

Name..... Index No:

Signature.....

545/3
CHEMISTRY
Practical
Paper 3
2 hours

RESOURCEFULMOCKS 2019

Uganda Certificate of Education

CHEMISTRY

(PRACTICAL TEST)

Paper 3

2hours

INSTRUCTIONS TO CANDIDATES

Answer **all** questions.

Record your answers on this question paper in the spaces provided **ONLY**

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

Reference books (i.e. text books. books on qualitative analysis, etc) should not be used

All working must be clearly shown.

For Examiners use only			
Q.1			
Q.2			
Total			

1. You are provided with the following;

BA1, which is a solution containing a carbonate Y_nCO_3 .

BA2, which is a **0.2M** hydrochloric acid solution.

You are required to determine the value of n in Y_nCO_3 .

Procedure:

Pipette **20 or 25** cm³ 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 used=.....cm³

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

Titre values used to calculate the average volume of **BA2** used

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Average volume of **BA2** used.....cm³

Questions:

(a) Calculate the number of moles of;

(i) **BA2** that reacted.

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(ii) Y_nCO_3 in 1000cm^3 of solution **BA1**

(1 mole of Y_nCO_3 reacts with 2 moles of hydrochloric acid)

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(b) Determine the

(i) Molar mass of Y_nCO_3 .

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(ii) Value of n in Y_nCO_3 (Y=38,C=12,O=16)

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2. You are provided with substance **Q** which contains **two** cations and **one** anion. Carry out the following test on **Q** to identify the cations and anion. Where any gas is evolved, it must be identified and tested. Record your observations and deductions in the table below.

TESTS	OBSERVATIONS	DEDUCTIONS
(a).Heat one spatula endful of Q strongly until there is no further change.		
(b).Dissolve two spatula endfuls of Q in about 3cm³ of water. To the mixture add ammonia solution drop wise until in excess. Filter and keep both the filtrate and residue.		
(c) To the filtrate, add dilute nitric acid drop wise until the solution is just acidic . Divide the solution into five portions		
(i)To the first portion of the acidified filtrate, add 2-3 drops of lead (ii) nitrate solution		
(ii)To the second portion of the acidified filtrate, add 2-3 drops of silver nitrate solution		

(iii)To the third portion of the acidified filtrate, add 2-3 drops of barium nitrate solution		
TESTS	OBSERVATIONS	DEDUCTIONS
(iv).To the fourth portion of the acidified filtrate, add sodium hydroxide solution drop wise until in excess.		
iv).To the fifth portion of the acidified filtrate, add ammonia solution drop wise until in excess..		
(d) Wash the residue with water and dissolve it in dilute sulphuric acid. Divide the resultant solution into three portions.		
(i).To the first portion of the solution, add sodium hydroxide solution drop wise until in excess..		
(ii) To the second portion of the solution, add ammonia solution drop-wise until in excess.		
iii)To the third portion of the solution, add 2-3 drops of potassium iodide solution		

(e). (i) Cations in **Q**:..... and

(ii) Anion in **Q**:.....

