

11.3 Fuels

Name: _____ Class: _____ Date: _____

Total: 8 marks

KEY WORDS petroleum • hydrogen • fractions • hydrocarbon
• fractionating column

Objective

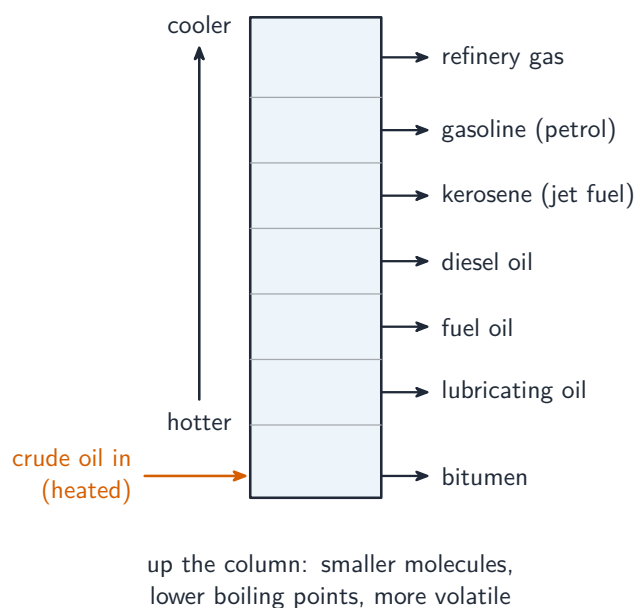
Build the skills to answer exam questions on **fuels** – **fossil fuels**, **hydrocarbons**, and the **fractional distillation** of petroleum.

You must be able to:

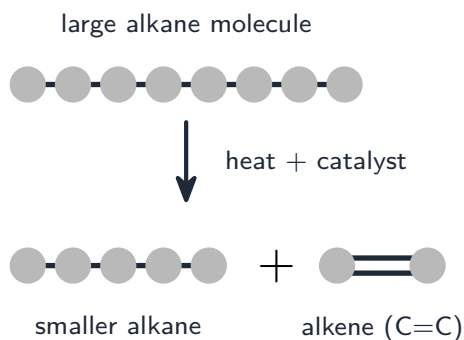
- name the fossil fuels and define a hydrocarbon
- describe fractional distillation and the trends up the column
- match fractions to their uses

1 Key knowledge and worked examples

■ Fractional distillation



Hot at the bottom, cool at the top; each fraction condenses at a different height



Cracking turns long fractions into useful fuels

- going **up** the column: shorter chains, higher volatility, lower boiling point, lower viscosity.
- fractions: refinery gas, gasoline, naphtha, kerosene, diesel, fuel oil, bitumen.

2 Practice

2.1 Define a hydrocarbon. [1]

2.2 Name the fraction used as fuel for cars. [1]

3 Exam-style questions

3.1 Going up the fractionating column, the boiling point of the fractions: [1]

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- A increases
B decreases
C stays the same
D increases then decreases

3.2 Petroleum is separated by fractional distillation.

(a) Explain why the different fractions separate. [2]

(b) State one use of bitumen. [1]

3.3 Explain why a fraction near the top of the column flows more easily than one near the bottom. [2]
