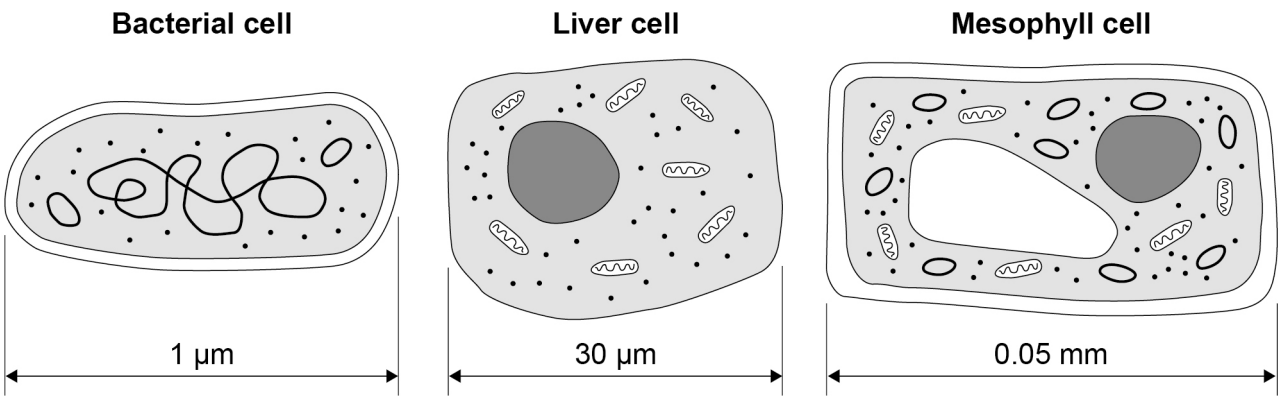
Do not write outside the box

0 3 **Figure 5** shows three types of cell.

Figure 5



0 3 . 1 Give **two** similarities between the prokaryotic cell and the eukaryotic cells in **Figure 5**.

[2 marks]

1 _____

2 _____

0 3 . 2 Give **three** differences between the prokaryotic cell and the eukaryotic cells in **Figure 5**.

[3 marks]

1 _____

_____

2 _____

_____

3 _____

_____

Do not write outside the box

0 3 . 3 Calculate the ratio of the size of the bacterial cell to the size of the mesophyll cell.

[2 marks]

Ratio = 1 : _____

0 3 . 4 Name the type of cell division that produces genetically identical body cells for growth and repair.

[1 mark]

_____

Question 3 continues on the next page

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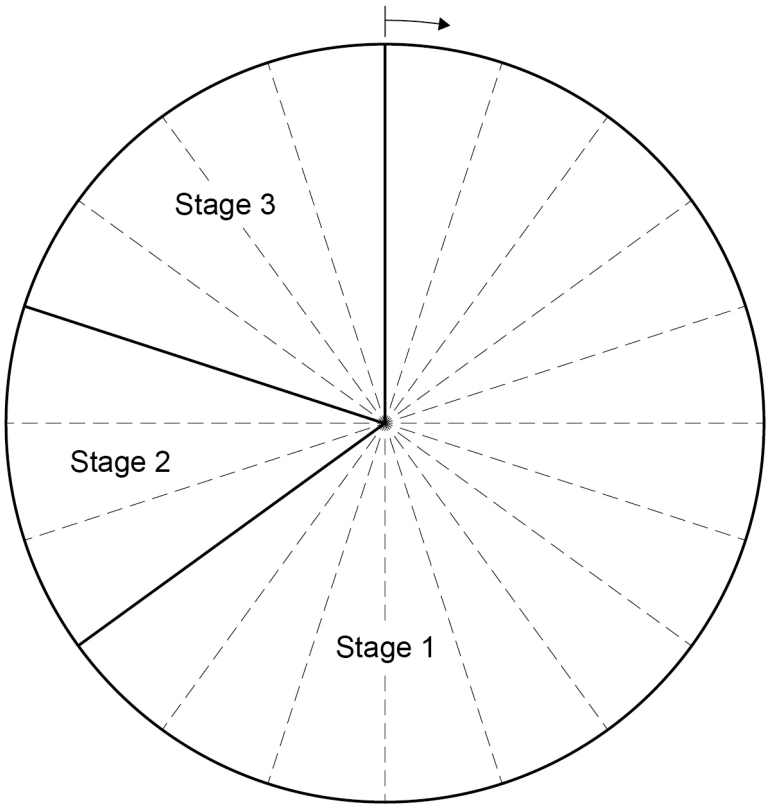
Figure 6 shows a cell cycle.

Figure 6



0 3 . 5 What percentage of the time for one cell cycle is represented by stage 2 and stage 3 together?

[1 mark]

Tick (✓) **one** box.

7% ☐ 35% ☐ 40% ☐ 65% ☐

Do not write outside the box

0 3 . 6 Describe what happens during each stage of the cell cycle.

[4 marks]

Stage 1 _____

_____

_____

_____

Stage 2 _____

_____

Stage 3 _____

_____

13

Turn over for the next question

Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.1	any **two** from: (both have) • cytoplasm • (cell) membrane • DNA / genetic material • ribosomes	ignore reference to shape allow RNA ignore genetic information if no other mark awarded allow sub-cellular structures for **1** mark if no other mark awarded allow correct cellular process, e.g. respiration for **1** mark	2	AO2 4.1.1.1 4.1.1.2 4.1.2.1
03.2	any **three** from: • prokaryotic cell is smaller • prokaryotic cell has no mitochondria • prokaryotic cell has no nucleus **or** DNA is free in the cytoplasm **or** genetic material is free in the cytoplasm • prokaryotic cell has a single loop of DNA **or** prokaryotic cell has a single loop of genetic material • prokaryotic cell has plasmids	allow converse for eukaryotic cells allow reference to bacterium instead of prokaryotic cell ignore reference to features not shown in Figure **5** if neither mark awarded, allow prokaryotic cell has no membrane-bound organelles ignore genetic information ignore genetic information ignore circular / rings of DNA allow prokaryotic cells have smaller ribosomes	3	AO2 4.1.1.1 4.1.1.2 4.1.2.1

03.3	1 µm = 0.001 mm **or** 1 mm = 1000 µm **or** 0.05 mm = 50 µm **or** 0.05 × 1000 (1:) 50	 do **not** accept if a unit is given	1 1	AO2 4.1.1.1 4.1.1.2
03.4	mitosis	correct spelling only	1	AO1 4.1.2.2
03.5	35%		1	AO2 4.1.2.2
03.6	 (stage 1) DNA / chromosomes replicate / duplicate mitochondria / ribosomes / sub-cellular structures increase in number **or** mitochondria / ribosomes / sub-cellular structures replicate (stage 2) one set of chromosomes is pulled / moved to each end of the cell (stage 3) the cytoplasm **and** cell membrane divides (to form two cells)	ignore names of the stages of the cell cycle ignore genetic material ignore DNA / chromosomes double / reproduce allow cytoplasm increases ignore cell grows unqualified allow one of each chromosome is pulled / moved to each end of the cell ignore nucleus divides allow cytoplasm divides **and** (new) cell membranes form ignore nucleus divides	 1 1 1 1	AO1 4.1.2.2
Total			**13**	