



STRUCTURE TYPES

1) Which type of structure do the following substances have?

	K ₂ O	K	O ₂	CH ₂ O	Ar	S ₈	Br ₂	Cr	Fel ₃	MgSO ₄	N ₂ H ₄
ionic											
simple molecular											
metallic											
monatomic											
giant covalent											

2) Look at the properties of the following substances.

Substance	Melting point (°C)	Boiling point (°C)	Electrical conductivity as	
			solid	liquid
A	587	843	does not conduct	conducts
B	28	201	does not conduct	does not conduct
C	-39	357	conducts	conducts
D	-189	-101	does not conduct	does not conduct
E	2157	2895	does not conduct	does not conduct
F	1024	1598	does not conduct	conducts

- a) Which of these compounds could have an ionic structure?
- b) Which of these compounds could have a simple molecular structure?
- c) Which of these compounds could have a metallic structure?
- d) Which of these compounds could have a giant covalent structure?

3) Write the formula of the following ionic compounds.

- a) potassium oxide
- b) magnesium nitrate
- c) aluminium hydroxide
- d) copper carbonate
- e) ammonium hydroxide
- f) iron (III) oxide

- 4) a) Aluminium is a metal. Explain why it has a high melting point.
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- b) Explain why aluminium conducts electricity.
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- 5) a) Aluminium oxide is an ionic substance with formula Al_2O_3 . Explain what this formula means.

 b) Explain why aluminium oxide has a high melting point.

 c) Explain why aluminium oxide does not conduct electricity as a solid but does when melted.

- 6) a) Ammonia is a simple molecular substance with formula NH_3 . Explain what this formula means.

 b) Explain why ammonia has a low melting point.

 c) Explain why ammonia does not conduct electricity in any state.

- 7) a) Explain why diamond is hard but graphite is soft.

 b) Explain why graphite conducts electricity but diamond does not.

- 8) Complete the table to draw any missing stick or dot-cross diagrams for the molecules shown below.

Substance	ammonia NH_3	oxygen O_2	oxygen fluoride OF_2
Stick diagram	$\begin{array}{c} \text{H} \\ \\ \text{H}-\text{N}-\text{H} \end{array}$		
Dot-cross diagram			