Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

SCIENCE **0893/01**

Paper 1 **October 2024**

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.

This document has **12** pages.

Question	Answer	Marks	Further Information
1(a)	nucleus	**1**	
1(b)	chromosome	**1**	
1(c)	gene	**1**	**Accept** DNA

Question	Answer	Marks	Further Information
2(a)	density = mass ÷ volume 11.36 (g/cm^3)	**2**	11.36 **or** 11.4 with or without working = 2 marks **Accept** m / v **or** correct substitution into m / v = 1 mark
2(b)	**B** **and** has a low density	**1**	**both** gas and explanation required for the mark **Accept** it has the lowest density **Accept** almost no density **Accept ecf** from **(a)**

Question	Answer	Marks	Further Information
3(a)	3.6 (cm)	**1**	**Accept** tolerance of ± 0.1cm
3(b)(i)	louder **or** increased volume	**1**	**Accept** noisier **Note** larger sound **or** more sound **or** increasing the sound **or** loud **or** loudness is **not** sufficient **Do not accept** louder pitch
3(b)(ii)	lower pitch **or** pitch decreases	**1**	**Note** answer must be comparative

Question	Answer	Marks	Further Information
4(a)	(clouds of) dust gas	**2**	each correct answer either order = 1 mark **Accept** stardust **Do not accept** rock and stone **Accept** hydrogen **Ignore** other named gases
4(b)	(idea that) where stars form	**1**	**Accept** where stars are born **or** where there are young stars **or** stars created

Question	Answer	Marks	Further Information
5	root hair (cells) absorption xylem (vessels) transpiration	**4**	each correct answer = 1 mark **Accept** osmosis **or** diffusion **Accept** evaporation **or** diffusion **or** evapotranspiration

Question	Answer	Marks	Further Information
6	**any three from** melting point decreases (from lithium to rubidium) boiling point decreases (from lithium to rubidium) atomic radius increases (from lithium to rubidium) density does **not** show a trend	**3**	each correct answer = 1 mark **Accept ora** if going up the group is specified **Accept** lithium has highest melting point **and** rubidium the lowest melting point **Accept** lithium has highest boiling point **and** rubidium the lowest boiling point **Accept** lithium has smallest atomic radius **and** rubidium the biggest atomic radius **Ignore** density increases but **accept** density increases, then decreases and then increases

Question	Answer	Marks	Further Information
7(a)	voltmeter	**1**	**Do not accept** voltameter **or** volmeter **or** volumeter **or** voltage meter **or** voltemeter
7(b)	(resistance =) $\frac{\text{voltage}}{\text{current}}$ **or** $\frac{V}{I}$ **or** $\frac{0.63}{0.47}$ 1.3 (Ω)	**2**	**Accept** 1.3 **or** 1.34 (Ω) with or without working = 2 marks correct formula **or** evidence of correct substitution = 1 mark **Accept** answer in the blank space, but answer in the table takes precedence

Question	Answer	Marks	Further Information
7(c)	correct labels **and** scale for *x*-axis all points plotted correctly	**2**	each correct answer = 1 mark **Accept** length in cm and scale of 1cm on graph for 5 cm length **Accept** tolerance of ± half a small square **Accept** one error in plotting **Ignore** plot for 20 cm resistance **Ignore** any line of best fit
7(d)	**any one from** the wire heated up left the circuit on between taking readings	**1**	**Ignore** misread ammeter **or** voltmeter **or** ruler

Question	Answer	Marks	Further Information
8	collision (theory) similar	**2**	each correct answer = 1 mark **Accept Big** Splash (theory) **Accept** same **or** identical

Question	Answer	Marks	Further Information
9(a)	population decreases	**1**	**Accept** extinction **Note** will **not** survive is **not** sufficient
9(b)	**any three from** less food less habitat non-native species **or** increased competition	**3**	each correct answer = 1 mark **Accept ecf** from **(a)** **Accept** deforestation **or** lack of shelter **Accept** (idea of) lower reproduction rate **Accept** (idea of) increased predation **Accept** migration **Accept** disease **Note** unqualified pollution is **not** sufficient

Question	Answer	Marks	Further Information
10(a)	(idea of) a shared pair of electrons	**1**	**Accept** electrons shared **Ignore** any reference to metal atoms **or** electrostatic **Do not accept** one electron shared **or** an electron shared **or** electrons shared between ions
10(b)	molecule	**1**	**Ignore** compound
10(c)	2	**1**	

Question	Answer	Marks	Further Information
11(a)	wear gloves **or** avoid getting the blood on her hands	**1**	**Accept** wearing a mask **Ignore** unqualified do not touch **or** wear protective clothing
11(b)	to identify anomalous results to identify a trend	**2**	each correct answer = 1 mark **Ignore** have a variation or variety of results **Accept** to improve reliability **Accept** to calculate an average **Accept** to check the result **or** to make sure the results are the same **Ignore** data is more valid **Do not accept** to improve accuracy **or** a fair test

Question	Answer	Marks	Further Information
12(a)	conservation of energy	**1**	more than **one** answer ticked = 0 marks **Accept** any indication of the correct answer, e.g. circling or underlining, but ticking takes precedence.
12(b)	60 – 15 **or** 45 75 (%)	**2**	75 (%) with or without working = 2 marks **Accept** 45/60 **or** 0.75 (%) = 1 mark

Question	Answer	Marks	Further Information
13(a)	zinc + sulfuric acid ⟶ zinc sulfate + hydrogen	**1**	**Accept** reactants in either order **or** sulfric acid **Accept** products in either order **Accept** = instead of → **Accept** correct formulae **or** mix of words and formulae, but words take precedence e.g. $Zn + H_2SO_4 \longrightarrow ZnSO_4 + H_2$ **Do not accept** 'and' instead of +
13(b)	(idea of) measures the temperature change	**1**	**Accept** measure the temperature before **and** after **Ignore** compare temperatures but **accept** compare temperature changes

Question	Answer	Marks	Further Information
14(a)	no ticked (no marks) **and** (idea that) the results for experiment 1 and experiment 2 are **not** the same or similar	**1**	**Accept** difference between the two experiments is too large **or** none of the results match each other **or** idea that there are anomalous results in experiment 2 **or** if they were precise the results would be similar
14(b)	yes ticked (no marks) **and** (experiment 1) is similar to the scientist's results **or** results are similar to actual values	**1**	**Accept** same results (as the scientists)

Question	Answer	Marks	Further Information
15(a)	parallel (circuit)	**1**	
15(b)	0.8 (A)	**1**	

Question	Answer	Marks	Further Information
16(a)	98 (mm)	**1**	**Accept** ± 1 mm
16(b)	420 (g)	**1**	

Question	Answer	Marks	Further Information
17	mass of flask remains the same mass is conserved in chemical reactions **or** mass of products = mass of reactants	**2**	each correct answer = 1 mark **Note** if mass increases or decreases = 0 marks for the question **Accept** mass cannot be created or destroyed **Accept** no mass is gained nor lost **Ignore** energy is conserved