**NAME……………………………………………………INDEX NO. ………………CLASS………**

**ADM NO…………………….DATE: ……………………………..SIGN: …………………….………**

**CHEMISTRY**

**PRACTICAL**

**233/3**

**TIME: 2 ¼ Hours**

**PANGANI GIRLS’ HIGH SCHOOL**

**POST MOCK 2022**

***Kenya Certificate of Secondary Education (KCSE)***

***Feb 2022***

**INSTRUCTIONS TO CANDIDATES**

* Write your **name** and **indexnumber** in the spaces provided.
* **Sign** and write the **date** of examination in the spaces provided.
* Answer ***all*** the questions in the spaces provided in the question paper.
* You are not allowed to start working with the apparatus for the first 15 minutes of the 2 ¼ hours allowed for this paper. This time is to enable you to read the question paper and make sure you have all the chemicals and apparatus you need.
* All working **must** be clearly shown where necessary.
* Mathematical tables and electronic calculators may be used

**For examiners use only**

|  |  |  |
| --- | --- | --- |
| **Question** | **Maximum Score** | **Candidate’s Score** |
| **1** | **22** |  |
| **2** | **10** |  |
| **3** | **08** |  |
| **TOTAL** | **40** |  |

1. You are provided with;

* Solution **A**, 2M Hydrochloric acid
* Solution **B**, 0.2M Sodium hydroxide
* 6 pieces of 2cm length of **magnesium** ribbon.

You are required to determine the mass of magnesium ribbon that reacted with hydrochloric acid.

**PROCEDURE I**

1. Using clean measuring cylinder, measure 50cm3 of solution **A** into a 100ml glass beaker
2. Put one piece of **magnesium ribbon**into solution **A** in the 100ml glass beaker and **simultaneously** start the stop watch
3. Record the **time taken** by magnesium ribbon to get completely finished in the table I.

**Repeat** procedure (ii) and (ii) using the same solution in procedure (i) adding each piece of solution, M and **RETAIN** it for procedure II (5marks)

**TABLE I**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Magnesium ribbon | 1st | 2nd | 3rd | 4th | 5th | 6th |
| Time taken(s) |  |  |  |  |  |  |
| 1 (s-1)  time |  |  |  |  |  |  |

1. Plot graph of 1 (vertical axis) against the magnesium ribbon. (3marks)

*time*



1. From the graph determine the time that would be taken for 5cm piece of the ribbon to get completely finished. (2marks)

**PROCEDURE II**

Transfer all the solution **M** from procedure I into a 250ml volumetric flask. Top up the flask to the mark with distilled water and shake. Label as solution **N.**

* Fill the burette with solution **N.**
* Using a pipette and pipette filler, place 25cm3 of solution **B** in a 250ml conical flask. Add 2 drops of phenolphthalein indicator and titrate with solution **N.**
* Record your results in table II. Repeat the titration two more times and complete the table.

**TABLE I**

|  |  |  |
| --- | --- | --- |
| I | II | III |
| Final burette reading |  |  |  |
| Initial burette reading |  |  |  |
| Volume of solution **N** used (cm3) |  |  |  |

1. Calculate the;

(4marks)

1. Average volume of solution **N**(1mk)
2. Mole of sodium hydroxide, solution **B** used (1mk)
3. Moles of hydrochloric acid, solution **N,** used. (1mk)
4. Moles of hydrochloric acid in 250cm3of solution **N**. (1mk)
5. Moles of hydrochloric acid in 50cm3 of solution **A.**(1mk)
6. Moles of hydrochloric acid in solution **A** that reacted with all the pieces of magnesium ribbon. (1mk)
7. Mass of magnesium ribbon used in the reacted (Mg = 24) (2mks)
8. You have provided with solid K carry out the test below and record your observation and inferences in the spaces provided.
9. Place all of solid K in a boiling tube. Add 10cm3 of distilled water and shake. Keep the mixture for the test in part (b) below.

**Inferences**

**Observations**

(1mark) (1mark)

1. Divide the mixture from (a) above into 4 portions
2. To the first portion, add aqueous ammonia drop wise until in excess.

**Inferences**

**Observations**

(1mark)

(1mark)

Dip a clean end of glass rod into the second portion, and place in on a non-luminous flame.

**Observation**

(1mark)

(1mark)

**Inferences**

1. To the third portion, add four drops of barium chloride solution.

**Inferences**

**Observations**

(1mark)

(1mark)

1. To the fourth portion, add two drops of acidified potassium manganate (VII) solution

**Observations**

**Inferences**

(1mark)

(1mark)

3. You are provided with liquid Z. Carry out the tests below.

1. Place about 1cm3 of liquid Z on a watch glass and light using a burning splint.

|  |  |
| --- | --- |
| **Observation** | **Inference** |
| ½ mk | ½ mk |

1. Place about 5cm3 of liquid Z in a boiling tube. Add 3cm3 of distilled water and shake the mixture.

|  |  |
| --- | --- |
| **Observation** | **Inference** |
| ½ mk | ½ mk |

1. Divide the solution above into four portions;
2. To the first portion test with litmus papers

|  |  |
| --- | --- |
| **Observation** | **Inference** |
| ½ mk | ½ mk |

1. To the 2nd portion, add 2-3 drops of universal indicator.

|  |  |
| --- | --- |
| **Observation** | **Inference** |
| 1 mk | 1 mk |

1. To the 3rd portion, add a little Sodium Carbonate

|  |  |
| --- | --- |
| **Observation** | **Inference** |
| ½ mk | ½ mk |

1. To the fourth portion add 2-3 drops of acidified Potassium dichromate (VII) solution then warm

|  |  |
| --- | --- |
| **Observation** | **Inference** |
| 1mk | 1mk |