

APOLLO

Cell structure

SL

Biology

First assessment 2025

5 questions | mark schemes

Mark-scheme answers

Biology SL | Paper 1A | May 2025 TZ3 | Q9 | 1 marks

9. D

1.	a	x400 / 400x / 400;	Accept answers from x380 to x420	1
1.	b	(eye piece) graticule;		1
1.	c	a. nucleus drawn that clearly shows 2 membranes and pores passing through both membranes; <i>Labels (Max 2 marks for labels):</i> b. (inner/ outer) nuclear membrane / nuclear envelope / double/two membrane; c. (nuclear) pore; d. nucleolus; e. chromatin/nucleoplasm/DNA/chromosomes/genetic material;	Accept drawings inside cells. a. Award even if no internal structures are drawn. Award one mark for diagram, then up to 2 maximum for labels.	3 max

Question	Answers	Notes	Total
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1.	a		(eyepiece) graticule;		1
1.	b	i	42.5 μm OR 45 μm ;	Accept any value within the range: 42 to 45 μm ; Unit required.	1
1.	b	ii	1000 $\pm$ 200 (x);	Accept any value within the range 800 to 1200. Allow ECF, but working must be shown and it must be around 45 mm divided by the result of 1bi.	1

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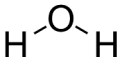
8825 – 6023M

1.	c	a. both have cytoplasm OR both have ribosomes OR both have (plasma/cell) membrane OR both have DNA/genetic material; b. <table><tr><th>Eukaryotic cells</th><th>Prokaryotic cells</th></tr><tr><td>have 80s/bigger ribosomes</td><td>have 70s/smaller ribosomes</td></tr><tr><td colspan="2">OR</td></tr><tr><td>have (DNA in) a nucleus / nuclear membrane</td><td>have nucleoid/DNA free in the cytoplasm / lack a nucleus</td></tr><tr><td colspan="2">OR</td></tr><tr><td>are compartmentalized / have membrane-bound organelles/a named membrane-bound organelle</td><td>are not compartmentalized / do not have membrane-bound organelles/a named membrane-bound organelle</td></tr><tr><td colspan="2">OR</td></tr><tr><td>have proteins/histones associated with DNA</td><td>have no proteins/histones / have naked DNA</td></tr><tr><td colspan="2">OR</td></tr><tr><td>have linear chromosomes/DNA</td><td>have circular chromosomes/(loops of) DNA;</td></tr></table>	Eukaryotic cells	Prokaryotic cells	have 80s/bigger ribosomes	have 70s/smaller ribosomes	OR		have (DNA in) a nucleus / nuclear membrane	have nucleoid/DNA free in the cytoplasm / lack a nucleus	OR		are compartmentalized / have membrane-bound organelles/a named membrane-bound organelle	are not compartmentalized / do not have membrane-bound organelles/a named membrane-bound organelle	OR		have proteins/histones associated with DNA	have no proteins/histones / have naked DNA	OR		have linear chromosomes/DNA	have circular chromosomes/(loops of) DNA;	<i>Features common to all eukaryotes and all prokaryotes are needed, so reject reference to cell walls, pili and flagella.</i> <i>Award both marks if a similarity is implicit in the comparison, e.g. 'eukaryotic cells have bigger ribosomes than prokaryotic cells' or 'eukaryotes have DNA in the nucleus and prokaryotes free in the cytoplasm'.</i> <i>If more than one similarity or difference is given, award the mark even if one of them is incorrect unless there's a contradiction.</i> <i>b. Correct reference to both eukaryotic and prokaryotic cells for the same cell component or a comparative word required for the mark, e.g. 'eukaryotes have larger ribosomes' or 'only eukaryotes have the nucleus'.</i>	2 max
Eukaryotic cells	Prokaryotic cells																							
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Question	Answers	Notes	Total
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3.	a	a. mitochondria/lysosome; b. approximate size relative to other organelles; c. shape is correct (other membrane-bound organelles/ER/Golgi have a different shape);	<i>a. Is for the organelle and additional marking points are for reasons.</i> <i>a. Accept the first answer given if a list is provided by the answer.</i>	2 max
3.	b	eukaryotic because there are nuclei/membrane-bound organelles/compartimentalized organelles;		1
3.	c	chitin/glycoprotein/glucans;	<i>Do not accept cellulose</i>	1
3.	d	aseptate/not divided up into cells/more than one nucleus (in the cell);	<i>Accept the first answer given.</i>	1
3.	e	a. two hydrogens and one oxygen; b. (2 hydrogen and 1 oxygen) linked by single lines to represent bonds placed at an angle;		2

Question	Answers	Notes	Total
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Mark-scheme answers

Biology SL | Paper 1A | Specimen 2025 | Q11 | 1 marks

11. A