

IGCSE G9 SCIENCE END OF SEMESTER 1 Chem Revision Exam Questions (33 marks)

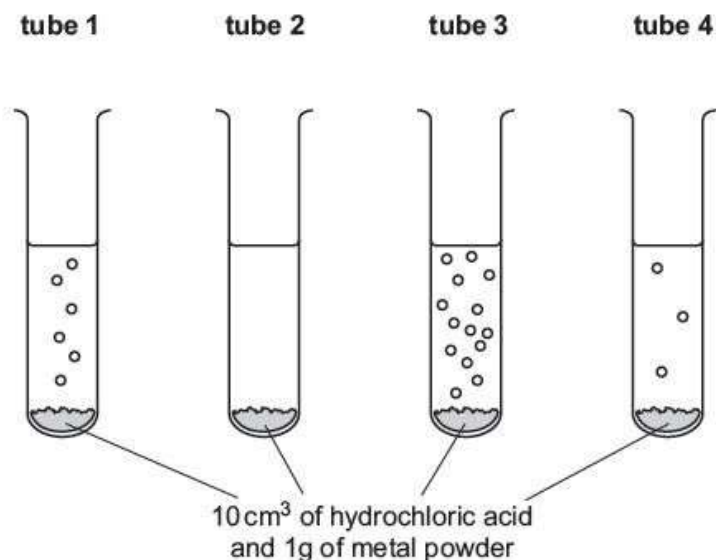
Q# 1/ 2017/w/Sec1 Sci/ Paper 1/Q# 5

5 Chen investigates the reaction of acids with metals.

He puts hydrochloric acid into four test-tubes.

Chen then adds a different metal powder to each tube.

The diagram shows his results.



Chen counts the bubbles formed in the reaction and records his results in a table.

tube	name of metal
1	iron	6
2	copper	0
3	zinc
4	tin	3

(a) Chen has missed one of the headings in the table.

Complete the table by writing in the missing heading.

[1]

(b) Chen has not recorded the result for zinc.

Complete the table by writing in the result for zinc.

[1]

(c) Write down the metals in order of reactivity.

most reactive

.....

.....

least reactive

[1]

(d) The bubbles are made of a gas.

What is the name of the gas that forms when metals react with acids?

.....

[1]

(e) Chen uses hydrochloric acid in his investigation.

What is the name of the **salt** formed when zinc reacts with hydrochloric acid?

.....

[1]

5 Different metals are added to water.

Some of these metals are added to acid.

Here are the results.

metal	observation with water	observation with acid
zinc	no reaction	bubbles of gas and metal slowly react
potassium	it floats and then a flame is seen	—
calcium	bubbles of gas	reacts quickly producing many bubbles of gas
platinum	no reaction	no reaction
nickel	no reaction	a few bubbles of gas when the acid is warmed

(a) Write the five metals in order of reactivity.

Start with the most reactive metal at the top.

most reactive

.....

.....

.....

least reactive [1]

(b) Name another metal that reacts in a similar way to potassium.

..... [1]

(c) Why is there no result shown in the table for potassium being added to acid?

..... [1]

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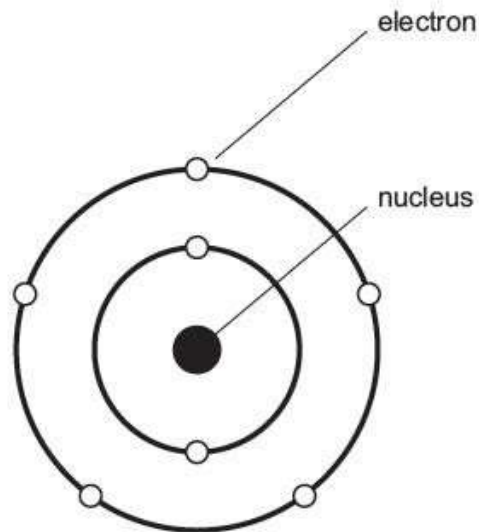
(b) Name another metal that reacts in a similar way to potassium.

..... [1]

(c) Why is there no result shown in the table for potassium being added to acid?

..... [1]

7 Look at the diagram of a nitrogen atom.



(a) The protons are not shown on the diagram.

How many protons are in a nitrogen atom?

..... [1]

(b) Which group of the Periodic Table does nitrogen belong to?

..... [1]

(c) Write down the chemical symbol for nitrogen.

..... [1]

10 Look at the diagram. It shows some of the elements in the Periodic Table.

			H						He
Li					B	C		O	F
Na					Al				Cl
K		transition elements							

Use this Periodic Table to answer these questions.

(a) Write down the chemical symbol of the **most** reactive element in Group 1.

..... [1]

(b) An atom of an element has only **one** proton inside its nucleus.

Write down the chemical symbol for this element.

..... [1]

(c) Write down the chemical symbol of the element in Group 7 (Group 17) **and** Period 3.

..... [1]

(d) Write down the **name** of the element in the same **group** as boron.

..... [1]

Q# 5/ 2016/s/Sec1 Sci/ Paper 2/

9 Sodium is in Group 1 of the Periodic Table.

(c) Sodium reacts with water. A gas is formed.

(i) Name the gas that is formed.

..... [1]

(ii) Potassium is another element in Group 1.

Potassium is below sodium in the Periodic Table.

Complete the sentence.

The rate of reaction of potassium with water is than

the rate of reaction of sodium with water. [1]

Q# 6/ 2015/w/Sec1 Sci/ Paper 2/

5 Look at the information about different atoms.

${}_{9}^{19}\text{F}$	${}_{16}^{32}\text{S}$	${}_{11}^{23}\text{Na}$	${}_{10}^{20}\text{Ne}$
fluorine	sulfur	sodium	neon

Use the information above to answer the following questions.

(a) Which **two** atoms have 10 neutrons in their nuclei?

..... and [1]

(b) Which atom has six electrons in its outermost shell (orbit)?

..... [1]

(c) Which atom is found in Group 1 of the Periodic Table?

..... [1]

(d) Some atoms have the same numbers of protons and neutrons.

There are **two** of these types of atoms in the list.

Which two?

..... and [1]

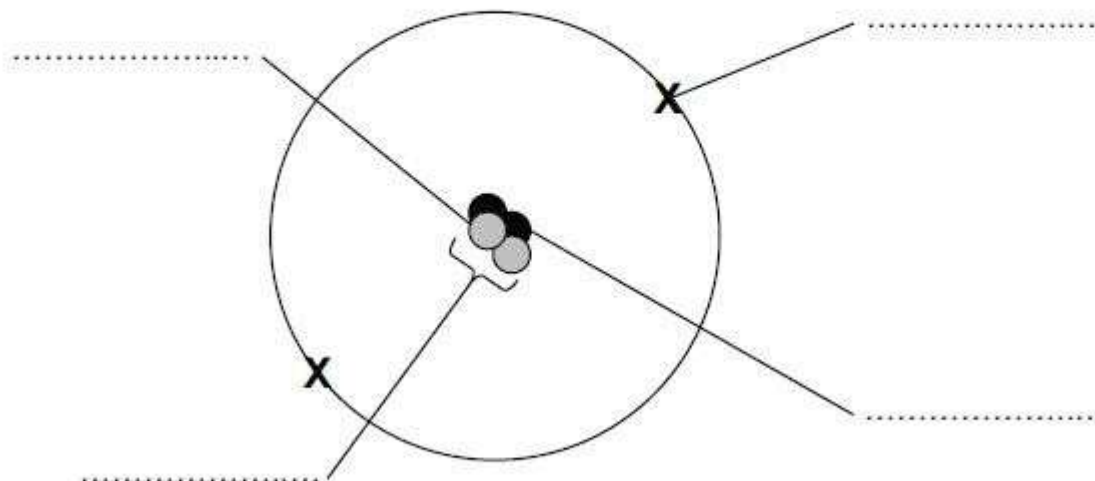
(e) Which **two** atoms have three electron shells around the nucleus?

..... and [1]

6 Ernest Rutherford helped to develop a model of the atom.

(a) Label the diagram of a helium atom using these words.

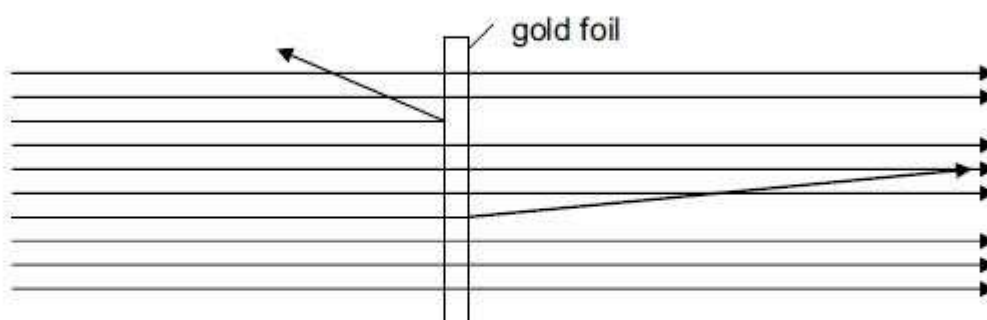
electron nucleus neutron proton



[2]

(b) Ernest Rutherford fired very small particles at a thin gold foil.

The diagram shows the path of the particles.



Most of the particles pass straight through the gold foil.
Other particles are scattered when they hit part of the gold atom.

What part of the gold atom causes the small particles to scatter?

.....

[1]

Look at the diagram.

It shows some of the elements in the Periodic Table.

			H							He
Li	Be				B	C	N	O	F	Ne
Na	Mg				Al	Si	P	S	Cl	Ar
K	Ca	transition elements								

(a) Use the Periodic Table to answer these questions.

(i) Write down the chemical symbol of the most reactive element in Group 7.

..... [1]

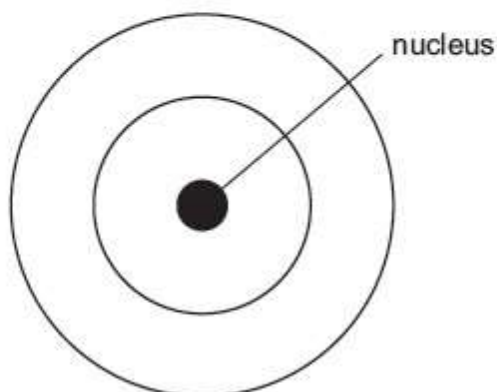
(ii) Write down the chemical symbol of the element with only three protons inside its nucleus.

..... [1]

(iii) Write down the chemical symbol of the element in Group 2 and Period 3.

..... [1]

(b) Look at the diagram.



Complete the diagram to show the arrangement of electrons in an atom of carbon. [2]