**Study Guide**  
for Unit Exams in Chemistry B

Unit VI: Chemical Reactions and the Mole

The following provides information about the content of this exam. Of course, any topic covered in the unit may be represented on the exam. Please use this sheet as a guide as you study. As always, let me know if you have any questions!

Exam Format:

* 30 Multiple Choice or True/False
* 3 Essay

Material to Review:

* Section A – The Mole

1. Explain the concept of the mole.
2. Use the mole to calculate chemical quantities.
3. Find the molar mass of an element or a compound.
4. Convert between mass, moles, and numbers of particles.

* Section B – Mole Calculations

1. Calculate percent composition.
2. Determine empirical formulas.
3. Determine molecular formulas.

* Section C – Types of Reactions

1. Identify the characteristics of a chemical reaction.
2. Identify the information given by a chemical equation.
3. Write word equations from chemical equations and vice versa.
4. Classify and give examples of the five general types of chemical reactions.

* Section D – Balancing Equations

1. Relate the law of conservation of mass to chemical reactions.
2. Interpret a balanced chemical equation in terms of atoms, molecules, moles, and mass.
3. Balance a simple chemical equation that describes a chemical reaction.

* Section E – Stoichiometry

1. Determine mole ratios from chemical equations.
2. Use dimensional analysis to solve mole-mole and mass-mass calculations.
3. Recognize and use the limiting reagent in a chemical reaction in calculations.
4. Calculate the percent yield of a chemical reaction.

Terms to Know:

*(Make sure you can define and discuss each)*

* Mole
* Avogadro’s Number
* **percent composition**
* **empirical formula**
* **percent composition**
* **molecular formula**
* Synthesis reaction
* Decomposition reaction
* Single Displacement reaction
* Double Displacement reaction

### Combustion Reaction

* **reversible reaction**
* **coefficients**

### Limiting Reagent

* **theoretical yield**
* **percent yield**