CHEM 101B Chapter 14 Acid Equilibria – Mixtures and Polyprotic Acids

Example 1. Acid Mixture

Calculate the pH of a solution that contains 2.oo *M* HBr and 0.400 *M* HOCl ($K_a = 3.5 \times 10^{-8}$).

Example 2. Acid Mixture

Calculate the pH of a solution that contains 1.oo *M* HCN ($K_a = 6.2 \times 10^{-10}$) and 5.00 *M* HNO_2 ($K_a = 4.0 \times 10^{-4}$).

Example 1. Polyprotic Acid

Calculate the pH of 5.0 *M* H_3PO_4 solution and equilibrium concentrations of all species: H^+, OH^-, H_3PO_4, $H_2PO_4^-$, HPO_4^{2-}, PO_4^{3-} ($K_{a1} = 7.5 \times 10^{-3}$, $K_{a2} = 6.2 \times 10^{-8}$, $K_{a3} = 4.8 \times 10^{-13}$)

Example 2. Polyprotic Acid

Calculate the pH of 6.0 *M* H_2SO_4 solution and equilibrium concentration of SO_4^{2-}.
(K_{a1} = LARGE, $K_{a2} = 1.2 \times 10^{-2}$)
