

Unit 9 – Chapter 15: Acid-Base Equilibrium & Buffers

Name _____

Assignment #8: Chapter Review Assignment

Period _____

- 1) A buffer solution contains 0.12 moles of propanoic acid ($\text{HC}_3\text{H}_5\text{O}_2$, $K_a = 1.3 \times 10^{-5}$) and 0.10 moles of sodium propionate ($\text{NaC}_3\text{H}_5\text{O}_2$) in 1.50 liters.
 - a. What is the pH of the buffer?
 - b. What is the pH of the buffer after the addition of 0.01 moles of NaOH?
 - c. What is the pH of the buffer after the addition of 0.01 moles of HI?

- 2) A 35.0-mL sample of 0.150 M acetic acid is titrated with 0.150 M NaOH. Calculate the pH after the following volumes of base have been added:
 - a. 17.5 mL
 - b. 35.0 mL
 - c. 35.5 mL
 - d. 50.0 mL

- 3) Calculate the solubility of the following in moles/liter:
 - a. AgI $K_{sp} = 1.5 \times 10^{-16}$

 - b. $\text{Co}(\text{OH})_2$ $K_{sp} = 2.5 \times 10^{-16}$

4) Will a precipitate form when 0.200 liters of 0.0060 M $\text{Sr}(\text{NO}_3)_2$ is mixed with 0.800 liters of 0.040 M K_2CrO_4 ?

5) Calculate the solubility of the following salts:

a. Ag_2CrO_4 $K_{sp} = 9.0 \times 10^{-12}$

b. Ag_2CrO_4 in 0.100 M AgNO_3