

GCSE Chemistry A (Gateway Science)
J248/03 C1-C3 and C7 Higher (Higher Tier)

Question Set 20

1 Look at the data about some substances.

Substance	Melting point (°C)	Boiling point (°C)	Does it conduct electricity?	Density (g/cm ³)
A	0	100	no	1.0
B	>3000	>4000	no	3.5
C	801	1413	Solid does not conduct but conducts when melted or when dissolved in water	2.2

Explain the type of **bonding** present in each substance **A**, **B** and **C**.

Relate the type of bonding to the **properties** of each substance.

[6]

Total Marks for Question Set 20: 6

- Substance A is a simple molecular because it has a low melting point and boiling point meaning there are weak intermolecular forces. A does not conduct electricity because there are no free electrons or ions. Hence A is likely to be a covalent structure.
- Substance B is a giant covalent structure because it has high melting + boiling points meaning there are many strong covalent bonds. B is a poor conductor because there are no free electrons or ions.
- Substance C has a high melting + boiling point because there are strong electrostatic forces of attraction between (oppositely charged) ions. C does not conduct electricity as a solid but does when molten or dissolved in water because the ions cannot move but in liquid / aqueous state, the ions can move. Hence B is likely to be an ionic compound.

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