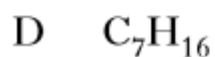
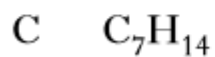
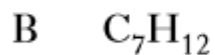
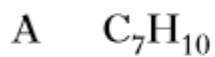


1.

Which of the following could be the molecular formula of a cycloalkane?



C

2.

The names of some hydrocarbons are shown in the grid.

A ethane	B pentene	C cyclohexane
D pentane	E cyclopentane	F propene

(a) Identify the **two** isomers.

A	B	C
D	E	F

B AND F

1

(b) Identify the hydrocarbon with the highest boiling point.

You may wish to use the data booklet to help you.

A	B	C
D	E	F

C

1

- (c) Identify the **two** hydrocarbons which can take part in an addition reaction with hydrogen.

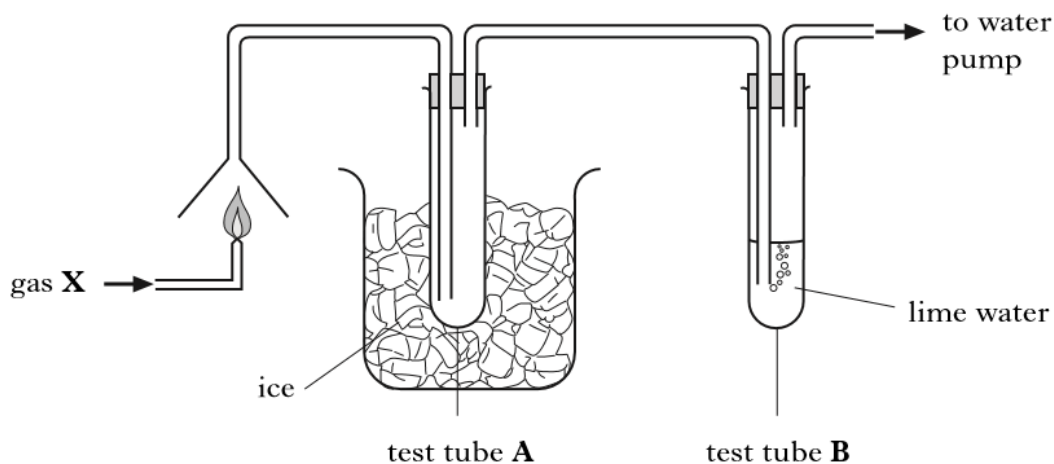
A	B	C
D	E	F

B AND F

1

3.

A student burned gas **X** and the products were passed through the apparatus shown.



- (a) The results are shown in the table.

Observation in test tube A	Observation in test tube B
colourless liquid forms	lime water turns milky

Using the information in the table, name two **elements** which **must** be present in gas **X**.

Carbon and hydrogen

1

- (b) The experiment was repeated using hydrogen gas.

Complete the table showing the results which would have been obtained.

Observation in test tube A	Observation in test tube B
Colorless liquid forms	No change

1

4. The grid shows the structural formulae of some hydrocarbons.

A $\begin{array}{c} \text{H} \quad \text{H} \\ \quad \\ \text{H}-\text{C}-\text{C}-\text{H} \\ \quad \\ \text{H} \quad \text{H} \end{array}$	B $\begin{array}{c} \text{H} \quad \text{H} \\ \diagdown \quad \diagup \\ \text{C} \\ \diagup \quad \diagdown \\ \text{H} \quad \text{C} \quad \text{H} \\ \diagdown \quad \diagup \\ \text{C} \quad \text{C} \\ \diagup \quad \diagdown \\ \text{H} \quad \text{H} \end{array}$	C $\begin{array}{c} \text{H} \quad \text{H} \\ \quad \\ \text{C} = \text{C} \\ \quad \\ \text{H} \quad \text{H} \end{array}$
D $\begin{array}{c} \text{CH}_3 \quad \text{H} \\ \quad \\ \text{C} = \text{C} \\ \quad \\ \text{H} \quad \text{H} \end{array}$	E $\begin{array}{c} \text{H} \quad \text{CH}_3 \quad \text{H} \\ \quad \quad \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{H} \\ \quad \quad \\ \text{H} \quad \text{CH}_3 \quad \text{H} \end{array}$	F $\begin{array}{c} \text{H} \quad \text{H} \\ \quad \\ \text{H}-\text{C}-\text{C}-\text{H} \\ \quad \\ \text{H}-\text{C}-\text{C}-\text{H} \\ \quad \\ \text{H} \quad \text{H} \end{array}$

Identify the **two** hydrocarbons with the general formula C_nH_{2n} which do **not** decolourise bromine solution quickly.

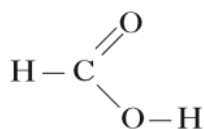
A	B	C
D	E	F

B and F

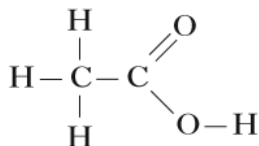
5

Alkanoic acids are a family of compounds which contain the $\begin{array}{c} \text{O} \\ \parallel \\ -\text{C} \\ \backslash \\ \text{O}-\text{H} \end{array}$ group. Marks

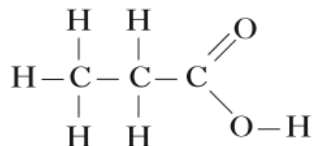
The **full** structural formulae for the first three members are shown.



methanoic
acid

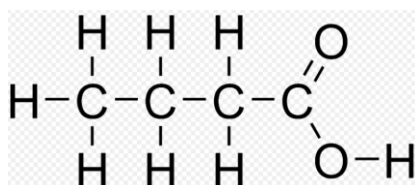


ethanoic
acid



propanoic
acid

- (a) Draw the **full** structural formula for the alkanoic acid containing 4 carbon atoms.



1

- (b) The table gives information on some alkanoic acids.

<i>Acid</i>	<i>Boiling point/°C</i>
methanoic acid	101
ethanoic acid	118
propanoic acid	141
butanoic acid	164

- (i) Using this information, make a general statement linking the boiling point to the number of carbon atoms.

The greater the number of carbon atoms

The greater the boiling point

1

- (ii) Predict the boiling point of pentanoic acid.

— **187** °C

1