Review for Third Exam:

Chapter 16 (16.2, 16.6 to 16.12)

pH and pOH for weak acids and weak bases using the ICE method
Percent dissociation; definition and calculation
Polyprotic acids; definition; K_{a1}, K_{a2}, ..., calculations for polyprotic acids
Relationship between K_a and K_b for acid/base pairs ($K_a K_b = K_w = 1.0 \times 10^{-14}$ at T = 25. °C)
Relative strengths of acids and conjugate bases, or bases and conjugate acids
Acid-base properties of salts; strong acid-strong base, strong acid-weak base, weak acid-strong base, and weak acid-weak base salts
pH calculations for salts
Acid-base properties of metal oxides and nonmetal oxides
Cations as weak acids; relationship between size, charge, and weak acid strength for cations
Trends in acid strength; explanation of observed trends
Lewis acids and Lewis bases; definition; identification

Chapter 17 (17.1 to 17.3)

Neutralization (acid-base) reactions; strong acid-strong base; strong acid-weak base, and weak acid-strong base neutralization
Buffers; definition; how buffers work; buffer reactions
Calculations involving buffers
The Henderson equation and its uses
Titration and titration calculations; equivalence point
Indicators; acid-base properties of indicators; end point of titration; choice of indicators in titrations
Strong acid-strong base titration; strong acid-weak base titration; strong base-weak acid titration
Relationship between pH at half-equivalence point and pK_a or pK_b
Titration curve for polyprotic acids