

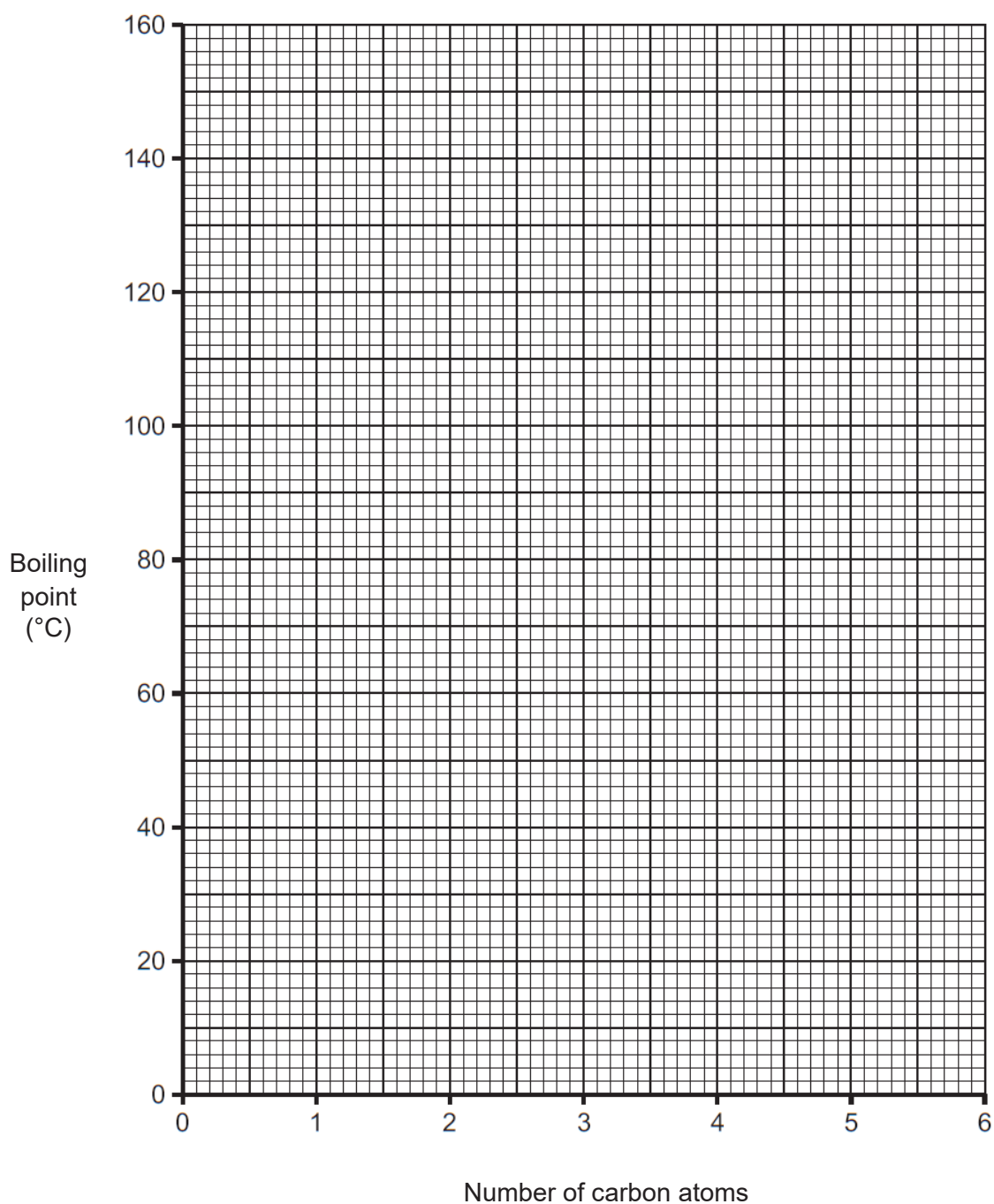
**GCSE Chemistry A (Gateway Science)**  
**J248/02 C4-C6 and C7 Foundation (Foundation Tier)**

**Question Set 22**

1 A student is using the internet to find out about alcohols. The student finds the following information.

Name	Number of carbon atoms	Boiling point (°C)
Methanol	1	65
Ethanol	2	79
Propanol	3	97
Pentanol	5	138
Hexanol	6	156

(a) Plot a graph of the boiling points of the alcohols on the grid. Draw a line of best fit.



(b) (i) The student could not find a value for the boiling point of butanol,  $C_4H_9OH$ .

Use the graph to estimate the boiling point of butanol.

Answer = ..... °C [1]

(ii) Draw the **displayed formula** of butanol,  $C_4H_9OH$ .

[1]

(c) The alcohols all react in a similar way because they all contain the same **functional group**.

What is the functional group in an **alcohol** molecule?

[1]

(d) Ethanol,  $C_2H_5OH$ , can be oxidised to **ethanoic acid** using potassium manganate(VII).

What is the formula of ethanoic acid?

[1]

**Total Marks for Question Set 22: 7**

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