Chapter 7

Know and use the key terms in chapter 7.
Know characteristics of acids and bases.
Know and use the Bronsted-Lowry definition of acids and bases.
Identify the conjugate base of an acid and the conjugate acid of a given base.
Identify strong and weak acids and bases and know their characteristics.
A strong acid has a weak conjugate base.
A weak acid has a relatively strong conjugate base.
Amphoteric substances can act as an acid or a base.
Determine pH for solutions of strong acids or bases.
Calculate pH or pOH from $[\text{H}_3\text{O}^+]$ and $[\text{H}_3\text{O}^+]$ from pH.
Calculate $[\text{H}_3\text{O}^+]$ and pH from $K_a$ for weak acids.
Calculate pH and $K_a$ from percent dissociation.
Calculate $[\text{H}_3\text{O}^+]$, pH and concentrations of other ions from $K_a$ and initial concentrations in a solution mixture of weak acids.
Write $K_b$ for a Bronsted base (proton acceptor) in water.
Calculate pH and concentrations from $K_b$, or $K_b$ from concentrations or pH for a weak base.
Write reactions and equilibrium constant expressions for the stepwise dissociation of polyprotic acids.
Write reactions, and $K_a$ and $K_b$ equilibrium constant expressions, for salts that produce acidic or basic solutions respectively.
Calculate $K_a$ and $K_b$ from $(K_a)(K_b) = K_w$ and use to determine concentrations and pH or pOH.
Determine whether mixed salt solutions will be acidic or basic based upon $K_a$ and $K_b$ values.