

You should be successful on this exam, if you can do the following:

(Note any changes announced in lecture or on the web bulletin board.) The numbers in brackets are problems at the back of the chapter in the textbook. Reading is listed by the objective.

BASIC MEASUREMENT—**Let's Review**

1. Know basic units and prefixes (to convert metric to metric)
2. Define accuracy, precision, mean, and standard deviation
3. Read & express measurements in sig. figs
4. Carry out math operations in sig. Figs (add, sub, multiply, divide)
5. Express numbers in scientific notation
6. Carry out math operations in sci. notation
7. Convert units using the Dimensional Analysis (factor-label) method
8. Define the 3 temperature scales & convert between them
9. Define density. Given 2 of the 3 (volume, mass, or density), calculate the 3rd

Chapter 1

10. Use evidence to distinguish between mixture/pure and states of matter
11. Use evidence to distinguish between element/compound or atom/molecule
12. I.D. chemical and physical properties
13. I.D. chemical and physical changes

ATOMS**CHAPTER.SECTION****Chapter 2.1-4****Interchapter: Milestones In Development Of Chemistry**

1. Describe and Evaluate Dalton's Atomic Theory
2. Write symbols of elements given the name (v.v.) (1-36 +Ag, Pt, Au, Hg, Sn, Pb, I, Rn, U)
3. Describe the evidence for the nuclear nature of the atom
4. Describe the composition of the atom in terms of p, e, and n
5. Determine the number of p, n, & e, given ^AX. (vv)
6. Determine atomic number and mass number of two or more isotopes
7. Explain and calculate atomic mass using % of isotopes (vv)
8. Describe the composition of an ion in terms of p, e, and n

Chapter 2, Section 5

9. ID metals, metalloids, families, groups, and periods in the Periodic Chart, including states of matter and diatomics.

10. ID trends in reactivity with water

Chapter 7, Section 5, some parts

11. ID trends in atomic radius and ionic radius
12. ID trends in Ionization Energy

13. ID E.M. radiation. (give types & relative wavelengths)

Chapter 6, Sections 1-3

14. Calculate energy, wavelength, or frequency of light.
15. Describe evidence for quantified nature of energy (in electrons)
16. Describe the Bohr model of the atom
17. Give the Bohr electron configuration for elements 1-20.
18. Calculate the energy required to raise an electron to a higher energy level. (vv)

MOLECULES

CHAPTER SECTION **Chapter 2, Sections 6-8,**

1. Identify the kinds & numbers of atoms in a formula (v.v.)
2. Write formulas from ions given names (v.v.)
3. Predict what ions are formed from given elements, using their place in the chart.
4. Write formulas for compounds, given their name (vv)
 - metal-nonmetal
 - variable valence metal-nonmetal
 - polyatomic compounds
 - Write the symbols and charge for polyatomic ions given their name (vv)
 - nonmetal-nonmetal
 - oxyanion compounds
 - acids-----

Chapter 3, section 7

4. Define and use average atomic mass & amu
5. Define and use molecular mass & formula mass (weight)
6. Define and use the mole, Avogadro's number, & Molar Mass

Chapter 2, sections 9

Chapter 2, sections 10.11

Chapter 4, Section 4-pages 171-174

7. Convert between moles, grams, & # of particles for elements or compounds
8. Calculate the mass or mass percent of an element or ion in a compound
9. Calculate empirical formulas given mass or % of elements
10. Calculate molecular formulas from the empirical given molar mass

CHEMICAL EQUATIONS & RXN STOICHIOMETRY--

CHAPTER SECTION **Chapter 3, Sections 1-2**

1. Describe & apply the Law of Conservation of Mass
2. Identify the evidences of a chemical reaction
3. Write formulas (including diatomics) and balance equations (also know parts).

Chapter 4, Sections 1-3

4. Find the moles of the product(s), given the moles of a reactant. (vv)
5. Find the grams of the product(s), given the moles of a reactant. (vv)
6. Find the grams of the product(s), given the grams of a reactant. (vv)
7. Calculate the percentage yield of a rxn. (% yield = actual yield/ theoretical yield x 100)
8. Determine the limiting reagent in a rxn.
9. Use the limiting reagent to calculate the grams and moles (stoichiometry) in a rxn.