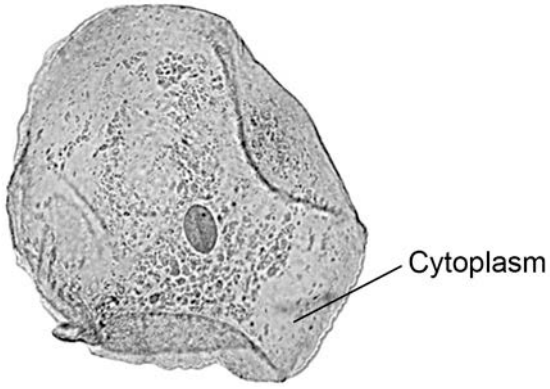
0 3 **Figure 5** shows a human cheek cell viewed under a light microscope.

Figure 5



0 3 . 1 Label the nucleus **and** cell membrane on **Figure 5**.

[2 marks]

0 3 . 2 Cheek cells are a type of body cell.

Body cells grow through cell division.

What is the name of this type of cell division?

[1 mark]

Tick **one** box.

- Differentiation ☐
- Mitosis ☐
- Specialisation ☐

0 3 . 3 Ribosomes and mitochondria are **not** shown in **Figure 5**.

What type of microscope is needed to see ribosomes and mitochondria?

[1 mark]

0 3 . 4 What is the advantage of using the type of microscope you named in part **03.3**?

[1 mark]

Tick **one** box.

Cheaper ☐

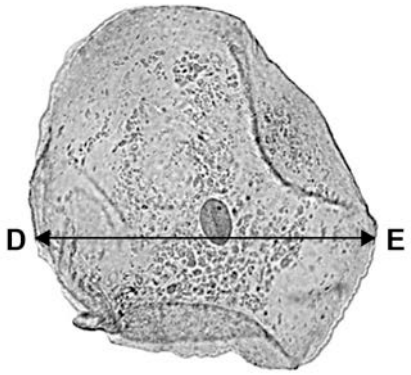
Higher magnification ☐

Lower resolution ☐

0 3 . 5 The cheek cell in **Figure 6** is magnified 250 times.

The width of the cell is shown by the line **D** to **E**.

Figure 6



Calculate the width of the cheek cell in micrometres (μm).

Complete the following steps.

[3 marks]

Measure the width of the cell using a ruler _____ mm

Use the equation to work out the real width of the cell in mm:

$$\text{real size} = \frac{\text{image size}}{\text{magnification}}$$

_____ mm

Convert mm to μm _____ μm

Question 3 continues on the next page

0 3 . 6 A red blood cell is 8 μm in diameter.

A bacterial cell is 40 times smaller.

Calculate the diameter of the bacterial cell.

[1 mark]

Tick **one** box.

0.02 μm ☐

0.2 μm ☐

2.0 μm ☐

20.0 μm ☐

Question 3

Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.1	nucleus labelled correctly cell membrane labelled correctly		1 1	AO1/1 4.1.1.1 4.1.1.2
03.2	mitosis		1	AO1/1 4.1.2.2
03.3	electron (microscope)		1	AO1/2 4.1.1.5
03.4	higher magnification		1	AO1/2 4.1.1.5
03.5	45 (mm) 45 / 250 **or** 0.18 (mm) 180 (µm)	 allow ecf allow 180 (µm) with no working shown for **3** marks	1 1 1	AO2/2 4.1.1.5 AO2/2 4.1.1.5 AO2/2 4.1.1.5
03.6	0.2 µm		1	AO2/2 4.1.1.1
Total			**9**	