**DARAJANI SECONDARY SCHOOL,**

**P.O. BOX 20-90129, NGWATA.**

**MID\_TERM 2, 2015\_ EXAMINATION**

**FORM 3**

**CHEMISTRY PRACTICAL**

**233/3**

**TIME: 2HRS**

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

1. You are provided with:-

* Dilute hydrochloric acid solution A
* 0.1M sodium hydroxide solution B

You are required to determine the molarity of solution A.

**Procedure**

Fill the burette with solution A. pipette 25cm3 of 0.1M sodium hydroxide solution B into a clean conical flask and add 2 drops of methyl orange indicator and titrate with solution A until a permanent pink colour occurs. Fill in the table 1 below.

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

(4 marks)

1. Calculate the average volume of solution A used. (2 marks)
2. Calculate the number of moles of sodium hydroxide pipetted. (2 marks)
3. Write a balanced chemical equation for the reaction. (2 marks)
4. Calculate the number of moles of hydrochloric acid that reacted. (2 marks)
5. Calculate the concentration of solution A in moles per litre. (2 marks)

QUESTION 2

You are provided with:

* Solution H containing 4.26g of acidified potassium dichromate (VI), K2Cr2O7 per litre.
* Solution E containing 39.2g per litre of compound Fe(NH4)2 (SO4)n . 6H2O.

You are required to:-

Determine the concentration of solution E in moles/litre.

Determine the value of n in the formula of compound E.

Procedure

Fill the burette with solution E. Pipette 25cm3 of solution H and transfer into a clean conical flask. Titrate solution H with solution E from the burette until the orange colour of potassium dichromate (VI) just turns green. Record results in the table below.

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

(4 marks)

1. Determine the average volume of solution E used. (2 marks)
2. Calculate the concentration of solution H in moles per litre (K = 39, Cr = 52, O = 16). (2 marks)
3. Calculate the moles of solution H in 25cm3 of the solution. (2 marks)
4. Given that the equation for the reaction is

Cr2O2-7 (aq) + 6Fe2+(aq) + 14H+ Cr3+(aq) + 5Fe3+(aq) + 7H2O(l)

1. Calculate the moles of solution E that reacted with solution H. (2 marks)
2. Calculate the concentration of solution E in moles per litre. (2 marks)
3. Calculate the relative formula mass of compound E hence determine the value of n in the formula of compound E. (2 marks)