Chapter 18   Acid-Base Equilibria

This entire chapter is included in the AP curriculum. On the AP Exam, problem 1 in the free-response section is an equilibrium problem and most often, it is a K_a or K_b problem. This chapter combines the acid-base concepts of Chapter 4 and equilibrium concepts from Chapter 14. Basic definitions of acids and bases are reviewed including the concept that water is a weak electrolyte and can be both an acid and a base. It is acceptable to use either H^+ or H_3O^+ on the AP Exam to represent the hydrogen ion in aqueous solution. Other concepts described in the chapter include K_w: the ion-product constant; Brønsted-Lowry definition of acids and bases; conjugate acid-base pairs; K_a and K_b relationships; relative amounts of H^+ and OH^-, and H_2O in different solutions; pOH scales; and pH scales. There is an explanation of why some acids, including oxoacids, and bases are weak and others strong. Additional concepts are: percent ionization, buffers, pH of salts, Lewis acids and bases, percent dissociation, and percent hydrolysis.