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THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL OF TANZANIA
FORM TWO NATIONAL ASSESSMENT

032 **CHEMISTRY**

Time: 2:30 Hours **Year: 2025**

Instructions

1. This paper consists of sections A and B with a total of **ten (10)** questions.
2. Answer **all** the questions in the spaces provided.
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. Communication devices and any unauthorised materials are **not** allowed in the assessment room.
6. Write your **Assessment Number** at the top right corner of every page

FOR ASSESSOR'S USE ONLY		
QUESTION NUMBER	**SCORE**	**ASSESSOR'S INITIALS**
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
TOTAL		
CHECKER'S INITIALS		

2 519032 100049

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SECTION A (15 Marks)

Answer **all** questions in this section.

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

(i) The knowledge of chemistry is useful in many fields of study **except**

A forestry. B agriculture.
C laundry. D political science.

(ii) A Form Two student used a measuring cylinder to prepare oxygen by decomposing H_2O_2. What is the function of the cylinder in this experiment?

A To measure volume B To measure weight
C To measure width D To measure volume length

(iii) Which pairs represents suitable alternative heat sources when the Bunsen burner is not available in the laboratory?

A Kerosene stove and firewood B Torch and spirit burner
C Firewood and gas stove D Gas stove and spirit burner

2.

(iv) In an experiment to determine the solubility of common salt, the amount of water was kept constant. What type of variable does water represent in this experiment?

A Dependent variable C Controlled variable
B Independent variable D Uncontrolled variable

(v) When solid ammonium chloride is heated strongly, it changes to gaseous molecules. Select the type of change related to this process.

A Melting C Condensation
B Sublimation D Freezing

(vi) Why do ships often have blocks of magnesium attached to their hull?

A To improve appearance of the hull
B To make the hull more stronger
C To give sacrificial protection to the hull
D To make the hull float easily

(vii) Why is wind said to be the promising source of energy for the future?

A It does not produce harmful gases
B It is easily stored
C It is harnessed without chemical reaction
D It is a renewable source of energy

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(viii) Which element corresponds to the electronic structure 2:8:8?

A Argon B Neon
C Lithium D Helium

(ix) Why elements such as boron, silicon, germanium and antimony are referred to as metalloids?

A They display non-metallic characteristics
B They form alloys and conduct electricity
C They display metallic characteristics
D They display both metallic and non-metallic characteristics

(x) How many electrons are gained by sulphur in forming sulphate ion?

A 3 B 6
C 5 D 2

2. Match the descriptions in **List A** with the correct techniques for separating mixtures in **List B** by writing the letter of the correct response besides the corresponding item number in the table provided.

List A		List B	
(i)	Extraction of 5 g of table salt dissolved in 10 cm^3 of salt solution.	A	Funnel separation
(ii)	Separation of cooking oil from a mixture of water and cooking oil.	B	Solvent extraction
(iii)	Collecting 50 cm^3 of pure water from 300 L copper(II) sulphate solution.	C	Evaporation
(iv)	Extracting flower pigment from hibiscus flower using 2.5 cm^3 of ethanol.	D	Fractional distillation
(v)	Separating serum from suspension of human blood.	E	Centrifugation
		F	Simple distillation
		G	Paper chromatography

Answers

List A	(i)	(ii)	(iii)	(iv)	(v)
List B					

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SECTION B (70 Marks)

Answer **all** questions in this section.

3. (a) Identify five apparatuses used to prepare hydrogen gas.

(i) _____

(ii) _____

(iii) _____

(iv) _____

(v) _____

(b) How is oxygen gas prepared by using hydrogen peroxide?

_____

_____

_____

_____

_____

_____

_____

_____

4. Describe five laboratory safety measures.

(i) _____

_____

(ii) _____

_____

(iii) _____

_____

(iv) _____

_____

(v) _____

_____

_____

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5. (a) What are the applications of combustion in daily life? Give four points.

(i) _____

_____

(ii) _____

_____

(iii) _____

_____

(iv) _____

_____

(b) How is a portable fire extinguisher used? Explain four stages.

(i) _____

_____

(ii) _____

_____

(iii) _____

_____

(iv) _____

_____

6. (a) Identify four findings given by Rutherford about the atomic structure.

(i) _____

_____

(ii) _____

_____

(iii) _____

_____

(iv) _____

_____

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(b) Describe three sub atomic particles according to location and charge.

Sub-atomic Particle	Location	Charge

7. (a) Which three elements should be stored in oil?

(i) _____

(ii) _____

(iii) _____

(b) Why is it recommended not to expose those three elements in (a) in air?

_____

_____

_____

(c) Briefly describe the alkaline earth metals by giving five points.

(i) _____

_____

(ii) _____

_____

(iii) _____

_____

(iv) _____

_____

(v) _____

_____

8. (a) State two chemical properties of water.

(i) _____

_____

(ii) _____

_____

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(b) Describe the hydrological cycle without using a diagram.

9. (a) Indicate the status of the following chemical species by writing whether they have **stable** or **unstable** electronic configurations.

S/N	Chemical species	Status
(i)	Ca^{2+}	
(ii)	N	
(iii)	NH_3	
(iv)	Cl^-	
(v)	Al^{3+}	

(b) (i) What is the oxidation number of a free element? _____

(ii) Give the oxidation number of hydrogen in LiH. _____

(iii) Give the oxidation state of oxygen in F_2O. _____

(iv) Identify the oxidation state of oxygen in CO_2. _____

(v) How many atoms are there in three molecules of water? _____

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SECTION C (15 Marks)

Answer question **ten (10)**.

10. (a) Why the water gas is widely used as an industrial fuel?

_____

_____

_____

_____

_____

(b) Why the government of Tanzania discourages the use of charcoal and firewood as fuels? Give two reasons.

(i) _____

_____

_____

(ii) _____

_____

_____

(c) Classify the following substances based on their origin.

SN	Fuel	Category
(i)	Petrol	
(ii)	Wood	
(iii)	Alcohols	
(iv)	Kerosene	
(v)	Coal	
(vi)	Diesel	
(vii)	Petroleum	
(viii)	Hydrogen	
(ix)	Water gas	
(x)	Coal gas	
(xi)	Natural gas	
(xii)	Producer gas	

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