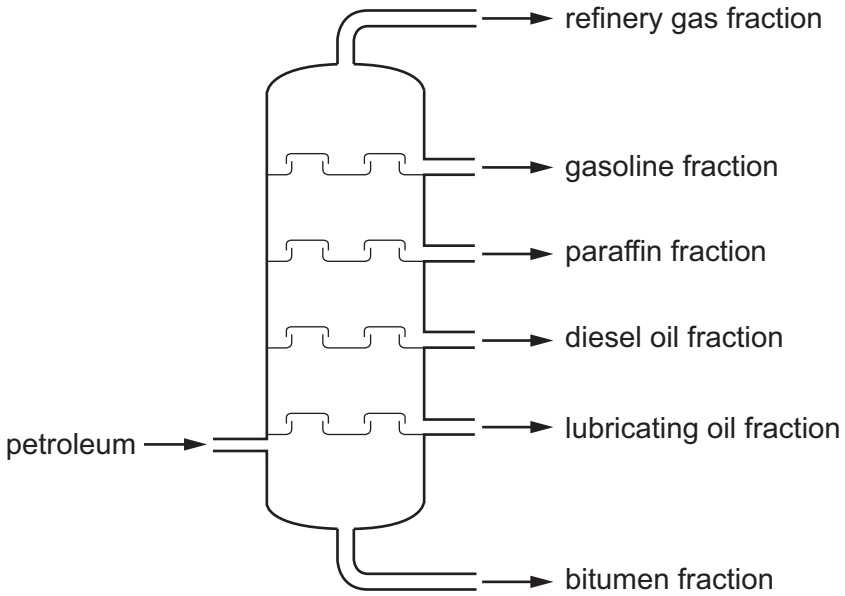
Paper 1

Questions are applicable for both core and extended candidates

1 The fractional distillation of petroleum is shown.



Which fraction is the least volatile?

A bitumen

B diesel oil

C gasoline

D refinery gas

2 Petroleum is fractionally distilled at an oil refinery.

The table shows some fractions and uses.

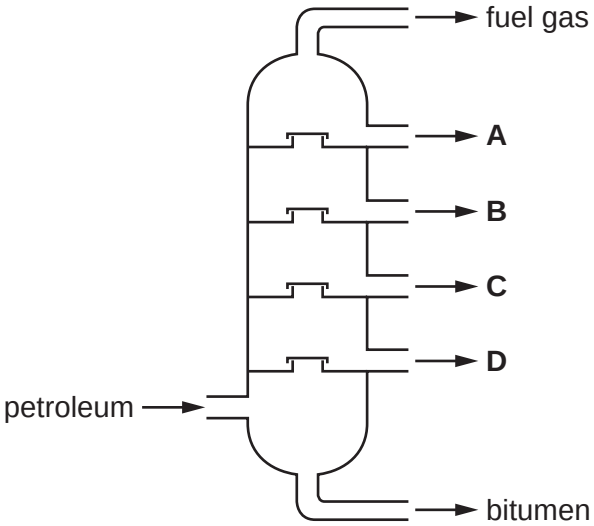
	fraction	use
1	gasoline	fuel for ships
2	refinery gas	lubrication
3	naphtha	making chemicals
4	kerosene	jet fuel

Which rows identify a use for the fraction listed?

A 1 and 2 **B** 1 and 3 **C** 2 and 4 **D** 3 and 4

3 The fractional distillation of petroleum is shown.

Which fraction contains hydrocarbons with the longest chain length?



4 Petroleum is separated into fractions by fractional distillation.

Which row describes a use of the named fraction?

	fraction	use
A	bitumen	fuel for ships
B	refinery gas	jet fuel
C	fuel oil	road making
D	gasoline	fuel for cars

5 Petroleum is a mixture of different hydrocarbons.

Which process is used to separate the petroleum into groups of similar hydrocarbons?

A combustion

B cracking

C fractional distillation

D reduction

6 Which statement about fuels is correct?

A Heat energy is only produced by burning fuels.

B Hydrogen is used as a fuel although it is difficult to store.

C Methane is a good fuel because it produces only water when burned.

D Uranium is burned in air to produce energy.

7 The fractional distillation of petroleum produces a series of fractions with different uses.

Which row identifies a use for a fraction?

	fraction	use
A	bitumen	jet fuel
B	gas oil	cooking
C	kerosene	making roads
D	naphtha	making chemicals

8 Which fuels release carbon dioxide when burned?

1 gasoline

2 hydrogen

3 methane

A 1 and 2 **B** 1 and 3 **C** 2 and 3 **D** 3 only

9 Some properties of four fuels are shown.

Which fuel is a gas at room temperature and makes two products when it burns in a plentiful supply of air?

	fuel	formula	melting point / °C	boiling point / °C
A	hydrogen	H_2	–259	–253
B	methane	CH_4	–182	–164
C	octane	C_8H_{18}	–57	126
D	wax	$C_{31}H_{64}$	60	400

10 Fuel oil and naphtha are two fractions obtained from petroleum.

What are the major uses of these fractions?

	fuel oil	naphtha
A	jet fuel	making chemicals
B	jet fuel	making roads
C	ship fuel	making chemicals
D	ship fuel	making roads