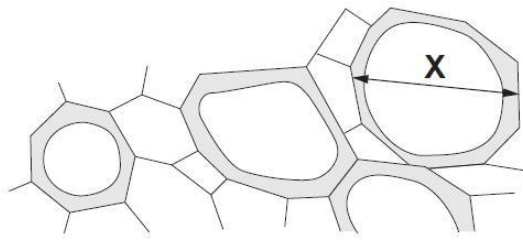


GCSE Biology A (Gateway)

J247/01 B1-B3 and B7 Foundation (Foundation Tier)

Question Set 18

- 1 The diagram shows cells that are important in the process of **transpiration** in plants.



measured size = 22mm

$$22/500 = \underline{\underline{0.044\text{mm}}}$$

- (a) The diameter of cell X has been magnified 500x. Calculate the actual diameter of cell X.

Use the equation: actual diameter = measured size \div magnification

$$\text{Diameter} = \dots 0.044 \dots \text{mm}$$

[2]

- (b) What is the name of plant cell X?

Tick (\checkmark) **one** box.

Phloem cell

Root hair cell

Xylem cell

[1]

- (c) State **two** ways that cell X is adapted to its function in a plant.

1. No end walls makes water flow easier.

2. Supported by lignin in walls to prevent collapsing [2]

- (d) Light microscopes let us see objects as small as 0.2 micrometres.

The diameter of cells similar to cell X, can vary between 0.008 mm and 0.5 mm. (1 mm = 1000 micrometres)

Is it possible to see all these types of cells using a light microscope?

Explain your answer

[2]

Minimum 0.008 mm so convert to micrometres.

$$\begin{array}{l} \div 125 \left(\begin{array}{l} 1000 \text{ micrometres} = 1 \text{ mm} \\ 8 \text{ micrometres} = 0.008 \text{ mm} \end{array} \right) \div 125 \end{array}$$

8 micrometres $>$ 0.02 micrometres so yes it is possible

(e) State why electron microscopy has increased our knowledge of sub-cellular structures. [1]

They allow us to see the structure of organelles.

Total Marks for Question Set 18: 8



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