

Markscheme

May 2026

Biology

Standard level

Paper 1B

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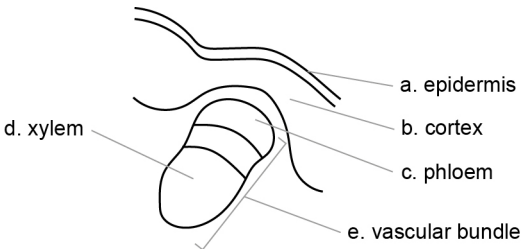
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Subject Details: Biology SL Paper 1B Markscheme

Candidates are required to answer **all** questions in Paper 1B. Maximum total = **25 marks**.

1. A markscheme often has more marking points than the total allows. This is intentional.
2. Each marking point has a separate line and the end is shown by means of a semicolon (;).
3. An alternative answer or wording is indicated in the markscheme by a slash (/). Either wording can be accepted.
4. An alternative answer is indicated by “**OR**”. Either answer can be accepted.
5. An alternative markscheme is indicated under heading **ALTERNATIVE 1** etc. Either alternative can be accepted.
6. Words in brackets () in the markscheme are not necessary to gain the mark.
7. Words that are underlined are essential for the mark.
8. The order of marking points does not have to be as in the markscheme, unless stated otherwise.
9. If the candidate’s answer has the same “meaning” or can be clearly interpreted as being of equivalent significance, detail and validity as that in the markscheme then award the mark. Where this point is considered to be particularly relevant in a question it is emphasized by **OWTTE** (or words to that effect).
10. Remember that many candidates are writing in a second language. Effective communication is more important than grammatical accuracy.
11. Occasionally, a part of a question may require an answer that is required for subsequent marking points. If an error is made in the first marking point then it should be penalized. However, if the incorrect answer is used correctly in subsequent marking points then **follow through** marks should be awarded. When marking indicate this by adding **ECF** (error carried forward) on the script.
12. Do **not** penalize candidates for errors in units or significant figures, **unless** it is specifically referred to in the markscheme.

Question			Answers	Notes	Total
1.	a	i	mitochondrion/mitochondria;		1
1.	a	ii	<u>aerobic</u> respiration OR energy/ATP production;	<i>Aerobic required.</i> <i>No ecf if 1ai is incorrect.</i>	1
1.	a	iii	0.58 - 0.62 (μm);		1
1.	b		<i>Similarities:</i> a. both consist of RNA and protein OR both consist of two / small and large subunits OR both translate/synthesize proteins OR both found in the cytoplasm / both have free ribosomes; <i>Differences:</i> b. ribosomes in the eukaryotic cell are 80S and prokaryote are 70S OR only eukaryotic ribosomes are attached to endoplasmic reticulum/ER OR all prokaryotic ribosomes are free;	<i>Mp a: Do not accept process proteins instead of synthesize/make.</i> <i>Mp b: Do not accept: size as a difference membrane only</i>	2

Question			Answers	Notes	Total
2	a	i	a. epidermis; b. cortex; c. phloem OR xylem; d. <u>vascular</u> bundle (bracketed/circled); 	<i>A plan diagram is needed.</i> <i>0 marks for a leaf section.</i> <i>Deduct 1 mark max for a drawing showing: whole stem section / not area X or if cells are drawn or only one vascular bundle</i> <i>1 mark for each correctly labelled structure, clearly drawn and in proportion.</i> <i>Cortex label should refer to upper portion of the plan below the epidermis.</i>	3 max
2.	a	ii	transports sugars/sucrose/carbohydrates/amino acids/organic substances/products of photosynthesis;	<i>Do not accept nutrients/ions/minerals/food.</i>	1
2.	b		a. rolled leaves to reduce surface area/water loss; b. sunken stomata to reduce transpiration; c. hairs around stomata to trap water vapour; d. thick waxy cuticle to reduce evaporation; e. deep/branching root system/rhizomes to obtain more water / stabilize plant;	<i>OWTTE</i> <i>Do not accept thin/narrow/spiky leaves.</i> <i>Accept other verified adaptations and explanations.</i>	2 max

Question			Answers	Notes	Total
3.	a	i	<u>logarithmic/log</u> (scales);	<i>Do not accept non-linear or x10 or exponential.</i>	1
3.	a	ii	large range of values/data more manageable/plottable OR normal/linear scales would require too much space OR points/plots too spread out to show trends/differences;		1
3.	a	iii	<u>positive</u> correlation/relationship OR as axon diameter increases, conduction speed increases;	<i>OWTTE</i> <i>Do not accept directly proportional.</i>	1
3.	b		mammalian (axons) are myelinated;		1
3.	c		a. (free) sensory neuron ending/receptor/nociceptor; b. (impulse travels in) sensory neuron; c. interneuron/relay neuron in spinal cord/CNS; d. (impulse travels in) motor neuron; e. (impulse to) effector/muscle;	<i>Order must be correct even if stages are missed out.</i> <i>Mp c: Do not accept spine/vertebrae/backbone.</i> <i>Accept a labelled diagram.</i>	3 max

Question			Answers	Notes	Total
4.	a	i	box-and-whisker (plot);		1
4.	a	ii	0.2 mol dm ⁻³ ;	<i>Units required.</i>	1
4.	b		<i>Similarity:</i> a. both have similar interquartile range/value for 50% of data / ranges overlap OR both have median closer to upper interquartile OR both have negative % mass change / reduction in mass; <i>Difference:</i> b. 0.8 has larger total range/longer whiskers OR 0.8 has a higher median/minimum OR 0.8 loses more mass/more negative;	<i>Do not accept mean or average for median.</i> <i>Do not accept error bar for whisker.</i> <i>Higher median because it is a negative scale.</i> <i>Do not accept lower median.</i>	2 max
4.	c		a. at 0 mol dm⁻³/hypotonic/low sucrose concentration water enters the cell by <u>osmosis</u>; b. <u>contractile vacuole</u> collects excess water; c. contractile vacuole empties/pumps water outside the cell; d. contractile vacuole prevents bursting/lysis; e. water leaves cell at hypertonic/high sucrose concentrations by osmosis; f. cell shrinks/crenates at hypertonic/high sucrose concentrations;	Award 2 marks for a and e if osmosis is mentioned at least once. Allow 1 mark for a and e if osmosis is not mentioned at all. <i>Similarly, contractile vacuole for b, c, d.</i> <i>Mp f: Do not allow plasmolysed.</i> <i>Accept solute instead of sucrose throughout.</i>	3 max