



Science

Stage 7

Paper 1

2023

Cambridge Lower Secondary Progression Test

Mark Scheme

Question	Answer	Marks	Further Information
1(a)	<pre> graph LR A[cell membrane] --- B[controls the movement of substances into and out of the cell] C[cytoplasm] --- D[contains genetic information and controls what happens inside the cell] C --- E[jelly-like substance, where chemical reactions happen] F[mitochondria] --- G[where most respiration reactions happen] </pre>	2	<p>three lines correct = 2 marks</p> <p>one or two lines correct = 1 mark</p> <p>if two lines from a part of a cell drawn and one is incorrect = 0 marks for that part of a cell</p>
1(b)	<p>any two from</p> <p>(are packed with many) chloroplasts</p> <p>(idea that) column-shaped</p> <p>large vacuole</p>	2	<p>each correct answer = 1 mark</p> <p>Accept (are packed with many) chloroplasts so they can absorb light (energy) = 2 marks</p> <p>Accept (idea that) column-shaped so they can be arranged closely together = 2 marks</p> <p>Accept (idea that) large vacuole so chloroplasts are towards the edge of the cell or close to the cell membrane or closer to the light = 2 marks</p> <p>Ignore chlorophyll</p>

Question	Answer	Marks	Further Information
1(c)	has (plant) chloroplasts but no cell wall	1	Accept has (animal) flagella or eye spot instead of no cell wall

Question	Answer	Marks	Further Information
2		3	<p>each correct line = 1 mark</p> <p>if two lines from a material drawn and one is incorrect = 0 marks for that material</p>

Question	Answer	Marks	Further Information
3(a)	echo	1	
3(b)	(distance travelled by sound wave =) time x 1500 or 4 x 1500 or 6000 (m) 3000 (m)	2	Accept correct answer with or without working = 2 marks Accept ecf from distance travelled by sound wave for second marking point

Question	Answer	Marks	Further Information
4(a)	crust (uppermost part of) mantle	2	each correct answer = 1 mark Accept lithosphere = 2 marks
4(b)	(idea of fold) mountain building earthquake volcanic eruption	3	each correct answer = 1 mark Accept fold mountains Accept tsunami Accept volcano Accept (idea of) subduction Accept sea floor spreading Accept rift valleys
4(c)	any two from shows the magma (in the mantle) moving shows the plates moving shows volcanoes or mountains forming shows what happens deep under the Earth's surface shows the different layers of the Earth it is not a moving model or (idea that) it does not show the speed of movement	2	each correct answer = 1 mark Accept shows plates move in the same direction as the magma (in the mantle) = 2 marks

	(idea that) there are no labels, e.g. no temperature, no depth (idea that) it does not show how long the mountains take to form does not show earthquakes		
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Question	Answer	Marks	Further Information
5	<pre> graph TD A[vertebrate] --> B[fur] A --> C[no fur] B --> D[mammal] C --> E[feathers] C --> F[no feathers] E --> G[bird] F --> H[dry scaly skin] F --> I[moist skin] H --> J[reptile] I --> K[scales] I --> L[no scales] K --> M[fish] L --> N[amphibian] </pre>	3	all five correct = 3 marks three or four correct = 2 marks one or two correct = 1 mark

Question	Answer	Marks	Further Information
6(a)	4 or four	1	
6(b)	purple	1	
6(c)	7 or seven	1	Ignore green
6(d)	lemon juice	1	

Question	Answer	Marks	Further Information
7(a)	<div> <div>electrical (energy)</div> <div>→</div> <div> light (energy) sound (energy) thermal (energy) </div> </div>	1	all four correct = 1 mark Accept heat (energy) for thermal Accept light, sound and thermal in any order
7(b)(i)	20 (J)	1	
7(b)(ii)	it dissipates or it is transferred to the environment or surroundings	1	Accept it spreads out Accept any reasonable energy transfer process involving sound or thermal energy, e.g. thermal energy makes molecules move faster Ignore it is wasted or it is lost

Question	Answer		Marks	Further Information
8	gas	percentage by volume	2	each correct answer = 1 mark Accept N or N₂ for nitrogen
	nitrogen	(78)		
	(oxygen)	21		

Question	Answer	Marks	Further Information
9	donkey and horse	2	both ticked = 1 mark
	species produce fertile offspring / ora		correct explanation = 1 mark

Question	Answer	Marks	Further Information
10(a)	precipitation	1	more than one answer circled = 0 marks Accept any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence
10(b)	increases or rises or gets bigger acid is being neutralised (by the alkali) / ora	2	each correct answer = 1 mark

Question	Answer	Marks	Further Information
11(a)	a force (that) pulls objects towards each other or pulls objects towards the centre of the planet	2	each correct answer = 1 mark Accept pulls objects towards a named planet, e.g. Earth Accept a force of attraction between two objects = 2 marks
11(b)(i)	Jupiter	1	
11(b)(ii)	as mass (of most planets) increases so does gravity and relevant data to support, e.g. Jupiter has the biggest mass and the most gravity or as mass (of most planets) increases so does gravity except for Uranus and relevant data to support, e.g. Uranus has more mass than Earth but has less gravity or (idea that) there is no relationship and relevant data to support, e.g. Uranus has more mass than Earth but has less gravity	2	relationship = 1 mark correct data to support = 1 mark

Question	Answer	Marks	Further Information
12	(sulfuric acid) corrosive (ethanol) flammable (mercury nitrate) toxic or poisonous	3	each correct answer = 1 mark Accept inflammable Do not accept harmful

Question	Answer	Marks	Further Information
13(a)	iron, steel, graphite, aluminium	1	all four correct any order for the mark Accept symbols, i.e. Fe for iron, Al for aluminium, C for graphite
13(b)	electron(s)	1	Accept ions(s)
13(c)	insulator(s)	1	Ignore non-conductor

Question	Answer	Marks	Further Information
14(a)	grass —————→ grasshopper grasshopper —————→ lizard grasshopper —————→ hawk lizard —————→ hawk	2	all four correct = 2 marks two or three correct = 1 mark one correct = 0 marks but one incorrect arrow = maximum 1 mark three or more incorrect arrows = 0 marks
14(b)	(hawk) excretes waste (hawk) decays or decomposes	2	each correct answer = 1 mark Accept excretion Accept faeces or urine or uric acid Accept decomposition