

# Periodic Table

## Question Paper

Level	GCSE
Subject	Chemistry
Exam Board	Edexcel IGCSE
Module	Double Award (Paper 1C)
Topic	Chemistry of the Elements
Sub-Topic	Periodic Table
Booklet	Question Paper

**Time Allowed:** 40 minutes

**Score:** /33

**Percentage:** /100

**Grade Boundaries:**

A*	A	B	C	D	E	U
>85%	75%	70%	60%	55%	50%	<50%

1. The diagram shows the positions of some elements in the Periodic Table.

	1	2											3	4	5	6	7	0	
			H																He
																F			
Na																Cl			
K															Br				

(a) Complete the following sentence. (1)

The elements in the Periodic Table are arranged in order of .....

.....

(b) Name an element shown in the diagram that is: (2)

(i) a metal .....

(ii) a halogen .....

(c) (i) Name **two** elements in the diagram that react together to form an ionic compound. (1)

..... and .....

(ii) Draw a dot and cross diagram for the ions in the compound formed in (c)(i).  
 Show only the outer electrons. Include the charge on each ion. (3)

- (d) Chlorine reacts quickly with hot iron to form iron(III) chloride.  
Bromine reacts less quickly with hot iron to form iron(III) bromide.

Suggest how fluorine reacts with hot iron and name the compound formed.

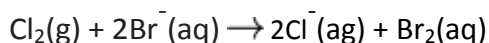
(2)

.....

.....

- (e) When chlorine gas is bubbled through an aqueous solution of sodium bromide, a displacement reaction takes place.

The ionic equation for the reaction is:



State the colour change that you would observe in the solution during this reaction.

(2)

Colour at start .....

Colour at end .....

**(Total for Question 1 = 11 marks)**

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2 Some of the gases used in industry are stored in cylinders.

(a) The cylinders are painted in different colours according to which gas is stored in them.

Why is it an advantage to use different colours?

(1)

(b) The table gives information about five gases. There is no information given about air.

<b>Name of gas</b>	argon	carbon dioxide	helium	oxygen	hydrogen	air
<b>Formula of gas</b>	Ar	CO <sub>2</sub>	He	O <sub>2</sub>	H <sub>2</sub>	
<b>Relative formula mass (<math>M_r</math>) of gas</b>	40	44	4	32	2	

(i) Which two gases in the table are noble gases?

(1)

..... and .....

(ii) Which gas in the table makes up approximately 21% of air?

(1)

(iii) Why is it not possible to give the information about air in the table?

(1)

(iv) Hydrogen and helium have both been used in balloons.

State one advantage of using helium instead of hydrogen.

(1)

(c) State which one of the gases in the table is used in

(i) the manufacture of ammonia

(1)

.....  
(ii) the manufacture of fire extinguishers

(1)

.....  
(iii) the manufacture of fizzy drinks

(1)

.....  
**(Total for Question 2 = 8 marks)**

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3 The table gives information about the first three elements in Group 1 of the Periodic Table.

Element	Atomic number	Relative atomic mass	Electronic configuration	Density in g / cm <sup>3</sup>	Melting point in °C
lithium	3	7	2.1	0.53	180
sodium	11	23	2.8.1	0.97	98
potassium	19	39	2.8.8.1	0.86	64

(a) Which information shows that the elements have similar chemical properties?

Give a reason for your choice.

(2)

Information.....

Reason.....

(b) The elements in Group 1 show a clear trend (regular pattern) in some of their **physical** properties.

Identify the physical property that shows a clear trend.

(1)

(c) The elements also show a clear trend in their **chemical** properties, such as their reaction with water.

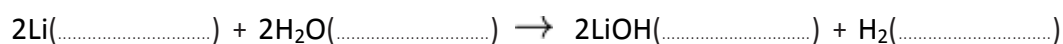
When a small piece of lithium is added to water it fizzes gently and eventually disappears to form a solution.

(i) Describe a test to show that the gas given off is hydrogen.

(1)

(ii) Complete the equation for the reaction by inserting the state symbols.

(1)



(iii) State and explain the effect that the solution formed has on red litmus paper.

(2)

.....

.....

.....

.....

(d) State two similarities and two differences between the reactions of lithium and potassium with water.

(4)

Similarities .....

.....

.....

Differences .....

.....

.....

(e) When lithium burns in oxygen it forms lithium oxide ( $\text{Li}_2\text{O}$ ).

(i) Write a chemical equation for the reaction between lithium and oxygen.

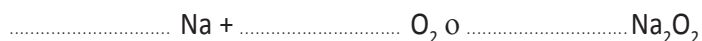
(2)

.....

(ii) When sodium burns in oxygen, one of the products is sodium peroxide ( $\text{Na}_2\text{O}_2$ ).

Balance the equation to show the formation of sodium peroxide.

(1)



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**(Total for Question 3 = 14 marks)**