THE UNITED REPUBLIC OF TANZANIA

PRESIDENT'S OFFICE

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

TABORA REGION

FORM FOUR REGIONAL MOCK EXAMINATION

031/2A

CHEMISTRY 2A
(ACTUAL PRACTICAL, A)

(For Both School and Private candidate)

Time: 2:30 Hours **Year: 2024.**

INSTRUCTIONS

1. This paper consists of **two (2)** questions. Answer all the questions.
2. Each questions carries twenty five (25 marks)
3. Qualitative analysis guide sheet authorized by NECTA and non-programmable may be used
4. Cellular phones and any unauthorized materials **are not allowed** in the examination room
5. Write your **Examination Number** on every page of your answer booklet(s)
6. You may use the following constant.

   Atomic Masses: H =1, C = 12, Cl = 35.5, S = 32 Na = 23, O = 16

   1 litre = 1 dm^3 = 1000cm^3

This paper consists of **3** printed pages

1. You are provided with the following solution

   AA: Containing 5.2g of impure sulphuric acid in $1dm^3$ of solution.

   BB: Containing 4g of pure sodium hydroxide in $1dm^3$ of solution

   M.O: Methyl orange indicator

   Procedure

   (a) Pipette $25cm^3$ or $20cm^3$ of solution BB into conical flask and titrate with the acid from the burette using two (2) drops of M.O and obtain three titre values.

   (b) (i) ..... cm^3 of BB required ..... cm^3 of AA for complete neutralization.

   (ii) The colour change of the indicator at the end point was from .....

   (c) Write a balanced chemical equation for the reaction between AA and BB at the neutral point.

   (d) Showing your procedures clearly calculate the percentage purity of solution AA.

2. Sample X is a salt sample containing one cation and one anion. Carry out the experiments described in the experiment table below. Carefully record your observations and make appropriate inferences to identify the cation and anion present in the sample X.

SN	EXPERIMENTS	OBSERVATION	INFERENCES
(a)	Observe the appearance of sample X		
(b)	Heat about 0.5g of sample X into a clean and dry test tube		
(c)	Transfer about 0.5g of sample X into clean and dry test tube add distilled water and shake well the mixture.		
(d)	Transfer about 0.5g of sample X into a clean and test tube then add dilute hydrochloric acid drop-wise until in excess		
(e)	Divide the solution in (d) above into three (3) portions: (i) To the first portion add ammonia solution drop wise until in excess		
	(ii) To the second potion add sodium hydroxide solution drop-wise until in excess		

	(iii) To the third potion add excess ammonia solution followed by ammonium oxalate solution		
(f)	Transfer about 0.5g of solid sample X into test tube then add about $2cm^3$ of dilute nitric acid		

Conclusion:

(a) (i) The cation in sample X is .....

(ii) The anion in sample X is .....

(iii) The chemical/formula of compound X is .....

(iv) The chemical name of compound X is .....

(b) Write the balanced chemical equation for the reaction took place in experiment (d) above.

(c) Mention two (2) uses of compound X