Objectives for Exam 1  9/14/2005

1. Be able to state the SI Units of Measurement
2. Be able to express a number in Scientific Notation
3. Understand the SI/Metric unit prefixes and the relationships between the prefixes
4. Understand how equalities can be used in scientific problems
5. Use dimensional analysis to solve a scientific problem
6. Understand what specific gravity represents
7. Be able to convert between degrees Fahrenheit, degrees Celsius, and Kelvin
8. Recognize the components of Dalton’s atomic theory
9. Understand the difference between particulate, microscopic, and macroscopic levels.
10. Know the names and chemical symbols of 41 common elements (table 2.2)
11. Recognize groups and periods of the periodic table
12. Be able to recognize which elements are in the following classifications: alkalai metals, alkaline earth metals, transition metals, halogens, noble gases, metals, nonmetals, and metalloids
13. Know the characteristics and locations of the three subatomic particles
14. Know how to calculate the atomic number and mass number of an element
15. Give the definition of an isotope
16. Be able to calculate the average atomic mass of an element, given the percent abundance of two isotopes, or calculate percent abundance given the average atomic mass of the isotopes present
17. Understand how the location of electrons corresponds to their energy
18. Be able to predict which orbitals contain electrons for a given element
19. Know the shape of s and p orbitals, and the increasing energy of orbitals s, p, d, and f
20. Understand how the periodic table is arranged with respect to orbital filling
21. Be able to give notation for electron configuration of an atom
22. Identify how many valence electrons are present in an atom of a given element
23. Be able to give the likely charge of an ion based upon the element’s position in the periodic table
24. Understand how the octet rule applies to ions

Recommended Problems:
Chapter 1:  1.3, 1.5 – 1.12, 1.38 – 1.75, 1.79 – 1.104
Chapter 2:  2.1 – 2.6, 2.9 – 2.10, 2.13 - 2.64, 2.67 - 2.88
Chapter 4:  4.1, 4.3 – 4.6, 4.9 – 4.26, 4.95 – 4.99

Practice Exam Answers:
1-C;  2-E;  3-B;  4-C;  5-B;  6-D;  7-B;  8-B;  9-B;  10-C;  11-E;  12-D;  13-D;  14-E;  15-D;  16-D;  17-A;  18-D;  19-A;  20-E;  21-D;  22-B;  23-B;  24-D;  25-C;  26-D;  27-C;  28-B;  29-C;  30-A;  31-A;  32-E;  33-C