**Lab sheet #6**

**-Titration of a weak acid with strong base-**

**Objectives:**

* To study titration curves.
* Determine the pKa value of a weak acid.
* Calculate the pH value at a given point.
* Reinforce the understanding of buffers.

**Method:**

You are provided with 10 ml of a **0.1M CH3COOH** weak acid solution, titrate it with **0.1M NaOH:**

1. Add the base drop wise mixing, and recording the pH after each **0.5 ml** NaOH added.
2. Stop when you reach a pH=9

**Results:**

|  |  |
| --- | --- |
| **ml of NaOH** | **pH** |
| 0 |  |
| 0.5 |  |
| 1 |  |
| 1.5 |  |
| 2 |  |
| 2.5 |  |
| 3 |  |
| 3.5 |  |
| 4 |  |
| 4.5 |  |
| 5 |  |
| 5.5 |  |
| 6 |  |
| 6.5 |  |
| 7 |  |
| 7.5 |  |
| 8 |  |
| 8.5 |  |
| 9 |  |

* + - 1. Record the values in titration table and plot a Curve of pH versus ml of NaOH added.
      2. Calculate the pH of the weak acid HA solution after the addition of 3ml, 5ml, and 10ml of NaOH.
      3. Compare your calculated pH values with those obtained from Curve.
      4. Determine the pKa value of the weak acid.
      5. At what pH-range did the acid show buffering behavior? What are the chemical species at that region, what are their proportions?