

PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT



CHALINZE DISTRICT EXAMINATION SYNDICATE
FORM FOUR PRE MOCK EXAMINATION - 2024
CHEMISTRY 1

TIME: 3: 00HOURS

APRIL, 2024

Instructions

1. This paper consists of section A, B and C with total eleven questions.
2. Answer all questions in A and B and two (2) question from section C.
3. Cellular phones and any unauthorized material are not allowed in the examination room.
4. Write your examination Number on every page of your answer booklet(s).
5. Non programmable calculator may be used.
6. The following constant may be used

Atomic masse:

H=1, C=12, N=16, Na=23, S=32, Ca=40, Cl=35.5, Cu=64 Ag=108 and Zn=65

Avogadro`s number= 6.02×10^{23}

GMV at s.t.p = 22.4dm^3

1 faraday`s= 96500 coulombs

Standard pressure= 760mm Hg

Standard temperature= 273K

1 litre= $1 \text{dm}^3 = 1000 \text{cm}^3$

FOR EXAMINER'S USE ONLY		
QUESTION NO.	SCORE	MARKER'S INITIAL
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
TOTAL		

SECTION A (16 MARKS)

Answer **all** questions in this section.

1. For each item (i)-(x), choose the correct answer from the given alternatives and write the letter besides the item number in the answer sheet:
 - (i) The final energy of product in exothermic reactions is
 - A. Equal to the energy of reactant.
 - B. Higher than energy of reactant.
 - C. Lower than energy of reactant.
 - D. Not depend upon the energy of reactant.
 - (ii) Unsaturated solution is the one which;
 - A. Contains more solute dissolved at a given temperature.
 - B. Contains more solute undissolved at a given temperature.
 - C. Contains little solute at a given temperature.
 - D. Will take no more solute at a given temperature.
 - (iii) Reduction reaction in electrolytic cell takes place at;
 - A. Anode.
 - B. Cathode.
 - C. Anion.
 - D. Cation
 - (iv) Factors in an experiment that can be manipulated;
 - A. Dependent variables.
 - B. Measured variables.
 - C. Controlled variables.
 - D. Manipulated variables.
 - (v) The aim of destruction distillation of coal is;
 - A. Removal of carbon dioxide.
 - B. Removal of oxygen.
 - C. Removal of hydrogen.
 - D. Removal of volatile matter.
 - (vi) The solution with Ph of 8 is said to be;
 - A. Strong base.
 - B. A weak acid.
 - C. A strong acid.
 - D. A weak base.
 - (vii) When sand and wax are put in the same container of petrol is added, after few minutes sand is seen. Why wax is not seen after addition of petrol;
 - A. Because wax is insoluble in petrol.
 - B. Because the mixture reached the equilibrium.
 - C. Because petrol is flammable.
 - D. Because wax is soluble in petrol.
 - (viii) The main compounds of crude oil are:-
 - A. Gases, liquid and solids.
 - B. Gases, water and diesel.
 - C. Mines and oils.
 - D. Gasoline, hydrogen and milk.
 - (ix) What will be simplest test for the hardness of water?

- A. Shaking water with chalk.
 - B. Mixing water soap less detergent.
 - C. Formation of scum.
 - D. Shaking water with soap solution.
- (x) Which of the following groups consist of home care products?
- A. Yeast, plastic and disinfectant.
 - B. Clothes, soap and stone.
 - C. Air freshener, detergent and antiseptic.
 - D. Petrol, air freshener and paints.
2. Match the items in list A with correct responses in list B by writing the letter of the correct response beside the item number in the answer provided.

LIST A.	LIST B.
(i) A group of atoms with unpaired electrons	A. Halogens
(ii) The total number of protons and neutrons in an atom	B. Noble gases
(iii) Incredibly stable and rarely react	C. Radical
(iv) Number of unpaired electrons on an atom	D. Valence
(v) Form diatomic molecules	E. Electrons
(vi) Number of proton equal to number of.	F. Mass number
	G. Atomic number

SECTION B (54 MARKS)

Answer **all** questions from this section.

3. a) Explain to sir kugwile how the following differ from one another?
- (i) A base and alkali.
 - (ii) An atom and isotope.
- b) An organic compound **P** consist of 52.2% of carbon 13% of hydrogen and 34.8 of oxygen. The vapour density of **P** is 23. Calculate the molecular formula of the compound.
- c) Calculate the oxidation number of nitrogen in potassium nitrate?
4. MUNAWAR guided student of form four to study carefully an experiment carried at in order to distinguish various substances formed during an experiment the procedures were as follows;
- a) Measure about 120cm³ of water and pour it in beaker.
 - b) Add a spatulaful of common salts and stir to allow all salts to dissolve.
 - c) Continue to add more salts to the solution, stirring until no more salts can dissolve.
 - d) Place the solution on tripod stand and heat gently, as you continue stirring.
 - e) Stop heating when salts dissolves.
 - f) Place the beaker in a trough of cold water and allow cooling for 3 to 5 minutes. Note the result observed.

Questions:

- (i) What type of solution was obtained when a spatulaful of table salt were dissolve in 120cm³ of water at room temperature? Give reason...

- (ii) What type of solution was obtained when no more salts dissolve in cold water at room temperature? Give reason.
 - (iii) What is the name of the final solution obtained after cooling in trough of cold water?
 - (iv) Explain two (2) application of the concept studied above?
5. a) Explain why carboxylic acid has high melting point and boiling point compared to their corresponding alcohol?
 b) With help of chemical equation, state two chemical properties of carboxylic acid.
 c) Explain why does fractional distillation of crude oil give different products?
 d) i) Define the term hydrocarbons?
 ii) Write down the molecular structure and I.U.P.A.C names of the isomers whose molecular formula C_4H_{10} .
6. a) A green solid sample A on heating gave off gas B which turns lime milky and a black solid C remained. Solid C in warm dilute sulphuric acid form a blue solution D.
 (i) Give the chemical formula of compound A, B, C and D.
 (ii) Write a balanced chemical equation for the reaction when a green solid A is heated.
- b) Describe what is observed when concentrated sulphuric acid is added to:-
 (i) White sugar.
 (ii) Hydrated copper (II) sulphate.
 (iii) Sulphur.
7. 5.3g of X_2CO_3 was dissolved in water to make 0.5 litre of a solution $25cm^3$ of this solution required $50cm^3$ of 0.1M HCl for complete reaction.
 (i) Write the balanced chemical equation for the neutralization reaction.
 (ii) Calculate the concentration of X_2CO_3 in moles dm^3 .
 (iii) Give the name of element X.
8. a) When I was in an interview at certain school, one student asked me to state Faraday`s laws of electrolysis. If you were me, how could you answer that student?
 b) Dilute silver nitrates solution was decomposed by the passage of electric current through it. What mass of silver and what volume of oxygen (measured at s.t.p.) would be liberated in electrolysis by 9650 coulombs of electricity?

NB. Silver and oxygen produced in 1:1

SECTION C (30 Marks)

Answer **only two** questions

9. Explain with aid of diagram and equation what happen in the following
 a) In contact process
 b) Frasch process
10. Three moles of nitrogen combine with five moles of hydrogen to form ammonia
 a) Which reactant present in large amount
 b) Calculate the grams of reactant left in the container
 c) Calculate the volume of ammonia produced.
11. A form four student had a task to mop the laboratory chamber, accidentally bees attacked and bite on her hand. The technician advised to apply ashes powder to the bite surface. Explain five importance of the process taking place on the skin surface to our daily life after applying the ashes powder?