



Science

Stage 7

Paper 2

2022

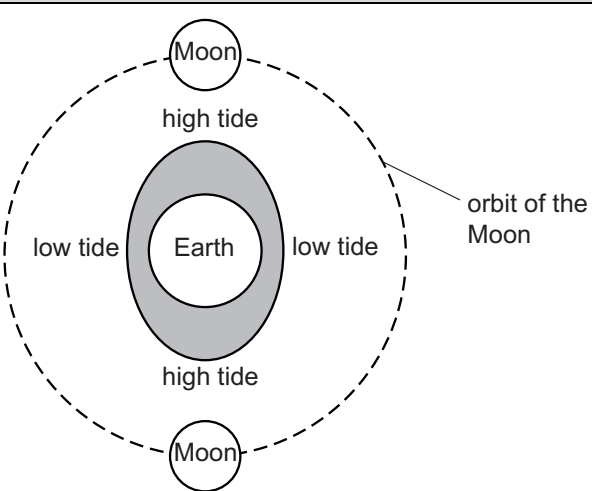
Cambridge Lower Secondary Progression Test

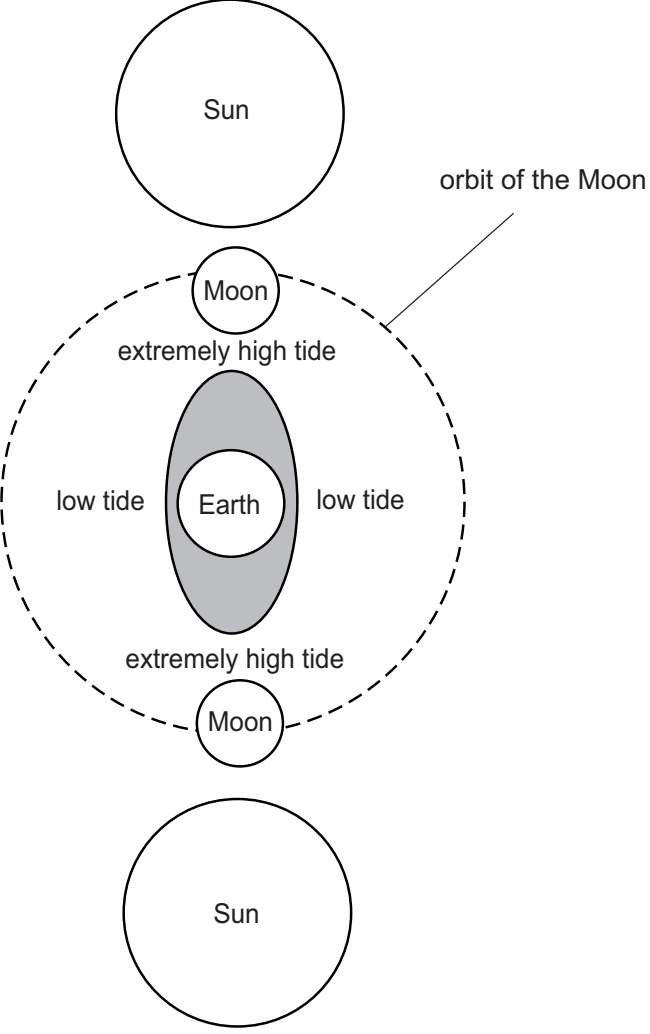
Mark Scheme

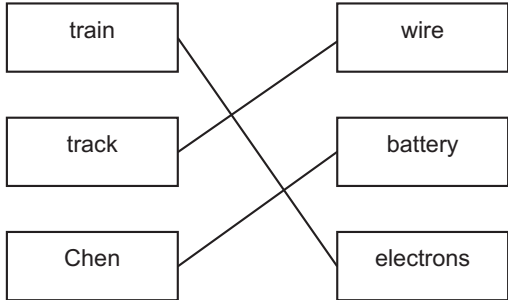
Question	Answer	Marks	Further Information
1(a)	B, D, E, F	1	all four correct any order = 1 mark
1(b)	any two from they only have a cell membrane / they do not have a cell wall they do not have a (large sap) vacuole they do not have chloroplasts	2	each correct answer = 1 mark
1(c)	one (cell)	1	Accept a single cell

Question	Answer	Marks	Further Information
2(a)	a mixture	1	more than one box ticked = 0 marks Accept any indication of the correct answer, e.g. circling or completing the sentence, but ticking takes precedence
2(b)	any two from the atoms are different sizes the layers or pattern of atoms are distorted more difficult for atoms to move / more difficult for atoms to slide	2	each correct answer = 1 mark Accept carbon atoms are smaller / iron atoms are bigger Note assume answer refers to steel unless iron is specified Accept ora if iron specified Accept reference to particles or ions instead of atoms

Question	Answer	Marks	Further Information
3(a)	<p>it takes longer for the feather to reach the ground / the feather travels slower</p> <p>(because there is) more air resistance with the feather</p>	2	<p>each correct answer = 1 mark</p> <p>Accept ora for the ball</p> <p>Accept ora for the ball</p>
3(b)	<p>yes</p> <p>and</p> <p>there is no air resistance (in a vacuum)</p>	1	<p>answer no = 0 marks</p> <p>Note answer must have yes and an explanation for the mark</p>

Question	Answer	Marks	Further Information
4(a)		1	Accept the Moon shown in either position

4(b)	 <p>(idea that) there is a combined gravitational pull of the Sun and the Moon</p>	<p>2 Accept the Sun in either position and Moon in either position = 1 mark</p> <p>Note the Sun and Moon must both be on the same side of the Earth for this mark</p> <p>correct explanation = 1 mark</p>
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Question	Answer	Marks	Further Information
5(a)		1	all three lines correct = 1 mark
5(b)(i)	<p>any one from</p> <p>(idea that) it helps to show the electrons which cannot be seen</p> <p>(idea that) the circuit must be complete</p> <p>(idea that) Chen provides the energy to move the train (like a cell)</p> <p>(idea that) Chen will get tired and slow down which represents a battery running down</p>	1	<p>Accept it helps to show the flow of current which cannot be seen</p> <p>Accept higher level answers, e.g. (idea that) the friction between the track and the wheels models resistance</p>
5(b)(ii)	<p>any two from</p> <p>Chen may not always push with the same amount of strength</p> <p>Chen might not always push at the same speed</p> <p>(idea that) limited number of components</p> <p>(idea that) electrons would be throughout the wire but the train is only in one place</p>	2	<p>each correct answer = 1 mark</p> <p>Accept named examples of components, e.g. there is no model for ammeter to measure current</p>

Question	Answer	Marks	Further Information
6(a)	4 (amps)	1	
6(b)	decreases and there is more resistance	1	increases = 0 marks for the question Accept numbers less than 4 (amps) Note answer must have both decreases and an explanation for the mark

Question	Answer	Marks	Further Information
7(a)	<pre> graph BT cactus --> rat cactus --> grasshopper rat --> tarantula rat --> hawk grasshopper --> lizard tarantula --> snake lizard --> hawk snake --> microorganisms hawk --> microorganisms microorganisms --> cactus </pre>	3	<p>all three food chains correctly drawn with nine correct arrows = 3 marks</p> <p>two food chains correctly drawn in a web = 2 marks</p> <p>incorrect food web that starts with cactus and ends with microorganisms = 1 mark</p> <p>Ignore arrow from microorganisms to cactus</p>
7(b)	<p>decrease</p> <p>and</p> <p>they will not have any food to eat/they will migrate to other areas to find food</p>	1	<p>increase = 0 marks for the question</p> <p>Accept they all die / more die</p> <p>Note answer must have both decrease and an explanation for the mark</p>
7(c)(i)	to decompose (dead material)	1	Accept to break down / decay (dead material)
7(c)(ii)	to release nutrients (back into the ground)	1	<p>Accept to recycle nutrients</p> <p>Accept minerals for nutrients</p> <p>Ignore to stop dead bodies building up</p>

Question	Answer	Marks	Further Information
8(a)(i)	insoluble precipitate	2	each correct answer = 1 mark
8(a)(ii)	formation of a precipitate / colour change	1	Accept formation of a solid Ignore a gas is made
8(b)	precipitation	1	

Question	Answer	Marks	Further Information
9(a)	neutralisation	1	
9(b)	solution is changing from an acid to an alkali / solution is being neutralised	1	
9(c)	25 (cm ³)	1	
9(d)	(description) repeats the experiment (explanation) see if the results are the same/similar	2	each correct answer = 1 mark

Question	Answer	Marks	Further Information
10(a)	(group of organisms) that can reproduce to make fertile offspring	2	each correct answer = 1 mark
10(b)	any three from nutrition / feeding movement reproduction	2	all three correct = 2 marks one or two correct = 1 mark Accept respire / respiration as extra marking point Accept sensitivity as extra marking point Accept excretion as extra marking point
10(c)	no (because) viruses are not made out of cells / do not grow / they do not show all seven characteristics or yes (because) they can reproduce	1	Accept other correct ideas Accept other correct ideas

Question	Answer	Marks	Further Information
11	9 (g) (harmful gases) released with a two-way catalytic converter and 3 (g) (harmful gases) released with a three-way catalytic converter $9 \div 3 = 3$ (times)	2	correct answer only = 2 marks sight of 9 (g) and 3 (g) = 1 mark Accept ecf using incorrect reading from bar chart Accept the three-way catalytic converter is three times more effective for 2 marks

Question	Answer	Marks	Further Information
12	any two from sound wave is reflected this is an echo	2	each correct answer = 1 mark Ignore bounce

Question	Answer	Marks	Further Information
13(a)	(idea that) the pieces of cloth will fold upwards	1	
13(b)(i)	tectonic plates / continental plates	1	
13(b)(ii)	layers of rock	1	Accept Earth's crust
13(c)	any one from add more layers of cloth reduce the height of the boxes	1	Accept other suitable suggestions, e.g. the table top as the Earth's crust should also move

Question	Answer	Marks	Further Information
14(a)	any one from (idea that) it happened a long time ago (idea that) there is no evidence / no proof (idea that) humans have not observed new planets forming in our Solar System	1	
14(b)	any two from (idea that) there are new planets being formed around other stars more advanced telescopes (to use for observation) use of computer modelling (to test their hypothesis) satellites can observe planets and asteroids (idea that) asteroids can be sampled	2	each correct answer = 1 mark