





# THE PERIODIC TABLE

Period **1** **2** **3** **4** **5** **6** **7** **0**  
 Group

Period

1	H	1
	Hydrogen	

1	2	3	4	5	6	7	0
1	Li Lithium 3	Be Beryllium 4					He Helium 2
2	7	9					20
	Li	Be					He
	23	24					19
	Na	Mg					F
	11	12					9
	Sodium	Magnesium					Fluorine
3	11	12					35.5
	Na	Mg					Cl
	11	12					17
	Sodium	Magnesium					Chlorine
4	19	20	21	22	23	24	18
	K	Ca	Sc	Ti	V	Cr	Ar
	19	20	21	22	23	24	18
	Potassium	Calcium	Scandium	Titanium	Vanadium	Chromium	Argon
5	37	38	39	40	41	42	36
	Rb	Sr	Y	Zr	Nb	Mo	Kr
	37	38	39	40	41	42	36
	Rubidium	Strontium	Yttrium	Zirconium	Niobium	Molybdenum	Krypton
6	55	56	57	72	73	74	54
	Cs	Ba	La	Hf	Ta	W	Xe
	55	56	57	72	73	74	54
	Cesium	Barium	Lanthanum	Hafnium	Tantalum	Tungsten	Xenon
7	87	88	89	104	105	106	86
	Fr	Ra	Ac	Rf	Db	Sg	Rn
	87	88	89	104	105	106	86
	Francium	Radium	Actinium	Rutherfordium	Dubnium	Seaborgium	Radon

**Key**

Relative atomic mass
Symbol
Name
Atomic number

Answer ALL the questions. Write your answers in the spaces provided.

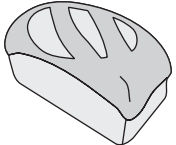
1. Enzymes have many uses.

Draw a straight line from each use to the reason for using enzymes.  
One has been done for you.

use

reason for using enzymes

making bread




to remove some stains

brewing beer




to make solids from milk

washing clothes

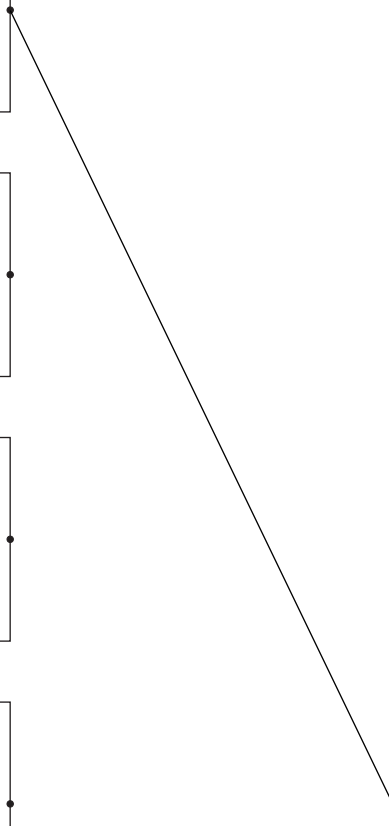


to make alcohol

making cheese



to make gas to cause rising



(Total 3 marks)

Q1



N 2 1 4 1 1 A 0 3 0 8

2. The table shows information about three hydrocarbon molecules.

name	formula	structure
methane	CH <sub>4</sub>	<pre>             -C-                   </pre>
ethane	C <sub>2</sub> H <sub>6</sub>	<pre>       H H               H-C-C-H                 H H           </pre>
propane		<pre>       H H H                 H-C-C-C-H                   H H H           </pre>

(a) (i) In the table complete the structure of methane. (1)

(ii) Write in the formula of propane. (1)

(b) Name the two elements present in ethane.  
 ..... and ..... (2)

(c) The balanced equation for the burning of methane is  

$$\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$$
 Complete the word equation for the burning of methane.  
 methane + ..... → carbon dioxide + water (1)

**(Total 5 marks)**

Q2



3. Elements are arranged in groups in the periodic table.

(a) Iodine and chlorine are two halogens.

(i) Give the number of the group in the periodic table in which the halogens are found.

.....  
(1)

(ii) Complete the following.

The halogens have similar chemical reactions. This is because in the outer shell of their atoms they have the same number of .....

(1)

(b) Explain why

(i) moist blue litmus paper turns white when it is placed in chlorine.

.....  
(1)

(ii) iodine solution is put on cuts in the skin.

.....  
(1)

(c) Helium is a noble gas. An atom of helium contains 2 protons, 2 neutrons and 2 electrons.

Draw a labelled diagram to show the number and position of these particles in the helium atom.

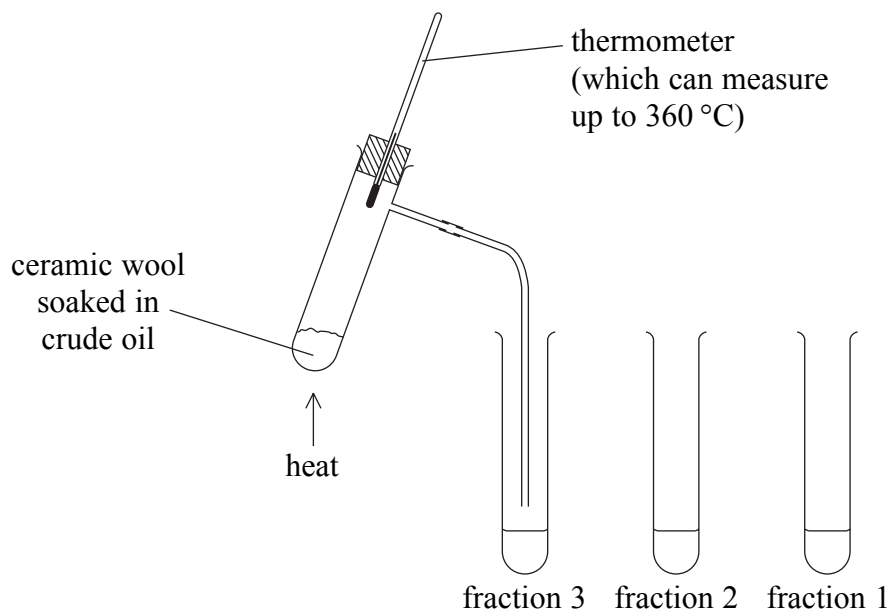
(3)

Q3

(Total 7 marks)



4. Crude oil is an important raw material.  
This apparatus can be used in the laboratory to separate crude oil into fractions.



The table gives information about four fractions that were separated using this apparatus.

fraction	boiling point range	thickness	how it burns	number of carbon atoms in molecule
1	below 70 °C	runny	easily with no smoke	4–6
2	between 70 °C and 120 °C	fairly runny	quite easily with some smoke	6–8
3	between 120 °C and 170 °C	thicker	harder to burn with some smoke	8–10
4	between 170 °C and 240 °C	very thick	very hard to burn with smoky flame	10–16

- (a) What name is given to the process used to separate crude oil into fractions?

.....  
(1)



(b) (i) Explain, in terms of molecules, why fraction 4 is less runny than fraction 1.

.....  
(1)

(ii) Suggest why fraction 4 burns with a smoky flame.

.....  
(1)

(c) Most scientists believe that crude oil is a fossil fuel formed millions of years ago from small sea creatures called plankton. Professor Thomas Gold claims that this is not true. He believes that the oil was formed at the same time as the Earth and continues to rise from deep below the Earth's surface.

Suggest why it is difficult for Professor Gold to have his ideas accepted.

.....  
(1)

(d) The following was printed on a plastic bag.

**100% degradable**  
From date of production this bag degrades  
in a maximum of 18 months, unlike conventional  
plastic which potentially lasts one million years

Biodegradable plastics are made from plant materials.  
Explain why it is better for the environment if we use biodegradable rather than non-biodegradable plastics.



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

(3)

Q4

(Total 7 marks)



Leave blank

5. The table gives information about some of the halogens.

name	atomic number	physical state at room temperature (20 °C)	melting point (°C)	boiling point (°C)
fluorine	9	gas	-220	-188
chlorine		gas	-101	-35
bromine	35		-7	59
iodine	53	solid	114	187

(a) Complete the table.

(2)

(b) Sea water contains bromide ions.

Bromine is obtained by passing chlorine into sea water.

(i) Explain why this reaction occurs.

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

(2)

(ii) Suggest why fluorine is not used to obtain bromine from sea water.

.....

(1)

(c) Chlorine reacts with sodium to form sodium chloride.

Write the balanced equation for this reaction.

.....

(3)

Q5

(Total 8 marks)

TOTAL FOR PAPER: 30 MARKS

END

