

C1 d-f assessed task

Q1) What is the name given to a compound that contains only hydrogen and carbon?

[1]

Q2) Match the words with the correct definition.

Cracking
Fractional distillation
Boiling

Turning crude oil liquid into vapour.
Producing alkenes from long chain alkanes.
Separating different useful products from crude oil.

[3]

Q3) Arrange the 4 fractions in order of increasing boiling point.

**Fuel oil    heating oil    paraffin    petrol**

.....  
.....  
.....  
.....

[4]

Q4) The table contains the boiling temperature range for 4 fractions from the fractional distillation column.

Fraction	Boiling temperature range in °C
A	70-120
B	120-170
C	170-220
D	220-270

Which fraction comes out highest from the column?.....

[1]

Q5) The following is a list of hydrocarbons:

**ethane    ethane    propane    propene    poly(ethene)**

a) Write down the names of 2 alkanes:

[2]

b) Write down the name of 2 alkenes:

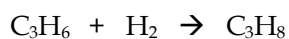
[2]

Q6) The linking of small ethane molecules together to form long chains is called

.....

[1]

Q7) The equation for the reaction of propene and hydrogen is:



a) Draw the displayed (structural) formula and name the product.

[3]

b) What feature in the propene molecule is lost when hydrogen is added?

[1]

c) What type of reaction is this?

[1]

Q8)

a) Write down one advantage of waterproof clothing.

[1]

b) Write down one advantage of breathable clothing.

[1]

Q9) Answer the following questions by using words from this list.

**nylon      polyester      poly(ethene)      polystyrene**

a) Write down the names of 2 polymers commonly used to make clothing.

[2]

b) Write down the name of a polymer used to make plastic supermarket bags.

[1]

Q10) Here is some information about four polymers A-D.

Polymer	Stretches	Easily coloured	Cost
A	easily	yes	high
B	hard to stretch	no	high
C	easily	yes	low
D	hard to stretch	no	Low

Which polymer would be best for making bags to wrap vegetables in a supermarket?

[1]

Q11)

Crude oil is a fossil fuel.

(a) Crude oil is separated at an oil refinery into useful parts.

These parts are called fractions.

(i) What is the name of the process that separates crude oil?

Choose from this list.

**decomposition**

**dissolving**

**fractional distillation**

**polymerisation**

answer .....[1]

(ii) Two of the substances in the list are fractions that can be separated from crude oil.

Which **two**?

Put ticks (✓) in the **two** correct boxes.

- |           |                          |
|-----------|--------------------------|
| carbon    | <input type="checkbox"/> |
| diesel    | <input type="checkbox"/> |
| nylon     | <input type="checkbox"/> |
| petrol    | <input type="checkbox"/> |
| polythene | <input type="checkbox"/> |

[2]

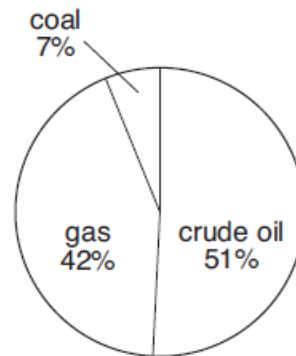
(b) Coal, crude oil and gas are non-renewable energy resources.

Supplies of these three fossil fuels will eventually run out.

Look at the information about fossil fuels.

percentage fossil fuel use in the UK in 2005

fossil fuel	number of years before the fuel runs out
coal	220
crude oil	40
gas	60



(i) Which fossil fuel will still be available in one hundred years' time?

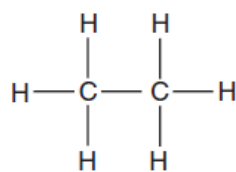
..... [1]

(ii) Which fossil fuel was used the **least** in the UK in 2005?

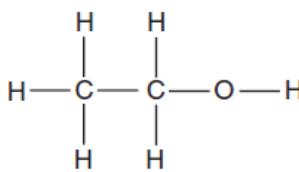
..... [1]

Q12)

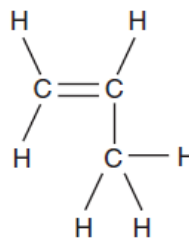
Look at the displayed formulae of some compounds.



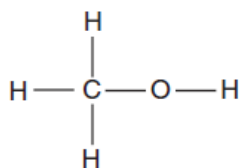
compound A



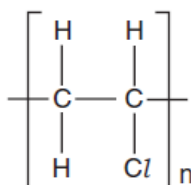
compound B



compound C



compound D



compound E

(a) Which one of the compounds has a molecule with 6 atoms?

Choose from A, B, C, D or E.

answer ..... [1]

(b) Look at structure A.

It is a hydrocarbon.

A hydrocarbon has two elements chemically joined.

Which two elements?

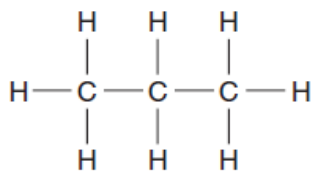
..... and ..... [2]

[Total: 3]

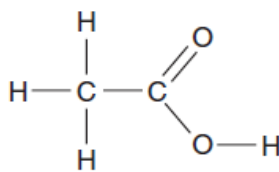
Q13)

This question is about compounds that contain carbon.

Look at the displayed formulae.



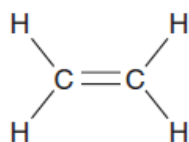
compound A



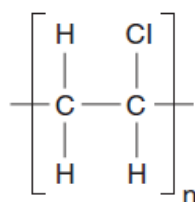
compound B



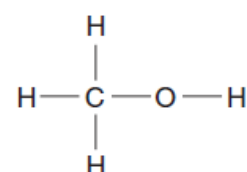
compound C



compound D



compound E



compound F

(a) Look at compound A.

How many **atoms** are there in one molecule of compound A?

..... [1]

(b) Look at compound B.

How many different **elements** are bonded together in compound B?

..... [1]

(c) Choose a compound which is a **hydrocarbon**.

Choose from A, B, C, D, E or F.

..... [1]

(d) Which compound is an **alkene**?

Choose from A, B, C, D, E or F.

..... [1]

(e) Which compound is a **polymer**?

Choose from A, B, C, D, E or F.

..... [1]

Q14)

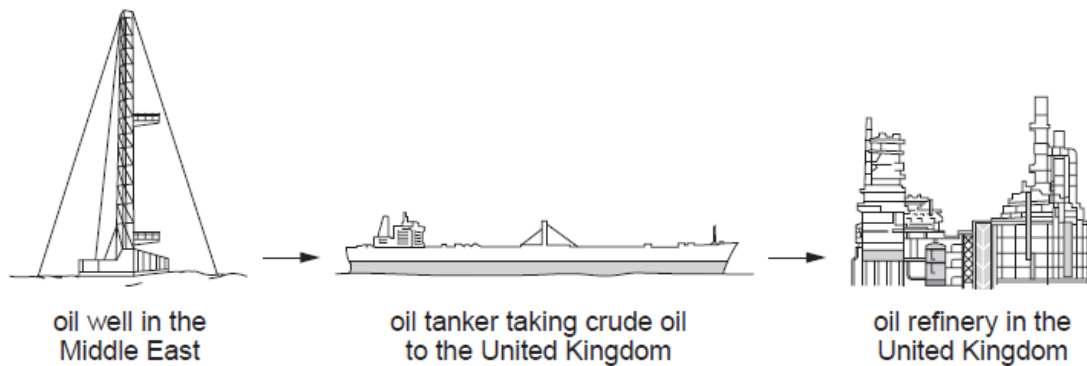
Crude oil is a fossil fuel that is found in the Earth's crust.  
It is pumped to the surface in an oil well.

(a) Crude oil is a **non-renewable** fuel.

Explain why.

.....  
.....[1]

(b) Look at the diagram. It shows how crude oil is transported from an oil well to a refinery.



(i) Crude oil is transported in a ship to oil refineries.  
Sometimes these ships have accidents and crude oil spills out.  
These spills make **oil slicks**.

Explain why oil slicks are a problem.

.....  
.....[1]

One of the processes that happens in an oil refinery is fractional distillation.

Look at the table.

It shows the amount of each fraction made from 100 tonnes of crude oil.

It also shows the amount of each fraction needed for everyday uses.

<b>fraction</b>	<b>amount made in tonnes</b>	<b>amount needed in tonnes</b>
LPG	5	10
petrol	10	25
naphtha	10	5
paraffin	15	10
gas oil	5	5
fuel oil	40	30

Which fraction exactly matches the amount made to the amount needed?

Choose from the table.

.....[1]

Another process that happens in an oil refinery is cracking.

Cracking converts large fractions into smaller fractions.

Explain why cracking is needed. Use the table to help you.

.....

.....[2]

Q15)

Gore-Tex® is used to make waterproof clothing.

It is made of nylon with an outer layer of PTFE / polyurethane.

The PTFE has small holes in it.

(i) The holes make Gore-Tex® waterproof and breathable.

Explain how.

.....  
.....[2]

(ii) The PTFE layer is combined with nylon.

Explain why.

.....  
.....[1]

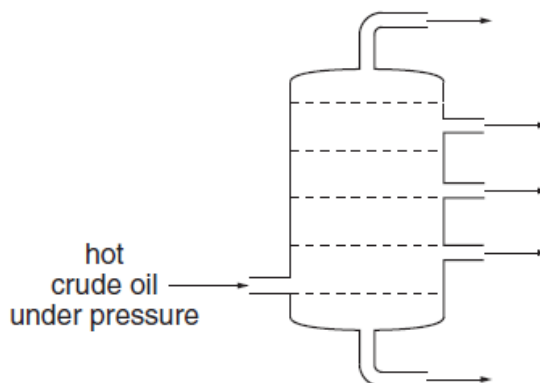
Q16)

Crude oil is a fossil fuel.

Crude oil is separated at an oil refinery into useful fractions.

This is done by fractional distillation.

Look at the diagram. It shows a fractionating column.



(a) Place an X on the diagram to show the **hottest** part of the fractionating column. [1]

(b) Complete the sentences to explain how fractional distillation works.

Choose from the list.

- |                     |                            |                   |
|---------------------|----------------------------|-------------------|
| <b>flammability</b> | <b>boiling temperature</b> | <b>reactivity</b> |
| <b>stronger</b>     | <b>the same as</b>         | <b>weaker</b>     |

The forces between molecules are called intermolecular forces. During boiling, these forces become weaker.

Intermolecular forces between large hydrocarbon molecules are

..... than those between small hydrocarbon molecules.

Hydrocarbons with large molecules have a higher .....

than those of small molecules.

[2]

(c) Some fractions from crude oil are cracked.

Cracking changes large alkane molecules into smaller alkane and alkene molecules.

Why is cracking used?

.....

..... [1]