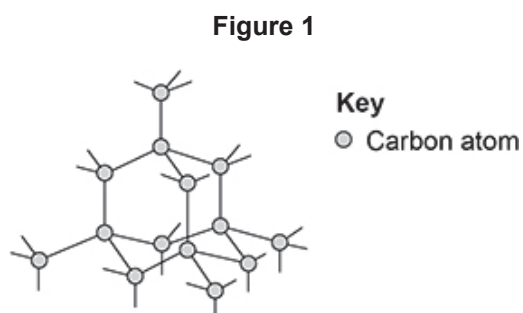


All questions are for both separate science and combined science students

Q1.

This question is about different forms of carbon.

Figure 1 represents the structure of diamond.



- (a) Describe the structure and bonding of diamond.

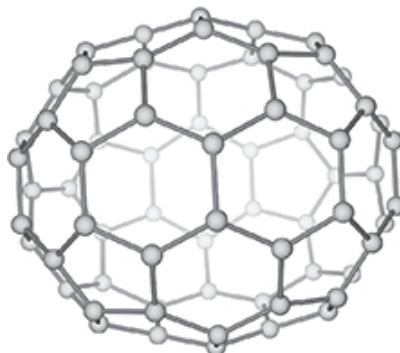
(3)

- (b) Explain why diamond has a very high melting point.

(3)

Figure 2 represents the molecule C_{70}

Figure 2



(c) What is the name of this type of molecule?

Tick (✓) **one** box.

Fullerene

☐

Graphene

☐

Nanotube

☐

Polymer

☐

(1)

(d) Molecules such as C_{70} can be used in medicine to move drugs around the body.

Suggest **one** reason why the C_{70} molecule is suitable for this use.

(1)

- (e) Calculate the number of C_{70} molecules that can be made from one mole of carbon atoms. **(HT only)**

The Avogadro constant = 6.02×10^{23} per mole

Number of molecules = _____

(3)

(Total 11 marks)