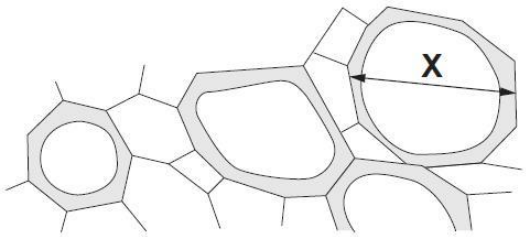
GCSE Biology A (Gateway)

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 = 0.044mm

(a) The diagram of cell **X** has been magnified 500×. Calculate the actual diameter of cell **X**.

Use the equation: actual diameter = measured size ÷ magnification

Diameter = ...0.044.... mm

[2]

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

Tick (✓) **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 micrometers.

÷125 (1000 micro = 1mm, 8 micro = 0.008mm) ÷125

8 micrometers > 0.02 micrometers 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