



Science

Stage 8

Paper 2

2023

Cambridge Lower Secondary Progression Test

Mark Scheme

Question	Answer	Marks	Further Information
1(a)(i)	Z	1	
1(a)(ii)	run at the same speed for 1 minute	1	more than one answer ticked = 0 marks Accept any indication of the correct answer, e.g. circling or underlining, but ticking takes precedence
1(b)(i)	(improves) eyesight or vision (in low light conditions)	1	Accept for healthy skin or (improves) immune system or cell growth
1(b)(ii)	obesity or heart disease or increase in (bad) cholesterol or high blood pressure or stroke	1	

Question	Answer	Marks	Further Information
2(a)	exothermic (idea of) temperature increase	2	each correct answer = 1 mark Accept any indication of the correct answer, e.g. circling or underlining, but answer line takes precedence
2(b)	iron + sulfuric acid → iron sulfate + hydrogen	1	reactants correct in either order and products correct in either order = 1 mark Ignore dilute Accept correct formulae, but name takes precedence $\text{Fe} + \text{H}_2\text{SO}_4 \rightarrow \text{FeSO}_4 + \text{H}_2$ Accept = instead of →

Question	Answer	Marks	Further Information
3(a)	refracted dispersion	2	each correct answer = 1 mark Ignore refraction in second sentence
3(b)	(red + green =) yellow (green + blue =) cyan (red + blue + green =) white	2	all three correct = 2 marks one or two correct = 1 mark

Question	Answer	Marks	Further Information
4	any two from (stellar) gas (stellar) dust stars planets moons asteroids comets nebulae	2	each correct answer = 1 mark Accept any other suitable objects found in all known galaxies, e.g. black hole or meteorites Accept planetary systems if planets and moons have not been given

Question	Answer	Marks	Further Information
5(a)	any two from fallen tree stream or river or water fallen leaves tree canopy or treetops or branches of the tree	2	each correct answer = 1 mark Accept any suitable habitat shown in the picture, e.g. grass
5(b)(i)	length of time she looks for or time of day	1	Accept any suitable factor that must be kept the same, e.g. temperature or weather
5b(ii)	number of species of bird	1	
5b(iii)	yes or no or maybe (no mark) any two explanations from the results are very close to each other number of species (of bird) has decreased may have misidentified species must identify if the new species is still present should sample over a longer time interval may have looked for species for different lengths of time there may be migration into or out of the woodland there may be seasonal differences not sampled enough places in the woodland	2	Note the explanations must match the decision about the hypothesis each correct explanation = 1 mark if no decision about the hypothesis but two correct explanations = 1 mark

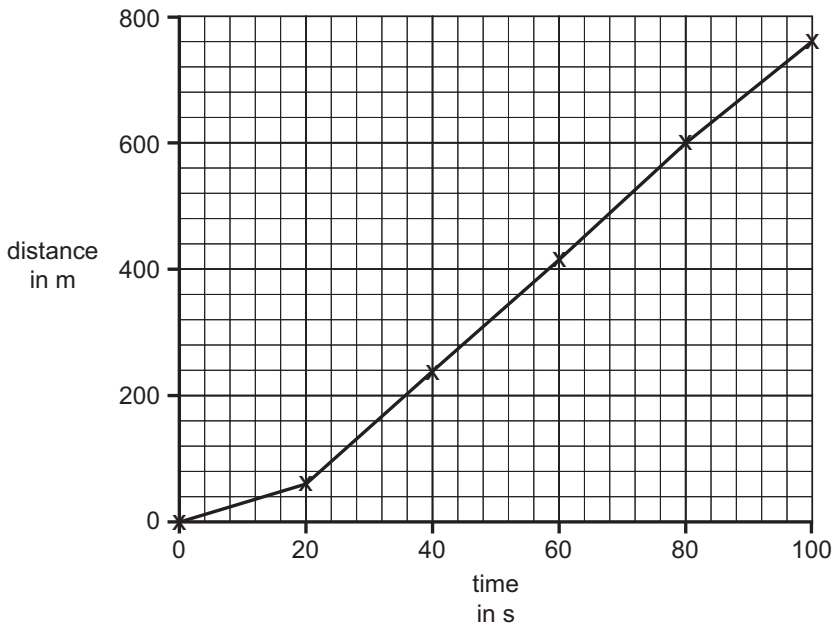
Question	Answer	Marks	Further Information
6(a)	(Metal A is) gold (Metal B is) sodium (Metal C is) calcium (Metal D is) zinc	3	all four correct = 3 marks three correct = 2 marks one or two correct = 1 mark Accept metal C is magnesium
6(b)	hydrogen	1	Accept H ₂

Question	Answer	Marks	Further Information
7(a)	(idea of) a complete circuit (idea of) coil the wire around the nail	2	each correct answer = 1 mark Accept answer in the form of a diagram
7(b)	<div>cover the copper wire in plastic <input type="checkbox"/></div> <div>use a non metal for the wire <input type="checkbox"/></div> <div>use two batteries <input checked="" type="checkbox"/></div> <div>remove the iron nail <input type="checkbox"/></div> <div>increase the current <input checked="" type="checkbox"/></div> <div>connect the equipment for a shorter time <input type="checkbox"/></div>	2	each correct tick = 1 mark one incorrect tick = maximum 1 mark two incorrect ticks = 0 marks Accept any indication of the correct answer, e.g. circling or underlining, but ticking takes precedence

Question	Answer	Marks	Further Information															
8(a)(i)	(small) rock in space	1	Accept minor planet or planetoid for rock Accept (small) rock orbiting the Sun															
8(a)(ii)	collisions with other asteroids or dust or objects	1																
8(b)(i)	<table><tr><th>asteroid or name</th><th>(orbit) time in years</th><th>radius in kilometres</th></tr><tr><td>Vesta</td><td>3.63</td><td>286</td></tr><tr><td>Ceres</td><td>4.60</td><td>469</td></tr><tr><td>Juno</td><td>4.36</td><td>123</td></tr><tr><td>Pallas</td><td>4.61</td><td>256</td></tr></table>	asteroid or name	(orbit) time in years	radius in kilometres	Vesta	3.63	286	Ceres	4.60	469	Juno	4.36	123	Pallas	4.61	256	3	correct headings including unit in headings = 1 mark all four rows (in any order) correct = 2 marks one, two or three rows (in any order) correct = 1 mark Do not accept units in the body of table Accept km for kilometres Note columns can be in any order Ignore additional columns
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Vesta	3.63	286																
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8(b)(ii)	Vesta	1	Accept ecf from 8(b)(i) for whichever asteroid is shown as completing its orbit in the shortest time															

Question	Answer	Marks	Further Information
9(a)	glucose + oxygen → carbon dioxide + water	2	<p>reactants correct in either order = 1 mark</p> <p>products correct in either order = 1 mark</p> <p>Accept correct formulae, but name takes precedence</p> <p>$C_6H_{12}O_6 + O_2 \rightarrow CO_2 + H_2O$</p> <p>Accept sugar for glucose</p>
9(b)	C	1	<p>more than one letter on answer line = 0 marks</p> <p>Accept any indication of the correct answer, e.g. circling, but answer line takes precedence</p>

Question	Answer	Marks	Further Information
10(a)	<p>C</p> <p>(idea of) greatest mass of salt per cm³ of water</p>	2	<p>each correct answer = 1 mark</p> <p>more than one answer circled = 0 marks</p> <p>if A, B or D indicated = 0 marks for the question</p> <p>Accept any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence</p> <p>Accept any calculation that demonstrates greatest mass of salt per cm³ of water</p> <p>e.g. $1/10 = 0.1$, $6/30 = 0.2$, $5/20 = 0.25$, $10/50 = 0.2$</p>
10(b)	(idea that the solubility) increases	1	

Question	Answer	Marks	Further Information
11(a)	(time to measure 20 s) stop-watch or timer or stop-clock (distance to measure 60 m) measuring tape	2	both answers correct for the mark Ignore watch or clock or chronometer Accept trundle wheel Ignore meter rule(r)
11(b)		2	all four points plotted correctly = 1 mark dot-to-dot line drawn = 1 mark Accept ecf for dot-to-dot line from incorrectly plotted points Accept plots $\pm \frac{1}{2}$ small square
11(c)	3 (m/s)	1	

Question	Answer	Marks	Further Information
12	Weather changes over a short period of time. Climate changes over a long period of time.	2	two correct ticks = 2 marks one correct tick = 1 mark three ticks and two correct = 1 mark three ticks and one correct = 0 marks Accept any indication of the correct answer, e.g. circling or underlining, but ticking takes precedence
Question	Answer	Marks	Further Information
13(a)	CO ₂	1	Accept O ₂ C
13(b)	HNO ₃	1	Accept O ₃ NH or O ₃ HN or NO ₃ H or HO ₃ N or NHO ₃
13(c)	Na ₂ CO ₃ + HNO ₃ → NaNO ₃ + CO ₂ + H ₂ O	2	reactants correct in either order = 1 mark products correct in any order = 1 mark Accept ecf from parts (a) and (b) Accept = instead of → Ignore any attempt to balance the equation