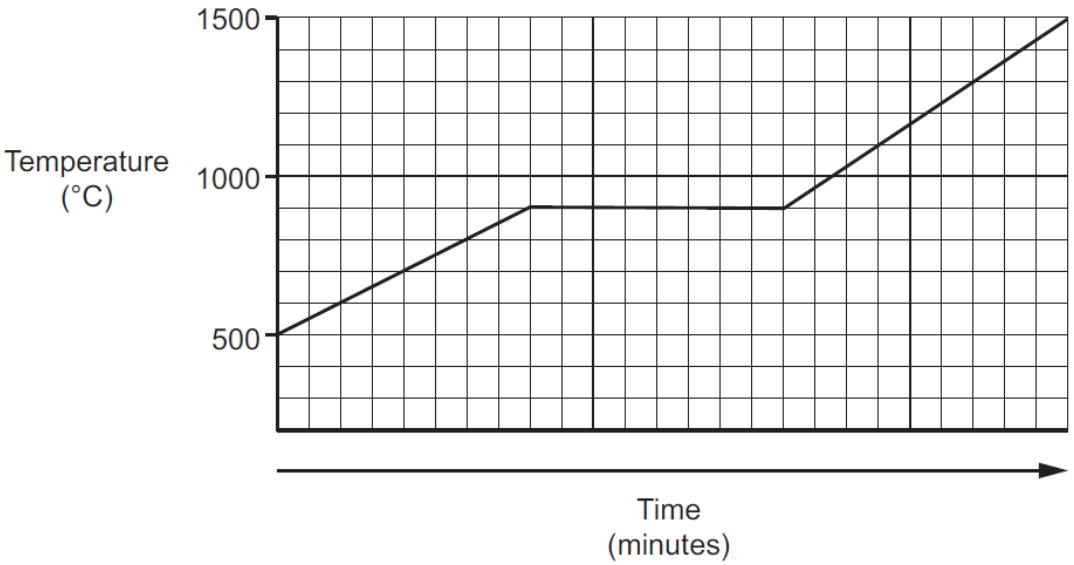
GCSE Chemistry A (Gateway Science)

J248/01 Chemistry A C1-C3 and C7 (Foundation Tier)

Question Set 26

1 A new solid, compound **X**, has been discovered. Scientists investigated the effect of heat on compound **X**.

Look at the graph. It shows how the state of compound **X** changes as it is heated.



(a) (i) What is the **melting point** of compound **X**?

Melting point = ...900..... °C **[1]**

(ii) A scientist describes compound **X** as a **pure** substance.

Explain what scientists mean when they describe compounds as pure.

A pure substance consists only of one element or one compound **[1]**

(iii) Explain how the scientists tell from the graph that compound **X** is a pure substance.

[1]

Compound X has only one melting temperature (not a range).

(b)* Scientists find out some more information about compound **X**.

Compound X

	YES	NO
High melting point	✓	✗
Conducts electricity when solid	✗	✓
Conducts electricity when molten	✓	✗

Describe and explain the type of bonding found in compound **X**.

Use all the information above to justify your answer.

[6]

The substance is ionically bonded. We know this because the melting point is high, and this is because the attraction between oppositely charged ions is strong and requires lots of energy to break. The fact that is only conducts electricity when molten, and not solid, proves it is ionic bonding also. This is because as a solid, the ions are in fixed positions, but when molten they are free to move and carry a charge.

Total Marks for Question Set 26: 9