**Lab #3 312 BCH**

**Name:**……………………………………………………………………………… **ID:** ………………………………………………………………………………

**Method and Calculations**:

**1) Nature of buffers:**

-You are provided with: **0.2M** solution of CH3COOH**, and 0.2M** solution of CH3COONa.

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| **SOLUTION** | **ml [HA**] | **ml [A-]** | **Final volume** | **CALCULATED pH** | **MEAURED pH** | **Add 0.1 ml**  **2M Hcl** | **Measured**  **pH** | **The difference** |
| 100%HA | 20 ml | 0 | 20 ml | 2.729 |  | 0.1 |  |  |
| 75%HA,25%A- | 15 ml | 5 ml | 20 ml | 4.28 |  | 0.1 |  |  |
| 50%HA,50%A- | 10 ml | 10 ml | 20 ml | 4.76 |  | 0.1 |  |  |
| 25%HA,75%A- | 5 ml | 15 ml | 20 ml | 5.24 |  | 0.1 |  |  |

1. Determine which is the weak acid and which is it's conjugate base [or salt].

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2. Calculate the volume that you must take from CH3COOH and CH3COONa to prepare the following mixtures with final volume of the solution =20 ml:

1. 100% [HA] 2. 75% [HA], 25% [A-] 3. 50% [HA] , 50% [A-] 4. 25% [HA] , 75% [A-]

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3. Mix solutions properly and measure the pH of final solution.

4. Calculate the pH of each solution mixture and record results in previous table. [pKa of CH3COOH = 4.76].

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**(2)Preparation of buffer:**

You are provided with 0.2M acetic acid and solid sodium acetate.

-Prepare 50ml of a 0.19M acetate buffer if you know the pH =4.86 , and , (pKa =4.76).

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**(3) Testing for buffering behavior**.

1. In one beaker add 10ml of 0.19M acetate buffer that you have prepared, and in another beaker add 10ml of 0.2M KCl.

2. Follow the table.

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| --- | --- | --- | --- |
| **pH after HCl** | **Add 2M HCl (0.1ml)** | **Measured pH** | **Solution (10 ml of each)** |
|  | **0.1ml** |  | 0.19 M acetate buffer. |
|  | **0.1ml** |  | o.2M KCl. |