

Xylem and phloem: practice questions

6 questions • 15 marks • mark scheme at the back

For Cambridge IGCSE Biology 0610 (and 0970, which has the same content). **Supplement** is Extended content, only examined on Papers 2 and 4.

Name

Total / 15

1 Which statement about phloem is correct? [1 mark]

- A. ☐ It transports water and mineral ions.
- B. ☐ It transports sucrose and amino acids.
- C. ☐ It supports the plant.
- D. ☐ It absorbs water from the soil.

2 State two functions of xylem and one function of phloem. [3 marks]

3 Describe where xylem and phloem are found in a cross-section of the stem of a non-woody dicotyledonous plant. [3 marks]

4 Describe the position of the xylem and phloem in a cross-section of a root. [3 marks]

5

Supplement

[4 marks]

Describe how the structure of a xylem vessel is related to its function.

6

Supplement

[1 mark]

Which feature of xylem vessels allows water to move up in a continuous column?

- A. ☐ thick walls
- B. ☐ lignin in the walls
- C. ☐ no cross walls between cells
- D. ☐ a nucleus in each cell

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]

- (xylem) transport of water / mineral ions (1)
- (xylem) support (1)
- (phloem) transport of sucrose / amino acids (1) ignore 'food' alone

3. [3]

- in vascular bundles (1)
- arranged in a ring near the outside of the stem (1)
- xylem on the inside and phloem on the outside of each bundle (1)

4. [3]

- in the centre of the root (1)
- forms an X / star shape (1)
- phloem between the arms (of the X) (1)

5. [4] Supplement

- thick walls (1)
- containing lignin, which strengthens / supports / stops the vessel collapsing (1) ignore details of lignification
- no cell contents, so water flows without obstruction (1)
- no cross walls / cells joined end to end, forming a long continuous tube (1)

6. [1] Supplement

C C (1)