Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

SCIENCE **1113/02**

Paper 2 April 2022

MARK SCHEME

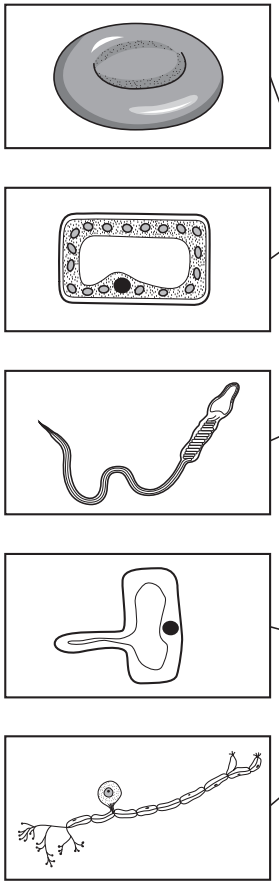
Maximum Mark: 50

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Markers were instructed to award marks. It does not indicate the details of the discussions that took place at a Markers' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the End of Series Report. Cambridge will not enter into discussions about these mark schemes.

IB22 05_1113_02/8RP

Question	Answer	Marks	Further Information
1	**cell drawing** / **function**  makes sugar using photosynthesis contacts to cause movement joins with an egg pollinates the stigma of a flower detects changes in the surroundings absorbs water and minerals transports oxygen	**4**	**all five** correct = 4 marks **four** correct = 3 marks **two** or **three** correct = 2 marks **one** correct = 1 mark more than **one** line from cell drawing = 0 marks for that cell drawing

Question	Answer	Marks	Further Information
2(a)	salt made **calcium nitrate** **sodium sulfate** **potassium chloride**	**3**	full name of each correct salt = 1 mark **Accept** correct formulae $Ca(NO_3)_2$, Na_2SO_4, KCl **Note** if name and formula given both must be correct **Do not accept** calcium nitride **Accept** sodium sulphate **Do not accept** sodium sulfide **or** sodium sulfurate **Do not accept** potassium chlorine **or** potassium chlorite
(b)	carbon dioxide	**1**	**Accept** CO_2, but name takes precedence

Question	Answer	Marks	Further Information
3(a)	the Earth spins on its axis	**1**	**Accept** Earth moves **or** Earth rotates **Accept** any description of the Earth moving
(b)(i)	light travels from the Sun to our eyes	**1**	**Accept** light travels from Sun to the Earth **Note** light travels from the Sun is **not** sufficient **Ignore** reference to reflection
(b)(ii)	star	**1**	**Accept** named stars, e.g. Sirius **or** Polaris **or** Vega **Ignore** galaxy or galaxies **Do not accept** Moon or planet
(c)	Moon reflects sunlight	**1**	**Accept** Moon reflects Sun's rays **or** light from Sun bounces off it to the Earth **or** reflects light from the Sun **Do not accept** light reflects off the Sun **or** Moon emits light

Question	Answer	Marks	Further Information
4	**F C** (B) (D) **A E**	**2**	**F** and **C** correct = 1 mark **A** and **E** = 1 mark if no marks awarded give 1 mark for **A E** (B) (D) **F C**

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Further Information</th></tr>
<tr><td>5(a)</td><td>
<table>
<tr><th></th><th>arrangement of particles</th><th>movement of particles</th></tr>
<tr><td>solid</td><td>close (together) or regular</td><td>vibrate</td></tr>
<tr><td>liquid</td><td>(close together)</td><td>move slowly</td></tr>
<tr><td>gas</td><td>far apart or random</td><td>(move quickly)</td></tr>
</table>
</td><td>2</td><td>all four correct = 2 marks

two or three correct = 1 mark

one correct = 0 marks

Accept particles in a solid are packed together or tight together or tight arrangement

Ignore particles in a solid do not move or fixed position

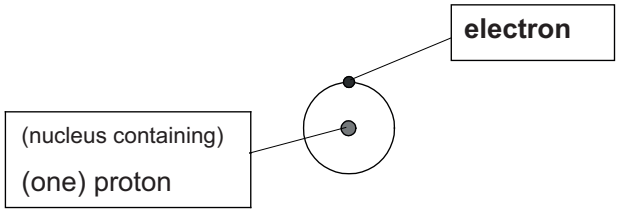
Accept move faster than in a solid or move slower than in a gas or particles flow over each other

Accept particles in a gas are scattered or particles are separated or further apart</td></tr>
<tr><td>(b)(i)</td><td>diffusion</td><td>1</td><td></td></tr>
</table>

(b)(ii)	particles have spread out (to fill the space)	**1**	**Accept** random motion of the particles **Accept** movement (of particles) from region of high concentration to one of low concentration **Accept (**idea of) particles moving **Note** particles mixing is **not** sufficient **Do not accept** idea of particles combining **or** particle gaining energy **or** particles expanding

Question	Answer	Marks	Further Information
6(a)(i)	(idea that) the ruler bends more	**1**	**Accept** the distance increases
(a)(ii)	(idea that) there is a (downward) force	**1**	**Accept** gravity **or** the weight (of the object) **or** it has (more) weight **or** a (larger) force **Ignore** it is pulled down **Do not accept** there is pressure
(b)(i)	any number less than 4 (cm)	**1**	**Do not accept** 0
(b)(ii)	**any two from** (idea that) a moment is force × distance (idea that) distance is less moment decreases **or** is less	**2**	each correct answer = 1 mark **Ignore** references to pressure **Accept** turning force instead of moment throughout Accept moment = weight × distance **Accept** if force is the same and the distance between the force and the fulcrum decreases the moment decreases = 2 marks

Question	Answer	Marks	Further Information
7(a)(i)	**B**	**1**	
(a)(ii)	breathing **or** moves air in and out of the lungs	**1**	**Accept** to inhale air **or** to exhale air **Accept** to bring air or oxygen into the lungs **Accept** ventilation **or** inhalation **or** exhalation **Accept** lungs to expand **or** lungs to contract **Accept** separates thorax from abdomen
(b)(i)	gaseous exchange	**1**	**Accept** take up oxygen **or** get rid of carbon dioxide **or** provide oxygen to the blood **or** exchange of carbon dioxide and oxygen
(b)(ii)	**any one from** large surface area thin **or** permeable **or** elastic **or** moist good blood supply **or** (surrounded) by capillaries	**1**	**Accept** have enough surface area

Question	Answer	Marks	Further Information
8(a)		**2**	each correct answer = 1 mark **Accept** electrons **Accept** protons **Do not accept** neutrons in the nucleus
(b)	**H**	**1**	**Ignore** H_2 **Do not** accept h

Question	Answer	Marks	Further Information
9(a)	(length is a) control variable	**1**	**Accept** fair test **Accept** so we can compare **Do not accept** for accuracy
(b)	rule(r) **or** callipers	**1**	**Ignore** metre rule(r) **or** measuring tape
(c)	**any one from** to look for consistency in tests to enable average to be taken to check for error	**1**	 **Accept** to make it more reliable **Accept** to compare results **or** see if results are the same **Ignore** accuracy **or** fair **Accept** in case there is an anomalous result **or** to make sure the outcome is correct

Question	Answer	Marks	Further Information
10(a)	**any two from** (idea that) not always windy **or** energy generation not constant (often) in remote places noisy spoil view kill birds (idea that) difficult to connect to the (electricity) grid	**2**	each correct answer = 1 mark **Accept** need placing in windy areas **Accept** it is not a reliable energy source **Note** it depends on the weather is **not** sufficient
(b)	**any two from** energy needs are increasing renewable running out of non-renewable fuels **no** pollution **or** **no** greenhouse gases **or** **no** harmful gases cheap to use	**2**	each correct answer = 1 mark **Accept** will not run out of wind **Accept** named non-renewable fuel is running out **Accept** reduce the use of fossil fuels **or** conserves fossil fuels **or** conserves non-renewable energy sources **Accept** no acid rain pollution **or** does **not** harm environment **or** cleaner source of energy **or** no carbon emissions **Accept** ora for fossil fuels

Question	Answer	Marks	Further Information
11	displacement endothermic **exothermic** neutralisation **oxidation** respiration rusting	**2**	**three** circled and **two** correct = 1 mark **three** circled and **one** correct = 0 marks **more** than **three** circled = 0 marks

Question	Answer	Marks	Guidance
12	(idea of) something that lives on dead or decaying material **or** breaks down dead tissue **or (**organism that) causes something to rot or decay **or** breaks down organic matter (idea of) recycling nutrients **or** minerals (may give an example, e.g. in N cycle)	**2**	definition = 1 mark **Ignore** the term decompose in their answer and use an alternative term in their description **Accept** idea of using waste products as food importance = 1 mark **Accept** recycling carbon compounds **or** making manure **or** making compost **or** increases soil fertility **Note** 'gets rid of dead matter' is **not** sufficient **Note** mark answers wherever they appear

Question	Answer	Marks	Further Information
13	<table><tr><th>name</th><th>letter</th></tr><tr><td>*Aeshna*</td><td>**Y**</td></tr><tr><td>*Argiope*</td><td>**W**</td></tr><tr><td>*Calliphora*</td><td>**V**</td></tr><tr><td>*Formica*</td><td>**X**</td></tr><tr><td>*Scorpio*</td><td>**Z**</td></tr></table>	**2**	**all five** correct = 2 marks **two, three** or **four** correct = 1 mark **one** correct = 0 marks

Question	Answer	Marks	Further Information
14(a)	A B C D **E**	1	more than **one** answer circled = 0 marks
(b)	same pressure	1	

Question	Answer	Marks	Further Information
15(a)	potassium hydroxide **or** hydrogen	1	**Accept** KOH **or** H_2, but name takes precedence
(b)(i)	**K** N Na P Po	1	more than **one** answer circled = 0 marks
(b)(ii)	francium	1	**Accept** Fr, but if symbol and name given they must both be correct

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Further Information</th></tr>
<tr><td>16</td><td>
<table>
<tr><td>thermometer</td><td>temperature
in °C</td></tr>
<tr><td>A</td><td>0.0</td></tr>
<tr><td>B</td><td>–11.0</td></tr>
<tr><td>C</td><td>32.5</td></tr>
</table>
</td><td>2</td><td>all three correct = 2 marks
two correct = 1 mark
one correct = 0 marks
Accept 0 and –11</td></tr>
</table>