Oxford Cambridge and RSA

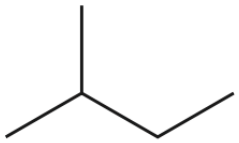
AS Level Chemistry A

H032/01 Breadth in chemistry

Question Set 16

1. (a) This question is about saturated hydrocarbons.

Compounds **A**, **B** and **C** are saturated hydrocarbons.
The structures and boiling points of **A**, **B** and **C** are shown below.

	Isomer	Boiling point /°C
A		36
B		28
C		9

- Use the structures to explain what is meant by the term structural isomer.
- Explain the trend in boiling points shown by **A**, **B** and **C** in the table.

[5]

(b) Compounds **A**, **B** and **C** all react with chlorine in the presence of ultraviolet radiation to form organic compounds with the formula $C_5H_{11}Cl$.

(i) Name the mechanism for this reaction.

[1]

(ii) Complete the table to show the number of structural isomers of $C_5H_{11}Cl$ that could be formed from the reaction of chlorine with **A** and **B**.

	A	B
Number of structural isomers	.....	.....

[2]

(iii) The reaction of compound **A** with excess chlorine forms a compound **D**, which has a molar mass of $175.5\,g\,mol^{-1}$.

Draw a possible structure for compound **D** and write the equation for its formation from compound **A**. Use molecular formulae in the equation.

[2]

Total Marks for Question Set 16: 10