545/4

CHEMISTRY

Paper 3

June/July 2019

2 Hours

RESOURCEFUL MOCKS 2019

NAME……..……

INDEX NO…….…….SIGNATURE….……..

UGANDA CERTIFICATE OF EDUCATION

CHEMISTRY

Paper 3

2 hours

Instructions to Candidates:

- Answer both questions.
- Answers are to be written in the spaces provided.
- You are not allowed to use any reference books (i.e. text books; booklets on qualitative analysis, etc.)
- All Working must be Shown Clearly.

FOR EXAMINERS USE ONLY	
Question	**Marks**
1	
2	
TOTAL	

Qn1. You are provided with **two** solutions of different substances.

BA1 – is a solution of **1.0M** hydrochloric acid.

BA2 – is a solution prepared by dissolving 40.0g of the impure substance **T**, in water, to make 1000 cm³ of solution.

You are required to determine the percentage of the impurity in Substance T, which was used to prepare BA 2,

PROCEDURE:

- Pipette 25cm³ (or 20cm³) of **BA2** into a conical flask.
- Titrate with **BA1** from the burette.
- Repeat the titration until you obtain consistent results.
- Record your results in the table below.

(H =1; O=16; **RFM** of **T**=40; 1 mole of **BA1** reacts with 1 mole of **BA2**)

RESULTS:

Volume of pipette used…….. cm^3

Experiment number	**1**	**2**	**3**
Final burette reading (cm^3)			
Initial burette reading (cm^3)			
Volume of BA 1 used (cm³)			

Titre volume used to obtain average of **BA1** used:

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Average volume of **BA1** used

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QUESTIONS:

a) Calculate:

(i) the number of moles of **BA1** that reacted:

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(ii) the number of moles in 1dm³ of **BA2** used:

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(iii) the number of grams of pure substance **T,** in the amount of impure **T** that was dissolved.

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(b) Determine the percentage of the impure substance in the amount of that was used to prepared solution **BA2**.

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1. You are provided with substance **Y** which contains **one cation** and **two anions**.
   Carry out the following tests on **Y** to identify the **cation** and **anions** contained in it.
   Identify any gas (es) that may be evolved.
   Record your observation and deduction in the table below:

TESTS	OBSERVATIONS	DEDUCTIONS
a) Note the appearance of substance **Y**		

(b) Put 1 spatula endful of **Y** in a hard glass test tube, and heat, first gently and then strongly. Keep the residue obtained		
(i) Add dilute nitric acid to the residue in the test tube; shake well and keep the solution obtained.		
(ii) To the first portion of the solution in a test tube, add lead (II) nitrate solution.		
(iii) To the second portion of the solution, add Barium nitrate solution.		
(iv) To the third portion of the solution, add dilute sodium hydroxide, dropwise, until in excess.		

v) To the fourth portion of the solution, add aqueous ammonia, drop - by - drop, until in excess.		
vi) To the last portion of the solution in a test tube, add a few drops of silver nitrate solution.		

(iv) (i) The cation in **Y** is:

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(v) (ii) The anions in **Y** are:

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END