

A Level Biology A
H420/02 Biological Diversity

Question Set 7

1 (a)

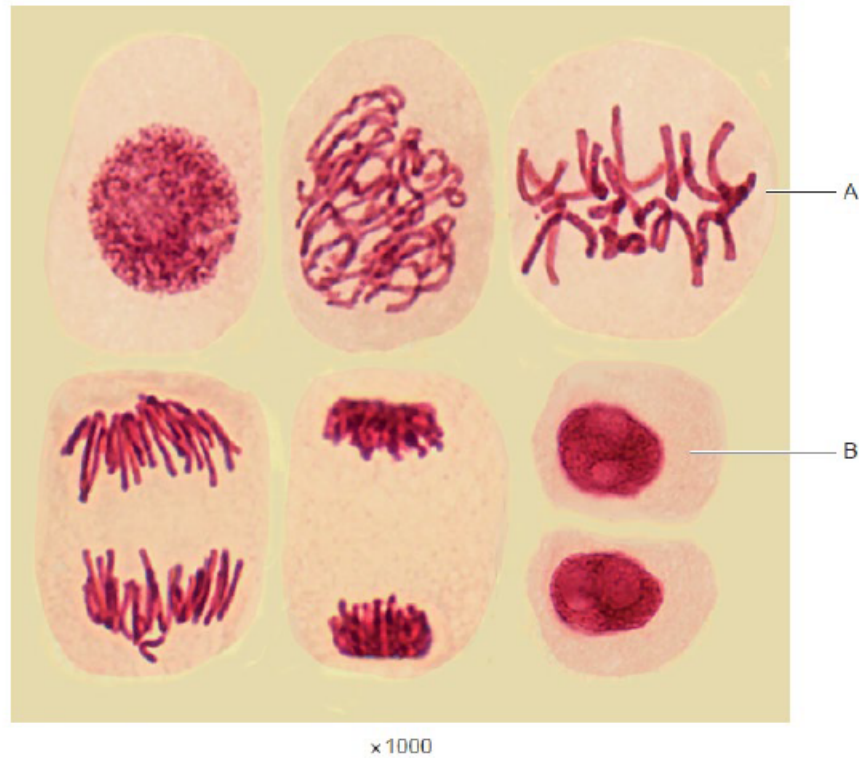


Fig. 16

(i) Fig. 16 shows 6 onion cells at various stages of mitosis.

Name the stage of mitosis shown in cell A.

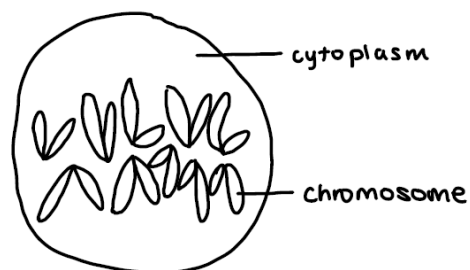
metaphase

[1]

(ii) Fig. 16 shows 6 onion cells at various stages of mitosis.

In the space provided below draw cell A. Label your drawing to show visible features.

[4]



(b) (i) Fig. 16 shows 6 onion cells at various stages of mitosis.

The volume of cell A is $5.4 \times 10^4 \mu\text{m}^3$.

Assume that cell B is spherical. Calculate the volume of cell B.

Use the formula: volume of sphere = $\frac{4}{3}\pi r^3$

Give your answer in standard form in μm^3 .

$$r \text{ of cell B} = 16 \text{ mm} \rightarrow 16 \mu\text{m} \quad \text{Answer: } 1.72 \times 10^4 \mu\text{m}^3$$

$\times 1000$

[3]

$$\text{vol of cell B} = \frac{4}{3} \pi \times 16^3 = 1.7157 \times 10^4 \mu\text{m}^3$$

$$\approx 1.72 \times 10^4 \mu\text{m}^3$$

(ii) Fig. 16 shows 6 onion cells at various stages of mitosis.

State the type of microscope that was used to view these images. Justify your answer. **light microscope because other subcellular structures are not visible and colour is visible.** [2]

(iii) Mitosis is involved in growth and repair of tissues.

State **two** other roles of mitosis in multicellular organisms.

1 **asexual reproduction**

2 **production of new stem cells**

[1]

Total Marks for Question Set 7: 11

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