

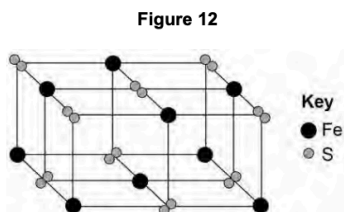
(Ionic bonding and ionic compounds)

Q1. (2018)

This question is about metals and metal compounds.

Iron pyrites is an ionic compound.

Figure 12 shows a structure for iron pyrites.



Determine the formula of iron pyrites.

Use Figure 12.

[1 mark]

Q2. (2020)

Table 5 shows the structures of three compounds.

Table 5	
Diagrams not to scale	
Compound	Structure
Carbon dioxide	<p style="text-align: right;">Key ● O ● C</p>
Magnesium oxide	<p style="text-align: right;">Key ● O²⁻ ● Mg²⁺</p>
Silicon dioxide	<p style="text-align: right;">Key ● O ● Si</p>

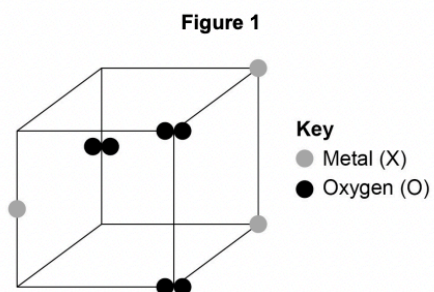
Compare the structure and bonding of the three compounds:

- carbon dioxide
- magnesium oxide
- silicon dioxide.

[6 marks]

Q3. (2021)

Figure 1 represents part of the structure of an oxide of a metal.



Determine the empirical formula of this oxide.

[1 mark]

Empirical formula = XO ____

Q4. (2021)

Sodium fluoride is an ionic compound.

Figure 5 shows dot and cross diagrams for a sodium atom and a fluorine atom.

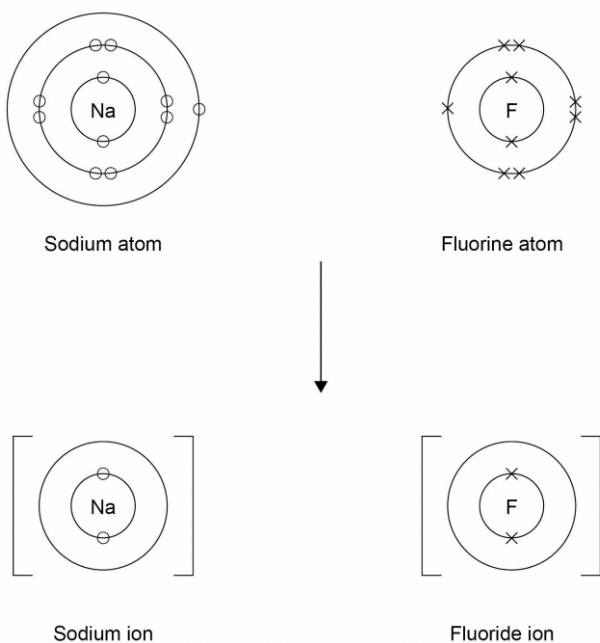
Complete **Figure 5** to show what happens when a sodium atom and a fluorine atom react to produce sodium fluoride.

You should:

- complete the electronic structures of the sodium ion and the fluoride ion
- give the charges on the sodium ion and the fluoride ion.

[3 marks]

Figure 5



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.

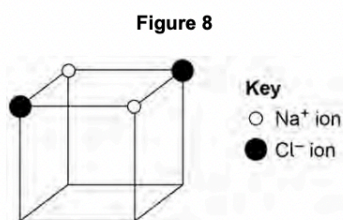
[4 marks]

Q7. (2023)

This question is about ionic compounds and electrolysis.

Sodium chloride is an ionic compound.

Figure 8 represents part of the structure of solid sodium chloride.



Complete Figure 8.

[2 marks]

Q8.(2024)

Potassium and chlorine react to produce potassium chloride.

An atom of potassium loses an electron to form a potassium ion.

An atom of chlorine gains an electron to form a chloride ion.

Complete the dot and cross diagram.

[2 marks]

