Name……………………………………………………………Stream: ……………………

Signature………………………………………

*545/3*

*Chemistry*

*Paper 3*

*2 hours*

**Uganda Certificate of Education**

**PRE- MOCK EXAMINATION**

**CHEMISTRY PRACTICAL**

**Paper 3**

**2hours**

**INSTRUCTIONS TO CANDIDATES**

This paper consists of **two** questions

All questions are **compulsory**

Answers to the questions must be written in the spaces provided only

Do not use a pencil

**For examiners’ Use Only**

|  |  |  |
| --- | --- | --- |
| **Q.1** | **Q.2** | **Total** |
|  |  |  |
|  |  |  |

1. You are provide with the following;

**BA1**, which is a solution prepared by dissolving **6.2g** of an impure salt **V** in One litre of distilled water.

**BA2**, which is **0.1M** hydrochloric acid.

You are required to determine the mass of the pure sample in V and hence the percentage purity.

**Procedure:**

Pipette **20** or **25cm3** 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

|  |  |  |  |
| --- | --- | --- | --- |
|  | 1 | 2 | 3 |
| Final burette reading (cm3) |  |  |  |
| Initial burette reading (cm3) |  |  |  |
| Volume of **BA2** used (cm3) |  |  |  |

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

…………………………………………………………………………………………………

Average volume of **BA2** used ………………………………………………………cm3

**Questions**

1. Calculate the;

i) Number of moles of **BA2** that reacted

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ii) Number of moles of **BA1** that reacted with **BA2** (**1mole of BA1 reacts with 2 moles of BA2)**

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iii) Molarity of **BA1**

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1. Determine the;

i) Mass of the pure sample of **V**. **(RFM of V is 109)**

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ii) Percentage purity of **V**

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1. 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. allow to cool. |  |  |
| b) Dissolve **one** spatula endful of **Q** in about 5cm3 of distilled water. To the resultant solution add sodium hydroxide solution dropwise until in excess and filter. keep both the residue and filtrate. |  |  |
| c) Wash the residue and dissolve it in dilute Sulphuric acid. Divide the acidic solution into two portions. |  |  |
| i) To the **firs**t portion of the acidic solution, add dilute sodium hydroxide solution drop wise until in excess. **Allow to stand.** |  |  |
| ii) To the **second** portion of the acidic solution, add dilute ammonia solution drop wise until in excess. |  |  |
| d) To the filtrate from(b), add dilute nitric acid drop wise until the solution is just acidic. Divide the resultant solution into five portions. |  |  |
| i) To the **first** portion of the acidic solution add dilute sodium hydroxide solution drop wise until in excess. |  |  |
| ii) To the **second** portion of the acidic solution add ammonia solution drop wise until in excess. |  |  |
| iii) To the **third** portion add 3-4 drops of potassium iodide solution. |  |  |
| iv) To the **forth** portion of the acidic solution add 3-4 drops of lead(ii) nitrate solution and warm. |  |  |
| v) Use the **fifth** portion of the acidic solution to carry out a test of your own to confirm the anion in Q.  **Test:** |  |  |

e) i) Cations in Q ………………………………………. and ……………………………..

ii) Anion in Q………………………………………………………………………………….