

22 Fig. 22.1 shows a transverse section of the stem of a typical pondweed viewed using a $\times 10$ objective lens. Part of a graticule is shown below the stem. The markings on the graticule are 0.1 mm apart.

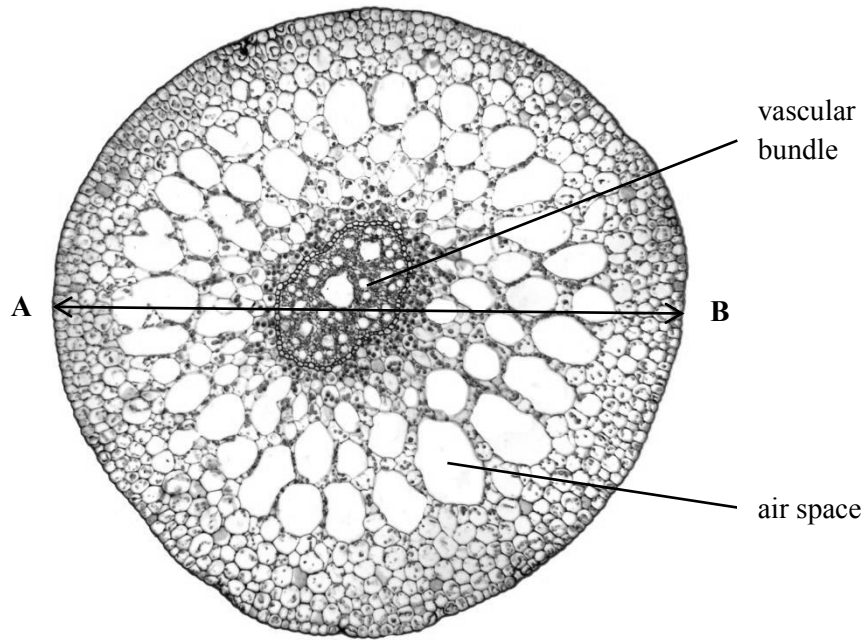


Fig. 22.1

- (a) (i) Measure the width of the stem between points A and B. Give your answer to the nearest 0.1 mm.

Answer..... [1]

- (ii) Calculate the magnification of the image in Fig. 22.1.

Answer..... [2]

- (iii) The thin stem and thin cell walls do not provide much support for the leaf. Suggest how the leaf is supported.

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 [2]

(b) A student was asked to view cells from the phloem in transverse section using a high power objective lens. Fig. 22.2 shows two diagrams of phloem tissue.

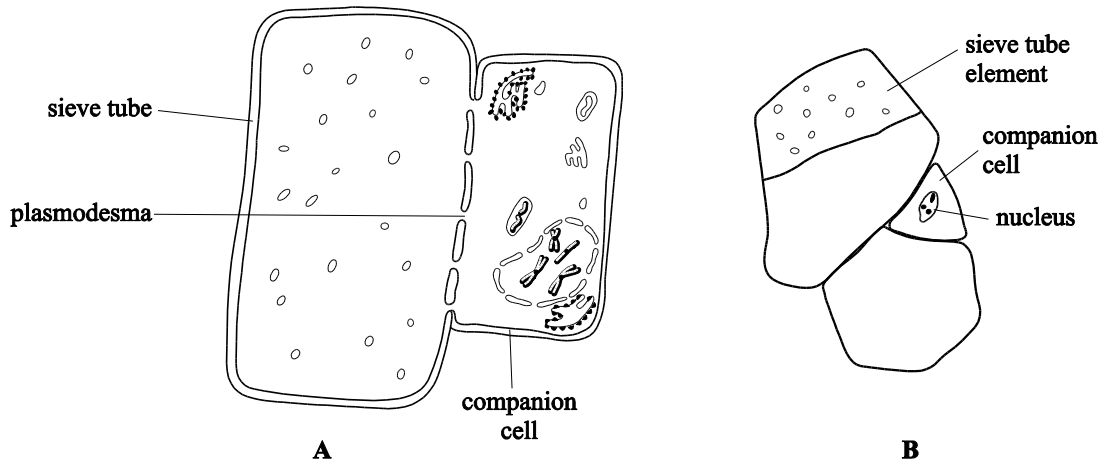


Fig. 22.2

(i) Which diagram is the more accurate representation of what the student could see? Justify your decision using **two** separate features of the diagrams.

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..... [2]

(ii) State what is meant by the *resolution* of a microscope.

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..... [1]

(iii) The slide viewed to draw the diagrams in **Fig. 22.2** had been stained.

Table 22.1 shows a list of stains and the cell feature that can be stained.

Stain	Cell feature stained
Nile blue	nuclei
eosin	cytoplasm
Sudan red	cell membrane
iodine	starch

Table 22.1

Which stain had the student used? Explain your answer.

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..... [2]