



1 Give the formula of the following ions.

aluminium Al^{3+} nitrate NO_3^- zinc(II) Zn^{2+}

2 Give the formula of the following ionic compounds.

calcium oxide CaO sodium bromide NaBr
aluminium sulfate $\text{Al}_2(\text{SO}_4)_3$ magnesium hydroxide $\text{Mg}(\text{OH})_2$

3 Water is a molecular substance with the molecular formula H_2O .

- a What type of bonds are there in water molecules? **covalent**
- b Water boils at 100°C . Explain why water has a low boiling point.
**weak forces between molecules
that only need a small amount of energy to overcome**
- c Explain why pure water does not conduct electricity.
**no charged particles that can move
so cannot carry charge through the substance**
- d Explain what the molecular formula H_2O means.
**2 H atoms and 1 O atom
in each molecule**

4 Sodium oxide is an ionic substance with the formula Na_2O .

- a What type of bonds are there in sodium oxide? **ionic**
- b Sodium oxide melts at 1132°C . Explain why sodium oxide has a high melting point.
**strong attraction between positive and negative ions
that takes a lot of energy to overcome**
- c Explain why sodium oxide conducts electricity when molten but not as a solid.
**when molten, ions can move to carry charge through the substance
but ions cannot move as solid**
- d Explain what the formula Na_2O means.
ratio of sodium ions : oxide ions = 2:1