Candidate's Examination Number.....

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

032 **CHEMISTRY**

Time: 2:30 Hours **Friday, 16th November 2018 a.m.**

Instructions

1. This paper consists of sections A and B with a total of **ten (10)** questions.
2. Answer **all** questions in the spaces provided.
3. All writing must be in black or blue ink **except** diagrams which must be in pencil.
4. All communication devices, calculators and any unauthorized materials are **not** allowed in the examination room.
5. Write your **Examination Number** at the top right corner of every page.
6. The following atomic masses may be used: H = 1, N = 14, P = 31, S = 32, Cl = 35.

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

1 819032 000013

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SECTION A (20 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) Chemistry is the branch of Science which deals with

A matter in relation to energy.
B matter in relation to decomposition.
C matter composition and its decomposition.
D properties of conservation of matter.

(ii) Which of the following are the states of matter?

A Gas, liquid and mixture
B Gas, liquid and solid
C Element, compound and mixture
D Element, mixture and gas

(iii) Which of the following are the main components of fire triangle?

A Air, temperature and fire
B Oxygen, temperature and fuel
C Oxygen, heat and fuel
D Oxygen, temperature and fire

(iv) The process of removing solid contaminants from water is known as

A water decantation.
B water solidification.
C water purification.
D water sedimentation.

(v) How many zones are in a non-luminous flame?

A Four zones
B Two zones
C Three zones
D Five zones

(vi) The process of coating iron or steel with zinc is known as

A zinc painting.
B alloying.
C tin plating.
D galvanization.

(vii) A certain element has atomic number 'W' and mass number 'Y'. The number of neutrons contained in its nucleus is

A W.
B W – Y.
C Y – W.
D Y + W.

(viii) When a small amount of sugar is dissolved in a glass of water the mixture formed is

A heterogeneous.
B immiscible.
C suspension.
D homogenous.

(ix) Fainting is a sudden loss of

A confidence.
B weight of the body.
C water in the body.
D consciousness.

(x) Why is the fractional distillation of coal done?

A To remove oxygen in the atmosphere.
B To remove volatile matter.
C To add oxygen in the furnace.
D To add volatile matter.

2. (a) Match each item in **List A** with a correct response in **List B** by writing the letter of the correct response below the corresponding item number in the table provided.

List A	List B
(i) It occurs between two ions with opposite charges.	A Cation
(ii) It involves the sharing of electrons between atoms.	B Anion
(iii) Shows the simplest ratio of atoms or ions in a compound.	C Valency
(iv) Shows the actual number of each atom in a molecule.	D Electrovalent bond
(v) A force of attraction that holds atoms together to form molecules.	E Covalent bond
	F Empirical formula
	G Molecular formula
	H Chemical bond

Answers

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

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(b) Fill in the blank spaces with the correct answer.

(i) A reaction that releases energy in the form of light and heat is called .....

(ii) A chemical process that occurs in steel and iron in the presence of air and water is known as .....

(iii) Oxygen, heat and fuel are the three components that make .....

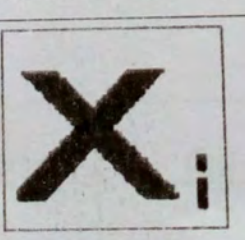
(iv) Injuries resulted from the body coming into contact with heat or harmful chemicals are called .....

(v) A solution which can dissolve no more solute at a given temperature is called .....

SECTION B (80 Marks)

Answer **all** questions in this section

3. (a) Indicate the corresponding meaning of the following warning signs:

Symbol	Meaning
(i) 	
(ii) 	
(iii) 	
(iv) 	

(b) Give four importance of the First Aid.

(i) .....

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(ii) .....

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(iii) .....

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(iv) .....

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4. (a) Draw and give one function of the following apparatus:

Apparatus	Drawing	Function
(i) Measuring cylinder		
(ii) Conical flask		

(b) By excluding a Bunsen burner, mention other three sources of heat that can be used in the laboratory.

(i) .....

(ii) .....

(iii).....

(c) Why a Bunsen burner is the best heat source in the laboratory? Give three (3) reasons.

(i) .....

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(ii) .....

.....

(iii) .....

.....

5. (a) Define the following terms:

(i) Brownian motion

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(ii) Compound

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(b) Identify whether the following is a physical or chemical change:

(i) Cutting aluminium foil into pieces.....

(ii) Lighting a match. .....

(c) How can you separate the following mixtures? Briefly explain.

(i) Water and kerosene

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(ii) Salt and water

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(iii) Ethanol and water

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6. (a) During preparation of Hydrogen gas by the reaction between dilute Hydrochloric acid and Zinc granules, the granules slowly dissolve in acid to form solution X.

(i) Name solution X.....

(ii) Write chemical formula of X.....

(b) How can hydrogen gas be tested?

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(c) Mention four (4) chemical properties of hydrogen gas.

(i) .....

(ii) .....

(iii) .....

(iv) .....

(d) List three (3) uses of Hydrogen gas.

(i) .....

(ii) .....

(iii) .....

7. (a) (i) How many electrons and protons are present in oxygen element and aluminum element?

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(ii) Write the electronic configuration of chlorine ion.

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(b) Use the elements with chemical symbols: P, S and Cl to answer the following questions:

(i) Which element is the most electronegative?

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(ii) Mention the least electronegative element.

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(iii) Which element has the largest atomic structure?

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(c) Study the following table with element lettered F, G, L, M and J, then answer the questions that follow.

Element	Atomic mass	Atomic number
F	16	8
G	19	9
L	23	11
M	12	6
J	20	10

(i) How many neutrons are present in element L?

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(ii) Which group and period of the periodic table does element F belong?

.....

(iii) Which element does not readily form compounds? Give a reason.

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8. (a) Write four sources of energy used for cooking in most Tanzanian societies.

(i) .....

(ii) .....

(iii) .....

(iv) .....

(b) List four characteristics of a good fuel.

(i) .....

(ii) .....

(iii) .....

(iv) .....

(c) List two areas where scientific procedure can be applied.

(i) .....

(ii) .....

9. (a) Outline six common apparatus used in the laboratory preparation of oxygen gas using hydrogen peroxide.

(i) .....

(ii) .....

(iii) .....

(iv) .....

(v) .....

(vi) .....

(b) Outline four uses of oxygen in everyday life situations.

(i) .....

(ii) .....

(iii) .....

(iv) .....

10. (a) Define the following terms:

(i) Valency

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(ii) Oxidation state

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(iii) Anion

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(iv) Cation

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(b) Calculate the oxidation state of the underlined elements in the following radicals:

(i) $\underline{N}H_4^+$

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(ii) $\underline{S}O_4^{2-}$

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(iii) $\underline{Cl}O_3^-$

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(c) A compound consists of 40% carbon, 6.67% hydrogen and 53.33% oxygen. If its relative molecular mass is 60, calculate the following:

(i) Empirical formula

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(ii) Molecular formula

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