UNITED REPUBLIC OF TANZANIA
PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

KIGOMA REGION

FORM FOUR MOCK EXAMINATION, JULY—2025

CODE:032/1 **CHEMISTRY1**

Time:3:00 Hrs. **18- JULY -2025AM**

1. This paper consists of three sections A,B and C with a total of eleven questions
2. Answer all questions in section A and B and any two questions in section C
3. Section a carries 16 marks, section B carries 54 marks and section C CARRIES 30 marks
4. Non programmable calculators may be used
5. Cellular phones and any unauthorized materials are not allowed in the Examination Room
6. Write your Examination Number on every page of your Booklet
7. The following constants may be used:
   Atomic masses: $H = 1,\ C = 12,\ N = 14, O = 16,\ Na = 23, Cl = 35.5,$
   $Ca = 40,\ \ Mg = 24, S = 32, Ag = 108, Cu = 64, Fe = 56, Pb = 208$
   Avogadro's number (LA) = 6.02×10^{23}
   GMV at STP= $22.4 dm^3/mol$
   1Faraday =96500 Coulombs
   1Litre =$1 dm^3$=1000 cm^3

Question	For examiner's use only	
	Score	Initials
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
TOTAL		

SECTION A (16 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 the letter of the item number in the answer sheet:

(i). Which among the following represents the solution with P^H of 5?

A. Strong base
B. A neutral
C. A weakacid
D. A strong acid
E. A weak base

(ii). How can generally insoluble salts like Barium sulphate be obtained in the laboratory?

A. Evaporation of its concentrated solution
B. Crystallization
C. Precipitation
D. Decomposition
E. Displacement

(iii). In an experiment, 1930 coulombs liberated 0.64gof copper when the same quantity of electricity was passed through a solution of silver nitrate. What amount of silver was deposited?

A. 32g
B. 2.16g
C. 108g
D. 10.80g
E. 21.60g

(iv). When sand and wax are put in the same container and some volume of petrol is added, after few minutes sand is seen and not wax. Why waxis not seen after addition of petrol?

A. Because wax is insoluble in petrol
B. Because ether mixture reached the equilibrium
C. Because petrol is flammable
D. Because wax is soluble in petrol
E. Because sand dissolve in petrol

(v). In blast furnace carbon monoxide is prepared bypassing carbon dioxide over ared hot coke. What is the chemical role of carbon dioxide?

A. An accelerator
B. An oxidizing agent
C. A reducing agent
D. A catalyst
E. Flammable

(vi). What group of organic compound is formed when ethanol react with ethanoic acids?

A. Alkynes
B. Haloalkanes
C. Esters
D. Alkenes
E. Alkanes

(vii). A form one student dissolved one mole of salt M into water and the solution was tested by litmus paper.Ifthe salt was found to change blue litmus paper to red what is it likely to be?

A. Normal
B. Complex
C.Basic
D. Acidic
E. Neutral

(viii).If student wants to electroplate a spoon with copper by using copper (II)sulphate solution, how he/she should arrange the electrodes?

A. Spoon as anode and copper as cathode B. Spoon as cathode and copper as anode C.Spoon as anode and carbon as cathode
D. Spoon as cathode and copper sulphate solution
E. Spoon as copper solution

(ix). Which methods could be used to separate products in the following equation?

$Pb(NO_3)2_{(aq)} + 2KI(aq) \longrightarrow PbI_{2(s)} + 2KNO_{3(aq}$

A. Chromatography
B. Crystallization
C. Distillation
D. Condensation
E. Filtration

(x). Why does white anhydrous copper(II) sulphate turns blue when exposed to the atmosphere?

A)Absorbs moisture B)React with oxygen
C)React with carbon dioxide D)Becomes dry
E)Release water to the atmosphere

2 Match the items on given in LIST A with the correct responses in LISTB by writing the Letter of the correct response in the answer booklet/sheet provided

Column A	Column B
i) A colorless gas which is slightly soluble in water, neutral to litmus paper but used as fuel ii) It supports plant survival but less important to combustion iii)A greenish gas denser than air and used as military weapon since it is poisonous iv)It is colorless acidic gas with pungent choking smell, used to control P^Hin chemical process v) A non-poisonous gas physically isolated from air and used to make fertilizer vi)It has strong choking smell of urine	A. Oxygen B. Nitrogen C. Sulphur dioxide D. Hydrogen chloride E. Carbon dioxide F. Fluorine . G Ammonia H. Hydrogen I. Chlorine

SECTION B (54MARKS)

Answer all questions in this section

3 (a)Explain how the following differ from one another
   i) A base and Alkali
   ii) An atom and isotope
(b)An organic compound P consists of 52.2%of carbon, 13%of Hydrogen and 34.8%of oxygen. The vapour density of p is 23. Calculate the molecular formula of the compound.
(c) Calculate the oxidation number of nitrogen in potassium nitrate

4 (a). Form four students of Tanzanite Secondary School went for tour studies at a refinery industry, the technician of the industry did not explain the terms below clearly. You as a form four student give clarification about these terms.
   i) Cracking
   ii) Homologous series
   iii) Functional group
   iv)Esterification
(b) Giving two reasons explain why carbon is found in all organic compounds?
(c) Name the following compounds according to IUPAC system.

i) $CH_2ClCH_2\,\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{C}} - CH_2OH$

ii) $CH_3\overset{\displaystyle Br}{\underset{\displaystyle Br}{C}} - CH_2CH = CH_2$

iii) $CH_3\,\overset{\displaystyle H}{\underset{\displaystyle CH_3}{C}} - COOH$

5 (a)Give the name of metal which fits the following descriptions:

(i). It produces cracking sound when burnt and its oxide is brown when hot and yellowish when cold

(ii). Its green coloured carbonate decomposed when heated to form a black oxide. iii)Litmus be kept under paraffin to protect it from reaction

(b)Iron is extracted from hematite ore by reduction method in the blast furnace

(i). Write the equation for the reduction of hematite ore in the furnace

(ii). What is the use of lime stone, molten slag and waste gases in the blast furnace

6 (a)A green solid sample A on heating gave off gas B which turns lime water milky and a black solid C remained. Solid C in warm dilute sulphuric acid forms a blue solution D

i) Give the chemical formula of compound A,B, C, D

ii) Write a balanced chemical equation for the reaction when a green solid A is heated

(b)Describe what is observed when concentrated sulphuric acid is added to;

i) White sugar

ii) Hydrated copper(II) sulphate

iii) Sulphur

7 (a) What are the noble gases?

(b)In which group of periodic table does noble gases belongs?

(c)What is common about the noble gases regarding the following properties

(i)Electronic arrangements

(ii)Chemical reactions

8 (a) Rust is destructive to materials made of iron/steel that are used in industries, at home and elsewhere. State method that can be used to prevent it on each of the following

i)Iron sheet

ii) Bridge and pipelines iii)Ship

iv)Machine parts

(b)Give five types of fire extinguishers.

SECTION C (30 MARKS)

Answer any two questions in this section

9 (a)(i)Ammonium sulphate is used as fertilizer to add nitrogen into the soil. What is meant by the term fertilizer in chemistry?

(ii)What are the three effects of excessive nitrogen to plants?

(b)(i)State four (4) methods of application of fertilizers

(ii)What are the four (4) advantages of using manure in farms.

(c)Calculate the percentage composition of nitrogen in ammonium sulphate fertilizer $(NH_4)_2SO_4$.

10 We have a coal mining at Kiwira in Mbeya Region. Authorities in the government have allowed using of coal for domestic and industrial purposes. What warning can you raise as concerning likely effects? Give five points.

11 (a)When I was in an interview at a certain school, one student asked me to state Faraday's Laws of Electrolysis. If you were me, how could you answer that student?

(b) Dilute silver nitrate solution was decomposed by the passage of electric current through it. What mass of silver and what volume of oxygen (measured at STP would be liberated in electrolysisby9650 Coulombs of Electricity)