Chemistry 65

FINAL EXAM STUDY GUIDE

Topic	***Text Reference***
CHAPTER 9	
• Know characteristics of electromagnetic waves, and the relationship of wavelength and frequency	9.2
• Know the order of electromagnetic radiation in the spectrum (Fig. 9.4)	9.3
• Know the Bohr model of the atom and the formation of atomic spectra	9.4
• Know the s, p, d, and f sublevels and the number and location of each	9.6
• Write complete electron configuration for any atom in the first 3 periods	9.6
• Draw orbital diagrams for atoms and determine the number of unpaired electrons	9.6
• Use the periodic table and write abbreviated electron configuration for any atom in the first 6 periods	9.6
• Understand the relationship of period and group numbers to the valence electrons in an atom	9.7
• Identify the location of orbitals on the periodic table	9.7
CHAPTER 10	
• Write Lewis structures for main-group elements or ions	10.2
• Write Lewis structures for ionic compounds	10.3
• Use Lewis model to predict formula for an ionic compound	10.3
• Write Lewis structures for covalent molecules	10.4, 10.5
• Write Lewis structures for polyatomic ions	10.5
• Write resonance structures for molecules that have more than one Lewis structure	10.6
• Predict electron geometry and molecular geometry of molecules using VSEPR model	10.7
• Know the concept of electronegativity and its relationship to bond polarity	10.8
• Rank polarity of bonds based on the difference in electronegativities of the atoms	10.8
• Draw vector diagrams showing dipole moment in a bond	10.8
• Classify bonds as ionic, non-polar covalent, and polar covalent	10.8
• Predict polarity of molecules based on their shapes and polarity of their bonds	10.8
CHAPTER 11	
• Know the factors affecting the behavior of gases	Notes
• Know the postulates of the Kinetic Molecular Theory	11.2
• Know the methods and instruments for measurement of pressure	11.3
• Convert between different units of pressure	11.3
• Use Boyle's Law to solve for pressure or volume of a gas from given data	11.4
• Use Charles's Law to solve for volume or temperature of a gas from given data	11.5
• Determine volume, temp., or pressure of a gas using the Combined Gas Law	11.6

Topic	*Text Reference*
CHAPTER 11 (cont'd)	
• Use Avogadro's Law to solve problems based on volume and moles of a gas	11.7
• Use the Ideal Gas Law to determine pressure or volume of a gas	11.8
• Determine molar mass of a gas using Ideal Gas Law and its mass	11.8
• Use Dalton's Law to calculate total pressure of a gas mixture from the partial pressures of its components	11.9
• Determine partial pressure of a gas mixture from its total pressure and composition	11.9
• Determine properties of a gas under STP conditions	11.10
• Use molar volume of a gas at STP as a conversion factor to solve problems	11.10
CHAPTER 13	
• Calculate molarity of a solution based on given data	13.6
• Use molarity as a conversion factor to solve for volume of solution or amount of solute	13.6
• Calculate concentration of ions in solution based on molarity of solution and number of ions/formula unit	13.6
• Solve dilution problems from given data	13.7
• Solve stoichiometry problems involving solutions from volume and concentration data	13.8
• Solve titration problems involving acids and bases to determine concentration of unknown substance	13.9

SUMMARY OF EQUATIONS

The equations listed below will be provided for your use on the test.

$$P_1 V_1 = P_2 V_2 \qquad \frac{V_1}{T_1} = \frac{V_2}{T_2}$$

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

$$P_1 = X_1 P_{total} \qquad P_{tot} = P_1 + P_2 + P_3 \ldots$$

$$R = 0.0821 \text{ Latm/molK}$$