
- guard cells control the opening and closing of the stomata (1)
- closing stomata reduces water loss (1)

5. [3]

- mean distance = $(24 + 27 + 21) \div 3 = 24$ mm (1)
- $24 \div 5$ (1)
- 4.8 mm/min (1)
- allow 3 marks for the correct answer with no working

6. [6]

Level 3 5-6	A clear, correct explanation of the effects of all four factors, with reasons linked to evaporation, diffusion or stomata.
Level 2 3-4	Correct effects given for at least three factors, with some reasons.
Level 1 1-2	Some correct effects given, with few or no reasons.

Indicative content

- Higher temperature increases the rate: water evaporates and diffuses out faster
- Higher humidity decreases the rate: smaller concentration gradient of water vapour between the leaf and the air
- More air movement increases the rate: removes water vapour from around the stomata so the concentration gradient stays steep
- Higher light intensity increases the rate: stomata open wider so more water vapour escapes
- The opposite changes reduce the rate