GIDEONS ELITE BOYS CENTRE OF EXCELLENCE

P.O BOX 583-20300 NYAHURURU

DECEMBER-2024 ASSIGNMENT

THIS ASSIGNMENT WILL COVER 70% OF OPENER EXAM.

ALL QUESTIONS SHOULD BE ANSWERED IN THE EXERSISE BOOK

CHEMISTRY FORM 1-2024 **Website: www.gideonseliteschools.sc.ke**

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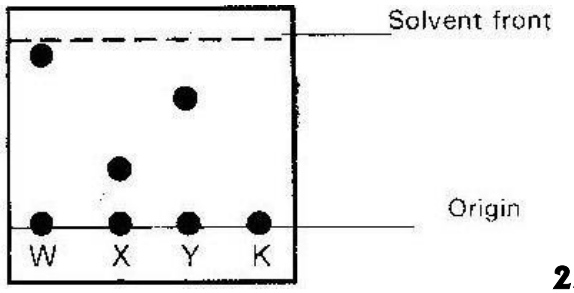
1. The diagram below represents a paper chromatogram of pure w, X, and Y. A mixture K contains W and Y only. Indicate on the diagram the chromatogram of K. (1mk)



2. Study the information below and answer the question that follows. A mixture contains the solids; Alum camphor and sugar. The solubility of different liquids is shown in the table below.

solid		Liquid	
	Water	Ethanol	Ether
Alum	Soluble	Insoluble	Insoluble
Camphor	Insoluble	Soluble	Very soluble
Sugar	Soluble	Soluble	Insoluble

Explain how you would obtain a sample of solid sugar from the mixture.

3. The equation below represents two processes that takes place without any change in temperature.

i) $H2O(s) \rightarrow H2O\ (l)$ ii) $CdCl_{2(s)} \rightarrow CD^{2+}{}_{(l)} + 2CL_{(l)}$

a) Explain why although heat is required for each of the processes to take place, the temperature remained constant in both processes. (1mk)

b) Which of the two processes has a higher enthalpy change ΔH; Give a reason? (2mks)

4. The table below gives some properties of gas D and E. (2mks)

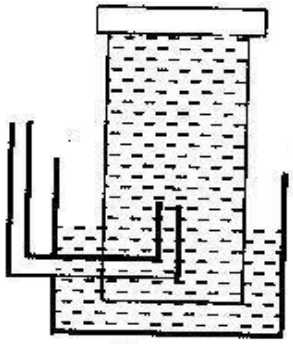
Gas	Density	Effect on H_2SO_4	Effect on NaOH.
D	Lighter than air	React to form salt	Dissolve without reacting
E	Heavier than air	Not affected	Not affected

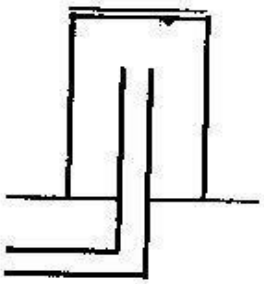
a) Describe how you would obtain a sample of gas E from the mixture of gas D and E

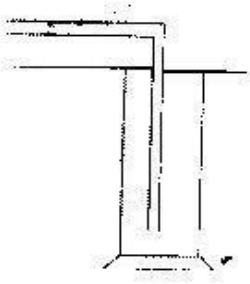
b) Suggest a possible identity of gas D. Give reasons for your answer. (2mks)

5. Explain how you would separate a mixture of Nitrogen and Oxygen gases given that their boiling points are -196^0C and -183^0C respectively. (2mks)

6. In an experiment to separate a mixture of organic liquid "m" (B.P. 56^0C) and liquid "n" (B.P. 118^0C) a student set up the apparatus shown below.
The diagram below represents three methods for collecting gases in the laboratory







(i) (ii) (iii)

a) Name the methods shown in the diagram (3mks)

b) State with reasons the most suitable methods for collecting each of the following gases.
i) Oxygen (1mk) ii) Hydrogen (1mk)
iii) Carbon (IV) Oxide (1mk)

18. A laboratory technician accidentally mixed liquids suspected to be benzene (B.P. 78 ^{0}C). He has a problem of separating the mixture and seeks your help. Describe to him. (4mks)

a) The method he should use

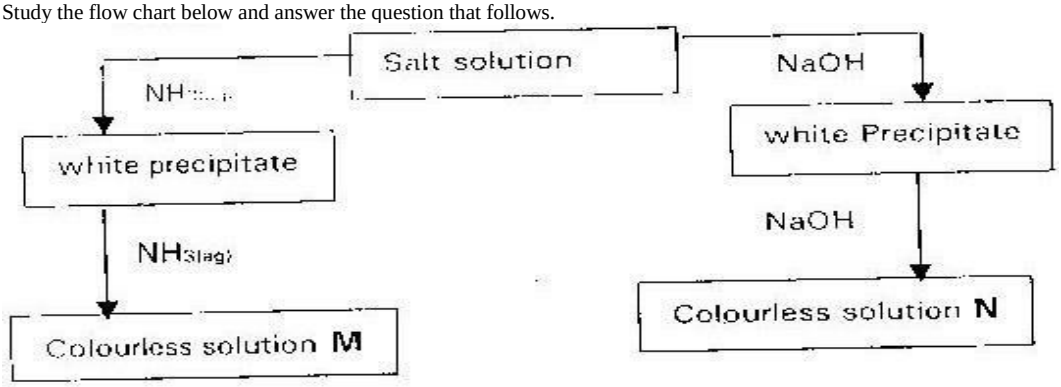
b) The apparatus he should use

c) The precautions he should take when carrying out the separation.

1. What would be observed when aqueous sodium hydroxide is added to aqueous Lead (II) Nitrate? (1mk)

2. Explain why concentrated sulphuric acid is a weaker acid than dilute sulphuric acid? (1mk)

4. Study the flow chart below and answer the question that follows.



Write the chemical formula for the complex ions in M and N.

5. Solutions may be classified as strong basic, weakly acidic, strong acidic. The information below gives solutions and their PH values. Study it and answer the questions that follow.

Solutions	PH values
B	1.5
C	6
D	14

Classify the solutions in the table above using the stated classification (3mks)

7. Explain how you would distinguish between a carbonate and a sulphite using dilute acid and blue litmus paper. (1mk)

8.

In the equation below, identify the reactant that act as an acid and explain how you would arrive at your choice.

$NH_4^+(aq) + H_2O(l) \leftrightarrow NH_3(g) + H_3O^+(aq)$ (2mks)

10. Distinguish between strong and weak acid. Give an example of each. (2mks)

11. Describe how a solid sample of Lead (II) chloride can be prepared using the following reagents. Dilute nitric acid (Nitric (V) acid), dilute Hydrochloric acid and lead (II) carbonate. (2mks)

12. A bee keeper found that when stung by a bee, application of a little solution of sodium hydrogen Carbonate help to relieve the irritation from the affected area. Explain. (2mks)

14. Dg of potassium hydroxide were dissolved in distilled water to make $100cm^3$ of the solution required $50cm^3$ of solution. $50cm^3$ of 2m Nitric (V) acid for complete neutralization. Calculate the mass of d of potassium hydroxide.
Relative molecular mass of KOH = 56

$KOH(aq) + HNO_3(aq) \rightarrow KNO_3(aq) + H_2O(l)$

15.

a) A few drops of freshly prepared iron (II) sulphate solution was added to potassium Nitrate solution in a test tube. Concentrated sulhuric acid was then carefully added to the mixture. State the observation that was made. (1mk)

b) Write an equation for the reaction that occurs when solid potassium nitrate is strong heated. (1mk)

16. The PH of a sample of soil was found to be 5.0. An agricultural officer recommended the addition of calcium oxide in the soil. State two functions of calcium oxide in the soil. (2mks)

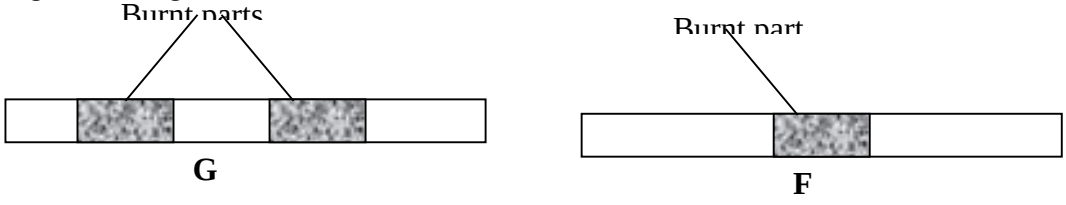
The diagram below shows a set up used by a student in an attempt to prepare

i) Complete the diagram by collecting the mistakes in it. (2mks)

ii) Identify solid w. (1mk)

Introduction to chemistry

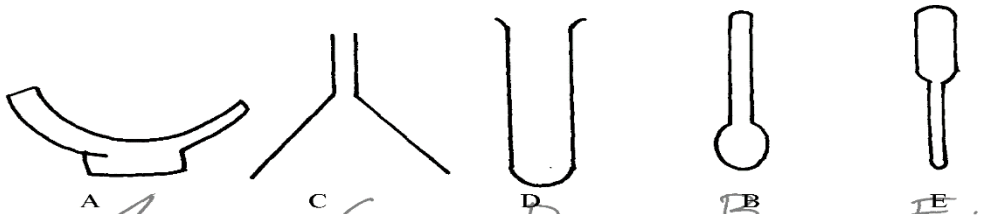
1. Wooden splints **F** and **G** were placed in different zones of a Bunsen burner flame. The diagram below gives the observations that were made



G **F**

(a) Explain the difference between **F** and **G**
(b) Name the type of flame that was used in the above experiment

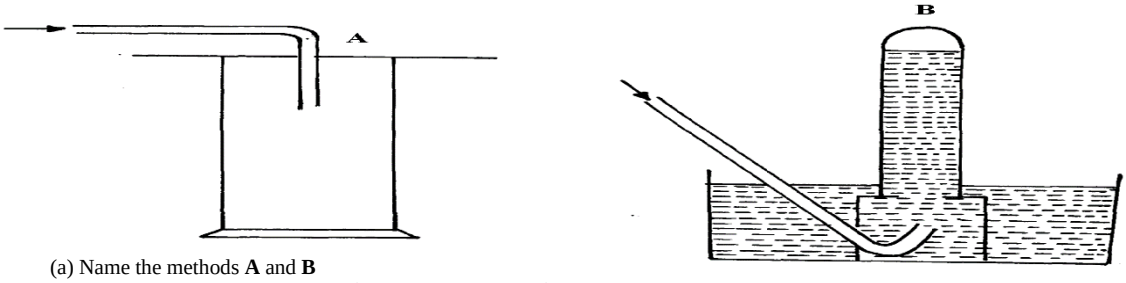
2. The diagrams below represent a list of apparatus which are commonly used in a chemistry laboratory:-



A **B** **C** **D** **E**

(a) Give the correct order of the apparatus, using the **letters only**, to show the correct arrangement that can be used to prepare and investigate the nature of PH of a sample of onion solution
(b) Name **one** chemical substance and apparatus that is needed in this experiment

3. (a) When the air-hole is fully opened, the bunsen burner produces a non-luminous flame. Explain
(b) Draw a labelled diagram of anon-luminous flame
4. (a) What is a drug?
(b) Give **two** drugs that are commonly abused by the youth.
5. The diagram below shows three methods for collecting gases in the laboratory



(a) Name the methods **A** and **B**
(b) From the methods above, identify **one** that is suitable for collecting sulphur (IV) oxide. Explain

The table below shows solutions **A, B** and **C** are tested and observations records as shown:

Solution	Observations on indicator
A	Methyl orange turns yellow
B	Phenolphthalein turns colourless
C	Litmus turns purple

(a) Using the table above, name an acid
(b) How does the pH value of 1M potassium hydroxide solution compare with that of 1M aqueous ammonia? Explain

2. The information below gives PH values of solutions **V, W, X, Y Z**

Solution	PH values
V	2
W	6.5
X	11
Y	14
Z	4.5

(a) Which solution is likely to be:
(i) Calcium hydroxide? …….
(ii) Rain water? ……
(b) Which solution would react most vigorously with Zinc carbonate

3. a) Complete the table below to show the colour of the given indicator in acidic and basic solutions.

Indicator	Colour in	
	Acidic Solution	Basic Solution
Methyl Orange		Yellow
Phenolphthalein	Colourless	

b) How does the PH value of 0.1M potassium hydroxide solution compare with that of 0.1M aqueous ammonia? Explain.

4. Use the information given below to answer the questions that follow:

Solution	**G**	**H**	**I**	**J**	**K**
pH	1.5	6.5	13.0	7.0	8.0

(a) Which of the solutions would be used to relieve a stomach upset caused by indigestion?
(b) Which solution is likely to be:
(i) Dilute sulphuric acid?
(ii) Sodium hydroxide solution?

5. Solid copper (II) oxide is a base although it does not turn litmus paper to blue. Explain

6. Below are the pH values of 4 types of medicine represented by letters **P, Q, R** and **S**

MEDICINE	**pH VALUES**
P	7.0
Q	5.0
R	8.0
S	6.0

a) It is not advisable to use **S** when a patient has indigestion .Explain
b) What is the role of chemistry in drug manufacture