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THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL
CERTIFICATE OF SECONDARY EDUCATION EXAMINATION, 1988

032

CHEMISTRY PAPER 2
PRACTICAL

(For both School and Private Candidates)

TIME: 2½ Hours.



INSTRUCTIONS

1. Attempt ALL three questions.
2. In question ONE, an account of the procedure is not required.
3. In question TWO and THREE, credit will be given for precisely recorded observations and for CORRECTLY drawn inferences.
4. You must write your answers in the answer book provided.
5. You may use the following:
 $H = 1, O = 16, F = 19, Na = 23, S = 32,$
 $Cl = 35.5. \quad 1 \text{ litre} = 1 \text{ dm}^3 = 1000 \text{ cm}^3.$
6. Remember to write the number of each question you attempt.
7. Write your Index and Centre Number on your answer book.

This paper consists of 3 printed pages.

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1. You are provided with the following solutions:

- (i) Solution B containing 8.94g of HP per dm^3 of solution
- (ii) Solution S containing 2.00g of sodium hydroxide in 0.5 dm^3 of solution.
- (iii) Methyl orange indicator.

PROCEDURE:

Put the acid B in the burette. Pipette 20 cm^3 (or 25 cm^3) of solution S into a titration flask. Add about three to four drops of methyl orange indicator provided. Titrate the sodium hydroxide solution against the acid solution until an end-point is reached.

Record your titre results in a table as shown below. Repeat this procedure to obtain a further three or four titre results.

(a) Table of results:

Titration	Pilot	1	2	3
Final reading/ cm^3				
Initial reading/ cm^3				
Volume used/ cm^3		25	25	25

(b) The volume of pipette used was 25 cm^3

(c) The volume of the acid solution B needed for complete neutralisation was _____ cm^3 .

(d) (i) Write down a balanced chemical equation for the above neutralisation reaction.

(ii) Calculate the number of moles of B in 1 dm^3 of solution

(e) (i) Calculate the molar mass of element P

(ii) What is element P.

2. Sample G is a pure salt containing ONE cation and ONE anion.

Carefully, carry out all the experiments described below. Record ALL your observations and make appropriate inferences. Then identify the ions present in the sample salt G.

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2. Contd...

EXPERIMENT	OBSERVATION	INFERENCE
(a) Appearance		
(b) Put one spatulaful in an ignition tube.		
(c) Heat it gently at first and then strongly until no further change occurs. Identify the gases given off.		
(d) Dissolve some of sample G in distilled water and divide the resulting solution into two portions.		
(i) To the first portion, add sodium hydroxide solution and warm. Identify the gas given off.		
(ii) To the second portion, add magnesium sulphate solution.		

CONCLUSION:

- (i) The cation present is _____ and the anion is _____
- (ii) Use ionic equations to represent what happens in experiment 2(c).

3. Sample M is a simple salt containing ONE cation and ONE anion. Using systematic qualitative analysis procedures, carry out tests on M and make appropriate inferences to identify the cation and anion.

EXPERIMENT	OBSERVATION	INFERENCE