

(Carbon compounds as the basis of organic chemistry)

Q1.a)(2019)

This question is about crude oil and hydrocarbons.

Figure 6 shows a fractionating column used to separate crude oil into fractions.

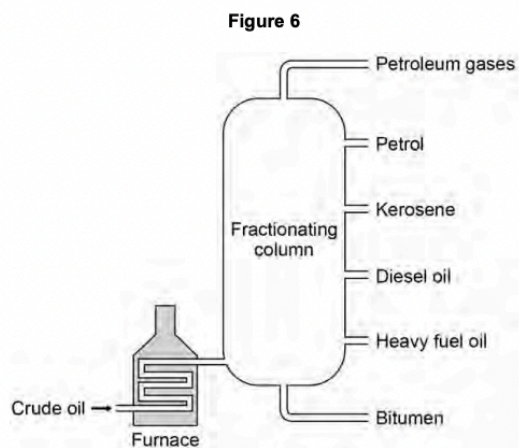


Table 5 gives information about some of the fractions.

Table 5

Fraction	Boiling point range in °C
Petroleum gases	Below 30
Petrol	40–110
Kerosene	180–260
Diesel oil	260–320
Heavy fuel oil	320–400
Bitumen	400–450

] Suggest a suitable temperature for the furnace in **Figure 6**.

[1 mark]

_____ °C

Q1.b)(2019)

Explain why diesel oil collects above heavy fuel oil but below kerosene in the fractionating column.

Use **Table 5**.

[2 marks]

Q1.c)(2019)

Suggest **two** reasons why bitumen is **not** used as a fuel.

[2 marks]

1

2

Q1.d)(2019)

Petrol contains mainly alkanes.

Which of the following compounds is an alkane?

[1 mark]

Tick (✓) **one** box.

☐☐☐☐

Q1.e)(2019)

Large hydrocarbon molecules in the diesel oil fraction are cracked to produce smaller hydrocarbon molecules.

Describe the conditions needed to crack hydrocarbon molecules from the diesel oil fraction.

[2 marks]

Q1.f)(2019)

Explain why large hydrocarbon molecules in the diesel oil fraction are cracked to produce smaller hydrocarbon molecules.

[2 marks]

Q1.g)(2019)

Complete the equation for the cracking of $C_{15}H_{32}$

[1 mark]

