

CHM 1046 Exam 3 Review Sheet

Study all of the concepts, equations, and problems on the following list.

- Set up expressions for acid/base ionization constants (K_A and K_B), solubility products (K_{SP}), and complex ion formation/dissociation constants (K_F and K_D).
Review Examples 16.01, 16.02, 16.05, 17.01, and 17.09.
- Set up and solve equilibrium tables for reactions involving acid-base, ionic solubility, and complex ions. Review Examples 16.01, 16.02, 16.04, 16.05, 16.09, 17.02, 17.03, 17.05, 17.09, and 17.11.
- Use equilibrium tables and constants to determine concentrations of all species involved with diprotic and triprotic acids.
Review Example 16.04 for diprotic acids.
Also, review chapter 16 notes on triprotic acids (pages 2 and 3).
- Determine K_B using K_W , along with K_A for the conjugate.
Review Example 16.07 and 16.08.
- Explain the concept of buffer solutions and identify their components.
Review chapter 16 notes on buffers (page 6). Also, review Figure [14.15](#).
- Set up and use the Henderson-Hasselbach equation for buffer pH.
Review chapter 16 notes on buffers (page 7).
Also, review examples [14.20](#).
- Explain the concepts behind molar solubility and the common ion effect.
Review chapter 17 notes on solubility (page 1).
- Use K_{SP} and common ion concentrations to determine molar solubility.
Review Example 17.05. Also, review examples [15.12 and 15.13](#).
- Use an ion product (Q_C), along with K_{SP} , to determine if a precipitate will form.
Review Examples 17.06 and 17.07.
- Explain how complex ions are formed using the Lewis acid-base concept.
Review chapter 17 notes on complex ions (page 3). Also, review section [15.2](#).
- Determine K_D using K_F , and solve for concentrations involving complex ions.
Review Example 17.09.
- Determine the equilibrium constant for a (combined) reaction which involves both dissolving a precipitate (reactant) and forming a complex ion (product).
Review Example 17.11.