NAME ..... SIGNATURE .....

INTERNAL MOCK EXAMINATIONS 2019
UGANDA CERTIFICATE OF EDUCATION
CHEMISTRY
PAPER 3
(545/3)
2 HOURS

INSTRUCTIONS

- Attempt all questions in this paper
- All answers should be written in the spaces provided

FOR EXAMINE'S USE ONLY

Qn	Marks	Total
1		
2		

Qn 1

You are provided with the following

- BA1 which a solution of Q_2CO_3 with concentration 31.8 g/litre.

- BA2 which is 0.1M HCl
- Methyl orange indicator.

Procedure

Pipette 25cm^3 of BA1 and transfer it into a clean 250cm^3 conical flask, then add 2-3 drops of methyl orange indicator. Titrate the resultant solution against BA2 from the burette until you get the end point. Repeat the titration two to three more times so as to obtain consistent results and record your results in the table below

Volume of pipette used .....cm^3 (0 ½ mk)

Titrations	1	2	3
Final burette reading/cm3			
Initial burette reading/cm3			
Volume of BA2 /Cm3			

(03 mks)

Titre values used to calculate average volume of BA2 used
..... (0 ½ mk)

Average volume of BA2 used. (03 mks)

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a) Calculate the number of moles of hydrochloric acid in BA2 that reacted.(01 ½ mks)

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b) Calculate number of moles Q_2CO_3 in BA1 that reacted? (02 ½ mks)

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(c) Calculate the value of Q in the formula Q_2CO_3? (02 ½ mks)

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2. You are provided with substance Z, which contains two cations and one anion. Carry out the following tests to identify the cations and anion in Z. Identify any gases that may be evolved. Record your observation and deductions in the table below. (16 ½ mks)

TESTS	OBSERVATIONS	DEDUCTIONS
a) Heat a spatula end-ful of Z strongly in a dry test tube. Keep the residue.		
b) Cool the residue from (a) and add dilute nitric		

acid dropwise until the solid just dissolves. Divide the solution into three portions		
i) To the first portion of the solution, add dilute sodium hydroxide solution dropwise until in excess.		
ii) To the second portion of the solution add 3-4 drops of potassium iodide solution.		
iii) To the third portion of solution, add dilute hydrochloric acid solution drop wise until in excess. Shake and filter. Keep the filtrate for part (c).		
c) To the filtrate from part b(iii), add dilute ammonia solution dropwise until in excess.		

d) Identify

i) Cations in Z ..... and .....

ii) Anion in Z .....

END