



TANZANIA HEADS OF ISLAMIC SCHOOLS COUNCIL
FORM TWO INTER ISLAMIC MOCK ASSESSMENT
CHEMISTRY

032

TIME: 2:30 Hours

Monday, 03rd August 2026 a.m.

Instructions

1. This paper consists of sections A, B and C with a total of ten (10) questions.
2. Answer **all** questions in each section.
3. Section A and C carry **fifteen (15)** marks each, and Section B carries **seventy (70)** marks.
4. All writings must be in blue or black 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 of this paper.
7. The following atomic masses may be used:

H=1, Na=23, Al=27, O=16, S=32, Cu=63.5, C=12, K=39, Ca=40, Mg=24

FOR ASSESSOR'S USE ONLY		
QUESTION NUMBER	SCORE	ASSESSOR'S INITIALS
1		
2		
3		
4		
5		
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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 the given alternatives and write its letter in the table provided.
- (i) Imagine that you are playing a chemistry-related trivia game with your friends. If you are to choose one term that does not relate to any recognised branches of chemistry among the following, which term could you choose?
- A. Organic chemistry
 - B. Arithmetic chemistry
 - C. Inorganic chemistry
 - D. Physical chemistry
- (ii) During the chemistry session, Mr Tarik drew the part of the periodic table on the blackboard that contains only Group II elements. Which common feature is associated with elements of that group?
- A. An equal number of protons
 - B. An equal number of electrons
 - C. An equal number of valence electrons
 - D. An equal number of shells
- (iii) Nawal passed by the laboratory and saw a laboratory technician using a spatula to scoop substances. What is the possible type of substance making that apparatus scoop?
- A. Powdery and gases
 - B. Crystalline chemicals and powdery
 - C. Crystalline chemicals and liquids
 - D. Powdery and liquids
- (iv) During the holiday, Aisha saw her mother perform some chemistry-related activities at home. Which of the following activities is likely to be seen by Aisha?
- A. Weighing cassava and maize flour
 - B. Dusting the floor in the house
 - C. Weeding flowers in a garden
 - D. Cooking food in a kitchen
- (v) A purchasing manager at a fertilizer factory is asked to order Ammonium Sulfate. The technician writes the formula as NH_4SO_4 on a scrap of paper. When the manager checks the valencies (NH_4^+ is 1 and SO_4^{2-} is 2), he realizes the formula is correct. What is the correct chemical formula the manager should use to ensure the factory receives the right compound?
- A. $(\text{NH}_4)_2 \text{SO}_4$
 - B. $\text{NH}_4(\text{SO}_4)_2$
 - C. $\text{N}_2\text{H}_8\text{SO}_4$
 - D. NH_4SO_2

- (vi) A student accidentally passes his wooden splint through the very centre of a non-luminous (blue) flame, just above the chimney. He notices that the edges of the splint char (turn black) quickly, but the part of the splint in the very middle of the flame remains unburnt for a few seconds. What does this tell him about the structures of the flame?
- The center of the flame is the hottest part
 - The flame is hollow and contains unburnt gas in the inner zone
 - The blue colour of the flame repels wood
 - The outer zone of the flame is cold, while the inner zone is hot
- (vii) A student dissolved a small amount of potassium carbonate in a water-filled evaporating dish to form a solution, then heated it. What name is given to a potassium carbonate in the solution?
- Solute
 - Solvent
 - Solution
 - Suspension
- (viii) An engineer is looking for an element to use in a specialised high-temperature lamp. He needs an extremely unreactive element that won't explode or corrode when heated. To which group of the periodic table should he look for an element?
- Group I (Alkali metals)
 - Group VII (Halogen)
 - Group VIII/0 (Noble gases)
 - Group II (Alkaline Earth metals)
- (ix) When sand and wax are put in the same container, and a small volume of petrol is added, after a few minutes only sand is seen. Why is wax not seen after the addition of petrol?
- Because wax is soluble in petrol
 - Because wax is insoluble in petrol
 - Because the mixture reached the equilibrium
 - Because petrol is flammable
- (x) A camper burns a 5kg log of wood in a fire. The next morning, only a small pile of ash weighing 0.5kg remains. The camper claims that 4.5kg of matter was "destroyed" by the heat. How would a chemistry student correctly explain this?
- The camper is right; heat destroys atoms
 - The missing mass was converted into light, which has no atoms
 - The atoms in the wood reacted with oxygen to form invisible gases like CO₂ and water vapour
 - The atoms shrank in size due to the high temperature

ANSWERS:

(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)

2. Match the descriptions of warning signs in **LIST A** with the corresponding warning signs in **LIST B** by writing the letter of the correct response beside the item number.

LIST A		LIST B
(i)	A liquid is highly poisonous; even a few drops can be fatal if swallowed.	A. Explosive
(ii)	A chemical container states that if the liquid comes into contact with your skin, it can cause burns and damage clothing.	B. Health hazards
(iii)	A bottle of laboratory liquid indicates that it can cause long-term effects, such as organ damage, if inhaled over time.	C. Caution
(iv)	A powder reacts violently with shock, friction or heat, often with a loud noise.	D. Oxidant
(v)	A chemical powder is used in a reaction to release oxygen and can increase the intensity of a fire.	E. Toxic
		F. Corrosive
		G. Flammable

ANSWERS:

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

SECTION B (70 Marks)

Answer **all** questions in this section

3. (a) Yumna was provided with the following reagents: sand, salt, distilled water and kerosene. She was asked to prepare the mixtures A, B and C from the given reagents. Substance A contains a mixture of sand and distilled water, substance B contains a mixture of salt and distilled water, and substance C contains a mixture of kerosene and water.

- (i) Name appropriately the mixture found in substances A, B and C.

- (ii) With a rationale, state the suitable method to separate the components found in substances A, B and C.

- (iii) Contrast mixture A and mixture B by three points

- (b) As a chemistry taker, draw the special apparatus holding the following constituents: cooking oil, kerosene and water with arbitrary densities 0.92g/cm^3 , 0.64g/cm^3 and 1g/cm^3 , respectively, ready for separation.

4. (a) In a school laboratory, there is a small heat source, typically made of brass or steel, Consisting of a vertical metal tube mounted on a heavy flat base and connected to a gas source. The heat source can produce different flames by adjusting its air holes. Give four differences between the flame formed when the holes are open and when they are closed.

Flame when air holes are closed	Flame when air holes are opened

(b) A school librarian found that there is a poor light supply in the library; as a result, the quality of the room was low. He decided to find the causes of the problem by observing the main electrical switch. Unfortunately, the fire erupted and caused a large number of books and magazines to start burning.

(i) State the class of fire that occurred in the library. Give a reason for your choice.

(ii) What type of portable fire extinguisher should have been used to extinguish the fire to save some books and magazines? Give a reason for your choice.

(iii) What type of portable fire extinguisher should not have been used to extinguish the fire? Give a reason

5. (a) When lemon juice is added to tea, the colour of the solution changes. Explain this observation.

(b) Correctly complete the table, indicating the appropriate colour change expected to be observed

Indicator	Baking powder solution	Yoghurt	Ash extract	Lemon juice
Methyl orange				
Phenolphthalein				

(c) Differentiate between:

(i) Strong and weak acids

(ii) Concentrated and dilute acid

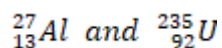
6. (a) (i) Including label if any, draw the structure of an atom according to the:

Dalton's Atomic Theory	Rutherford's Atomic Model

(ii) Many scientists explained the structure of an atom, including John Dalton. State only three postulates of Dalton's Atomic Theory

- (1) _____
- _____
- (2) _____
- _____
- (3) _____
- _____

(b) State the number of protons, neutrons and electrons in each of the following atoms:



${}_{13}^{27}\text{Al}$	${}_{92}^{235}\text{U}$
Protons =	Protons =
Neutrons =	Neutrons =
Electrons =	Electrons =

(c) Briefly explain two applications of isotopes

7. The teacher instructed the Form Two students to open the last page of their exercise books, where they would find a page showing the periodic table. He then told them to close their books and proceeded to draw on the blackboard a part of the periodic table with atomic numbers from 3 to 18, as shown below. Some elements are shown by letters rather than their true symbols. As an expert, study it, then answer the questions that follow:

3 K	4	5	6	7	8 N	9	10 M
11	12 R	13	14 P	15	16	17 Q	18

(a) Among the elements lettered K to Q, which element:

- (i) Is it a halogen? _____
- (ii) Is it a noble gas? _____
- (iii) Is it an alkali metal? _____
- (iv) Is it a metalloid? _____
- (v) Is it an alkaline earth metal? _____

(b) Name the elements with letters K, M, N, P, Q and R

K = _____

M = _____

N = _____

P = _____

Q = _____

R = _____

(c) Name the type of bond when

- (i) K and Q combine _____
- (ii) R and N combine _____

8. (a) A compound M is composed of 0.29g Copper, 0.14g sulfur, and 0.29g oxygen if the halved vapour density of M is 40.
- (i) By clearly showing the procedures, determine the molecular formula of compound M.

- (ii) Assign the oxidation state of copper in the compound M.

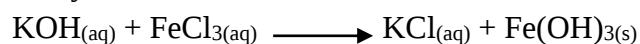
- (b) (i) You are given the table below showing cations and anions of certain compounds. Study the table and complete it.

	Cation	Anion	Formula
(i)	Sodium ion	Thiosulfate ion	
(ii)	Potassium ion	Chlorate ion	
(iii)	Ammonium ion	Dichromate ion	

- (ii) When required to calculate the molar mass of sodium hydrogen carbonate, Ms Tina got 86g/mol. By providing procedural evidence, please tell us whether the answer is correct or incorrect.

- (c) "Chemical formulas are nothing but just a burden brought to exhaust chemistry." Disprove this statement by giving any two points.

9. (a) Study the chemical reaction shown below and answer the questions that follow:



- (i) Write the balanced chemical equation for this reaction.

- (ii) Write the net ionic equation for this chemical equation.

- (iii) What type of reaction is represented by the equation above?

- (b) Some bases are readily soluble in water, while others are insoluble. Sort out the following bases as soluble or insoluble.

CuO, NaOH, MgCO₃, K₂O and Ca(OH)₂.

Soluble bases	Insoluble bases

SECTION C (15 Marks)

Answer question ten (10)

10. A Form One student was tasked with mopping the laboratory chamber when bees accidentally attacked her hand. The technician advised applying ash powder to the bite surface. Explain any **other six (6) important reactions** that take place on the skin surface of the student.

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Student's Assessment Number: _____

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Wabillah Tawfiiq