



1 Give the formula of the following ions.

oxide O^{2-} lead(II) Pb^{2+} ammonium NH_4^+

2 Give the formula of the following ionic compounds.

aluminium chloride $AlCl_3$ calcium nitrate $Ca(NO_3)_2$
potassium sulfate K_2SO_4 iron(III) hydroxide $Fe(OH)_3$

3 Aluminium is a metal.

a What type of bonding is there in aluminium? **metallic**

b Aluminium melts at $660^\circ C$. Explain why aluminium has a high melting point.

**strong attraction between the positive nucleus of the metal atoms and the cloud of delocalised electrons
that takes a large amount of energy to overcome**

c Explain why aluminium conducts electricity.

**outer shell electrons are delocalised
so can carry charge through the substance**

d Aluminium metal is too soft to be used as a pure metal. It is made into alloys which are harder. What is an alloy and why are they harder than pure metals?

**in pure metal, atoms are all the same size and so layers of atoms can slide over each other
alloy is a mixture that contains small amounts of other elements
some atoms have different size and so layers of atoms do not slide over each other so easily**