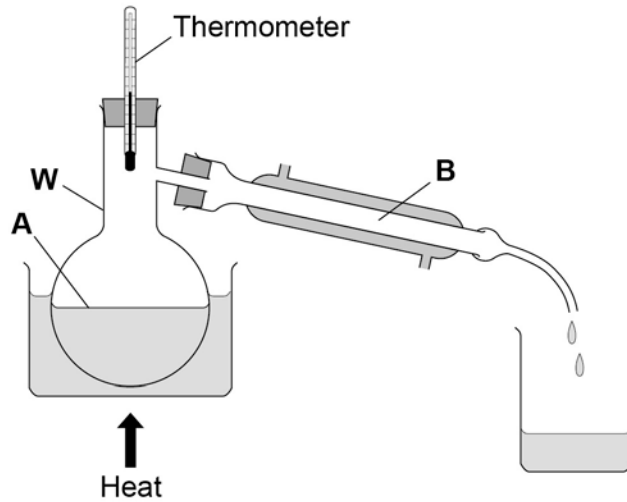


0 2

The apparatus in **Figure 1** is used to separate a mixture of liquids in a fuel.

Figure 1



0 2 . 1

What is apparatus **W** on **Figure 1**?

[1 mark]

Tick **one** box.

Beaker

Boiling Tube

Flask

Jug

0 2 . **2** What is the name of this method of separation?

[1 mark]

Tick **one** box.

Crystallisation

Electrolysis

Filtration

Distillation

0 2 . **3** Name the changes of state taking place at **A** and **B** in **Figure 1**.

Use words from the box.

[2 marks]

boiling condensing freezing melting

Change of state at **A**: _____

Change of state at **B**: _____

Question 2 continues on the next page

Table 1 shows the boiling points of the hydrocarbons in the fuel.

Table 1

Hydrocarbon	Boiling point in °C
Pentane	36
Hexane	69
Heptane	98
Octane	125

0 2 . **4** Which hydrocarbon will be the last to collect in the beaker?

[1 mark]

Tick **one** box.

Pentane

Hexane

Heptane

Octane

0 2 . **5** The fuel is a mixture of liquids that has been designed as a useful product.

What name is given to this type of mixture?

[1 mark]

Tick **one** box.

Catalyst

Formulation

Polymer

Solvent

0 2 . **6** Describe how this fuel is different from crude oil.

[2 marks]

0 2 . **7** A student measured the melting point of a solid hydrocarbon four times.

The student's results are in **Table 2**.

Table 2

	Trial 1	Trial 2	Trial 3	Trial 4
Melting point in °C	35	48	37	37

Calculate the mean melting point of the hydrocarbon, leaving out any anomalous result.

Give your answer to two significant figures.

[2 marks]

Mean melting point = _____ °C

Turn over for the next question

Question 2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.1	Flask		1	AO1/2 5.1.1.2, 5.7.1.2
02.2	Fractional distillation		1	AO1/2 5.7.1.2
02.3	A – boiling B – condensing	in this order	1 1	AO1/2 5.2.2.1
02.4	Pentane		1	AO2/1 5.10.1.2
02.5	Formulation		1	AO1/1 5.8.1.2
02.6	the fuel is a pure compound and crude oil is a mixture or the fuel is made up of four hydrocarbons and crude oil could have many more	allow crude oil contains a large number of compounds and the fuel contains four	1 1	AO1/1 5.7.1.1
02.7	$(35 + 37 + 37/3) = 36.33$ 36	allow $(35 + 48 + 37 + 37/4 =)$ 39(.25) for 1 mark	1 1	AO2/1 5.7.1.3
Total			10	