Paper 3

Questions are applicable for both core and extended candidates

1(e) Fig. 8.2 shows the structure of graphite.

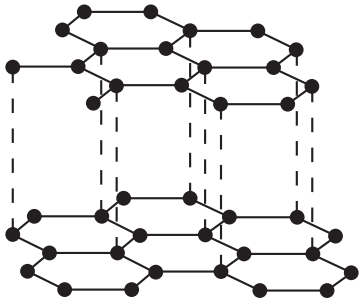


Fig. 8.2

(i) State the type of bonding in graphite.

..... [1]

(ii) Explain by referring to Fig. 8.2 why graphite is used as a lubricant.

..... [1]

(iii) Graphite and diamond are both forms of carbon.

State **one** use of diamond.

..... [1]

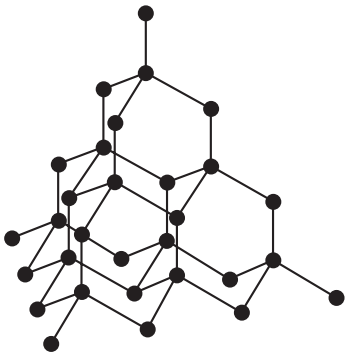
2 Table 5.1 shows the properties of four substances.

Table 5.1

substance	boiling point	electrical conductivity of solid	electrical conductivity when molten	density in g / cm^3
aluminium	high	conducts	conducts	2.70
diamond				3.51
potassium bromide	high	does not conduct	conducts	2.75
sulfur	low	does not conduct		2.07

(a) Complete Table 5.1 to show the electrical conductivity of solid diamond and molten sulfur. [2]

3 (e) Diamond is a form of carbon.
The structure of diamond is shown.



(i) Choose the word which best describes the structure of diamond.

Draw a circle around your chosen answer.

giant **ionic** **metallic** **simple** [1]

(ii) Name the type of bonding in diamond.

..... [1]

(iii) Give **one** use of diamond.

..... [1]

(iv) Deduce the electronic structure of carbon.

Use the Periodic Table to help you.

..... [1]

Paper 4

Questions are applicable for both core and extended candidates unless indicated in the question

4 **(a)** The symbols of the elements in Period 2 of the Periodic Table are shown.

Li Be B C N O F Ne

Use the symbols of the elements in Period 2 to answer the questions that follow.
Each symbol may be used once, more than once or not at all.

Give the symbol of the element that:

(iv) exists as graphite ..... [1]

5 This question is about the first 30 elements in the Periodic Table. **(extended only)**

Name the element which:

(d) forms an oxide with a giant covalent structure ..... [1]

6 A list of substances is shown.

aluminium oxide	**carbon dioxide**	**chlorine**	**diamond**	**ethanol**
glucose	**iron(III) oxide**	**limestone**	**nitrogen**	**oxygen**

Answer the questions using the list of substances.

Each substance may be used once, more than once or not at all.

State which of the substances:

(h) is a form of carbon.

..... [1]