GRADE 9 - CHEMISTRY INTERACTIVE PAPER

Prepared by M. Ujoodha, chemmru2@gmail.com

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NAME

SCHOOL NAME

CLASS/SECTION

CHEMISTRY **SEPTEMBER 2017**
1 hour

Students answer on the Question Paper.

READ THE FOLLOWING INSTRUCTIONS CAREFULLY FIRST

Write your name, the name of your school and your class/section in the spaces provided above.

Write in dark blue or black ink.

You may use a soft pencil for any diagrams, graphs or rough working.

Any rough working should be done in this booklet.

Do not use correction fluid.

There are **7** questions in this paper.

Check that this document consists of **10** printed pages and **2** blank pages.

Any discrepancy in the document must be immediately notified to the responsible officer in your school.

Answer **all** questions.

The number of marks is given in brackets [ ] for each question or part question.

The total of the marks for this paper is **50.**

TOTAL SCORE 0

Question 1 - Multiple Choice (8 marks)

For each item, there is only one correct answer. Draw a circle around the letter which shows the correct answer.

(a) An example of an element which has a valency of 1 is

A calcium.

B sodium.

C aluminium.

D . oxygen

(b) Which one of the following is the correct formula for sodium chloride?

A NaCl

B NaBr

C SoCl

D POBr

(c) Polluted air contains toxic gases. An example of an acidic gas which can cause acid rain is

A N_2

B SO_2

C CO_2

D O_2

(d) A piece of blue litmus paper turns red when it is dipped in a solution.

This solution could be

A aqueous ammonia.

B lemon juice.

C lime water.

D aqueous sodium hydroxide.

(e) The salt barium sulphate forms a suspension in water. Which one of the following methods **cannot** be used to separate it from water?

- **A** Filtration
- **B** Evaporation
- **C** Decantation
- **D** Chromatography

(f) How is the process during which a solid changes into a liquid called?

- **A** condensation
- **B** freezing
- **C** melting
- **D** sublimation

(g) Which of the following metal coin would remain unaffected if dipped in a jar of concentrated acid?

- **A** Zinc Victoria coin
- **B** Magnesium Gandhi coin
- **C** Gold Virgin Mary coin
- **D** Calcium Ghulab coin

(h) A 1984 Ford Mustang was purchased at the Salon de l'automobile sales in Pailles for the sum of Rs 450,000. The car remained intact even after thirty three years of use. This was because

- **A** it was kept in a sealed container
- **B** it was of red colour
- **C** it was made of premium grade galvanized iron
- **D** it was preserved with a layer of coconut oil

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Question 2 (7 marks)

Elements are substances that are made up of only **one** type of atoms. Elements can be metallic or non-metallic.

(a) Complete **Table 1** by giving one example of a metallic element and one example of a non-metallic element as well as their symbols.

Element	Name	Symbol
Metallic	Silicon	S
Non-metallic	Copper	Mg

Table 1

[2]

(b) All metals are solids at room temperature except Silver , which is a liquid. [1]

(c) Magnesium burns in air to form Magnesium oxide.

(i) What is the valency of Magnesium in Magnesium oxide?

Valency: 1 [1]

(ii) Write down the balanced chemical equation for the combustion of Magnesium in excess air.

_____ [2]

(iii) The above reaction involves a chemical change.

Give another example of a reaction in **everyday life** that leads to a chemical change and the creation of a new product.

_____ [1]

Question 3 (6 marks)

(a) A list of separation methods is given below.

Filtration **Chromatography** **Sublimation**
Distillation **Using a magnet**

Select one suitable method by which each of the following underlined substances can be separated from the mixture.

Each method can be used **only once**.

(i) Ammonium chloride from a mixture of calcium chloride and ammonium chloride.

Using a magnet _____ [1]

(ii) Iron filings from a mixture of sand and iron filings.

Sublimation _____ [1]

(iii) Pure water from sea water.

Filtration _____ [1]

(b) Separation techniques are widely used in our everyday life.

Which technique can be used to obtain table salt from sea water in Mauritius?

_____

_____ [1]

(c) Water is one of the most important solvents used in everyday life.

(i) Give one solid that readily dissolves in water.

_____ [1]

(ii) Nail polish does not dissolve in water.

Name a common solvent for nail polish.

_____ [1]

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Question 4 (9 marks)

Ammonium salts can be prepared in the laboratory by a method called titration. The procedure for preparing an ammonium salt is summarised below, using the set up in **Figure 1**.

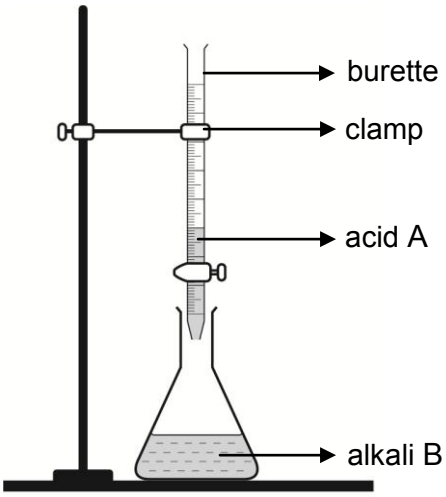

Figure 1

Instructions:

1. Fill the burette with acid A.
2. Measure 25 cm^3 of alkali B and place it in the conical flask. Add 2 drops of methyl orange indicator.
3. Slowly add acid A to the alkali B until the end point is reached.

(a) Which measuring vessel is used to measure 25 cm^3 of alkali B accurately?

_____ [1]

(b) Name acid A and alkali B which can be used in the titration above to prepare ammonium nitrate solution.

Acid A: _____ [1]

Alkali B: _____ [1]

(c) Write down a balanced chemical equation for the reaction between acid A and alkali B.

_____ [2]

(d) What type of reaction occurs during titration?

_____ [1]

(e) Explain the purpose of the indicator in the reaction and the changes you would observe during the reaction.

Purpose: _____

_____

Observation: _____

_____ [2]

(f) Give one important use of ammonium salts.

_____ [1]

Question 5 (6 marks)

(a) All the gases in **Table 2** below are made up of molecules.
Complete the table using **(i)** as example.

	Name of gas	Formula	Number of each type of atom present
(i)	Nitrogen	N_2	2 Nitrogen atoms
(ii)	_____	CO_2	_____ _____
(iii)	Sulphur trioxide	_____	_____ _____

Table 2

[3]

(b) Sulphur dioxide is a pollutant that is released in the air by chemical plants that burn sulphur.

Sulphur dioxide can also be released in the air by natural events.

(i) Name a natural source of sulphur dioxide.

_____

[1]

(ii) Sulphur dioxide causes acid rain.
Explain how acid rain is formed.

_____

_____

[1]

(iii) Give one way in which acid rain can affect the environment.

_____

_____

[1]

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Question 6 (6 marks)

The Earth's atmosphere is made up of a mixture of different gases.
The pie chart in **Figure 2** shows the percentage of different gases present in air.

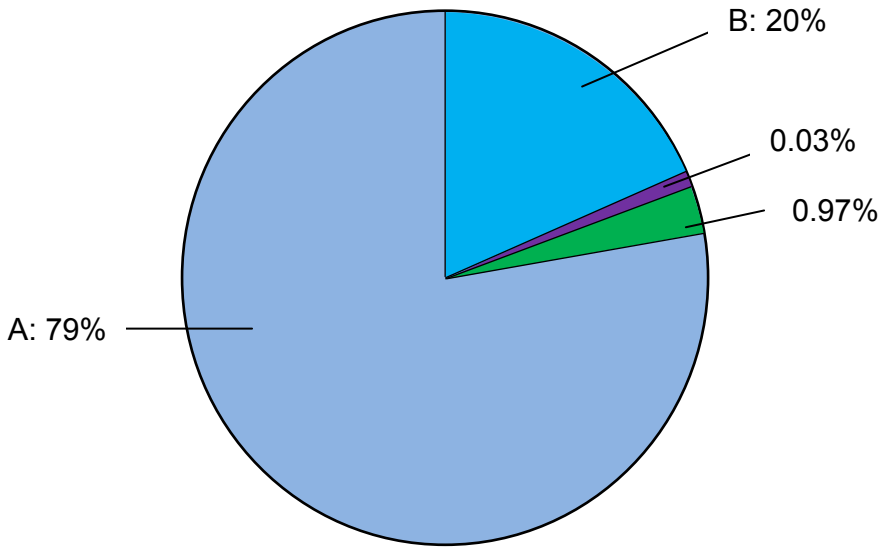


Figure 2: Composition of air

(a) Identify gases A and B.

A: _____ B: _____ [2]

(b) The percentage of carbon dioxide in the atmosphere has increased in the last century and is a concern for the environment as it increases the greenhouse effect.

(i) Give one possible explanation for the increase of carbon dioxide in the atmosphere.

_____

_____

[1]

(ii) Another term for the greenhouse effect is _____ . [1]

(iii) State how the above phenomenon <u>affects our planet</u> in general.

_____

_____

[1]

(iv) Give one consequence of the greenhouse <u>effect on Mauritius</u>.

_____

[1]

Question 7 (8 marks)

(a) A small piece of clean magnesium ribbon is placed in 2 cm^3 of dilute sulfuric acid. The acid is used in excess.

(i) What will you observe when the magnesium ribbon is added to the acid?

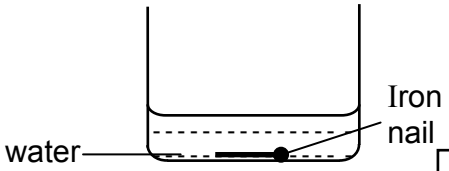
_____ [1]

(ii) Give one reason why this reaction stops after some time.

_____ [1]

(b) One clean and new iron nail is placed in a beaker containing some water.

(i) Describe the appearance of the iron nail before it is placed in the water.



_____ [1]

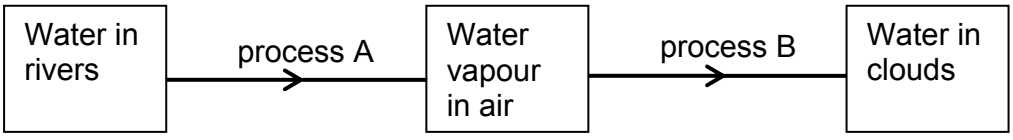
(ii) Describe the appearance of the iron nail after 2 months.

_____ [1]

(iii) Explain what has happened: _____

_____ [1]

(c) Some physical changes in the water cycle are shown as processes A and B below.



(i) Name each process.

Process A is _____ [1]

Process B is _____ [1]

(ii) During which process is heat energy absorbed?

_____ [1]

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