

THE UNITED REPUBLIC OF TANZANIA



PRESIDENT'S OFFICE

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

RUVUMA REGION

FORM TWO MOCK ASSESSMENT

03:30 **TIME 2:30 HOURS** **CHEMISTRY** **AUGUST 2024**

INSTRUCTIONS

1. This paper consists of sections **A**, **B** and **C** with a total number of **ten (10)** questions.
2. Answer **all** questions
3. Section **A** and **C** carry **fifteen (15)** marks each, and section **B** carries **seventy (70)** marks
4. All writing must be in black or blue ink **except** diagrams which must be in **pencil**.
5. Cellular phones and any unauthorized materials are **not allowed** in assessment room.
6. Write your **Assessment Number** at the top right corner of every page.
7. The following atomic masses **may be used**: H = 1, C = 12, O = 16, Cl = 35.5, Na = 23

FOR EXAMINER'S USE ONLY

QUESTIONS NUMBERS	SCORE	EXAMINER'S INITIAL
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
TOTAL MARKS		
CHECKER'S INITIAL		

SECTION A: (15 Marks)

Answer all questions in this section

1. For each of the items (i) – (x), choose the correct answer from the given alternatives and write its letter in the box provided.

- (i.) Access to safety equipment should never be blocked by any object because:
 - A. It is just a simple law
 - B. There must be spaces for people to move around the laboratory
 - C. The equipment is used everyday
 - D. It is important to reach safety equipment quickly in case of an accident.
- (ii.) What is the oxidation number of aluminium in aluminiumsulphate ($\text{Al}_2(\text{SO}_4)_3$)?
 - A. +15
 - B. +6
 - C. -3
 - D. +3
- (iii.) Which process among the following is involved in decantation?
 - A. Sedimentation
 - B. Melting
 - C. Saturation
 - D. Distillation
- (iv.) What is the molecular formula of the compound if its empirical formula is CH_3 and has a vapour density of 15?
 - A. CH_3
 - B. C_2H_4
 - C. C_2H_6
 - D. C_2H_5
- (v.) Kitchen tools made of steel are enameled in order to
 - A. Make them look expensive
 - B. Prevent them from rusting
 - C. Make them shiny
 - D. Make them easy to see
- (vi.) Which of the following cannot be used to prepare hydrogen gas?
 - A. Reaction of water with carbon at room temperature
 - B. Reaction of dilute acids with zinc
 - C. Electrolysis of water
 - D. Reaction of water with certain metals
- (vii.) Which of the following statements about water is incorrect?
 - A. Water is used in industries as a coolant
 - B. Water is used as a raw material to produce hydrogen?
 - C. Water is used as a solvent
 - D. Water is used as a raw material to produce carbon
- (viii.) In production of Hydro-Electric Power, which is the correct energy transformation?
 - A. Electrical energy to heat energy
 - B. Electrical energy to mechanical energy
 - C. Mechanical energy to electrical energy
 - D. Chemical energy to electrical energy
- (ix.) Which of the following sets of symbol represent isotopes?
 - A. $^{16}_7\text{X}$, $^{16}_7\text{X}$, $^{18}_9\text{X}$
 - B. $^{16}_8\text{X}$, $^{17}_8\text{X}$, $^{18}_8\text{X}$
 - C. $^{16}_7\text{X}$, $^{16}_8\text{X}$, $^{16}_9\text{X}$
 - D. $^{16}_7\text{X}$, $^{17}_8\text{X}$, $^{18}_9\text{X}$
- (x.) During the formation of ion
 - A. Non metal atoms gain protons
 - B. Metal atoms loose their outer most electrons
 - C. Metal atoms gain electrons in their outer most shell
 - D. Non metal atoms lose electrons of their outermost shells

QUESTIONS	i	ii	iii	iv	v	vi	vii	viii	ix	x
ANSWERS										

2. Match the statements in **LIST A** with its corresponding response in **LIST B**

No.	LIST A:	LIST B:
(i.)	It is used to add liquid drop wise	A. Gas jar B. Motor and pestle C. Spatula D. Pipette E. Dropper F. Liebig condenser G. Crucible and lid H. Beaker I. Evaporating dish
(ii.)	It is used to grind solids into powder	
(iii.)	It is used for scooping chemicals from containers	
(iv.)	It is used for gas collection	
(v.)	It is used to condense vapour into liquid	

ANSWERS

LIST A:	i.	ii.	iii.	iv.	v.
LIST B:					

SECTION B: (70 Marks)

3. Explain the following phenomena based on the idea of particles

(i.) It is easy to pour liquid

.....

.....

.....

(ii.) A gas will completely fill any container

.....

.....

.....

(iii.) A solid expands when heated

.....

.....

.....

(iv.) It easier to vapourize a liquid than a solid

.....

.....

.....

(v.) Gases expand more than solids for the same increase in temperature

.....

.....

.....

4. Consider the following substances: milk, copper, soap, steel, chlorine and sugar

(a) Identify the elements, compounds and mixtures from the list

Elements

Compounds

Mixtures

(b) Give five differences between the elements identified in 4(a) above

(i)

.....

.....

- (ii)
- (iii)
- (iv)
- (v)

(c) Give two reasons why a table salt is said to be a compound

- (i)
- (ii)

5. Elements T and Q have atomic numbers 12 and 17 respectively. Use the two elements to answer the following questions;

- (a) Write the electronic configuration of element Q.
.....
- (b) What is the valency of element T?
.....
- (c) Write the chemical formula of a compound formed when T and Q combine.
.....
- (d) Mention the type of the bond formed by the combination of element T and Q
.....
- (e) In which group and period in the periodic table does element Q belong?
.....

6. With the help of a diagram, show the electron arrangement of each of the following

- (i) Fluorine atom
- (ii) Aluminium ion
- (iii) Calcium ion
- (iv) Phosphorus atom
- (v) Chlorine ion

7. Amina was given a table salt and water by her chemistry teacher to observe and answer some questions related to those things. As a form two student with a knowledge of chemistry help Amina to answer the following questions.

(a) Identify the type of bond formed in water and bond formed in table salt

.....

(b) Give two differences between the types of bonds identified in 7(a) above

(i.)

(ii.)

(c) By using cross and dots diagrams, show the bond formation in

(i) Water (H_2O)

(ii) Table salt ($NaCl$)

8. Answer the following questions with references to the first 20 elements of the periodic table

(a) Give the chemical symbol of the element having

(i) The smallest atomic size

.....

(ii) Largest atomic size

.....

(b) Identify three (3) elements which are:

(i) Metals having 3 shells of electron each.

.....

(ii) Metals having 1 electron in the valence shell

.....

(iii) Noble gases

.....

9. (a) (i.) Using Daltons atomic theory, explain the fact that calcium sulphate from Tanzania and that found in Kenya has the same percentage by mass of calcium, Sulphur and oxygen.

.....

(ii.) Why isotopes of the same element have similar chemical properties?

.....

(iii.) Matter is made up of tiny indivisible particles called atoms. With reasons, support or oppose this statement.

.....

(b.) An isotope of Strontium (Sr) has a mass number 87 and atomic number 38.

(i) Write its nuclide notation

(ii) How many neutrons does it have?

(iii) How many protons does it have?

(iv) How many electrons does it have?

SECTION C: (15 Marks)
Answer question ten (10)

10. Chambuso prepared gas X in the laboratory by decomposing hydrogen peroxide using manganese (iv) oxide as a catalyst

(a) Name gas X.....

(b) Write the chemical equation for the laboratory preparation of gas X above

(c) What is the aim of using manganese (iv) oxide?

(d) State five (5) uses of gas X in our daily life.

(i.)

(ii.)

(iii.)

(iv.)

(v.)

(e) Draw a well labeled diagram for the laboratory preparation of gas X by the reagents used by Chambuso.

