

2 Chemical bonding – Part 2 — Answers

Answers

Work through these after trying the questions yourself.

2.1 (a) a metal and a non-metal \ (b) two non-metals.

2.2 The strong electrostatic attraction between oppositely charged ions (a positive metal ion and a negative non-metal ion).

2.3 When solid, the ions are fixed in place and cannot move; when molten the ions are free to move and carry charge.

2.4 A shared pair of electrons between two atoms.

2.5 In graphite each carbon uses only three of its outer electrons in bonds, leaving one free (delocalised) electron that can move and carry charge; in diamond all four are used in bonds, so none is free.

2.6 Sodium chloride is a giant ionic lattice with strong forces between the oppositely charged ions, which need a lot of energy to break. Methane is small molecules with only weak forces *between* the molecules, which need little energy — so it melts at a much lower temperature.