Chapter 13 SUMMARY

Make a Summary

(Pages 605–606)

1. **Redox**

   - **Reduction**
     - gain of electrons half-reaction
     - decrease in oxidation number
     - oxidizing agent
   - **Oxidation**
     - loss of electrons half-reaction
     - increase in oxidation number
     - reducing agent

   - **OA**
     - spontaneous
   - **RA**
     - nonspontaneous
     - (includes disproportionation: same entity acts as both OA and RA)

   - **Procedures**
     - Writing Half-Reaction Equations (page 567)
     - Five-Step Method for Predicting Redox Reactions (page 578)
     - Predicting Redox Reactions by Constructing Half-Reactions (page 581)
     - Determining Oxidation Numbers (page 585)
     - Balancing Redox Equations Using Oxidation Numbers (page 593)

2. (1) Electrochemical reactions are characterized by a transfer of electrons. The entity with the greatest tendency to gain electrons pulls electrons from the entity with the greatest tendency to lose or give up electrons. One entity gains electrons in an electrochemical process while another entity loses electrons.

(2) Using the experimentally determined redox table, locate the positions of the strongest oxidizing and reducing agents present in the initial mixture. If the strongest oxidizing agent appears above the strongest reducing agent in the table, then a spontaneous redox reaction should occur.

(3) Redox stoichiometry, like other forms of stoichiometry, uses the same apparatus, procedure, and assumptions (i.e., reactions are stoichiometric). Unlike acid-base titrations, redox titrations are usually self-indicating and no extra indicator is usually required. The procedure of writing redox reactions involves a more complicated set of steps rather than a simple generalization as used previously for predicting chemical reaction equations.

Chapter 13 REVIEW

Part 1

(Pages 605–606)

1. **B**
2. **A**
3. **D**
4. 1, 3, 5, 6
5. **B**