CHAPTER 17 LEARNING OBJECTIVES

Learning Objectives (sections 17.1-17.5)

You should be able to:

1. Predict qualitatively and calculate quantitatively the effect of an added common ion on the pH of an aqueous solution of a weak acid or base.

2. Describe how a buffer solution of a particular pH is made and how it operates to control pH.

3. Calculate the change in pH of a simple buffer solution of known composition caused by adding a small amount of strong acid or base.

4. Sketch the general shapes of titration curves (see, for example, Figures 17.6, 17.8, 17.9, 17.11, 17.12, and 17.13) and identify the dominant species present at various points in a titration.

5. Calculate the pH at any point, including the equivalence point, in acid-base titrations.

6. Set up the expression for the solubility-product constant (K_{sp}) for a salt.

7. Calculate K_{sp} from solubility data and solubility from the value of K_{sp}.

8. Describe and calculate the effect of an added common ion on the solubility of a slightly soluble salt.

9. Explain the effect of pH on a solubility equilibrium involving a basic or acidic ion.

10. Understand the formation of complex ions and describe how complex formation can affect the solubility of a slightly soluble salt.

11. Understand and explain the boldface terms in the Summary and Key Terms section of Chapter 17 (page 696).