

Chemistry Final Exam Review Sheet – Spring Semester 2011

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Format:

1. Final Exam is comprehensive over the second semester and covers some major topics from the first semester (sig figs, calculations and units, use of the Periodic Table, naming/formulas)
2. 50% multiple choice/ 50% free response (approximately)
3. Bring calculator, a #2 pencil, and **one 4" x 6" notecard with any handwritten notes, formulas**
4. You will be expected to show all work including formula used, show units, apply correct sig figs

Chapters/Topics Covered:

Review naming/writing formulas, significant figures, units

Chapter 7 – The Mole and Chemical Composition (and part of Ch. 3)

Topics: What is the mole/why do scientists use it, Avogadro's number, molar mass, of elements/compounds, conversions of mass \leftrightarrow moles \leftrightarrow #particles

Chapter 8- Chemical Reactions

Topics: Identify types of reactions (synthesis, decomposition, combustion, single replacement, double replacement, neutralization). Please note that a DRR that produces water is a neutralization reaction between Acids and Bases. Law of Conservation of Mass and Balancing chemical equations

Chapter 9- Chemical Quantities

Topics: Stoichiometry, Info Given by Chemical Equations (e.g. subscripts, coefficients), Mole-Mole conversions and calculations, Mass to Mass calculations, Calculations involving a limiting reactant, reactants in excess, Percent Yield, Mole Map!

Chapter 5-Ions, Ionic Bonds and Ionic Compounds

Topics: Why do atoms bond? What happens to valence e- in ionic bonds; type of elements in ionic compounds; Ions, ionic compounds, Identify charges of ions in main group elements, polyatomic ions, LDD for ionic compounds (including those that contain polyatomic ions), what is a crystal lattice

Chapter 6- Covalent Bonds and Covalent Compounds

Topics: Why do atoms bond? Covalent compounds, what's happening with the valence e-, LDD for covalent compounds, special cases (Be, B, C, Si), VSEPR theory

Chapter 12- Gases

Topics: Pressure, Volume, Temperature, Boyle's Law, Charles' Law, Guy-Lussac's Law, Avagadro's Law, Combined Gas Law, The Ideal Gas Law, calcs involving laws, Kinetic Molecular Theory of Gases, STP, Molar Volume of a Gas, Gas Stoichiometry at STP/not at STP – add to the Mole Map!

Chapter 13- Solutions

Topics: Solubility, Solution composition, Solute, Solvent, interpret Solubility Curve, Dissolving of Ionic vs. Molecular compounds...what this means on the molecular level, calculations and concepts: Molarity, Dilution, Molality, Freezing Point Depression, Boiling Point Elevation (concept only); how to make molar solutions, how to make dilute solution

Chapter 16 – Rates of Reactions

Topics: (use your outline) define rate of reaction, Molecular Collision theory, effective collisions, factors that affect rates of reactions, potential energy diagrams of reactions, endothermic and exothermic reactions

Chapter 14- Chemical Equilibrium

Topics: (use your outline) Reversible reactions vs. reactions that go to completion, Chemical Equilibrium, Equilibrium constant expression and equilibrium constant (Keq) and applications, apply Le Chatelier's Principle to stressed equilibrium system

Chapter 15-Acids and Bases

Topics: (use your outline) General Characteristics of A.B; Arrhenius and Bronsted-Lowry definitions of A.B; B-L conjugate acid-base pairs; what does pH measure, how to calculate pH and how to calculate [H+]; neutralization reactions (DRR for A and B), Ka calculation and concept