

FINAL EXAM STUDY GUIDE

| <i>Topic</i> | <i>Text Reference</i> |
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| CHAPTER 7 | |
| <ul style="list-style-type: none"> • Know the general properties of gases • Know the postulates of the Kinetic Molecular Theory • Know the units and instruments for measurement of pressure • Know the dependence of pressure on temperature and amount of gas • Know the relationship between volume and pressure of a gas (Boyle's Law) • Know the relationship between volume and temp. of a gas (Charles's Law) • Know the relationship between pressure and temp. of a gas (Gay-Lussac's Law) • Know what vapor pressure is and what factors it depends on • Know the definition of boiling point and how it changes with external pressure • Determine volume, temp., or pressure of a gas using the Combined Gas Law • Know the relationship between pressure and moles of a gas (Avogadro's Law) • Know molar volume of gases at STP conditions • Use molar volume and STP conditions to solve chemical problems involving gases • Use the Ideal Gas Law to determine pressure or volume of a gas • Use Dalton's law of partial pressures to determine partial pressure of each gas in a mixture | <p>7.1</p> <p>7.1</p> <p>7.2</p> <p>Notes</p> <p>7.3</p> <p>7.4</p> <p>7.5</p> <p>7.5</p> <p>7.5</p> <p>7.6</p> <p>7.7</p> <p>7.7</p> <p>7.7</p> <p>7.8</p> <p>7.9</p> |
| CHAPTER 8 | |
| <ul style="list-style-type: none"> • Know the definition of a solution and its components (solute and solvent) • Know the types of solution and an example of each (Table 8.1) • Determine the solubility of a solute in a solvent based on polarity • Distinguish between strong electrolytes, weak electrolytes and non-electrolytes • Write equations for solution of a substance based on its electrolyte nature • Determine the number of equivalents per mole for an ion • Calculate the equivalents of an ion based on its concentration and charge • Solve problems with equivalents and mass/mole of an ion • Know the factors that affect the solubility of a solute in a solvent • Know the effect of temperature on solubility of solids and gases • Differentiate between unsaturated and saturated solutions. • Determine the solubility of a substance at any temperature using solubility graphs. • Identify an ionic salt as soluble or insoluble based on solubility rules • Classify double replacement reactions as precipitation, neutralization or unstable product reactions • Predict formation of a precipitate and write net ionic equation for its formation • Complete and balance a neutralization reaction • Complete and balance a reaction producing an unstable product (gas forming) • Calculate the concentration of solutions as mass percent (m/m and m/v) • Calculate the concentration of solutions as moles/liter (molarity). • Solve problems using mass percent and molarity as conversion factors • Solve problems involving dilutions • Calculate the osmolarity of a solution from its molarity • Determine the tonicity of a solution based on its osmolarity | <p>8.1</p> <p>8.1</p> <p>8.1</p> <p>8.2</p> <p>8.2</p> <p>8.2</p> <p>8.2</p> <p>8.2</p> <p>8.2</p> <p>8.3</p> <p>8.3</p> <p>8.3</p> <p>8.3</p> <p>8.3</p> <p>8.3</p> <p>Notes</p> <p>8.3</p> <p>Notes</p> <p>Notes</p> <p>8.4</p> <p>8.5</p> <p>8.4, 8.5</p> <p>8.5</p> <p>Notes</p> <p>8.6, Notes</p> |

| <i>Topic</i> | <i>Text Reference</i> |
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| <u>CHAPTER 10</u> | |
| <ul style="list-style-type: none"> • Know the common characteristics of acids and bases • Know the Arrhenius definition of acids and bases and identify them • Know the definition of Bronsted-Lowry acids and bases and identify them • Identify conjugate acids and base pairs in a chemical equation • Differentiate between strong and weak acids and bases and write chemical equations representing them • Know the electrolyte nature of strong and weak acids and bases and salts • Know the common strong and weak acids and bases (Table in notes) • Know how water ionizes and know the $[H_3O^+]$ and $[OH^-]$ in pure water • Know the relationship of $[H_3O^+]$ and $[OH^-]$ in an aqueous solution • Identify acidity and basicity of solutions based on their $[H_3O^+]$ and $[OH^-]$ • Calculate pH of a solution from $[H_3O^+]$ and vice versa • Know the relationship of $[H_3O^+]$, $[OH^-]$, pH, and in a solution | <p>10.1</p> <p>10.1</p> <p>10.1</p> <p>10.1</p> <p>10.2</p> <p>10.2</p> <p>Notes</p> <p>10.3</p> <p>10.3</p> <p>10.3</p> <p>10.4</p> <p>10.4</p> |