**Laboratory of Analytical chemistry**

Lab. of the first stage

Date / /

**Experimental 3:**

**standardization of Sodium hydroxide (** NaOH**)**

Before starting to estimate the acid or Bases , we are assigned to obtain standard solution. The acids and bases commonly used cannot be used directly to prepare standard solutions because they are variable in composition.

For example:

HCl: Evaporate in high concentration

H2SO4: hygroscopic

HNO3: Evaporate and dissociate

NaOH, KOH, Ca(OH)2: are very hygroscopic

2NaOH + CO2 Na2CO3 + H2O

Ca(OH)2 + CO2 CaCO3 + H2O

NH4OH NH3 + H2O [Evaporate and changing in concentration]

**Procedure:**

1-Weigh 4 gm of NaOH and dissolve it in one liter distilled water.

2- Transfer 10 ml of standard HCl solution to a conical flask.

3- Add 1-2 drops of phenolphthalein (ph.ph) as an indicator.

4- Fill the burette with the prepared NaOH solution.

5- Add NaOH drop by drop into the conical flask until the color of the solution is faint pink.

6- The exact normality of NaOH is obtained from:

HCl + NaOH NaCl + H2O

N1V1(NaOH) = N2V2(HCl)

**Titration curve:**

This is very similar to the previous curve except, of course, that the pH starts off low and increases as you add more sodium hydroxide solution.

****

Again, the pH doesn't change very much until you get close to the equivalence point. Then it surges upwards very steeply.

**Lecturer**

Hussein N. K. AL-Salman