PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT.
KIBAHA TC, BAGAMOYO DC, AND KINONDONI MC.
(KIBAKI)

FORM FOUR JOINT PRE-NATIONAL EXAMINATION, 2023

CODE:032/2B **CHEMISTRY 2B**

ACTUAL PRACTICAL

Time:2:30Hours **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, CL = 35.5, O = 16, Na = 23, S = 32

1 L = $1dm^3$ = $1000cm^3$

1. You are provided with the following

1.1 Solution BA_1 containing 0.2M hydrochloric acid

1.2 Solution BA_2 containing 4.8g of a matal hydroxide (MOH) dissolved in 1000cm^3 of solution

1.3 Solution MO methyl orange in dicator

Procedures

i. Fill the burette with solution BA_1

ii. Pipette 20cm^3 or 25cm^3 of solution BA_2 and put it in a conical flask

iii. Titrate BA_1 against BA_2 using two drops of methyl orange indicator

iv. Repeat the titration to obtain three more titre values

v. Record your results in tabular form

QUESTIONS

(a) Calculate the number of moles of BA_2 reacted with BA_1 for complete neutralization reaction

(b) Find the concentration of BA_2 in

i. g/dm^3

ii. mol/dm^3

(c) Calculate the relative molecular mass of BA_2 (MOH)

(d) Calculate the relative atomic mass of M

(e) Identify the metal M

2. You are provided with the following

AA A solution containing 79g $Na_2 S_2 O_3 \cdot 5H_2O$

BB: A solution containing 0.1M of dilute Hcl

TT: Distilled water

Stop watch/ clock

Procedure

i. Place a $100cm^3$ beaker on top of letter x on a plain paper provided

ii. Measure $8cm^3$ of AA and $2cm^3$ of TT and put them in the beaker in (i)

iii. Measure $10cm^3$ of BB and put it into a beaker containing AA and TT immediately start the stop watch and observe the change from above

iv. Record the time taken for the disappearance of letter x

v. Repeat step (i) to (iv) using data shown the table below

Number of experiment	volume of AA (cm^3)	Volume of BB (cm^3)	Volume TT (cm^3)	Time (t) in second	$\frac{1}{t}$ (sec^{-1})
1	8	10	2		
2	6	10	4		
3	4	10	6		
4	2	10	8		
5	1	10	9		

Questions

(a) Complete the table above

(b) What is the aim of the experiment

(c) Write the balance ionic equation of the reaction between AA and BB

(d) List any three factors affecting the rate of reaction

(e) Mention any two function of the substance produced leading to the disappearance of x

(f) What conclusion can you draw from the collected data?