THE PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

IRAMBA DISTRICT
FORM IV MOCK EXAMINATION - 2018

032/1 **CHEMISTRY - 1**

TIME: 3 Hours **Thursday, 17th May 2018 a.m.**

INSTRUCTIONS

1. This paper consists of section A,B and C with a total of thirteen (13) question
2. Answer all question in this paper
3. Calculators, cellular phones and any unauthorized materials are not allowed in the examination room
4. Write your examination number on every page of your answer sheet provided
5. The following constants may be used:

   Atomic masses

   H = 1, C = 12, N = 14, O = 16, Mg = 24, P = 31, S = 32, K = 39, Ca = 40, Fe = 56, Cu = 64, Zn = 65, Ag = 108, Pb = 207
   Avogadro's number = 6.02×10^{23}
   GMV at S.T.P = $22.4\ dm^3$
   I Faraday = 96,500 coulombs
   Standard pressure = 760 mm Hg
   Standard temperature = 273 K
   1 litre = $1\ dm^3 = 1000\ cm^3$

This paper consists of 6 printed pages

Scanned by CamScanner

SECTION A: (20 MARKS)

Answer all questions in this section:

1. For each of the items (i) – (x), choose the correct answer from the given alternatives and write its letter beside the item number in the answer sheet provided

(i) What happens when zinc granules are added to dilute sulphuric acid?

A. A precipitate is formed
B. Bubbles start coming out from the surface of zinc granules ( )
C. The reaction mixture turns black
D. Sulphur is deposited to the bottom of the container as yellow particles

(ii) Sometimes chlorine gas is passed through water for purification. What will be the PH value of such a sample

A. 7
B. 14 ( )
C. < 7
D. > 7

(iii) The use of electricity to decompose molten sodium chloride into its component elements is an example of:-

A. Electroplating
B. Galvanization
C. Hydrolysis ( )
D. Electrolysis

(iv) The following are nuclide notations of two particles

$^{17}_{8}M$ and $^{15}_{8}M$. These particles are:

A. Isomers
B. Allotropes ( )
C. Isotopes
D. Radicals

(v) Which of the following compound can be used to remove hardness of water.

A. Calcium chloride
B. Magnesium nitrate
C. Sodium carbonate ( )
D. Potassium hydroxide

(vi) What volume of 0.2m sulphuric acid will be required to complete neutralize 25.0cm3 of 0.05m potassium hydroxide?

A. 3.125cm3
B. 6.25cm3 ( )
C. 12.5cm3
D. 25.0cm3

(vii) The apparatus suitable for measuring specific volume of liquids is called:

A. Burette
B. Volumetric flask ( )
C. Pipette
D. Beakers

Scanned by CamScanner

(viii) The mass number of carbon atom that contains six protons, eight neutrons and six electrons is

A. 6
B. 14
C. 12
D. 8

( )

(ix) Hygroscopic and deliquescent substances can be used as:

A. Oxidizing agents
B. Dying agents
C. Reducing agents
D. Weak electrolytes

( )

(x) Sulphuric acid is:-

A. Monobasic
B. Dibasic
C. Tribasic
D. An organic acid

( )

2. Match the items in list A with the responses in list B by writing the letter of the correct response beside the item number in the answer booklet provided.

	List A		List B
i.	Atoms of the same element that contain different number of neutrons	A.	Atomic number
ii.	The elements that display both metallic and non-metallic characteristics	B.	Electron
iii.	Sub atomic particle NOT found in the nucleus of the atom	C.	Radical
iv.	The number of protons found in the nucleus of the atom	D.	Metalloids
v.	The total number of protons and neutrons in the nucleus of the atom	E.	Isotopes
vi.	The number of unpaired electrons an atom	F.	Mass number
vii.	The elements which are incredibly stable and rarely react	G.	Neutron
viii.	The non-metals that form diatomic molecules	H.	Allotropes
ix.	Sub atomic particle with no charge	I.	Noble gases
x.	A group of atoms with unpaired electrons	J.	Period
		K.	Group
		L.	Proton
		M.	Valence
		N.	Atomic radii
		O.	Halogens

Scanned by CamScanner

SECTION B: (54 MARKS)

Answer ALL questions in this section

3. (a) Define the following terms
   - (i) Soil
   - (ii) Soil PH
   - (iii) Monocroping

   (b) Briefly explain the causes of:-
   - (i) Temporary hardness of water
   - (ii) Permanent hardness of water

4. (a) State four physical properties of metals

   (b) Write chemical equations to show how ammonia gas reacts with the following
   - (i) Hydrogen chloride gas
   - (ii) Copper (II) oxide
   - (iii) Dilute sulphuric acid.

5. (a) If magnesium nitride is reality decomposed by water to give ammonia according to the unbalanced equation:

   $Mg_3N_{2(s)} + H_2O_{(1)} \quad Mg(OH)_{s(s)} + NH_{3(g)}$
   - (i) Write a balanced equation for the reaction
   - (ii) What volume of ammonia, measured at S.T.P would be evolved from 2.5g of the nitride

   (b) Find the oxidation state of phosphorus in the phosphate ion, $P.O_4^{3-}$

6. (a) List two classes of oxides. Give one example in each ease.

   (b) Write the chemical formula of pentanol and state the type of bond that exists

7. (a) (i) With the aid of a chemical equation, briefly explain what will happen when anhydrous copper (II) sulphate reacts with water

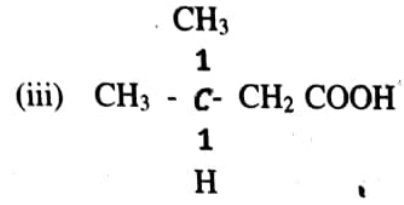
   (b) State three uses of water in daily life

8. (a) Name the following compounds according to the IVPAC system
   - (i) C_5H_{12}
   - (ii) $CH_3\ CH_2 - \overset{1}{\underset{1}{C}} - CH_2OH$

     CH_3

965) 1800 (0
965
2500
2955
505

Scanned by CamScanner

(iii)


(b) For a reaction at equilibrium such that:

$A + B \quad C + D \qquad \Delta H = +XKJ/mol$

State what happens when:

(i) Concentration of A and B increases

(ii) Removing of C and D from the system

(iii) Lowering of the temperature of the system

9. (a) Given a nuclide notation of potassium, $^{39}_{19}K$, write down the followings from the notation;

(i) Neutron number (ii) Electron number (iii) Proton number

(b) Calculate the volume of water which was produced when 1120cm3 of oxygen at s.t.p was liberated during the decomposition of hydrogen peroxide. The density of water = 1.0g/cm3.

10. (a) Balance and name the type of reaction represented by each of the following chemical equations:

(i) $C3\ H_{8(g)} + O_{2(g)} \longrightarrow CO_{2(g)} + H_2O_{(1)}$

(ii) $Pb\ (NO_3)_2 \longrightarrow PbO_{(S)} + NO_2(g) + O_{2(g)}$

(iii) $Zn_{(s)} + CUSO_4(aq) \longrightarrow ZnSO_4(aq) + CU(s)$

(b) A current of 1.5A was passed through silver nitrate solution for 20 minutes. Calculate the

(i) Quantity of electricity passed

(ii) Mass of silver discharged

11. (a) Suggest the best method for separating each of the following mixtures.

(i) Alcohol and water

(ii) Iodine and sand

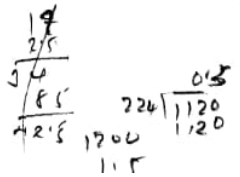
(iii) Iron filling and calcium carbonate provider

(b) The preparation of oxygen in the laboratory is done by heating potassium chlorate (v) using a certain catalyst 'X'

(i) Name catalyst 'X'

(ii) Write a balanced chemical equation for the preparation of oxygen gas

(iii) Mention two uses of oxygen gas



Scanned by CamScanner

SECTION C: (26 MARKS)

Answer all questions in this section

12. Describe the extraction of iron from the haematite ore and write all the chemical equations for the reactions involved in each stage of extraction (include a diagram in year description)

13. Using four examples, explain how the process of neutralization is important in day to day life.

Scanned by CamScanner