Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

SCIENCE **1113/01**

Paper 1 **April 2020**

MARK SCHEME

Maximum Mark: 50

Published

This mark scheme is published as an aid to teachers and learners, to indicate the requirements of the examination. However, we have not been able to adjust it to reflect the full range of answers that would have been seen as a part of the normal moderation and marking process, and it does not necessarily contain all the possible alternatives that might have arisen.
Cambridge will not enter into discussions about the mark scheme.

General guidelines on marking

Many descriptive answers can be expressed in a variety of ways. Professional judgement can be used in these cases, providing it matches the marking points and further information in the mark scheme.

Answers may have words spelt incorrectly. Credit is normally given for phonetically correct answers, unless the word has a scientifically different meaning. For example, where the answer should be antennae, credit will be given for antena but not for anthen (too close to anther).

Only the science is being assessed so answers do not need to be grammatically correct. Significant figures will be indicated in the question or in the mark scheme.
Unless specified all marking points are independent.

Annotations and abbreviations

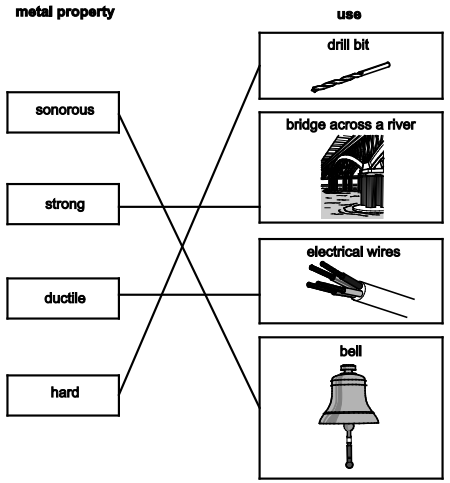
/ OR	alternate responses for the same marking point
( ) brackets	the words or units in brackets do not need to be stated, for example, (recycles or releases or provides) minerals = minerals scores the mark
Underline	exact word is required
Accept	an acceptable response
Do not accept	indicates an incorrect response that would contradict another otherwise correct alternative
Ignore	indicates an irrelevant answer that is not creditworthy. Full marks can still be achieved even with answers that are ignored.
Note	provides extra information when necessary
ecf	error carried forward; marks are awarded if an incorrect response has been carried forward from earlier working, provided the subsequent working is correct
ora	or reverse argument; for example, as mass increases, volume increases could be written as mass decreases, volume decreases

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Further Information</th></tr>
<tr><td>1</td><td>
<table>
<tr><th>part of a cell</th><th>only in animal cells</th><th>only in plant cells</th><th>in both animal and plant cells</th></tr>
<tr><td>cell membrane</td><td></td><td></td><td>✓</td></tr>
<tr><td>cell wall</td><td></td><td>✓</td><td></td></tr>
<tr><td>chloroplast</td><td></td><td>✓</td><td></td></tr>
</table>
</td><td>2</td><td>all three correct = 2 marks

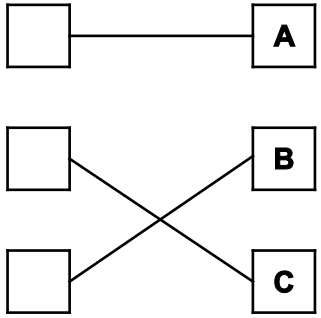
two correct = 1 mark

one correct = 0 marks

if more than one tick in a row, 0 marks for that row</td></tr>
</table>

Question	Answer	Marks	Further Information
2(a)		**2**	**all four** correct = 2 marks **two** or **three** correct = 1 mark **one** correct = 0 marks
2(b)	**any two from** plastic is an insulator / does not conduct electricity (idea of) makes the wires safe / prevents electrocution flexible can be coloured	**2**	each correct answer = 1 mark **Accept** other valid answers
2(c)	All metals have low melting points. ☐ Some metals are gases at room temperature. ☐ All metals conduct heat. ✓ All metals are brittle. ☐	**1**	more than one box ticked = 0 marks

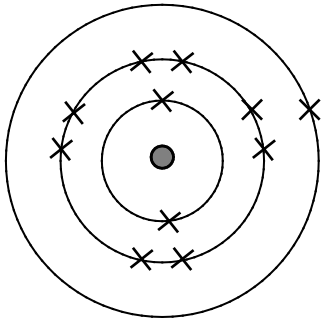
Question	Answer	Marks	Further Information
3(a)	Sun	**1**	
3(b)	**any two from** planets move around the Sun / planets do not move around the Earth / only the Moon moves around the Earth the Earth moves / the Sun does not move (idea that) not all the planets are in the model the order of the planets is not correct orbit size is not correct / not to scale objects in model are not to scale	**2**	each correct answer = 1 mark **Accept** named planets missing e.g. Uranus is not in the model
3(c)	**any one from** the Moon moves around the Earth planets move in orbits a correct statement about the order of the planets e.g. a correct statement about the relative size of the planets e.g. Jupiter is the largest planet	**1**	

Question	Answer	Marks	Further Information
4(a)		**2**	**all three** correct = 2 marks **one** or **two** correct = 1 mark
4(b)	**A** = artery **C** = vein	**2**	**Accept** aorta / named artery **Accept** vena cava / named vein

Question	Answer	Marks	Further Information
5(a)	chlorine **and** bromine	**1**	both correct = 1 mark **Accept** liquid and gas
5(b)	Cl	**1**	**Accept** Cl_2
5(c)	Forces between the particles push them apart. ☐ The particles are free to move. ✓ The particles can easily be squashed into a small space. ☐ The particles increase in size to fill the space. ☐	**1**	more than one box ticked = 0 marks
5(d)	**any two from** particles gain energy / (some) particles have more kinetic energy / (some) particles move faster particles have overcome attraction between them / idea that forces between particles have been broken particles have spread further apart (in the gas phase)	**2**	**Accept** molecules instead of particles **Do not accept** boils **Accept** bromine changes to a gas / bromine changes to vapour **Accept** particles diffuse into the air / particles escape from the liquid

Question	Answer	Marks	Further Information
6(a)	vibrating / moving (air) particles	**2**	**Accept** rarefaction and compression as an alternative to vibrating
6(b)(i)	any wave with greater amplitude	**1**	At least one wave greater than 6 small squares. Above or below the midline **Ignore** frequency
6(b)(ii)	any wave with greater frequency	**1**	Diagram must show at least **two** complete waves **Accept** incomplete waves providing at least **two** complete waves are drawn **Ignore** amplitude

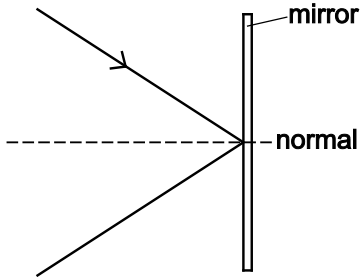
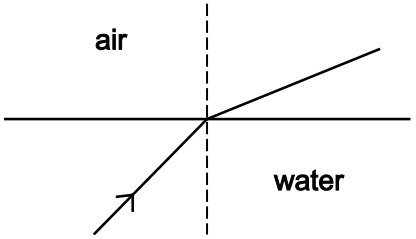
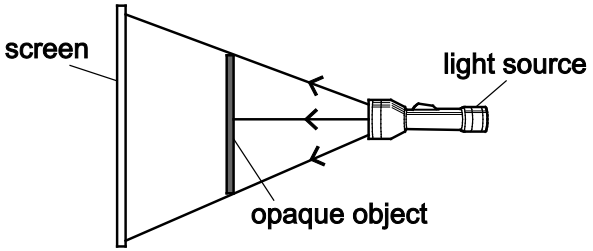
Question	Answer	Marks	Further Information
7(a)	(seed germination) → pollination → fertilisation → seed formation	**1**	**all three** in correct order for one mark
7(b)	<table><tr><th></th><th>method of seed dispersal</th><th>reason</th></tr><tr><td>**A**</td><td>**by animals**</td><td>**have hooks / attach to hair or fur**</td></tr><tr><td>**B**</td><td>**by wind**</td><td>**light (weight) / feathery / parachute shaped**</td></tr></table>	**2**	each method **and** reason correctly linked = 1 mark

Question	Answer	Marks	Further Information
8(a)(i)	3	**1**	
8(a)(ii)	4	**1**	
8(b)	2.8.1 or 	**2**	If drawn **ignore** distribution of electrons within each shell so long as numbers are correct **Accept** dots or circles instead of crosses total of 11 electrons drawn outside of the nucleus = 1 mark **But** drawing showing 2.8.1 = 2 marks **Accept** correct use of 2.8.1 notation = 2 marks **Ignore** any particles shown in the nucleus

Question	Answer	Marks	Further Information
9(a)(i)	both picked up 24 / both picked up the maximum number of paper clips	**1**	
9(a)(ii)	using more paper clips	**1**	**Accept** repeat using bigger paper clips / replace with iron filings and measure the mass of iron filings
9(b)(i)	fewer paper clips picked up	**1**	
9(b)(ii)	their hands are different / Pierre's hand is bigger / Mike's hand is smaller	**1**	

Question	Answer	Marks	Further Information
10(a)(i)	answer in the range pH 2 – pH 2.5	**1**	
10(a)(ii)	**any two from** test at more pH values test between pH 1 and pH 3 / test at pH 2 repeat the experiment / take averages	**2**	each correct answer = 1 mark
10(b)(i)	**any one from** liquid is corrosive / burn tissue / liquid would harm skin	**1**	
10(b)(ii)	**any one from** wear goggles / wear gloves / apron / lab coat do not taste / smell the liquid use only small quantities	**1**	**Accept** avoid contact with skin / avoid contact with eyes / do not swallow / do not ingest it / mop up spillages
10(c)	**any one from** (keep same) temperature (use same) amount or proportion or concentration of enzyme (use same) amount or proportion or concentration of egg white mix liquids evenly	**1**	

Question	Answer	Marks	Further Information
11(a)	colour change / fizzing / bubbles / new substance forms / some form of coating	**1**	**Accept** temperature change
11(b)(i)	magnesium nitrate: **X** ( ) **X** **X** ( )	**1**	**Ignore X** in the grey box
11(b)(ii)	copper	**1**	

Question	Answer	Marks	Further Information
12(a)	see diagram below reflection  	**1**	reflected ray correct by eye = 1 mark **Do not accept** arrow in the wrong direction **note** – arrow does not need to be shown
12(b)	see diagram below  	**1**	refracted ray correct by eye = 1 mark **Ignore** arrows
12(c)	see diagram below  	**2**	two rays from light source continued to edge of object and onto screen = 1 mark middle ray goes to object = 1 mark **Ignore** arrows

Question	Answer	Marks	Further Information
13	(glucose) + oxygen ⟶ water + carbon dioxide	**2**	oxygen as a reactant = 1 mark water and carbon dioxide (either order) as products = 1 mark **Accept** formula but names take precedence • oxygen, O_2 • water, H_2O • carbon dioxide, CO_2