NAME........................................................................................................................

INDEX NO....................................................SIGNATURE...........................................

545/3

**CHEMISTRY PRACTICAL**

**PAPER 3**

JULY/AUGUST, 2017

2 HRS

**RESOURCEFUL MOCK EXAMINATIONS, 2017**

**Uganda Certificate of Education**

**CHEMISTRY**

**PAPER 3**

2HOURS

**INSTRUCTIONS TO CANDIDATES:**

* Answer **all** questions.
* Record your answers in this question paper in the spaces provided.
* Mathematical tables and non- programmable scientific electronic calculators may be used.
* Reference books(i.e text books and books of qualitative analysis) should not be used

|  |  |  |
| --- | --- | --- |
| **FOR EXAMINER’S USE ONLY** | | |
| **QN1** | **QN2** | **Total** |
|  |  |  |

1. You are provided with solutions**FA1** and **FA2**.

**FA1** Contain 1.7g of hydroxide ion (OH-) per litre of solution.

**FA2** Contain 6.4g of an acid **Q** per litre of solution. **Q** is a dibasic acid H2Y

You are required to determine the molecular mass of the acid by carrying out the

following experiment.

**Procedure**:

Pipette 25.0 (or 20.0) cm3 of **FA1** in a conical flask. Add 2-3 drops of phenolphthalein

indicator.

Titrate the mixture with **FA2** from the burette. Repeat the procedure three times more to get consistent results.Record all readings in the table below

Results:

Volume of pipette used = ……………………………………………………cm3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Burette readings | 1 | 2 | 3 | 4 |
| Final readings/cm3 |  |  |  |  |
| Initial readings/ cm3 |  |  |  |  |
| Volume of FA2 used/cm3 |  |  |  |  |

Volumes used to make average = .............................................................cm3

Average volume of **FA2**= ........................................................................cm3

**Questions**

**(a)** Calculate the molarity of **FA1**

..................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

………………………………………………………………………………………………………………

………………………………………………………………………………………………………………

(b). Calculate the molarity of **FA2**

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

(c). Calculate the molecular mass of **Q**

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

(d). Calculate the value of Y ...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

2. You are provided with substance **X** which contains two cations and two anions.

You are required to identify the cations and anions by carrying out the following tests. Identify gases.

|  |  |  |
| --- | --- | --- |
| **TEST** | **OBSERVATIONS** | **DEDUCTIONS** |
| (a). Heat a spatula end full of **X** in a dry test-tube gently then strongly |  |  |
| (b). Dissolve two spatula end fulls of **X** in about 8cm3 of distilled water. shake well , then filter and keep both filtrate and residue |  |  |
| (c). Divide the filtrate into five parts.  (i). To first part add aqueous sodium hydroxide drop-wise until in excess. |  |  |
| (ii). To second part, add ammonia solution drop wise until in excess |  |  |
| (iii). To third part, add three drops of potassium iodide solution |  |  |
| (iv). To fourth part add five drops of lead (II)nitrate solution |  |  |
| (v). To the fifth part add little dilute nitric acid followed by little barium nitrate solution |  |  |
| (d). Wash the residue. Then add dilute nitric acid little by little until there is no further change |  |  |
| Divide into three parts  (i). To first part add sodium hydroxide solution drop-wise until in excess |  |  |
| (ii). To second part add ammonia solution drop-wise until in excess. |  |  |
| (iii). To third part add two drops of potassium iodide solution. |  |  |

(e) The cations are.................................................................................................

The anions are.................................................................................................

**END**