

Q2.

Diamond and graphite are both forms of carbon.
In both substances, the carbon atoms are held together by covalent bonds.

Describe what is meant by a **covalent bond**.

(2)

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(Total for question = 2 marks)

Q3.

A water molecule, H_2O , contains two hydrogen atoms and one oxygen atom.

The electrons in the outer shells of a hydrogen atom and an oxygen atom are shown in Figure 2.



Figure 2

Draw a dot and cross diagram for a molecule of water.

(2)

(Total for question = 2 marks)

Q4.

Diamond and carbon dioxide are both covalent substances.

(i) Draw a dot and cross diagram to show the covalent bonding in a molecule of carbon dioxide, CO_2 .

Show outer electrons only.

(2)

(ii) Diamond has a very high melting point.

Explain why the melting point of diamond is very high.

(2)

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(Total for question = 4 marks)

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 ☒.

Sodium reacts with hydrochloric acid to form sodium chloride and hydrogen.

(i) Write the word equation for this reaction.

(2)

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(ii) The hazard symbol shown in Figure 1 is used on containers of sodium.



Figure 1

What is the meaning of this hazard symbol?

(1)

- A corrosive
- B flammable
- C oxidising
- D toxic

(iii) Hydrogen has one electron in its electron shell.

Figure 2 shows the incomplete dot and cross diagram of a hydrogen molecule. Complete Figure 2 to show the electrons in the covalent bond between the two atoms of hydrogen.

(1)

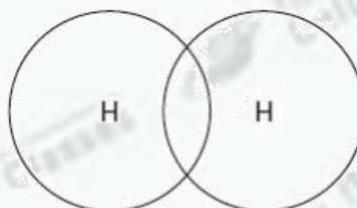


Figure 2

(Total for question = 4 marks)

Q6.

Figure 1 shows the dot and cross diagram for a molecule of ammonia.

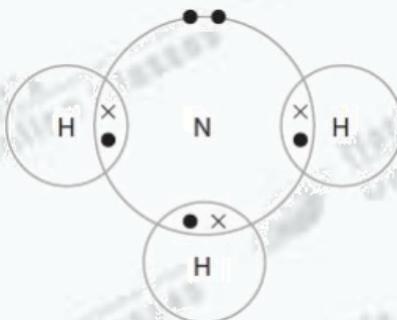


Figure 1

(i) What do the dots and crosses represent in the diagram?

- A electrons
- B neutrons
- C protons
- D nuclei

(1)

(ii) Give the formula for the molecule of ammonia.

(1)

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(Total for question = 2 marks)