Do not write outside the box

0 6 This question is about cell structures.

0 6 . 1 Draw **one** line from each cell structure to the type of cell where the structure is found.

[2 marks]

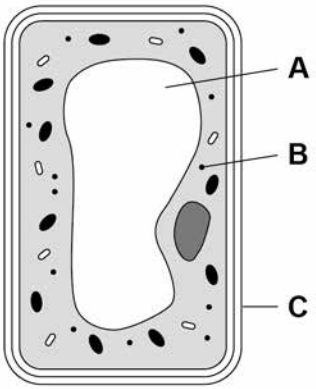
Cell Structure	Type of cell where the structure is found
Nucleus	Prokaryotic cells
Permanent vacuole	Plant cells only
Plasmid	Eukaryotic cells

Question 6 continues on the next page

Do not write outside the box

0 6 . 2 **Figure 11** shows a plant cell.

Figure 11



What are the names of structures **A**, **B** and **C**?

[1 mark]

Tick **one** box.

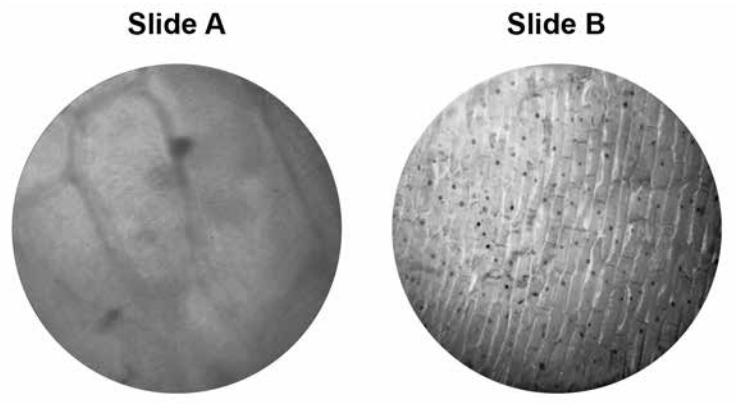
Structure A	Structure B	Structure C	
Chloroplast	Vacuole	Cell wall	☐
Nucleus	Chloroplast	Cell membrane	☐
Vacuole	Mitochondrion	Cell membrane	☐
Vacuole	Ribosome	Cell wall	☐

Do not write outside the box

A student observed slides of onion cells using a microscope.

Figure 12 shows two of the slides the student observed.

Figure 12



The cells on the slides are **not** clear to see.

0 6 . 3 Describe how the student should adjust the microscope to see the cells on **Slide A** more clearly.

[1 mark]

_____

_____

0 6 . 4 Describe how the student should adjust the microscope to see the cells on **Slide B** more clearly.

[2 marks]

_____

_____

_____

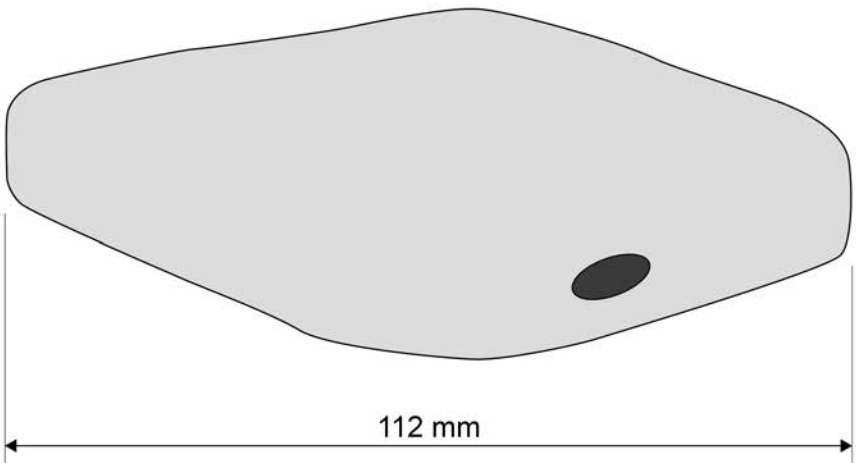
Question 6 continues on the next page

Do not write outside the box

0 6 . 5 The student made the necessary adjustments to get a clear image.

Figure 13 shows the student's drawing of one of the cells.

Figure 13



The real length of the cell was 280 micrometres (μm).

Calculate the magnification of the drawing.

[3 marks]

Magnification = × _____

9

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.1	nucleus permanent vacuole plasmids prokaryotic cells plant cells only eukaryotic cells allow **1** mark for one or two correct links		2	AO1 4.1.1.1 4.1.1.2
06.2	vacuole | ribosome | cell wall tick box takes precedence if no tick is given, look at both the figure and the circling of words in the table if writing is seen on the figure and in the table both must be correct		1	AO1 4.1.1.2
06.3	turn the (fine focusing) knob until the cells are in focus	allow focus it do **not** accept increase magnification ignore decrease magnification ignore clear ignore references to resolution / illumination ignore zoom in / out	1	AO2 4.1.1.2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.4	(rotate the) nosepiece / objective lens	allow change the (objective / eyepiece) lens	1	AO2 4.1.1.2
	to a higher power (lens)	allow (to) increase the magnification a comparator is required ignore change / adjust the magnification allow stronger or more powerful lens ignore references to resolution / illumination unqualified ignore zoom in / out ignore references to an electron microscope	1	

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.5		an answer of 400 (×) scores **3** marks		AO2 4.1.1.2
	conversion of units: (112 mm →) 112 000 (μm) **or** (280 μm →) 0.28 (mm)		1	
	(magnification =) $\frac{112}{0.28}$ **or** (magnification =) $\frac{112\,000}{280}$	allow **1** mark for no conversion of units 112 / 280 **or** incorrect value from step 1 correctly substituted	1	
	400 (×)	do **not** accept if units are given if no other mark scored allow **1** mark for: magnification = $\frac{\text{size of image}}{\text{size of real object}}$ a triangle with words or letters in is insufficient, as the correct rearrangement is needed	1	
Total			**9**	