

Preparatory Chemistry

Exam 1 Content Review Sheet

The topics below will be covered in class and provided in online materials. Please use this document as the ultimate tool in studying as I will use this when constructing your tests. About 80 % of the exam questions will come from topics on this sheet. The remaining 20 % will be additional topics discussed and in the text. All the best.

Chapter 1 – Introduction: Matter, Energy, and Measurements.

- Be familiar with what chemistry is.
- Classification of Matter
 - Pure substances vs. Mixture
 - States of Matter
- Understand the following laws:
 - Constant Composition
 - Definite proportion
 - Conservation of Mass
 - Conservation of Energy
- Understand significant figures
 - In Calculations
 - Rounding
- Use appropriate SI/metric units
 - Prefixes
 - Convert imperial to metric/SI
 - Temperature conversion
- Demonstrate the use of Dimensional analysis is solving a problem.
 - Algebra math is ok but if wrong whole problems is wrong.
 - Use dimensional analysis partial credit if wrong.

Chapter 2 – Atoms, Molecules, and Ions

- Define Dalton's Atomic Theory
- Understand the history of the nuclear model and the importance of
 - Cathode Ray Tube
 - Millikan Oil-drop
 - Rutherford's gold foil experiment
- Explain the nuclear model of atom
 - Determine # of subatomic particles in an element
 - Atomic & Mass number
 - Isotopes

Periodic Table

- Groups & Periods
- Names of Groups
- Metal, Nonmetal, & Metalloid

Elements

- Identify Symbol and Name
- Molecular Compounds (Diatomic)

Ions, molecules, and naming (One of each type)

- Name ionic compounds (monovalent)
- Name ionic compounds (polyvalent)
- Name a compound containing a polyatomic ion
- Name a molecular compound
- Binary & Oxyacid's

Chapter 3 – Chemical Reactions & Stoichiometry

- Components of a Reaction
 - Product & Reactants
- Patterns of Chemical Reactions
 - Combination
 - Decomposition
 - Combustion
- Collection term: The Mole
 - Avogadro's Number
 - Molar Mass (Formula Weight)
- Balancing Equations
- Atomic Number & Mass
- Empirical & Molecular Formula
- Percent Yield
 - Limiting reactant