GATITU DAY MIXED SEC SCHOOL

NAME…………………………………………………………………………………

INDEX NO………………………………………………CLASS………………………

CHEMISTRY PP3

PRACTICAL TRIAL EXAM

TIME: 2 ¼ HRS

**1. YOU ARE PROVIDED WITH THE FOLLOWING:**

-Solution **S1** – made by dissolving  **2.45g**  of a dibasic acid, **H2 X** in 250cm3 of solution

- Solution **S2** –which is **0.1 m** sodium hydroxide solution

- Phenolphthalein indicator

You are required to determine the formula mass of **X** in the dibasic acid, **H2 X**.

**PROCEDURE**

Fill the burette with solution **S1,** pipette 25 cm3 of solution **S2** into a clean conical flask.

Add two drops of phenolphthalein indicator and titrate this with solution **S1**, until the colour of the solution changes to pal pink. Repeat the procedure twice and record the burette readings in the table below.

TABLE

|  |  |  |  |
| --- | --- | --- | --- |
|  | I | II | III |
| FINAL BURETTE READING (CM3) |  |  |  |
| INITIAL BURETTE READING (CM3) |  |  |  |
| VOLUME OF SOLUTION **S1** USED (CM3) |  |  |  |

(2MKS)

a) Determine the average volume of **S1** used (1mk)

b) Calculate the number of moles in 25cm3 of sodium hydroxide, solution **S2**. (2mks)

c ) Calculate the number of moles of **H2 X** in the average titre. (2mks)

d)Calculate the concentration of the acid, **H2 X** in: (2mks)

(i) Moles / litre (2mks)

(ii) g /litre (2mks)

e) Determine the molar mass of the acid, **H2 X** (1mk)

**2. (a)** You are provided with two solutions labeled **F 1** and  **F 2** in 50ml beakers. Using a clean glass rod, dip it in each solution and burn in a non –luminous flame and observe the colour of the flame. (2mks)

|  |  |  |
| --- | --- | --- |
| SOLUTION | COLOUR OF THE FLAME | INFERENCE |
| **F 1** |  |  |
| **F 2** |  |  |

(b) You are provided with liquid **G**  . Carry out the following tests and record your observation and inferences in the spaces provided.

(i) Place five drops of liquid **G**  on a clean dry glass and ignite it.

|  |  |
| --- | --- |
| Observations | Inferences |
|  |  |
|  |  |
|  |  |
| (1mk) | (1mk) |

(ii) Place about 2 cm3 of liquid **G** in a clean dry test –tube , add all the sodium hydrogen carbonate provided.

|  |  |
| --- | --- |
| Observations | Inferences |
|  |  |
|  |  |
|  |  |
| (1mk) | (1mk) |

(iii) Place about 2 cm3 of liquid **G** in a test tube , add about 1 cm3 of acidified potassium dichromate (VI) and warm the mixture.

|  |  |
| --- | --- |
| Observations | Inferences |
|  |  |
|  |  |
|  |  |
| (1mk) | (1mk) |

**3 .** You are provided with **solid H,** carry out the tests below and record your observations and inferences in the table below.

(a)Put all solid **H** in a boiling tube and add about 10 cm3 of distilled water.

|  |  |
| --- | --- |
| Observations | Inferences |
|  |  |
|  |  |
|  |  |
| (1mk) | (1mk) |

(b) Divide the resulting solution in (a) above into four portions.

(i) To the 1st portion add sodium hydroxide solution drop wise until in excess.

|  |  |
| --- | --- |
| Observations | Inferences |
|  |  |
|  |  |
|  |  |
| (1mk) | (1mk) |

(ii) To the 2nd portion add ammonia solution drop wise until in excess.

|  |  |
| --- | --- |
| Observations | Inferences |
|  |  |
|  |  |
|  |  |
| (1mk) | (1mk) |

(iii) To the 3rd portion add a few drops of Lead (II) nitrate solution

|  |  |
| --- | --- |
| Observations | Inferences |
|  |  |
|  |  |
|  |  |
| (1mk) | (1mk) |

(iv) To the 4th portion add a few drops of dilute nitric acid followed by a few drops of Barium nitrate solution.

|  |  |
| --- | --- |
| Observations | Inferences |
|  |  |
|  |  |
|  |  |
| (1mk) | (1mk) |

**(c )** You are provided with **solid J.**  Carry out the test below and record your observations and inferences in the table below.

Put all solid **J** in a boiling tube and add about 10 cm3 of water, and shake well. Use 2 cm3 portions of the mixture for the following reactions.

(i) Test the portion with both blue and red litmus papers.

|  |  |
| --- | --- |
| Observations | Inferences |
|  |  |
|  |  |
|  |  |
| (1mk) | (1mk) |

(ii) To second portion, add three drops of bromine water.

|  |  |
| --- | --- |
| Observations | Inferences |
|  |  |
|  |  |
|  |  |
| (1mk) | (1mk) |

(iii) To the third portion, add 2 drops of acidified potassium manganate (VII) and shape well.

|  |  |
| --- | --- |
| Observations | Inferences |
|  |  |
|  |  |
|  |  |
| (1mk) | (1mk) |

(iv) To the fourth portion, add all sodium hydrogen carbonate.

|  |  |
| --- | --- |
| Observations | Inferences |
|  |  |
|  |  |
|  |  |
| (1mk) | (1mk) |