4 Gases and structures – Part 2 — Answers

Answers

Work through these after trying the questions yourself.

4.1 Giant ionic, simple molecular, giant molecular (giant covalent) and giant metallic.
4.2 Only the weak intermolecular forces between the molecules need to be broken (not the strong covalent bonds inside them), so little energy is needed.
4.3 Graphite has delocalised electrons (one spare per carbon) that are free to move and carry a current; in diamond all four outer electrons are used in bonds, so none are free.
4.4 Its ions are fixed in the lattice when solid, but become free to move when molten or dissolved, so they can carry charge only then.
4.5 Giant metallic.

4.6 Sodium chloride is a giant ionic lattice held by strong ionic attractions, so a great deal of energy is needed to melt it. Iodine is simple molecular, so melting only breaks the weak intermolecular forces between its molecules — far less energy — giving a much lower melting point.