

THE UNITED REPUBLIC OF TANZANIA
THE PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
CHUNYA DISTRICT COUNCIL
FORM FOUR - MOCK EXAMINATION

CHEMISTRY 1

Code: **032/1**

Time: 3Hours

27, MARCH, 2025

INSTRUCTIONS

- i. This paper consist of three section **A, B** and **C** with a total of **eleven (11)** questions
- ii. Answer **All** questions in **section A** and **B** and only **Two (2)** question from **section C**
- iii. All writings must be in **Black** or **Blue** ink except diagrams
- iv. Cellular phones and any unauthorized material are not Allowed in the examination room
- v. Write your candidate number at the top right corner of every page.
- vi. The following constants can be used.

Molar masses

C=12, Cl=35.5, =16, Na=23

SECTION A (16 MARKS)

Answer all questions in this section

1. For each of the following items (i) –(x) choose the correct answer among the given alternatives and write its letter beside the item number in the answer sheet(s) provided
 - i. What will happen when yellow coloured flowers are placed in a gas jar containing chlorine gas?
 - A. Flowers will dry
 - B. Flowers will change colour to pink
 - C. There will be decolourization of flowers
 - D. Flowers will shrink
 - E. Flowers will turn blue
 - ii. An isotope of cadmium has an atomic number of 48 and a mass number of 112. This means that cadmium atom has
 - A. 64 protons, 48 neutrons and 64 electrons
 - B. 48 protons, 112 neutrons and 48 electrons
 - C. 112 protons, 48 neutrons and 112 electrons
 - D. 48 protons, 64 neutrons and 48 electrons

- iii. E. 46 protons, 64 neutrons and 50 electrons
A pupil put pieces of glass in water but later wanted to remain only with solvent, what processes can be suitable to obtain solvent.
A. Filtration and condensation
B. Evaporation followed by decantation
C. Evaporation and condensation
D. Filtration
E. Condensation followed by centrifugation

iv. In solving a scientific problem which stage a scientist create some possible answers of the problem
A. Hypothesis formulation B. Drawing conclusion
C. Problem identification D. Data analysis E. Data collection

v. Mariam mixed two solutions together in a boiling test tube at 20°C. After mixing the solution the new product was found to have a temperature of 18°C. This shows that the reaction is
A. An exothermic B. Neutralizaiton C. An endothermic
D. Combustion E. Displacement

vi. Vaccines are chemical substances used to
A. Cure animals and human beings from diseases
B. Introduce vitamins and proteins in animals
C. Protect animals and human beings from diseases
D. Make animals grow faster than normal growing
E. Make plants grow faster than normal growing

vii. Among of the following elements which one can be used as catalyst in Ammonia production?
A. Nickel B. Copper C. Platinum
D. Iron E. Vanadium

viii. Which of the following relates closely to kinetic nature of matter
A. Solids appear to stationary but their particles keep on vibrating
B. At low temperature matter exist in gases form.
C. Particles in gaseous state are very close to each other
D. Molecules in liquid state can move in all one fixed direction
E. Particles in solid state are very far compared to gaseous state.

ix. During electrolysis both oxidation and reduction takes place at the same time. Where does oxidation take place?
A. Anode B. Cathode C. Diaphragm
D. Both anode and cathode E. Electrolyte

- x. How can you prevent a hoe from getting rust?
- By painting them
 - By exposing them to air
 - By cleaning them with water after use.
 - By keeping them in moisture
 - By leaving them in the garden after use.
2. Match the items in **List A** with those corresponding items in **List B** by writing the letter of the correct response besides the item number in the answer sheet provided.

List A	List B
i. Fire caused by flammable gas	A. Fire triangle
ii. Refers to components needed to start fire	B. Class A fire
iii. The burning combustible materials such as magnesium sodium and lithium	C. Class C fire
iv. A rapid chemical reaction that releases energy in the form of light and heat	D. Combustion
v. The burning material is organic/ordinary solid combustible materials	E. Class D fire
vi. Fire resulting from burning fats and oil.	F. Class B fire
	G. Class E fire
	H. Class F fire
	I. ABC

SECTION B (54 MARKS)

Answer all questions in this section

3. (a) **i.** With three (3) points explain how can you differentiate metals from non- metals
ii. Using diagram; describe Frasch process
- (b) With respective properties explain two (2) uses of hydrogen in daily life
4. (a) The table below shows two brands of bottled water for drinking and the concentration of different mineral ions in each brand. Study the table and answer the questions below it.

Composition in mg/litre	Mineral	Na ⁺	Ca ²⁺	Mg ²⁺	Cl ⁻	NO ₃ ⁻	SO ₄ ²⁻	Fe ²⁺	F ⁻
Uhai		40.0	3.05	4.15	14.18	0.48	10.0	0	1.76
Dasani		22.32	2.69	0.11	6.50	1.0	8.0	0	0.45

Questions

- Which brand of water is more hard? Explain .
 - State the benefit of having calcium ions in water
 - Tap water is usually treated before being used. State what is added to perform that function
- (b) Hydrogen and phosphorus are non- metallic elements
- Which one between the two atoms is more electropositive?
 - Show your work clearly, write the chemical formula and the name of the compound formed when the two atoms combine.

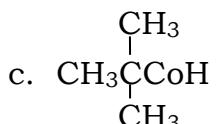
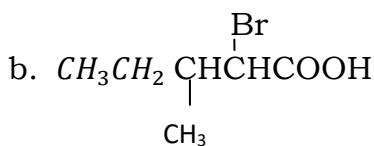
5. (a) Give material mixtures that can be separated by the following methods suggested

- i. Sublimation
- ii. Layer separation
- iii. Solvent extraction
- iv. Simple distillation
- v. Evaporation
- vi. Decantation

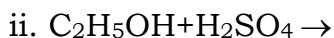
(b) Chromatograph is used in many different ways. Explain three **(3)** application of this method of separating mixture

6. (a) i. With the aid of chemical equation explain the term saponification

- ii. Name the following organic compounds



(b) Complete the following organic reactions



7. (a) Distinguish the term strength of an acid and concentration of an acid

(b) Briefly give one reason for the following uses of metals

- i. Aluminum is used to make window frame
- ii. Iron is used for making bridges
- iii. Copper for electrical wiring
- iv. Lead for roofing
- v. Zinc for coating of iron

(b) Outline two (2) uses of metal carbonates

8. (a) Explain the way you can use knowledge of neutralization in daily life.

four (4) points

(b) i. If the soil is below 7. What material can be added so that to treat it for cultivation?

ii. With one example explain **four (4)** types of salt.

SECTION C (30 MARKS)

Answer two (2) questions in this section

9. (a) State first and second Faraday's laws of electrolysis
(b) 0.02 moles of electrons were passed through a solution of sodium hydroxide using platinum electrodes.
 - i. Give the name of the gases evolved at each electrode
 - ii. Write ionic equations of the reactions taking place at the electrodes
 - iii. Calculate the number of moles of each gas produced and volume which gas would occupy at S.T.P
10. Addition of inorganic fertilizers in the farm is not as important as addition of organic manures. Discuss the correctness of this statement with **six (6) points**
11. Industries are among the leading sources of air pollution
 - (a) i. Name **three (3)** substances from industries which contribute to air pollution
iii. Explain two other sources of air pollution
 - (b) i. Give **six (6)** effects of air pollution
ii. Explain how industrial workers can be protected against harmful chemical fumes and other wastes. **Four (4) points**