

Science

Stage 7

Paper 1 2022

Cambridge Lower Secondary Progression Test

Mark Scheme

Question	Answer	Marks	Further Information
1(a)	(cell) membrane	1	
1(b)	(idea that) it controls what moves in and out of the cell	1	Ignore maintains the shape of the cell
1(c)	mitochondrion	1	Accept mitochondria
1(d)	(where aerobic) respiration (takes place)/the release of energy	1	Accept where ATP is produced

Question	Answer	Marks	Further Information
2(a)	a substance which is only made up of one type of atom	2	each correct answer = 1 mark
	which cannot be broken down into anything simpler		
2(b)	compound (no mark)	2	
	contains two elements/contains two types of atom		each correct answer = 1 mark
			Note if mixture given only the first marking point can be awarded
			Accept contains elements/element X and element Z for first marking point
	that are chemically combined / that are bonded together		
2(c)		1	Note there must be at least one molecule of X and one atom of Y Do not accept a model with a molecule of X touching an atom of Y

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Question	Answer	Marks	Further Information
3(a)	switch	1	
3(b)	A	1	
3(c)	break in the circuit/flow of electron(s) has been stopped	1	Accept the current cannot flow

Question	Answer		Further Information
4(a)	gravity	1	Accept gravitational (force)
4(b)	the Moon is between the Earth and the Sun	2	each correct answer = 1 mark
	light from the Sun is blocked/stopped from reaching the Earth		Accept marking points shown on diagram

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temperature		
tomporataro	1	Ignore heat
any three from	3	each correct answer = 1 mark
number of apple slices/same size slice of apple/same mass of apple		
slices from the same apple/same species of apple		
time of day the mass is measured		
amount of light		
amount of humidity/water vapour		
amount of oxygen/air/keep the lids on all the dishes/keep		
		Ignore same equipment used to measure the mass
	1	both answers correct for the mark
(electronic/lever arm/top pan) balance		Accept scale(s)
and		Ignore weighing
clock with a second hand/stopwatch/timer/chronometer		Accept alarm/timer on a digital device
mass lost time taken	1	Accept appropriate examples, e.g. change in mass over time/change in mass in a day
rrr s t t a a a a t	number of apple slices/same size slice of apple/same mass of apple slices from the same apple/same species of apple time of day the mass is measured amount of light amount of humidity/water vapour amount of oxygen/air/keep the lids on all the dishes/keep the lids off all the dishes (electronic/lever arm/top pan) balance and clock with a second hand/stopwatch/timer/chronometer mass lost	number of apple slices/same size slice of apple/same mass of apple slices from the same apple/same species of apple time of day the mass is measured amount of light amount of humidity/water vapour amount of oxygen/air/keep the lids on all the dishes/keep the lids off all the dishes 1 (electronic/lever arm/top pan) balance and clock with a second hand/stopwatch/timer/chronometer mass lost 1

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Question	Answer	Marks	Further Information
6(a)	(reactant) copper carbonate	1	reactant and both products in either order = 1 mark
	(products) copper oxide and carbon dioxide		Tillaik
6(b)	any two from	2	each correct answer = 1 mark
	colour change		Accept changes from green to black
	(large) heat or energy change		Accept needs heat to take place
	gas made		Accept carbon dioxide is made/new substances made/copper oxide is made
			Accept there is a change in mass/mass is lost (as a gas)
6(c)	limewater	1	Accept calcium hydroxide solution
			Accept hydrogencarbonate indicator

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Question	Answer	Marks	Further Information
7(a)	thermal/heat	2	each correct answer = 1 mark
	sound		Accept kinetic/movement Ignore potential
7(b)	(metre) rule(r)/measuring tape	1	Do not accept trundle wheel
7(c)(i)	46	1	more than one answer circled = 0 marks Accept any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence
7(c)(ii)	79	1	Accept correct answer in the space for working out, but answer in the table takes precedence Accept 68 if anomalous result circled is not from 10 cm row Accept ecf if 78 or 80 circled
7(c)(iii)	the test is not fair	1	Accept any correct answer in terms of energy or gravity Accept higher level answers, e.g. more energy is transferred to GPE than kinetic energy

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Question	Answer		Further Information
8	evaporate	4	each correct answer = 1 mark
	condenses / cools down		Accept becomes a liquid
	precipitation		
	ground water		Do not accept run-off / open water

Question	Answer	Marks	Further Information
9	(Orconectes punctimanus) B		all four organisms correct = 2 marks
	(Cancer pagurus) D		two or three organisms correct = 1 mark
	(Schistocerca gregaria) C		one organism correct = 0 marks
	(Enantiulus armatus) A		

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Question	Answer	Marks	Further Information
10(a)	x sodium hydroxide X distilled water Y citric acid	3	all four correct = 3 marks two or three correct = 2 marks one correct = 1 mark if two lines from a solution and one is incorrect = 0 marks for that solution
10(b)	hydrochloric acid	1	more than one box ticked = 0 marks Accept any indication of the correct answer, e.g. circling or underlining, but ticking takes precedence

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Question	Answer				Marks	Further Information
11(a)		metal (E)	non-metal B		2	all five correct = 2 marks three or four correct = 1 mark
		A D F	С			one or two correct = 0 marks
11(b)	(improvement) use an ammeter / measure the current (explanation idea that) the higher the current the better the electrical conductor/if the current is the same the metals have the same electrical conductivity			etter the	2	each correct answer = 1 mark Accept ora

Question	Answer	Marks	Further Information
12(a)	the particles vibrate (in the same direction as the direction of travel)	1	
12(b)(i)	the particles are closer together (in glass)	1	Accept glass is more dense than air Note assume the answer refers to glass unless otherwise specified Accept ora if air specified
12(b)(ii)	any value greater than 300 and less than 2000 (m/s) (idea that) water is a liquid and so will have a speed in between the solid and the gas	2	each correct answer = 1 mark Accept correct answer in terms of particles/density
12(b)(iii)	(idea that) there are no particles (to vibrate in a vacuum)	1	

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