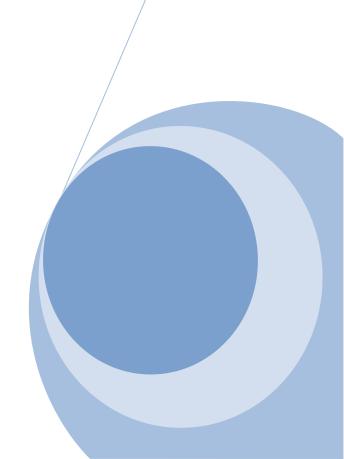


[As per Goa Board pattern]

[This Lab manual is designed in the interest of the students of STD Xi Science for Chemistry Practicals.]

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INORGANIC VOLUMETRIC ANALYSIS

Acid-Base titration

Experiment No-1	Date:

Aim: You are provided with two solutions as follows

Flask X - HCl

Flask Y - (0. 1050N) NaOH

Titrating these solutions determine Normality and strength in terms of g/litre. of HCI solution.

Requirements:

(i). Apparatus: Burette. Stand Pipette. Conical flask. White tile

(ii) Chemicals: NaOH (0. 1050 N). HCl and Phenolphthalein

Theory: This is a titration of strong acid HCl and strong base NaOH, where they react with each other and fonn salt and water. The process is called neutralization. Using the normality of NaOH. The strength of HCl can be calculated in terms of normality and grams/litre

Procedure: (i) Wash all the apparatus with water.

- (ii) Rinse the pipette with HCl solution. Pipette out 10 ml of HCl solution in conical flask. Add a drop of phenolphthalein indicator.
- (iii) Rinse the burette with NaOH solution and fill it with NaOH.

 Remove the air bubble if any. Adjust zero mark with lower meniscus.
- (iv) Titrate HCl solution against NaOH by adding NaOH from burette one ml at a time till the solution becomes light pink by constant stirring. Note this reading as pilot reading.
- (v) Repeat the titration to get constant reading.

Result:

Solution	Normality	g/Litre.
HC1	N	
NaOH	0.1050 N	

Observations and Calculations.

Given: 0.1050N NaOH solution

To find: Normality & strength of HCI solution in terms of grams/litre

Solution in Burette: NaOH (0. 1050N) (i)

Solution in Pipette: HCI Solution (ii)

Solution in conical flask:10 ml of HCI + two drops of indicator (iii)

(iv) **Indicator**: Phenolphthalein

End point: Colourless to light pink **(v)**

 $NaOH + HCl \rightarrow NaCl + H_2O$ **Equation:**

Observation Table:

Pilot Reading -----ml to -----ml

Burette Reading	I	II	III	Constant Burette Reading (C.B.R.)
Final	mL	mL	mL	
Initial	0mL	0mL	0mL	mL
Difference	mL	mL	mL	

Calculations:

1.To calculate Normality of HCI Solution

$$\begin{array}{cccc} (NaOH) & (HCI) \\ N_I V_I & = & N_2 V_2 \end{array}$$

$$0.1050 \times C.B.R = N_2? \times 10$$

$$N_2 = 0.1050 \times C.B.R.$$

=----'N

 N_1 = Normality of NaOH V_1 = Volume of NaOH (i.e. C.B.R) N_2 = Normality of HCI V_2 = Volume of HCI

Normality of HCI =---- N

2.To calculate g/L of HCI

= Normality of HCI x Eq.wt. of HCI

----- g/L

(Show log calculations in pencil)

