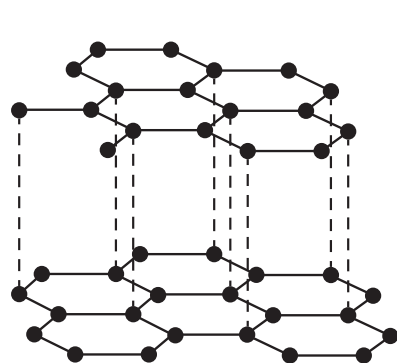
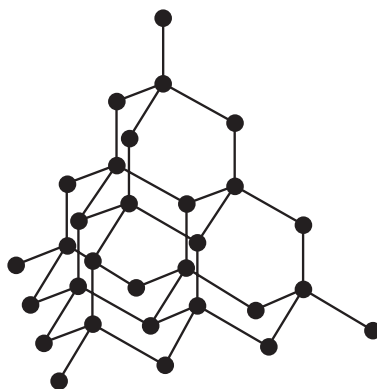


- 4 Substances with giant covalent structures can be used as lubricants and as cutting tools for hard materials.

The diagrams show how the atoms are arranged in two giant covalent substances, P and Q.



P



Q

key

— strong covalent bond

- - - weak attraction

Which statement is correct?

- A** Only P is used as a cutting tool and only Q is used as a lubricant.
- B** Only P is used as a lubricant and only Q is used as a cutting tool.
- C** P and Q are both used as cutting tools.
- D** P and Q are both used as lubricants.

- 8 Graphite and diamond are both forms of the element carbon.

Which row shows the number of other carbon atoms that each carbon atom is covalently bonded to in graphite and in diamond?

	graphite	diamond
A	3	3
B	3	4
C	4	3
D	4	4

- 8** Rescuers are drilling through fallen rock in order to rescue some people trapped in a cave. The drill needs lubricating from time to time.

Four statements are made about the materials used for the drill tip and the lubricant to explain the reasons for their use.

- 1 Diamond is used for the drill tip as it does **not** conduct electricity.
- 2 Diamond is used for the drill tip as it is very hard.
- 3 Graphite is used as the lubricant as it conducts electricity.
- 4 Graphite is used as the lubricant as it is soft and slippery.

Which statements are correct?

- A** 1 and 3 **B** 1 and 4 **C** 2 and 3 **D** 2 and 4

- 7** Which statement about silicon(IV) oxide is correct?

- A** It contains silicon ions and oxide ions arranged in a giant lattice.
- B** It is used in electrical circuits because it can conduct electricity.
- C** Its bonds each contain one shared pair of electrons.
- D** Its atoms are arranged in the same way as the atoms in graphite.

- 6** Which statement about silicon(IV) oxide, SiO_2 , is correct?

- A** It conducts electricity because it contains delocalised electrons.
- B** It has a giant covalent structure with each silicon atom bonded to four oxygen atoms.
- C** It is a simple covalent molecule.
- D** Its structure is similar to that of graphite.