

(Ionic bonding and ionic compounds)

Q1. (2018)

Calcium nitrate contains the ions Ca^{2+} and NO_3^-

Give the formula of calcium nitrate.

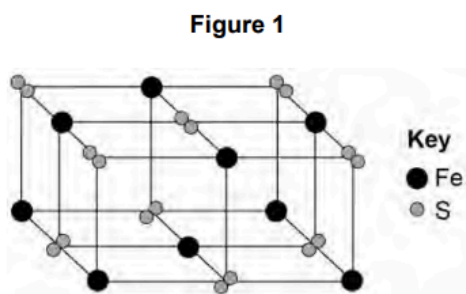
[1 mark]

Q2. (2018)

This question is about metals and metal compounds.

Iron pyrites is an ionic compound.

Figure 1 shows a structure for iron pyrites.



Determine the formula of iron pyrites.

Use **Figure 1**.

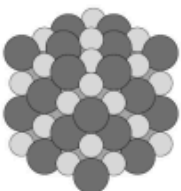
[1 mark]

Q3. (2020)

Table 1 shows the structures of three compounds.

Table 1

Diagrams not to scale

Compound	Structure
Carbon dioxide	 Key ● O ● C
Magnesium oxide	 Key ● O^{2-} ● Mg^{2+}
Silicon dioxide	 Key ● O ● Si

Compare the structure and bonding of the three compounds:

- carbon dioxide
- magnesium oxide
- silicon dioxide.

[6 marks]

Sodium reacts with oxygen to produce the ionic compound sodium oxide.

Oxygen is a Group 6 element.

Draw a dot and cross diagram to show what happens when atoms of sodium and oxygen react to produce sodium oxide.

[4 marks]

Diagram

Q5. (2022)

Name the type of bonding in compounds formed between metals and non-metals.

[1 mark]

Q6. (2022)

Magnesium oxide is a compound formed from the metal magnesium and the non-metal oxygen.

Describe what happens when a magnesium atom reacts with an oxygen atom.

You should refer to electrons in your answer.

[4 marks]

Q7. (2024)

This question is about ionic compounds and electrolysis.

Calcium chloride is an ionic compound.

Calcium and chlorine react to produce calcium chloride.

Describe what happens to calcium atoms and chlorine atoms when the ionic compound calcium chloride is formed.

[4 marks]

The most common oxides of iron are Fe_2O_3 and Fe_3O_4

What is the ratio of the numbers of ions in Fe_3O_4 ?

[1 mark]

Tick (✓) **one** box.

2 Fe^{2+} : 1 Fe^{3+} : 4 O^{2-}

☐

1 Fe^{2+} : 2 Fe^{3+} : 4 O^{2-}

☐

3 Fe^{2+} : 4 O^{2-}

☐

3 Fe^{3+} : 4 O^{2-}

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