PEARSON EDEXCEL GCSE COMBINED SCIENCE (HIGHER) · 1SC0

CHEMISTRY



EXAM QUESTION PACK

TOPIC 1: KEY CONCEPTS IN CHEMISTRY: IONIC BONDING (PAPER 1)

SCORE	PERCENTAGE
/150	%

STEMUP

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Q1.

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 ☒.

This question is about the extraction of metals.

(i) Small amounts of some metals are extracted using displacement reactions.

In one process, zinc dust is used to precipitate cadmium metal from a solution containing cadmium ions.

$$\underset{\text{cadmium ions}}{Cd^{2+}(aq)} + Zn(s) \rightarrow \underset{\text{cadmium}}{Cd(s)} + Zn^{2+}(aq)$$

Explain why this displacement reaction can be described as a **redox reaction**.

(3)

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(ii) The formula of the cadmium ion is Cd^{2+}.

The formula of the phosphate ion is PO_4^{3-}.

Which is the formula of cadmium phosphate?

(1)

☒ **A** $Cd_2(PO_4)_3$

☒ **B** Cd_3PO_{12}

☒ **C** $Cd_3(PO_4)_2$

☒ **D** $Cd_3P_2O_8$

(Total for question = 4 marks)

(**QU03b 1SC0/1CH, June 2024**)

Q2.

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 (☒).

Sodium carbonate has the formula Na_2CO_3.

Sodium carbonate contains Na^+ ions and CO_3^{2-} ions.

(i) The atomic number of sodium is 11.

What is the electronic configuration of the Na^+ ion?

(1)

☐ **A** 1

☐ **B** 2.8

☐ **C** 2.8.1

☐ **D** 2.8.2

(ii) Explain why solid sodium carbonate **cannot** conduct electricity but a solution of sodium carbonate **can** conduct electricity.

(3)

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(Total for question = 4 marks)

(**Q06a 1SC0/1CF, June 2024**)

Q3.

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 ☒.

Sodium carbonate has the formula Na_2CO_3.

Sodium carbonate contains Na^+ ions and CO_3^{2-} ions.

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What is the electronic configuration of the Na^+ ion?

(1)

☐ **A** 1

☐ **B** 2.8

☐ **C** 2.8.1

☐ **D** 2.8.2

(ii) Explain why solid sodium carbonate **cannot** conduct electricity but a solution of sodium carbonate **can** conduct electricity.

(3)

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(Total for question = 4 marks)

(**QU02a 1SC0/1CH, June 2024**)

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 (☒).

Water treatment is needed to make most sources of water suitable for drinking.

Some tap water contains chloride ions.

(i) Explain, in terms of electrons, how a chlorine atom, Cl, forms a chloride ion, Cl^-.

(2)

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(ii) Why is chlorine added to water during water treatment?

(1)

☒ **A** to clean the water

☒ **B** to dissolve insoluble substances in the water

☒ **C** to increase the pH of the water to 11

☒ **D** to kill any bacteria in the water

(iii) State why tap water is not suitable for use in chemical analysis.

(1)

.....

.....

(Total for question = 4 marks)

(**Q02b 1SC0/1CF, June 2024**)

Q5.

Lithium is an alkali metal.

A teacher adds a small piece of lithium to water containing universal indicator.

The universal indicator changes colour.

(i) State the colour change shown by the universal indicator.

(1)

from ..... to .....

(ii) Place ticks (✓) in boxes next to **two** observations that are made when lithium reacts with water.

(2)

observations	(✓)
a green precipitate forms	
effervescence is seen	
the lithium sinks in the water	
the lithium gets smaller and disappears	
the temperature of the solution decreases	

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 ☒ .

(iii) When lithium is added to water, lithium hydroxide and a gas are produced.

What is the name of the gas produced in this reaction?

(1)

☐ **A** carbon dioxide

☐ **B** chlorine

☐ **C** hydrogen

☐ **D** oxygen

(iv) Lithium hydroxide contains lithium ions, Li^+.

Describe how a lithium atom becomes a lithium ion.

(2)

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(v) Calculate the percentage by mass of hydrogen in lithium hydroxide, LiOH.

$$\% \text{ by mass of element} = \frac{\text{relative atomic mass of element}}{\text{relative formula mass of compound}} \times 100$$

(relative atomic masses: Li = 7, O = 16, H = 1.0)

(3)

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percentage by mass of hydrogen = ...

(Total for question = 9 marks)

(**QU04b 1SC0/2CF, June 2025**)

Q6.

In an experiment, a salt is dissolved in water.

The temperature change is measured.

Figure 3 shows the apparatus that is used.

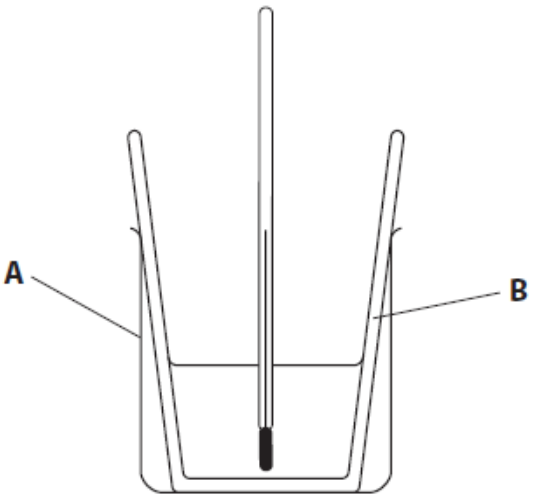


Figure 3

(i) State what is used to measure the temperature change in Figure 3.

(1)

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(ii) State **one** reason for using the piece of equipment **A** in Figure 3.

(1)

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(iii) A student suggests putting a lid on piece of equipment **B**.

State why this would help to give a more accurate value for the temperature change.

(1)

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(iv) Four different salts, **P**, **Q**, **R** and **S**, are dissolved in water.

Figure 4 shows the starting temperature of the water and the final temperature of the solution after the salt dissolves.

	salt P	salt Q	salt R	salt S
starting temperature in °C	20.0	20.0	20.0	20.0
final temperature in °C	22.4	19.5	23.0	18.5
temperature change in °C	+2.4	–0.5	.....	.....
salt that absorbed most heat energy when it dissolved				

Figure 4

Complete the table

- to show the temperature changes when salt **R** and salt **S** dissolve
- by placing a tick (✓) in the box, on the bottom row, for the salt that **absorbs** the most heat energy when it dissolves.

(4)

(v) One of the salts dissolved is barium chloride, $BaCl_2$.

Barium chloride contains the chloride ion, Cl^-.

Give the **formula** of the barium ion in barium chloride.

(1)

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(Total for question = 8 marks)

(**QU02b 1SC0/2CF, June 2024**)

Q7.

Sodium fluoride is an ionic compound.

(i) Describe how a sodium atom and a fluorine atom interact to form a sodium ion, Na^+, and a fluoride ion, F^-.

(2)

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(ii) Explain why sodium fluoride is able to conduct electricity when it is molten but not when it is solid.

(2)

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(Total for question = 4 marks)

(**Q05d 1SC0/2CF/S2, SAM**)

Q8.

Sodium fluoride is an ionic compound.

(i) Describe how a sodium atom and a fluorine atom interact to form a sodium ion, Na^+, and a fluoride ion, F^-.

(2)

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(ii) Explain why sodium fluoride is able to conduct electricity when it is molten but not when it is solid.

(2)

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(Total for question = 4 marks)

(**Q01d 1SC0/2CH/S2, SAM**)

Q9.

(a) The table shows the number of electrons, neutrons and protons in particles P, Q, R, S, T and V.

particle	number of		
	electrons	neutrons	protons
P	1	0	1
Q	3	4	3
R	8	8	8
S	13	14	13
T	18	16	16
V	18	20	20

(i) Which particle is a negatively charged ion?

Put a cross (☒) in the box next to your answer.

(1)

☒ **A** P

☒ **B** S

☒ **C** T

☒ **D** V

(ii) Which particles are atoms of metals?

Put a cross (☒) in the box next to your answer.

(1)

- ☒ **A** P and R
- ☒ **B** Q and R
- ☒ **C** Q and S
- ☒ **D** Q, S and V

(b) Each element has an atomic number.

(i) State what is meant by **atomic number.**

(1)

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(ii) The atomic number of boron is 5.
Boron exists as two isotopes boron-10 and boron-11.

Use this information to explain why boron-10 and boron-11 are isotopes.

(2)

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(c) (i) Explain what is meant by the term relative atomic mass.

(2)

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(ii) A sample of boron contains
19.7% of boron-10.
80.3% of boron-11.

Use this information to calculate the relative atomic mass of boron.

(3)

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(Total for Question = 10 marks)

(**Q14 1SC0/1CH, June 2013**)

Q10.

(a) The table shows the number of electrons, neutrons and protons in particles P, Q, R, S, T and V.

particle	number of		
	electrons	neutrons	protons
P	1	0	1
Q	3	4	3
R	8	8	8
S	13	14	13
T	18	16	16
V	18	20	20

(i) Which particle is a negatively charged ion?

Put a cross (☒) in the box next to your answer.

(1)

☒ **A** P

☒ **B** S

☒ **C** T

☒ **D** V

(ii) Which particles are atoms of metals?

Put a cross (☒) in the box next to your answer.

(1)

☒ **A** P and R

☒ **B** Q and R

☒ **C** Q and S

☒ **D** Q, S and V

(b) Each element has an atomic number.

(i) State what is meant by **atomic number.**

(1)

.....

.....

(ii) The atomic number of boron is 5.
Boron exists as two isotopes boron-10 and boron-11.

Use this information to explain why boron-10 and boron-11 are isotopes.

(2)

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(c) (i) Explain what is meant by the term relative atomic mass.

(2)

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(ii) A sample of boron contains
19.7% of boron-10.
80.3% of boron-11.

Use this information to calculate the relative atomic mass of boron.

(3)

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(Total for Question = 10 marks)

(**Q04 1SC0/2CH, June 2013**)

Q11.

(a) Barium sulfate contains

barium ions, Ba^{2+}
sulfate ions, SO_4^{2-}

(i) Give the formula of barium sulfate.

(1)

.....

(ii) Give the meaning of the term **ion.**

(1)

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(b) This is an X-ray photograph of part of a patient's body.
Before the photograph was taken a suspension of barium sulfate was introduced into his body to show the required part.



Source: andi-sheba.blogspot.com

Many barium salts are toxic.
Barium sulfate is insoluble in water.

Explain why it is safe for the patient to have barium sulfate in his body.

(2)

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*(c) Barium sulfate is prepared by reacting barium chloride with sodium sulfate.
The barium sulfate is formed as a precipitate.

Describe an experiment to prepare a pure, dry sample of barium sulfate, starting with barium chloride crystals and sodium sulfate crystals.

(6)

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(d) Barium reacts with chlorine to produce barium chloride, $BaCl_2$.

Write the balanced equation for this reaction.

(2)

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(Total for Question = 12 marks)

(**Q11 1SC0/1CF, June 2013**)

Q12.

(a) Barium sulfate contains

barium ions, Ba^{2+}
sulfate ions, SO_4^{2-}

(i) Give the formula of barium sulfate.

(1)

.....

(ii) Give the meaning of the term **ion.**

(1)

.....

.....

(b) This is an X-ray photograph of part of a patient's body.
Before the photograph was taken a suspension of barium sulfate was introduced into his body to show the required part.



Source: andi-sheba.blogspot.com

Many barium salts are toxic.
Barium sulfate is insoluble in water.

Explain why it is safe for the patient to have barium sulfate in his body.

(2)

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*(c) Barium sulfate is prepared by reacting barium chloride with sodium sulfate.
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(6)

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(d) Barium reacts with chlorine to produce barium chloride, $BaCl_2$.

Write the balanced equation for this reaction.

(2)

.....

(Total for Question = 12 marks)

(**Q05 1SC0/2CF, June 2013**)

Q13.

Bonding and separation techniques

(a) The diagram shows the structure of diamond.



(i) Describe what each ● represents.

(2)

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.....

(ii) State the type of bonding in the diamond structure.

(1)

.....

(b) Give the name of the process used to obtain oxygen from liquid air.

(2)

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(c) A colouring in some sweets was analysed using paper chromatography.

One of the dyes in the colouring moved 2 cm up the paper while the solvent moved 8 cm.

What is the R_f value of this dye?

Put a cross (☒) in the box next to your answer.

(1)

☐ **A** 0.25

☐ **B** 2

☒ **C** 4

☒ **D** 6

*(d) Here is some information about magnesium, oxygen and magnesium oxide.

The electronic configuration of magnesium atoms is 2.8.2
The electronic configuration of oxygen atoms is 2.6
Magnesium oxide is an ionic compound.

When magnesium ribbon is heated, it reacts with oxygen from the air to form magnesium oxide, MgO.

Describe how the reaction can be carried out, including an explanation of what happens to the magnesium and oxygen atoms when they form magnesium oxide.

(6)

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(Total for question = 12 marks)

(**Q05 1SC0/1CF, June 2014**)

Q14.

Bonding and separation techniques

(a) The diagram shows the structure of diamond.



(i) Describe what each ● represents.

(2)

.....

.....

(ii) State the type of bonding in the diamond structure.

(1)

.....

(b) Give the name of the process used to obtain oxygen from liquid air.

(2)

.....

.....

(c) A colouring in some sweets was analysed using paper chromatography.

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Put a cross (☒) in the box next to your answer.

(1)

☐ **A** 0.25

☐ **B** 2

☐ **C** 4

☐ **D** 6

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(6)

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(Total for question = 12 marks)

(**Q05 1SC0/2CF, June 2014**)

Q15.

An ion of element **X** can be represented as

$$^{125}\mathbf{X}^{2-}$$

This ion of element **X** has 54 electrons.

Calculate the number of protons and the number of neutrons in this ion.

(2)

number of protons .....

number of neutrons .....

(Total for question = 2 marks)

(**Q06a 1SC0/1CH, Nov 2021**)

Q16.

Waste water may contain phosphate ions, PO_4^{3-}.

Aluminium ions react with phosphate ions to form aluminium phosphate.

Complete the ionic equation for the formation of aluminium phosphate in this reaction.

(2)

..... + PO_4^{3-} → .....

(Total for question = 2 marks)

(**Q02d 1SC0/1CH, Nov 2021**)

Q17.

Silver nitrate and potassium chloride are ionic compounds that are soluble in water.

Silver nitrate solution conducts electricity.
Solid silver also conducts electricity.

Describe how silver nitrate solution conducts electricity and how solid silver conducts electricity.

(3)

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(Total for question = 3 marks)

(**QU06b 1SC0/1CF, June 2025**)

Q18.

Silver nitrate and potassium chloride are ionic compounds that are soluble in water.

Silver nitrate solution conducts electricity.
Solid silver also conducts electricity.

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(Total for question = 3 marks)

(**QU02b 1SC0/1CH, June 2025**)

Q19.

Sodium reacts with chlorine to form sodium chloride, which contains ionic bonds.

Hydrogen reacts with chlorine to form hydrogen chloride, which contains covalent bonds.

Figure 6 shows dot and cross diagrams of these compounds.

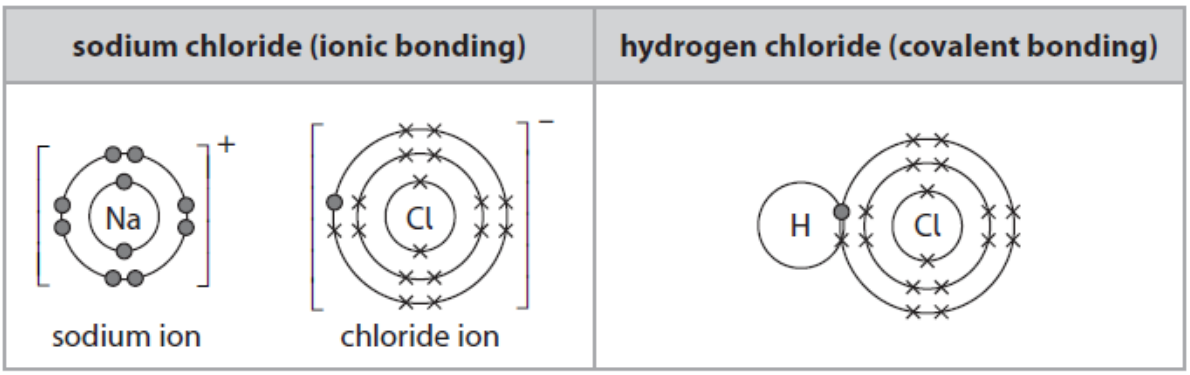


Figure 6

Describe the differences between an ionic bond and a covalent bond.

(4)

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(Total for question = 4 marks)

(**Q04d 1SC0/1CF, June 2023**)

Q20.

Potassium reacts with oxygen to form potassium oxide.

(i) Describe the test to show that a gas is oxygen.

(2)

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(ii) Potassium oxide is ionic.

Write the electronic configurations for the ions in potassium oxide, K_2O.

(2)

potassium ion: .....

oxide ion: .....

(Total for question = 4 marks)

(**Q03c 1SC0/2CH, Nov 2021**)

Q21.

Lithium fluoride, LiF, is an ionic compound.

It contains lithium cations and fluoride anions.

The electronic configurations of a lithium atom and of a fluorine atom are shown in Figure 16.



Figure 16

Complete Figure 17 to show the electronic configurations and charges of the ions in lithium

fluoride.

(4)

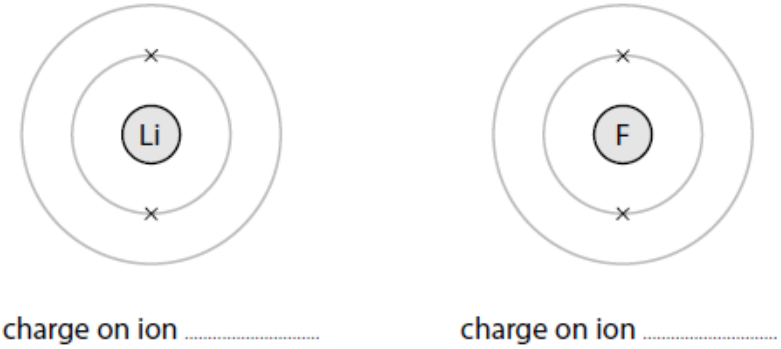


Figure 17

(Total for question = 4 marks)

(**Q06b 1SC0/1CF, SAM 2016**)

Q22.

Lithium fluoride, LiF, is an ionic compound.

It contains lithium cations and fluoride anions.

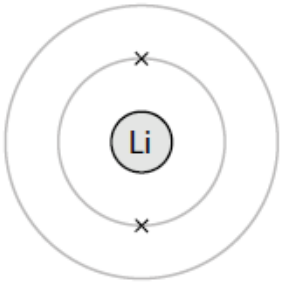
The electronic configurations of a lithium atom and of a fluorine atom are shown in Figure 6.

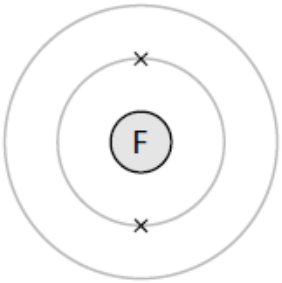


Figure 6

Complete Figure 7 to show the electronic configurations and charges of the ions in lithium fluoride.

(4)





charge on ion ..... charge on ion .....

Figure 7

(Total for question = 4 marks)

(**Q02c 1SC0/1CH, SAM 2016**)

Q23.

* Magnesium has an electronic configuration of 2.8.2.
Oxygen has an electronic configuration of 2.6.

Explain, in terms of their electronic configurations, how magnesium and oxygen atoms react to form the ionic compound magnesium oxide, MgO, and include a description of the structure of solid magnesium oxide.

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(**Q27 1SC0/1CH, June 2013**)

Q24.

* Magnesium has an electronic configuration of 2.8.2.
Oxygen has an electronic configuration of 2.6.

Explain, in terms of their electronic configurations, how magnesium and oxygen atoms react to form the ionic compound magnesium oxide, MgO, and include a description of the structure of solid magnesium oxide.

(6)

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(**Q18 1SC0/2CH, June 2013**)

Q25.

Two compounds of barium are barium sulfide and barium chloride.

Give the names of the elements combined in barium sulfide.

(1)

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(Total for question = 1 mark)

(**Q10 1SC0/1CF, June 2018**)

Q26.

* Sodium chloride is an ionic compound, containing sodium ions, Na+, and chloride ions, Cl^-

Figure 10 shows the electronic configuration of sodium and chlorine.

	electron configuration
sodium	2.8.1
chlorine	2.8.7

Figure 10

Explain how sodium and chlorine atoms form the ions in sodium chloride and how the ions are arranged in the solid sodium chloride.

You may wish to use diagrams in your answer.

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(Total for question = 6 marks)

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(**Q06d 1SC0/2CF, June 2019**)

Q27.

The electronic configurations of magnesium and calcium are

magnesium 2.8.2
calcium 2.8.8.2

When magnesium and calcium react with water they form positive ions.

Suggest an explanation, in terms of their electronic configurations, why calcium is more reactive than magnesium.

(2)

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(Total for question = 2 marks)

(**Q05f 1SC0/2CF, SAM 2016**)

Q28.

The electronic configurations of magnesium and calcium are

magnesium 2.8.2
calcium 2.8.8.2

When magnesium and calcium react with water they form positive ions.

Suggest an explanation, in terms of their electronic configurations, why calcium is more reactive than magnesium.

(2)

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(Total for question = 2 marks)

(**Q02c 1SC0/2CH, SAM 2016**)

Q29.

* Figure 18 shows the ability of different substances to conduct electricity.

substance	conducts electricity
solid calcium chloride	no
molten calcium chloride	yes
diamond	no
zinc	yes

Figure 18

Explain these results by referring to the structures of the substances.

(6)

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(Total for question = 6 marks)

Q30.

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 ☒.

(i) One step in the extraction of titanium metal involves the displacement reaction between titanium chloride, $TiCl_4$, and magnesium.

$$TiCl_4 + 2Mg \rightarrow Ti + 2MgCl_2$$

This equation can be simplified as

$$Ti^{4+} + 2Mg \rightarrow Ti + 2Mg^{2+}$$

Explain why this displacement reaction can be described as a redox reaction.

(3)

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(ii) The formula of the sulfate ion is SO_4^{2-}.

Which of the following is the formula of titanium sulfate containing the Ti^{4+} ion?

(1)

☒ **A** $TiSO_4$

☒ **B** Ti_2SO_4

☒ **C** $Ti(SO_4)_2$

☒ **D** $Ti_2S_2O_8$

(Total for question = 4 marks)

(**QU04b 1SC0/1CH, June 2022**)

Q31.

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 ☒.

An atom of potassium has atomic number 19 and mass number 39.

(i) Give the electronic configuration of this potassium atom.

(1)

.....

(ii) This potassium atom forms the ion K^+.

Which row shows the number of protons and the number of neutrons in this potassium ion, K^+?

(1)

	number of protons	number of neutrons
☒ **A**	19	19
☒ **B**	19	20
☒ **C**	20	19
☒ **D**	20	20

(Total for question = 2 marks)

(**Q05a 1SC0/2CF, Nov 2020**)

Q32.

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 ☒.

An atom of potassium has atomic number 19 and mass number 39.

(i) Give the electronic configuration of this potassium atom.

(1)

.....

(ii) This potassium atom forms the ion K^+.

Which row shows the number of protons and the number of neutrons in this potassium ion, K^+?

(1)

	number of protons	number of neutrons
☒ **A**	19	19
☒ **B**	19	20
☒ **C**	20	19
☒ **D**	20	20

(Total for question = 2 marks)

(**Q01a 1SC0/2CH, Nov 2020**)

Q33.

Sodium reacts with chlorine to form sodium chloride.

The electronic configuration of the sodium atom is 2.8.1 and the electronic configuration of the chlorine atom is 2.8.7.

Give the electronic configurations of the ions formed.

(2)

Na^+ .....

Cl^- .....

(Total for question = 2 marks)

(**Q02d 1SC0/2CH, June 2019**)

Q34.

In Figure 5, the letters **A**, **E**, **G**, **J**, **X** and **Z** show the positions of six elements in the periodic table.

These letters are not the symbols of the atoms of these elements.

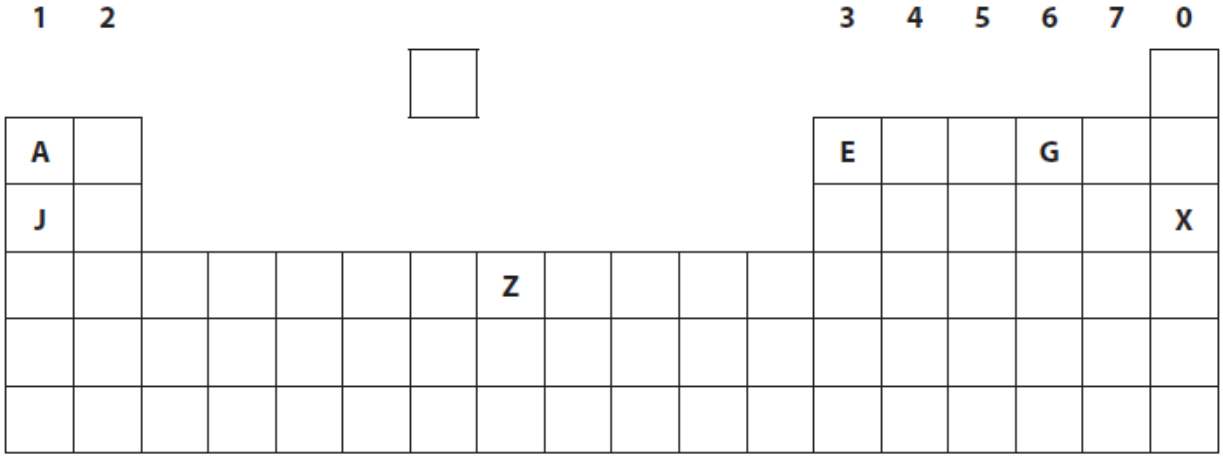


Figure 5

Using the letters **A**, **E**, **G**, **J**, **X** and **Z**

(i) give the letters of the **two** elements that are non-metals

(1)

.....

(ii) give the letters of **two** elements in period 2

(1)

.....

(iii) give the letter of an element that normally forms an ion with a charge of +1.

(1)

.....

(Total for question = 3 marks)

(**Q05a 1SC0/1CF, June 2019**)

Q35.

In Figure 1, the letters **A**, **E**, **G**, **J**, **X** and **Z** show the positions of six elements in the periodic table.

These letters are not the symbols of the atoms of these elements.

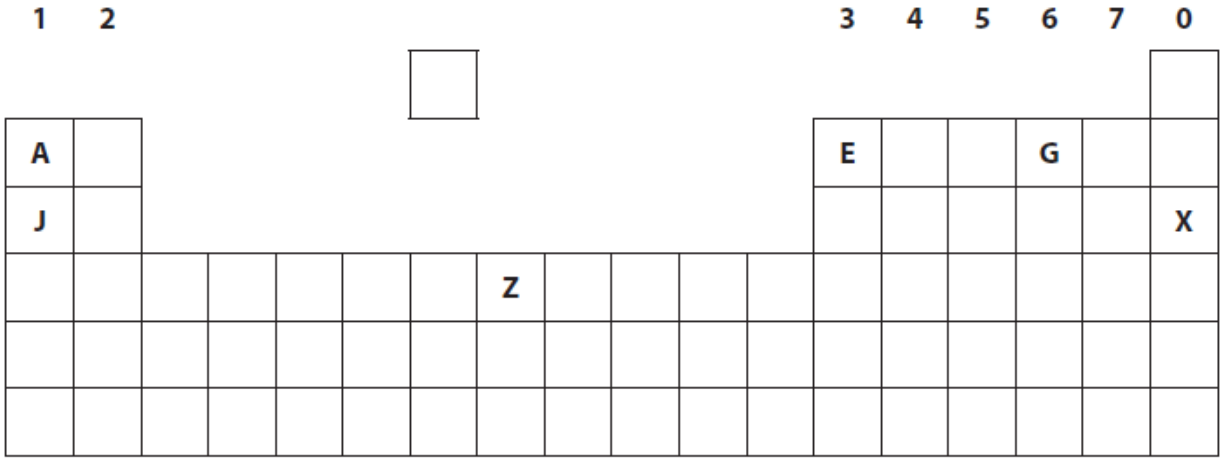


Figure 1

Using the letters **A**, **E**, **G**, **J**, **X** and **Z**

(i) give the letters of the **two** elements that are non-metals

(1)

.....

(ii) give the letters of **two** elements in period 2

(1)

.....

(iii) give the letter of an element that normally forms an ion with a charge of +1.

(1)

.....

(Total for question = 3 marks)

Q36.

In an experiment, a solid is mixed with a liquid.
The temperature change of the mixture is measured.

Figure 3 shows the apparatus that is used.

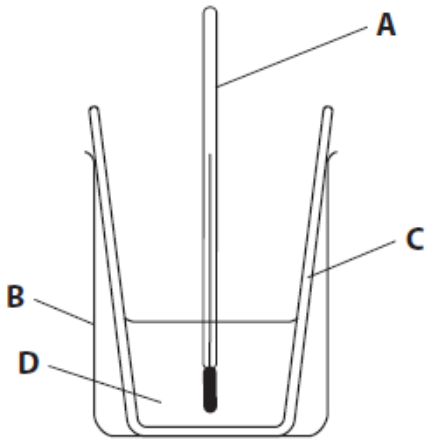


Figure 3

(i) Give the letter of the piece of apparatus, **A**, **B**, **C** or **D**, in Figure 3 that is used to measure the temperature.

(1)

.....

(ii) Give the name of the piece of apparatus **B** shown in Figure 3.

(1)

.....

(iii) The piece of apparatus labelled **C** is made from polystyrene.

State why polystyrene is a better material than glass for this piece of apparatus.

(1)

.....

(iv) The results of the experiment are given in Figure 4.

temperature of liquid at start in °C	18.6
temperature of products at end in °C	16.1

Figure 4

Calculate the change in temperature.

Give a sign and a unit in your answer.

(3)

.....

.....

temperature change = ...

(v) The solid used in this experiment contained only NH_4^+ ions and NO_3^- ions.

Give the formula and the name of the solid.

(2)

formula .....

name .....

(Total for question = 8 marks)

(**QU02b 1SC0/2CF, June 2019**)

Q37.

In an experiment, a solid is mixed with a liquid.
The temperature change of the mixture is measured.

Figure 3 shows the apparatus that is used.

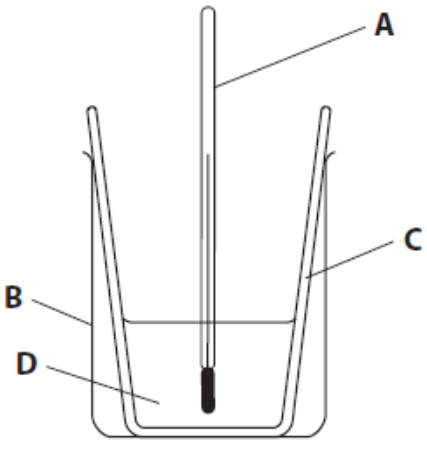


Figure 3

(i) Give the letter of the piece of apparatus, **A**, **B**, **C** or **D**, in Figure 3 that is used to measure the temperature.

(1)

.....

(ii) Give the name of the piece of apparatus **B** shown in Figure 3.

(1)

.....

(iii) The piece of apparatus labelled **C** is made from polystyrene.

State why polystyrene is a better material than glass for this piece of apparatus.

(1)

.....

(iv) The results of the experiment are given in Figure 4.

temperature of liquid at start in °C	18.6
temperature of products at end in °C	16.1

Figure 4

Calculate the change in temperature.

Give a sign and a unit in your answer.

(3)

.....

.....

temperature change = ...

(v) The solid used in this experiment contained only NH_4^+ ions and NO_3^- ions.

Give the formula and the name of the solid.

(2)

formula .....

name .....

(Total for question = 8 marks)

(**QU02b 1SC0/2CF, June 2022**)

Q38.

Students **A**, **B**, **C** and **D** carry out experiments to find the mass of oxygen that combines with a given mass of magnesium, when the magnesium burns completely.

They use the apparatus shown in Figure 4.

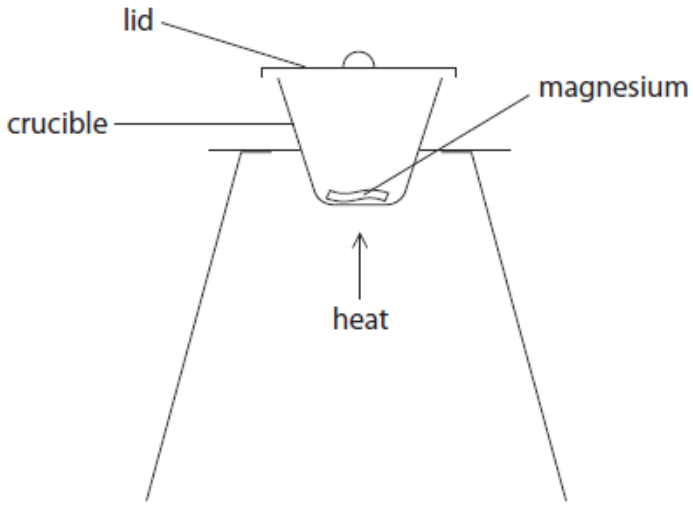


Figure 4

* Explain how, in this reaction, magnesium and oxygen atoms form a solid that has a high melting point.

(6)

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(Total for question = 6 marks)

(**Q05b 1SC0/1CH, SAM**)

Q39.

Ionic compounds contain ions.

The numbers of electrons, neutrons and protons in four particles, **W**, **X**, **Y** and **Z**, are shown in Figure 15.

particle	electrons	neutrons	protons
W	9	10	9
X	10	14	12
Y	16	16	16
Z	18	18	16

Figure 15

Explain which particle, **W**, **X**, **Y** or **Z**, is a negative ion.

(2)

.....

.....

.....

.....

(Total for question = 2 marks)

(**Q06a 1SC0/1CF, SAM 2016**)

Q40.

Ionic compounds contain ions.

The numbers of electrons, neutrons and protons in four particles, **W**, **X**, **Y** and **Z**, are shown in Figure 5.

particle	electrons	neutrons	protons
W	9	10	9
X	10	14	12
Y	16	16	16
Z	18	18	16

Figure 5

Explain which particle, **W**, **X**, **Y** or **Z**, is a negative ion.

(2)

.....

.....

.....

.....

(Total for question = 2 marks)

(**Q02a 1SC0/1CH, SAM 2016**)