

PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT.
KIBAKHA TC, BAGAMOYO DC AND KINONDONI MC.



FORM FOUR JOINT PRE-NATIONAL EXAMINATION, 2023

CODE:032/2A

CHEMISTRY 2A

ACTUAL PRACTICAL

Time: 3 Hours

Year:2023

Instructions

1. This paper consists of two questions. Answer all questions
2. Each questions carries twenty five (25) marks
3. Calculations should be shown clearly
4. All writing must be in blue or black ink except drawings must be in pencil
5. Non-programmable calculators and mathematical tables may be used
6. Cellular phones and any unauthorized materials are not allowed in the examination room
7. Write your examination number on every page of your answer booklet (s)
8. For calculators you may use the following constants

Atomic masses H = 1, O = 16, Na = 23, C = 12

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

1. You are provided with the following
 - 1.1 Solution AA containing 2.45g of pure sulphuric acid in 500cm³ of solution
 - 1.2 Solution BB containing 4g of impure sodium hydroxide in 500cm³ of solution
 - 1.3 MO: Methyl/ orange indicator
 - 1.4 POP: Phenolphthalein indicator

Procedures

- i. Fill the burette with solution AA
- ii. Pipette 20cm³ or 25cm³ of solution BB and put in a conical flask
- iii. Titrate AA against BB using two drops of your suitable choice indicator
- iv. Repeat the titration to obtain three more titre values
- v. Record your results in tabular form

Questions

- (a) i. The volume of the pipette used wascm³
 - ii. The indicator used was briefly explain
 - iii. The colour change at the end point was fromto
 - iv. Why is it important to swirl or shake the contents in the flask during the addition of the acid?
- (b) Write a balanced ionic equation of the reaction between AA and BB
 - (c) By showing procedure clearly calculate the percentage purity and impurity of sodium hydroxide

2. Sample C is a simple salt containing one cation and anion. Carefully carry out qualitative analysis experiment to identify the ions present in a salt based on the following test

EXPERIMENT	OBERVATION	INFERENCE
(a) Appearance of sample C		
(b) Transfer small amount of solid sample C in a dry test tube. Heat gently until no further change		
(c) Transfer small amount of solid sample C into the test tube and add enough cold distilled water and shake the mixture. If the sample does not dissolve warm the content		
(d) To a small volume of a sample solution, add sodium hydroxide drop wise until in excess		
(e) To a small volume of a sample solution add barium chloride followed by dilute hydrochloric acid		
(f) Transfer about 0.5g of original solid sample in a test tube, add sodium hydroxide solution then warm gently, test the gas given out		

QUESTIONS

- The cation is and the anion is
- Write the chemical formula for the sample C
- Write the balanced chemical equation for the reaction in experiment (f)
- Give one function of the salt sample C in our daily life