



UNNASE MOCK

Name.....

UGANDA CERTIFICATE OF EDUCATION

Uganda Certificate of Education

CHEMISTRY

PAPER 3

2 HOURS

INSTRUCTIONS TO CANDIDATES

- *This paper consist of two questions*
- *All questions are compulsory. Answers are to be written in the spaces provided ONLY.*
- *You are not allowed to use any reference books (i.e text books, booklets on qualitative analysis etc)*
- *All working must be clearly shown*
- *Answers must be written using **blue** or **black ink only***

For Examiner's use only			
Q.1			
Q.2			
TOTAL			

1. You are provided with the following:-

BA1, which is a solution made by dissolving 2g of sodium hydroxide in 500cm³ of water

BA2, which is a 0.05M solution of a strong acid W

You are required to determine the basicity of W by finding the moles of sodium hydroxide that reacted with one mole of W.

Procedure:-

Pipette 20 or 25cm³ of BA1 into a clean conical flask. Then add 2 – 3 drops of phenolphthalein indicator and titrate the solution with solution BA2 from the burette until the end point. Repeat the titration 2 – 3 times to obtain consistent results. Enter your results in the table below:-

Results

Volume of pipette usedcm³ ($\frac{1}{2}$ mark)

	1	2	3
Final burette reading (cm ³)			
Initial burette reading (cm ³)			
Volume of BA2 used (cm ³)			

($7\frac{1}{2}$ marks)

Titrate values to calculate the average volume of BA2 used

($\frac{1}{2}$ mark)

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Average volume of BA2 used

cm³

($2\frac{1}{2}$ mark)

Questions:-

(a) Calculate the:-

(i) Molarity for BA1 (Na = 23, O = 16, H = 1)

(5 marks)

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(ii) Number of moles of Sodium hydroxide in BA1 that reacted

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(iii) Number of moles of BA2 that reacted

(3 marks)

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- (b) Determine the number of moles of sodium hydroxide that reacted with one mole of W

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2. You are provided with substance M which contains two cations and one anion. Carry out the following test on M to identify the cations and anion. Identify any gases evolved. Record your observations and deductions in the table below:-

TESTS	OBSERVATIONS	DEDUCTIONS
(a) Heat two spatula endfuls of M strongly until there is no further change		
(b) Dissolve two spatula endfuls of M in about 5cm ³ of water. Divide the resultant solution into six portions		



<p>(i) To the first portion add</p> <p>Sodium hydroxide solution drop wise until in excess and warm.</p>		
<p>(ii) to the second portion, add ammonia solution drop wise until excess</p>		
<p>(iii) To the third portion, add 2 – 3 drops of sodium sulphate solution and warm</p>		



(iv) Use the fourth position to carry out a test of your own to confirm one of the cations in M Test:..... 		
(v) To the fifth portion, add an equal volume of dilute nitric acid followed by 3 – 4 drops of lead(II) nitrate solution		
(vi) Use the sixth portion to carry out a test of your own to confirm the anion in M Test:..... 		

(c) (i) Cations in M and.....

(ii) Anion in M.....and.....

END