THE UNITED REPUBLIC OF TANZANIA
PRESIDENT'S OFFICE REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
DODOMA CITY COUNCIL
DODOMA CATHOLIC SECONDARY SCHOOLS ASSOCIATION(DOCASSA)
FORM TWO MID-TERM EXAMINATION

032 **CHEMISTRY**

Time: 2:30 Hours **Aril 2025**

INSTRUCTIONS

1. This paper consists of section A, B and C with a total of **ten (10)** questions

2. Answer all questions in the space provided

3. Section A and C carry **fifteen (15)** Marks each and section B carries **seventy (70)** Marks

4. All communication devices and any unauthorized materials are **NOT** allowed in the examination room

5. All answers must be in blue or black ink **EXCEPT** diagrams which must be in pencil

FOR EXAMINERS USEONLY		
		EXAMINER'S
QUESTION NUMBER	**SCORE**	**INITIALS**
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
TOTAL		
CHECKER'S INITIALS		

SECTION A (15 MARKS)

Answer ALL questions in this section

1. For each of the items (i) – (x) choose the correct answer from among given alternatives and write it on the space provided

   i. Identify the skill not acquired during chemistry study.
   - A. Careful and thorough observations
   - B. Accurate recording of what has been observed
   - C. Drawing conclusions from observations
   - D. Thorough observations and map reading skill

   ii. Access to safety equipment should never be blocked by any object because
   - A. It's a just simple law
   - B. There must be spaces for people to move around in the laboratory
   - C. The equipment is used in every day
   - D. It is important to reach safety equipment quickly in case of an accident

   iii. The following apparatus is used to keep test tubes in the laboratory
   - A. Test tube rack
   - B. Beaker
   - C. Tongs
   - D. Test tube holder

   iv. Factors in an experiment that can be manipulated to get desired results are called
   - A. Controlled variables
   - B. Manipulated variables
   - C. Dependent variables
   - D. Independent variables

   v. Which of the following is an example of a chemical change
   - A. Melting butter
   - B. Breaking glass
   - C. Mixing milk and water
   - D. Burning leaves

   vi. When a small amount of common salt is dissolved in water, the mixture so formed is
   - A. Homogeneous
   - B. Immiscible
   - C. Heterogenous
   - D. Suspension

   vii. Which term describes a rapid chemical reaction that releases energy in form of light and heat?
   - A. Ignition
   - B. Reactivity
   - C. Combustion
   - D. Heating

   viii. Are those people who study chemistry practically in the past.
   - A. Chemists
   - B. Alchemist
   - C. Al-chemistry
   - D. Scientist

   ix. Is the systematic study of nature: -
   - A. Science
   - B. Technology
   - C. Chemistry
   - D. Contamination

   x. Syrups are examples of;
   - A. Solution
   - B. Suspensions

C. Homogeneous mixtures

D. Filtrate

i.	ii.	iii.	iv.	v.	vi.	vii.	viii.	ix.	x.

2. Match the item in **list A** with the corresponding responses in **list B** by writing the letter of the correct response besides the item number

LIST A	**LIST B**
i. Removal of Hydrogen from a substance ii. Removal of oxygen from a substance iii. Substance which remove hydrogen from a substance iv. Substance which remove oxygen from a substance v. Alter the rate of chemical reaction	A. Oxidation B. Reduction C. Catalyst D. Reducing agent E. Oxidizing agent F. Decomposition G. Oxygen

i	ii	iii	iv	v

SECTION B (70 MARKS)
Answer ALL questions in this section

3. a) Nekumo is a form one student at Urban Open School accidentally he mixed kerosene and water during chemistry practical session

(i) Suggest an appropriate method of separation you would advise him to use to separate the mixture

……

(ii) Give a reason for the choice of your answer

……

(iii) Describe how he would use the method named above to separate the mixture.

……

……

(b)(i) Name two substances that sublime when heated

……

(ii) Why water is not a suitable solvent in paper chromatography?

……

(c) Adil was hit on his head by Yassir in a football game between their classes. Adil lost consciousness and fainted. Being an expert, which steps you would follow to help him before taken to hospital. (Give five points)

i) ……..

ii) …….

iii) ……

iv) ……

v) ……

4. Majuto as a form two student went to the Chemistry laboratory and found reagents and apparatuses on top of the bench.

List of apparatus	**Reagents**
(i) Thistle funnel with cork (ii) Round bottomed flask (iii) Delivery tube (iv) Water trough (v) Gas jar (vi) Beehive shelf (vii) Stoppers	(i) Hydrogen peroxide (ii) Manganese (IV) oxide (iii) Water

He developed an idea on laboratory preparation of gas.

(a) What is the gas that is likely to be prepared using the laboratory reagents and apparatuses shown above?

……..

(b) Write five procedures that could be followed by Majuto to prepare the gas.

(i)……

……

(ii)……

……

(iii)……

……

(iv)……

……

(v)……

……

(c) What are the functions of manganese (IV) oxide in the preparation of the gas named above?

……

……

(d) A part from the given reagent on the bench, there is other compounds such as potassium chlorate, electrolysis of water and mercury oxides that contain the gas and can be used to prepare the gas but they are not commonly used in the laboratory preparation of the gas due to some associated challenges, by three points explain those challenges.

(i)……

……..

(ii)……..

…….

(iii)…….

…….

5.(a) What is meant by the term laboratory rules?.....

……

……

(b). The Chemistry laboratory is designed for chemical tests. Identify **four (4)** main rules to be observed during these tests for accurate results.

(i)……
……
(ii)……..
……
(iii)……
……..
(iv)……
…….

(c). The following chemical substance were found in school laboratory of Dr Samia secondary school, which warning sign is likely to be found on each of the following containers;

Containers	Name	Symbol or Diagram	Meaning
Barium sulphate			
Concentrated nitric acid			
Potassium nitrate			

6. (a) A chemical substance L has a density of $1g/cm^3$ and neutral to litmus paper, freezes at 0 ^{O}C and boils at 100 ^{O}C.

(i) Specify the name and the chemical formula of substance L……
……

(ii) How can substance L be confirmed in the laboratory? Describe two confirming methods and provide its positive observations…….
……
……
……
……
……

(iii) State two main physical properties of substance L and show the usefulness of each property in our daily
life……..
……
……
……

(iv) Give two economical value of substance L in our daily life activities.
……
……
……

(b) With three points, differentiate sodium atom from chlorine atom.

Sodium atom	Chlorine atom
i).	
ii).	
iii).	

7.(a) With examples briefly explain on three common methods used by scientist to collect the sample of different gases in chemistry laboratory
(i)……
……
(ii)…….....
……
(iii)…….....
……

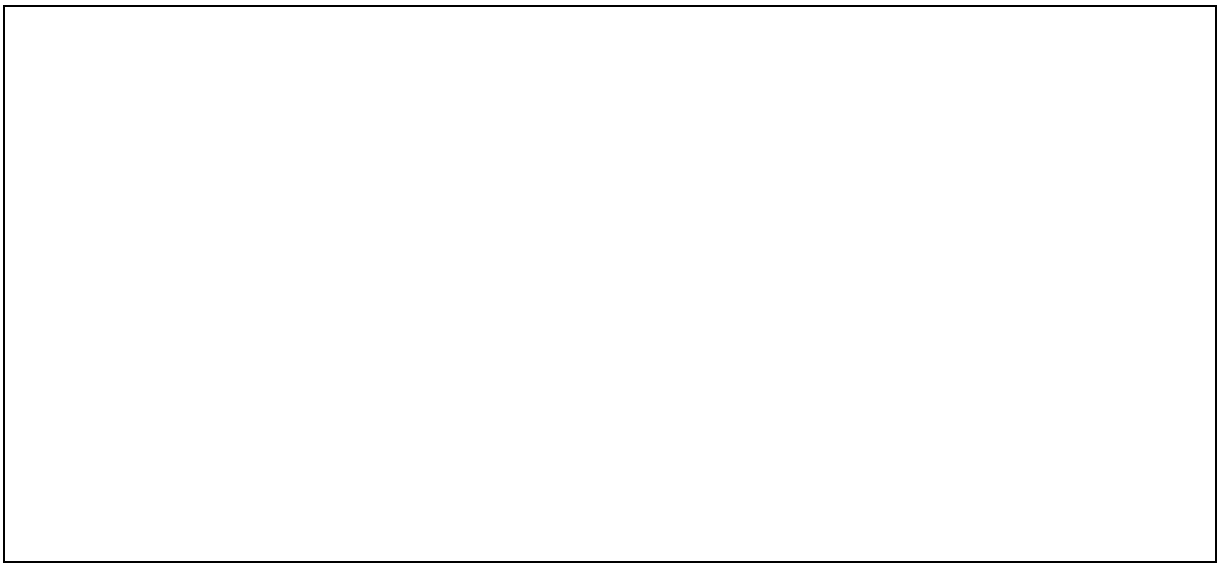
(b) The laboratory technician planned to conduct an experiment for the preparation of gas X, the following set of apparatus were used, flat-bottomed flask, thistle funnel, delivery tube, beehives shelf, and gas jar. Also pieces of zinc metal and dilute hydrochloric acid were used.

i) Identify gas X: ……

ii) How presence of gas X in the gas jar can be archived? ……

……

(c). Draw a well labelled diagram for the preparation of gas X in the laboratory.



a) (i) Write the chemical equations for the preparation of gas X

…….....

(ii) Hydrogen gas is very promising energy source, yet its uses as a major source of energy are very limited, explain this in terms of its storage, safety and production.

……

……

……

……

……...

8.(a) Define the term Flame as applied in chemistry……

……

(b) Students are advised to use a non- luminous flame for heating in the laboratory

(i) Explain how a Bunsen burner produces a non- luminous flame……..
……..
……..

(ii) Give a reason as to why advice above given to students……..
……..
……..

(c). Give five difference between boiling and evaporation.

BOILING	EVAPORATION
i)	
ii)	
iii)	
iv)	
v)	

9 (a). Amanda was preparing food for her family, using a hot oil in frying pan. Accidentally the pan tipped over and huge fire spread on her kitchen floor.

(i) On what class of fire, the fire in the kitchen belong to?.....

(ii) Which extinguisher would be appropriate for putting out the fire? Give reason.
……
……

(iii) Which extinguisher would be dangerous to use so as to put fire out? Explain.
……
……

(b) Outlines general five safety precautions you have to keep in mind when using fire extinguishers;

(i)……..
……

(ii)……
……

(iii)……..
……..

(iv)……
……..

(v)……..
……..

(c). Mr. Madata kept a glass of milk to drink it before going to sleep. When he tasted the milk, he found that the milk turned sour. With at least two reasons explain the type of change undergone by the milk……..

(i)……
……..

(ii)……..
……..

SECTIONS C (15 MARKS)

10. (a) Define the term Biogas plant as applied in fuel and energy……..
……
……

(b) Outlines any three components of biogas plant and three raw materials in biogas plant

Component of biogas plant	Raw materials in biogas plant
(ii)……	(i)……
(ii)……...	(ii)……..
(iii)……..	(iii)…….

(c). Describe four (4) working mechanism (stages) involved in biogas plant.

(i)…….
……...
(ii)……
……..
(iii)…….
……..
(iv)…….
…….

(d). Diesel has a heat value of 43400kJ/kg. What volume of diesel is required to raise the temperature of 25 litres of water from 15◦C to 95◦C? Specific heat capacity of water= 4.18Kj/kg/K, density of water =1000kg/m^3 and density of diesel =920kg/m^3