GCSE Chemistry A (Gateway Science)

J248/02 C4-C6 and C7 Foundation (Foundation Tier)

Question Set 27

1   Crude oil is separated into useful fractions using fractional distillation.

The table shows the percentages of crude oil fractions from different oil wells.

Fraction	Percentage of fraction in crude oil		
	Oil well X	Oil well Y	Oil well Z
LPG	2	7	10
Petrol	3	10	25
Paraffin	6	15	20
Diesel	7	11	15
Fuel oil	26	29	28
Bitumen	56	28	2

(a) Which oil well contains the highest percentage of low boiling point fractions?

Tick (✓) **one** box.

X ☐

Y ☐

Z ✓

[1]

(b) A barrel of crude oil from oil well **Y** has a mass of 139 kg.

Calculate the mass of **fuel oil** in this barrel.
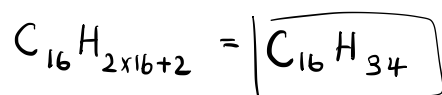
$$139 \times \frac{29}{100} = 40.31$$

Mass = ...40.31.............. kg [2]

(c) Fractions from crude oil contain alkanes.

Alkanes have the general formula C_nH_{2n+2}.

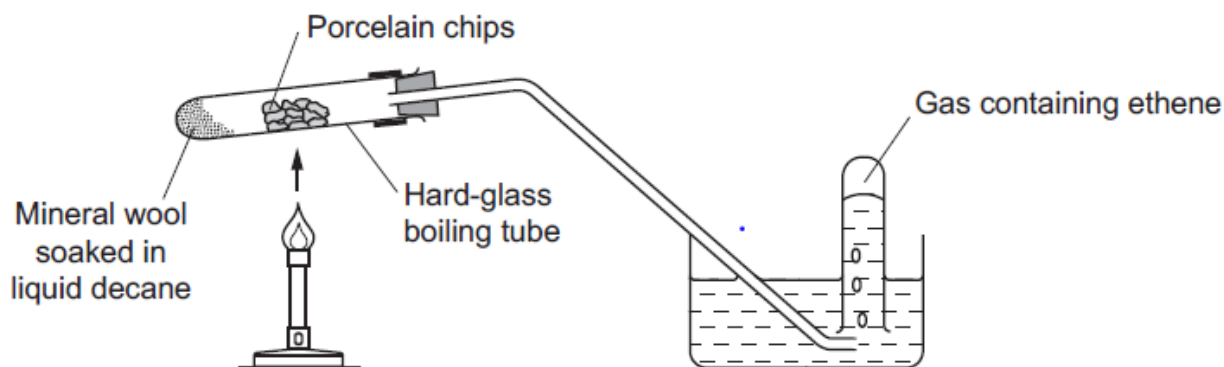Write the **formula** of hexadecane, the alkane with 16 carbon atoms.

[1]

$n = 16$

$C_{16}H_{2\times16+2} = \boxed{C_{16}H_{34}}$

**(d)** A sample of decane was cracked.

Look at the diagram of the apparatus used.

(i) Describe how this apparatus is used to produce ethene from decane.

[2]

-When the decane is heated, it vaporises (turns into gas)

- Decane vapour breaks down as it comes into contact with hot porous pot

- Large molecules of decane produce smaller molecules called ethene

(ii) One molecule of decane, $C_{10}H_{22}$, produced two molecules of ethene, C_2H_4, and one molecule of product **Z**.

[1]

$$C_{10}H_{22} \rightarrow 2C_2H_4 + \text{product } Z$$
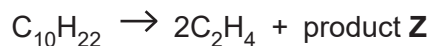
Write the **formula** for product **Z**.

C_6H_{14}
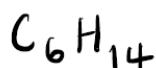
Total Marks for Question Set 27: 7