

NAME: ..... STREAM: .....

**MID- TERM TWO ASSESMENT 2023**

**S.2 CHEMISTRY**

**Paper 1 (Theory)**

**Time: 1 ½ hours**

**INSTRUCTIONS:** Attempt **ALL** questions in this paper

1.(a) All substances around us undergo physical or chemical change when subjected to certain conditions. What is meant by;

(i) A physical change [1score]

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.....

(ii) A chemical change [1score]

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.....

b) State whether the following changes are physical or chemical. [4 score]

i) Melting of butter

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(iii) Burning of magnesium ribbon

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(iv) Rusting of iron

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(v) Evaporation of water from a boiler

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c)State **four** characteristics of a chemical change. [4 score]

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2.(a) State the Kinetic theory of matter. [1 score]

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(b) Using the kinetic theory of matter explain the following observations.

(i) Wet clothes hang outside under the sun get dry after sometime. [2 score]

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(ii) When a glass of water is put in a freezer, the water turns to ice. [2 score]

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3. (a) Define the following terms: [3 marks]

(i) Atomic number

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(ii) Mass number

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(iii) Valency

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(b) An atom of an element is represented by  ${}_{13}^{27}\text{Al}$ .

i) What do the numbers 13 and 27 represent? [1 score]

13: .....

27: .....

ii) What is the number of electrons and neutrons in the atom? [1 score]

Electrons .....

Neutrons .....

iii) Write its electronic configuration and draw its electronic structure. [1score]

Electronic configuration: .....

4. Most of the substances in our homes contain acid or alkalis. For example; Lemon juice, Baking powder, vinegar, Banana ash peelings extract, Yoghurt and coffee among others.

(a) i) What do they all acidic or alkaline solutions have in common? [2 score]

Acidic:

.....  
.....

Alkaline:

.....  
.....

ii) Name one inorganic acid found in digestive system of man and state its function in the body. [2 score]

Name: .....

Function:

.....  
.....

c) Acids can react with bases in a reaction called neutralization.

i) What are the products of a neutralization reaction? [1 score]

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ii) Write a **word** and **chemical** equation for the chemical reaction between the acid,  $\text{H}_2\text{SO}_4$  and base,  $\text{NaOH}$ .

Word equation: [2 score]

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.....  
.....

Chemical equation:

[2 score]

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.....

iii) Suggest the pH/ pH range of the resultant solution formed by the reaction above.

[1 score]

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5. A salt is a substance formed when all or part of the hydrogen ions of the acid are replaced by a metal ion or Ammonium ion.

For any salt which you have prepared in the laboratory; mention what your aim was, the chemicals you used, steps followed and precautions you had to take.

i) Aim:

[1 score]

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ii) Chemicals used

[2 score]

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iii) Steps you followed

[4 score]

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iv) Any precaution

[1 score]

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**END**