Candidate's No. .....

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION AND CULTURE
FORM TWO SECONDARY EDUCATION EXAMINATIONS, 2004

0032

CHEMISTRY

TIME: 2 ½ HOURS

INSTRUCTIONS

1. This paper consists of three sections A, B, and C.
2. Answer all questions on the spaces provided in each question.
3. Write your examination number on the top right hand corner of every page.
4. All writings must be in black or blue pen except for diagrams which must be in pencil.
5. Cell phones are not allowed in the examination room.
6. the following atomic masses may be used C = 12, H = 1, O = 16

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	SCORE	INITIALS OF EXAMINER
1		
2		
3		
4		
5		
6		
7		
8		
9		
	TOTAL	

This paper consists of 7 printed pages.

Candidate's No. .....

SECTION A (10 MARKS)

This section consist of 10 multiple choice items (i) – (x). You are required to answer all questions in this section.

1. Write down the letter of the most correct response in the box provided for each question.

(i) Which of the following reactions represent a chemical change
- A. Heating a Solid Ammonium Chloride in test tube
- B. Burning candle in air
- C. Adding sodium chloride solid in water
- D. Putting ink on a filter paper.

(ii) Which of the following sets of symbols of elements stand for a single element

A. $^{16}_{7}Z$ $^{17}_{8}Z$ $^{18}_{9}Z$

B. $^{16}_{8}Z$ $^{17}_{8}Z$ $^{18}_{9}Z$

C. $^{16}_{8}Z$ $^{17}_{8}Z$ $^{18}_{8}Z$

D. $^{16}_{7}Z$ $^{16}_{9}Z$ $^{16}_{8}Z$

(iii) An element 'A' of electronic configuration 2:8:3 combines with an element 'B' of configuration 2:6. The chemical formula of the compound is:-
- A. $B_6 A_3$
- B. $A_3 B_6$
- C. $A_2 B_3$
- D. $A_3 B_2$

(iv) Calcium ion and calcium atom both have
- A. Same physical properties
- B. Same number of protons
- C. Same number of electrons
- D. Same electronic configuration.

Candidate's No. .....

(v) If a Bunsen burner flame produces much soot, which is the correct conclusion?

A. The air hole is closed
B. The burner gas jet is big
C. The air hole is fully opened
D. The gas supply is poor.

(vi) The atomic number of an element is the;

A. Number of protons and neutrons
B. Number of neutrons
C. Mass number
D. Number of protons.

(vii) If water does not easily form lather with soap, it is because of the presence of:-

A. Calcium and magnesium salts
B. Calcium sulphates
C. Sodium and calcium salts
D. Ammonium and Magnesium salts.

(viii) This mixture of substances can extinguish fire:

A. Oxygen and Nitrogen
B. Carbon dioxide and Sand
C. Carbon dioxide and Hydrogen
D. Hydrogen and Neon.

(ix) Which of the following sets of processes represent uses of oxygen gas.

A. Welding, Ice melting, Magnetization.
B. Mountaineering, sublimation, freezing
C. Glass cutting, desiccation, welding
D. Diving, welding, mountaineering.

(x) The reaction that takes place when $NaHCO_3$ is heated in the laboratory can be described as:

A. Combination
B. Decomposition
C. Replacement
D. Double decomposition.

Candidate's No. .....

SECTION B (20 MARKS)

2. You are provided with two lists, A and B. Choose a word(s) from list B which matches the statement in list A and write its letter against the appropriate statement in the space provided.

LIST A		LIST B
(i)	Immiscible liquids	A. Condensation
(ii)	Pop sound	B. Filtration
(iii)	Conditions for Iron to rust	C. Potassium
(iv)	Most reactive element	D. First Aid
(v)	Group O element	E. Catalyst
vi)	Separation of Dyes.....	F. Alcohol and water
(vii)	Cooling vapour to obtain liquid.....	G. Flammable
(viii)	Catches fire easily.....	H. Hydrogen gas
(ix)	Speeds up the rate of a chemical reaction.....	I. Magnesium
(x)	..... Is all that we can do to help an accident victim before we can get medical help in hospital	J. water and kerosene
		K. Presence of water and oxygen
		L. Chromatography
		M. Helium
		N. Presence of water and Hydrogen
		O. Aluminum

SECTION C (70 MARKS)

Short answer Questions

3(a) (i) What is air

Is the .....

.....

5.(a

(ii) Write down four constituents of air (b)

(a).... ..... (b)..... ..... (c)..... .....

(d).....

(b) Water is said to be a compound. Verify this statement

.....

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Candidate's No. .....

(c) Distinguish between solution and suspension

Solution	Suspension
(i)	(i)
(ii)	(ii)
(iii)	(iii)

4 (a) Mention any three laboratory rules

(i) .....

(ii) .....

(iii) .....

(b) Name any three places or areas where the knowledge of Chemistry is applied

(i) .....

(ii) .....

(iii) .....

(c) State what is observed when the following simple experiments are performed.

(i) Blue litmus paper is dipped into dilute hydrochloric acid.

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(ii) A piece of white paper is placed into a non-luminous flame.

.....

(iii) A glowing splint is lowered into a jar full of oxygen.

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5.(a) Define a chemical equation

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(b) Complete and balance the following chemical equations

(i) Mgo + HCl ⟶ + H_2O

(ii) $Ca(OH)_2$ + H_2SO4 ⟶ + H_2O

(iii) $KClO_3$ ⟶ KCl +

(iv) H^+ + H_2O ⟶

Candidate's No. .....

6.(a) Use the IUPAC system to name the following chemical compounds 8

(i) CUO .....

(ii) $CaSO_4$ .....

(iii) HNO_3 .....

(iv) $Zn\,Cl_2$ .....

(b) Write a balanced Ionic chemical equation for the following reactions.

(i) $HCl + CaCO_3 \longrightarrow CaCl_2 + CO_2(g) + H_2O\ (L)$

.....

(ii) $NH_4\,OH_{(aq)} + HCl_{(aq)} \longrightarrow NH_4\,Cl_{(aq)} + H_2O\ (L)$

(c) Write the symbols for the following elements.

(i) Silver .....

(ii) Copper .....

(iii) Iron .....

(iv) Mercury .....

7.(a) Draw an electronic configuration to illustrate the structure of atoms P and Q with 13 and 17 protons.

(b) From the structure drawn in (a) above state the valency, period and Group the atoms are placed in periodic table

p- Valency is .....

Period is .....

Group is .....

Q - Valency is .....

Period is .....

Group is .....

Candidate's No. .....

8 (a) What is the meaning of Covalent bonding ?

.....

.....

(b) Mention four differences between covalent and electrovalent compounds

Covalent compounds	Electrovalent compounds
i	i
ii	ii
iii	iii
iv	iv

9. (a) Define empirical formula

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(b) A compound M is composed of 52.2% carbon, 13% hydrogen and rest is oxygen. If the molecular mass of M is 46

(i) Calculate empirical formula.

(ii) Calculate the molecular formula.