Questions

Q1.

Argon is in group 0 of the periodic table.

Identify, using the periodic table on the back cover of this paper, which of these elements is in the same period as argon.

(1)

- ☒ A bromine
- ☒ B iron
- ☒ C magnesium
- ☒ D xenon

(Total for question = 1 mark)

Q2.

The molecular formula of butene is C4H8.

Which of the following is the empirical formula of butene?

(1)

- ☒ A CH
- ☒ B CH2
- ☒ C C4H8
- ☒ D (CH2)4

(Total for question = 1 mark)

Q3.

The formula of ammonium sulfate is (NH4)2SO4.

What is the empirical formula of ammonium sulfate?

(1)

☒ A NHSO

☒ B NH2SO2

☒ C NH4SO4

☒ D N2H8SO

4

(Total for question = 1 mark)

Q4.

Answer the question with a cross in the box you think is correct ☒ . If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒ .

When copper sulfate solution reacts with sodium hydroxide solution, a precipitate of copper hydroxide and a solution of sodium sulfate are formed.
The equation is

$$CuSO_4 + 2NaOH \rightarrow Cu(OH)_2 + Na_2SO_4$$

The formula of the sodium ion is Na^+.

What is the formula of the sulfate ion?

(1)

☒ A SO^{+4}

☒ B SO^{-4}

☒ C SO_2^+

☒ D 4

SO_2^-

4

(Total for question = 1 mark)

Q5.

Answer the question with a cross in the box you think is correct ☒ . If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒ .

Magnesium has an atomic number of 12.

Which line in the table shows the correct numbers of protons, neutrons and electrons in a positively charged magnesium ion?

(1)

	number of		
	protons	neutrons	electrons
☒ A	10	12	12
☒ B	10	12	10
☒ C	12	10	12
☒ D	12	12	10

(Total for question = 1 mark)

Q6.

Answer the question with a cross in the box you think is correct ☒ . If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒ .

Which of the following is true for most metals?

(1)

☒ A they are dull

☒ B they have low melting points

☒ C they are found on the right-hand side of the periodic table

☒ D they are malleable

(Total for question = 1 mark)

Q7.

Substance X is a gas at room temperature.
It is a simple molecular, covalent substance.
Which row of the table shows the properties that substance X is most likely to have?

(1)

	boiling point in °C	relative solubility in water
☒ A	–6	low
☒ B	600	high
☒ C	–6	high
☒ D	600	low

(Total for question = 1 mark)

Q8.

An aluminium atom has the atomic number 13 and the mass number 27.

Which row shows the numbers of subatomic particles present in an aluminium ion, Al3+?

(1)

	protons	neutrons	electrons
☒ A	13	14	13
☒ B	13	14	10
☒ C	14	13	10
☒ D	14	13	17

(Total for question = 1 mark)

Q9.

Molten zinc chloride is an electrolyte.

(i) Which row shows the products formed at the anode and at the cathode when molten zinc chloride is electrolysed?

(1)

	product at anode	product at cathode
☒ **A**	oxygen	zinc
☒ **B**	chlorine	hydrogen
☒ **C**	chlorine	zinc
☒ **D**	oxygen	hydrogen

(ii) Which of the following is the reason why molten zinc chloride is an electrolyte?

(1)

☒ A it contains molecules that can move
☒ B it has a giant structure
☒ C it contains delocalised electrons
☒ D it contains ions that can move

(Total for question = 2 marks)

Q10.

Some questions must be answered with a cross in a box (☒). If you change your mind about an answer, put a line through the box (☒) and then mark your new answer with a cross (☒).

The structure of one molecule of a compound is shown in Figure 10.

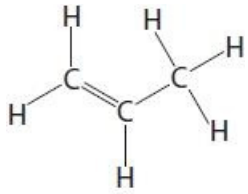


Figure 10

What is the molecular formula of the compound in Figure 10?

(1)

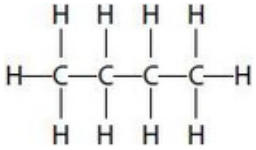
☒ A CH
☒ B CH2
☒ C 3C6H
☒ D C3H6

(Total for question = 1 mark)

Q11.

Alkanes and alkenes are hydrocarbons.

The structure of a molecule of butane is shown.



Which of the following is the empirical formula for butane?

(1)

- ☒ A CH
- ☒ B CH2
- ☒ C C2H5
- ☒ D C4H10

(Total for question = 1 mark)

Q12.

Some of the elements in the periodic table are metals.

The electronic configuration of a metal is 2.8.3

Which row shows the group and period of the periodic table where this metal is found?

(1)

	group	period
☒ A	2	3
☒ B	2	8
☒ C	3	2
☒ D	3	3

(Total for question = 1 mark)

Q13.

Answer the question with a cross in the box you think is correct ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

What are the elements in group 1 of the periodic table called?

(1)

- ☒ A alkali metals
- ☒ B fullerenes
- ☒ C halogens
- ☒ D noble gases

(Total for question = 1 mark)

Mark Scheme

Q1.

Question Number	Answer	Mark
	C magnesium **1. The only correct answer is C** ***A** is not correct because this element is in period 4* ***B** is not correct because this element is in period 4* ***D** is not correct because this element is in period 5*	**(1)** AO 3 2b

Q2.

Question Number	Answer	Mark
	B CH_2 **1. The only correct answer is B** ***A** is not correct because there are not equal C and H* ***C** is not correct because it is not simplest ratio* ***D** is not correct because it is not simplest ratio*	**(1)** AO 2 1

Q3.

Question number	Answer	Mark
	D	**(1)**

Q4.

Question number	Answer	Mark
	D SO_4^{2-}	**(1)** **comp**

Q5.

Question number	Answer	Mark
	D 12 protons, 12 neutrons, 10 electrons	(1) comp

Q6.

Question number	Answer	Mark
	D they are malleable	(1)

Q7.

Question Number	Answer	Mark
	A -6 low **1. The only correct answer is A** ***B*** *is not correct because bpt is too high and solubility not high* ***C*** *is not correct because solubility not high* ***D*** *is not correct because bot is too high*	**(1)** AO 3 2b

Q8.

Question number	Answer	Mark
	B 13 14 10 is the only correct answer **A** is incorrect because it is the numbers of subatomic particles in the atom not the ion **C** is incorrect because it would be an isotope of silicon with a +4 charge to it **D** is incorrect because it would be another isotope of silicon but with a 3- charge to it.	**(1)**

Q9.

Question Number	Answer	Mark
(i)	**C** chlorine zinc **The only correct answer is C** ***A*** *is not correct because oxygen cannot be produced by the electrolysis of this molten salt* ***B*** *is not correct because hydrogen cannot be produced by the electrolysis of this molten salt* ***D*** *is not correct because hydrogen and oxygen cannot be produced by the electrolysis of this molten salt*	**(1)** AO 2 1

Question Number	Answer	Mark
(ii)	**D** it contains ions that can move **The only correct answer is D** ***A*** *is not correct because molten zinc chloride does not contain molecules* ***B*** *is not correct because molten zinc chloride does not have a giant structure* ***C*** *is not correct because delocalised electrons are not present*	**(1)** AO 1 1

Q10.

Question number	Answer	Mark
	D C_3H_6 is the only correct answer **A**, **B** and **C** are incorrect formula	**(1)** **AO2 1**

Q11.

Question number	Answer	Mark
	C	**(1)**

Q12.

Question number	Answer	Mark
	D 3 3 is the only correct answer. **A** is incorrect as the metal is in group 3 **B** is incorrect as the metal is in group 3, period 3 **C** is incorrect as the metal is in period 3	**(1)**

Q13.

Question number	Answer	Mark
	A alkali metals **A** is the only correct answer. **B** is incorrect because fullerenes are not a group in the periodic table **C** is incorrect because halogens are group 7 **D** is incorrect because noble gases are group 0	**(1)**