**NAME: ……………………………… ADM NO: ………..…… CLASS: ……………**

**233/3**

**CHEMISTRY**

**PRACTICAL**

**FORM THREE**

**END OF TERM 1 EXAMS -2023**

**TIME: 2 HOURS**

You are provided with the following:

* 3.3g metal carbonate, MCO3, labeled solution Q
* 2M hydrochloric acid, labeled solution P
* Sodium hydroxide, labeled solution R containing 40g/L of solution

You are required to determine the relative atomic mass of metal M

**Procedure**

1. Measure accurately 100cm3 of solution P into clean 250cm 3 conical flak and add all the 3.3g of solid Q, MCO3
2. Shake the mixture well and wait for effervescence to stop. Label the resulting solution as S
3. Pipette 25cm3 of solution R into a conical flask and add 2-3 drops of phenolphthalein indicator.
4. Fill the burette with solution S and titrate against the solution R until the end point.
5. Record your results in the table below. Repeat the procedure at least two times to complete the table. (4 mks)

|  |  |  |  |
| --- | --- | --- | --- |
|  | i | ii | Iii |
| Final burette reading (cm3) |  |  |  |
| Initial burette reading (cm3) |  |  |  |
| Volume of solution S used (cm3) |  |  |  |

1. What is the average volume of solution S used? (1mk)
2. Calculate the moles of sodium hydroxide, solution R used. (2mks)
3. Calculate the moles of hydrochloric acid in the average volume of solution S used. (2mks)
4. Calculate the moles of hydrochloric acid in 100cm3 of solution S. (2mks)
5. Calculate the moles of hydrochloric acid in the 100cm3 of the original solution P. (2mks)
6. Calculate the moles of hydrochloric acid, solution P that reacted with solid Q, MCO3. (2mks)
7. Calculate the moles of MCO3 that reacted. (2mks)
8. Calculate the relative formula mass (RFM) of MCO3. (2mks)
9. Calculate the relative atomic mass (RAM) of metal M. (1mk)