

APOLLO

Enzymes and metabolism

SL

Biology

First assessment 2025

7 questions | mark schemes

Mark-scheme answers

Biology SL | Paper 1A | May 2025 TZ1 | Q5 | 1 marks

5. D

Biology SL | Paper 1A | May 2025 TZ3 | Q5 | 1 marks

5. D

4.	a	(storage) temperature;		1
4.	b	pH / enzyme/lipase concentration / substrate concentration / volume of oil/lipase / type of oil;		1
4.	c	a. negative correlation / as (storage) temperature increases, relative enzyme activity decreases; b. enzyme begins to denature / active site changed / enzyme changes shape (as temperature increases) OR enzyme activity is highest near the optimum temperature;	a. <i>accept inverse</i> b. <i>accept inverse</i>	2
4.	d	the (size of the) error bars;		1
4.	e	a. measure pH using a probe/(chemical) indicator/meter/digital meter/pH strip/pH paper/any valid method of measuring pH; b. measure the time taken for pH/colour change;	a. <i>Needs how the pH was measured e.g probe</i> b. <i>Rate requires measurement over time so accept 'over a given time' or example with time units e.g intervals of 10 minutes or intervals of time</i> Allow correctly named indicators	2

Mark-scheme answers

Biology SL | Paper 1A | Nov 2025 TZ1 | Q4 | 1 marks

4. B

3.	a	enzyme/papain/bromelain concentration OR type of enzyme OR time (24 and 48 hrs);	<i>Do not accept enzyme alone.</i>	1
3.	b	(as concentration increases) tyrosine increases (at both times) OR positive correlation;		1
3.	c	a. 48 h/hours has higher activity / more tyrosine produced than after 24 h/hours; b. only 48 h/hours has a (nearly) constant increase in tyrosine OR 48 h/hours has a steeper gradient/sharper rise;	<i>Or vice versa.</i> <i>Do not accept faster rate OWTTE.</i>	2
3.	d	a. proteins are digested/broken down/degraded into <u>amino acids</u> ; b. the more (protease) activity the more amino acid/tyrosine produced; c. not all proteins contain tyrosine / have different amounts OR some tyrosine is released with no enzyme; d. other amino acids could be measured;	<i>a. Accept proteins are composed of amino acids.</i>	3 max

Question	Answers	Notes	Total
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Mark-scheme answers

Biology SL | Paper 1A | Specimen 2025 | Q5 | 1 marks

5. A

Biology SL | Paper 1A | Specimen 2025 | Q7 | 1 marks

7. B