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545/3  
CHEMISTRY  
PRACTICAL  
Paper 3  
5<sup>th</sup> July 2014  
2 hours

ENTEBBE JOINT EXAMINATION BUREAU

Uganda Certificate of Education CHEMISTRY

Paper 3

2 hours

**INSTRUCTIONS TO CANDIDATES;**

- Attempt both questions. Answers to all questions are to be written in the spaces provided in this question paper.

You are not allowed to use any reference books such as textbooks, booklets on qualitative analysis, etc.

Working must be shown clearly.

Mathematical tables, slide rules and silent non - programmable calculators be used.

Na = 23, O = 16, H = 1

FOR EXAMINERS' USE ONLY			
Question 1			
Question 2			
TOTAL			

O-CH-32014

Entebbe Joint Examination Bureau: Chemistry

1. You are provided with solutions **BA1** and **BA2**.

**BA 1** ; a 0.1M sodium hydroxide solution.

**BA2**; is a solution containing 0.05 moles of an acid per litre.

You are required to determine the mole ratio of reaction between sodium hydroxide and the acid.

### Procedure

Pipette 20.0 cm<sup>3</sup> or 25.0 cm<sup>3</sup> of **BA2** into a conical flask. Add 2 - 3 drops of phenolphthalein indicator.

Titrate the solution with **BA1** from the burette. The endpoint is when the colour of indicator just turns pink.

Repeat the titration to obtain consistent results.

Record your values in the table below

Volume of pipette used .....cm<sup>3</sup>

<b>Burette reading</b>	<b>I</b>	<b>II</b>	<b>III</b>
Final reading / cm <sup>3</sup>			
Initial reading/cm <sup>3</sup>			
Volume of BA1 used/cm <sup>3</sup>			

Volume of **BA1** used for calculating the average.

Average volume of **BA1** used



2. You are provided with a substance **Y** which contains two cations and one anion. Carry out the following tests on **Y** and identify any gas evolved.

TEST	OBSERVATION	DEDUCTIONS
<p>a) Dissolve two spatula endfuls of <b>Y</b> in about 10 cm<sup>3</sup> of water in a boiling tube. Shake the mixture vigorously and filter.</p> <p>Keep both the filtrate and the residue.</p>		
<p>b) Divide the filtrate into four portions.</p> <p>i) To the first portion, add aqueous sodium hydroxide solution drop wise until in excess</p>		
<p>ii) To the second portion, add aqueous ammonia solution drop wise until in excess</p>		
<p>iii) To the third portion, add aqueous solution of potassium iodide.</p>		
<p>iii) To the fourth portion, add 3 drops of dilute hydrochloric acid followed by barium chloride solution</p>		
<p>(e) Wash the residue thoroughly with water and then add dilute nitric acid. Divide the resultant solution into four portions.</p>		
<p>(i) To the first part, add drops of aqueous sodium hydroxide Drop wise till in excess</p>		

(ii) TO the second part, add aqueous ammonia drop wise until in excess.		
(ii) To the third part, add a few drops of potassium iodide solution		
(iv) Use the last part of the Solution to carry out a test of our own choice to confirm the anion in <b>Y</b> .		

**Y** contains:

(i) Cation.....  
....

(ii) Anion.....  
....