**Name: …………………………………………………………… Index No. …………………………...**

**School: …………………………………………………………. Candidate’s Sign. …………..............**

**Date: ………………………………...............**

**233/3**

**CHEMISTRY**

**PAPER 3**

**PRACTICAL**

**NOV/DEC 2017**

***FORM 3***

***Chemistry***

***Paper 3***

**223/3 CHEMISTRY PRACTICAL**

**PAPER 3**

**You are provided with:**

Sulphuric (VI) Acid solution E, of unknown concentration.

0.5M of Sodium Hydroxide, solution F

You are required to:

1. Determine the concentration of Sulphuric (VI) Acid, solution E.

**Procedure I**

* Fill the burette with Solution E.
* Measure 25cm3 of solution F using a pipette and transfer into a clean conical flask.
* Add 2-3 drops of phenolphthalein indicator and titrate with solution E until the mixture just turns colourless.
* Repeat the titration two more times and complete the table below.

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

[4mks]

1. Calculate the average volume of solution E used. [1mk]
2. Calculate:
3. The moles of Sodium Hydroxide, solution F used. [2mks]
4. The moles of Sulphuric (VI) acid, solution E used. [1mk]
5. Write the chemical equation for the reaction between Sulphuric (VI) acid and sodium hydroxide. [2mks]
6. Calculate the concentration of Sulphuric (VI) acid, solution E. [3mks]

2. You are provided with substance G. Carry out the tests below and make your observations and inferences.

(a) Place solid G in a dry boiling tube, heat gently as you test the gas produced with a glass rod dipped in lime water (Ca(OH)2).

|  |  |
| --- | --- |
| **Observation** | **Inference** |
|  |  |

[2mks] (b) Transfer the residue into a test tube, add distilled water and shake thoroughly. Retain the mixture for further tests.

|  |  |
| --- | --- |
| **Observation** | **Inference** |
|  |  |

[2mks]

(c) Divide solution obtained in (b) above into two portions.

(i) To portion 1 (1st portion), add 2 drops of Barium chloride.

|  |  |
| --- | --- |
| **Observation** | **Inference** |
|  |  |

[1mk] [2mks]

1. To portion 2 (2nd portion) add 2 drops of lead nitrate followed by hydrocholoric acid.

|  |  |
| --- | --- |
| **Observation** | **Inference** |
|  |  |

[1mk] [2mks]

3. You are provided with solid P. Carry out the tests and make observations and inferences.

(a) Place solid P in a test-tube, add water to ½ full and shake thoroughly. Retain the mixture for further tests.

|  |  |
| --- | --- |
| **Observation** | **Inference** |
|  |  |

[2mks]

(b) Divide the solution obtained in (a) above into two (2) portions for testing.

(i) Take the PH of the 1st portion

|  |  |
| --- | --- |
| **Observation** | **Inference** |
|  |  |

[2mks]

1. To the 2nd portion add Sodium Carbonate, solid K.

|  |  |
| --- | --- |
| **Observation** | **Inference** |
|  |  |

[1mk] [2mks]