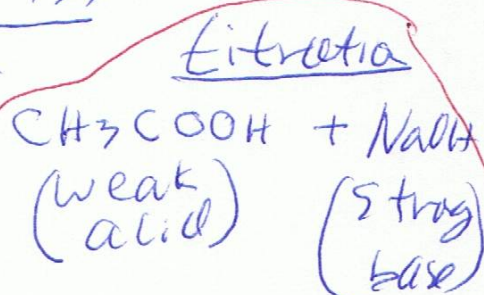
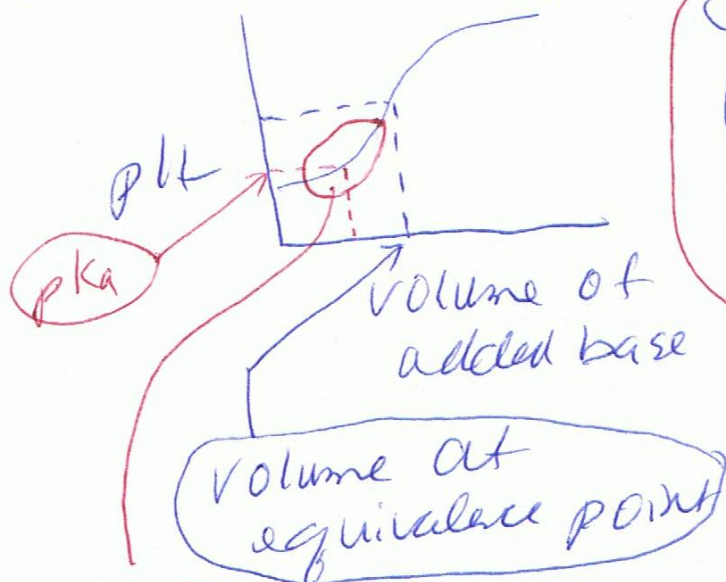


Experiment 23

Part 1 - lecture
text book p. 733
weak acid - strong base



buffer region

$\sim \frac{1}{2}$ Volume at equivalence point
 $[\text{CH}_3\text{COO}^-] = [\text{CH}_3\text{COOH}]$

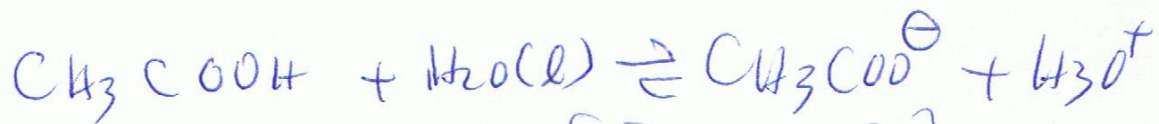
→ Use Henderson Hasselbalch

$$\text{pH} = \text{pKa} + \log \left\{ \frac{[\text{CH}_3\text{COO}^-]}{[\text{CH}_3\text{COOH}]} \right\}$$

→ at $\frac{1}{2}$ equivalence point
 $\text{pH} = \text{pKa}$

Part 2 Buffer

Section B - acid buffer



$$\text{pH} = 4.74 + \log \left\{ \frac{[\text{CH}_3\text{COO}^-]}{[\text{CH}_3\text{COOH}]} \right\}$$

Section C - base buffer



$$\underline{0.1\text{M}} \qquad \qquad \underline{0.2\text{M}}$$

50.0ml - add calculated amount of NH_4Cl (as a solid)

$$\text{pH} = 9.25 + \log \left\{ \frac{[\text{NH}_3]}{[\text{NH}_4^+]} \right\}$$

$$K_b = \frac{[\text{NH}_4^+][\text{OH}^-]}{[\text{NH}_3]}$$