

# Checklist for Exam 1

## Chapter 1. Chemistry: Matter and Measurement

- I can use or comment on the processes involved in the scientific method. (Section 1.1)
- I know the definitions of the prefixes used metric units. (Section 1.2)
- I can express numbers in scientific notation and enter them into my calculator. (Section 1.2)
- I can convert values from one prefix to another. (Section 1.2)
- I can interconvert metric and English masses, lengths and volumes. (Section 1.3, 1.4 and 1.11)
- I know the formulas for converting  $T_C$ ,  $T_F$  and  $T_K$  (Section 1.5)
- I can solve problems involving densities, masses and volumes. (Section 1.7 and 1.11)
- I can use solve problems related to energy units. (Section 1.8)
- I can report answers to the correct number of significant figures. (Section 1.9)
- I can use dimensional analysis to solve chemistry problems. (Section 1.10)

## Chapter 2. Atoms, Molecules, and Ions

- I know the symbols and names of the first 36 elements plus Rb, Sr, Ba, Pd, Ag, Cd, I, Pt, Au, Hg, Pb, Bi, and U. (Section 2.1)
- I know the group numbers and periods to which an element belongs. (Section 2.2)
- I can identify the regions of the periodic table (main group, transition metals, lanthanides, actinides). (Section 2.2)
- I know what properties are *extensive* or *intensive*. (Section 2.3)
- I know if a property is *chemical* or *physical*. (Section 2.3)
- I can answer questions about the law of a) conservation of mass and b) definite proportions. (Section 2.4)
- I can answer questions about the law of multiple proportions. (Section 2.5)
- I know the parts of the atom in terms of its composition, mass, and volume of the nucleus relative to the mass and volume occupied by the electrons. (Section 2.6, 2.7)
- I can do calculations using atomic size. (Section 2.7)
- I can write the isotope designation using the format:  $\frac{\text{mass number}}{\text{atomic number}} E$ . I can use this notation in order to determine the number of protons and neutrons for any isotope. (Section 2.8)
- I can interconvert masses of an elements and the number of moles of the element. (Section 2.9)
- Using the atomic mass from the periodic table, I can calculate the average atomic mass and/or the natural abundance of one isotope, given the mass and natural abundance of all other isotopes of a given element, (Section 2.9)
- I understand the difference between a) compounds and mixtures and b) heterogeneous and homogeneous mixtures, and c) atoms and molecules. (Section 2.10)

- I understand the difference between a) atoms and molecules, b) covalent bonds and ionic bonds, c) chemical formulas, d) structural formulas, and molecular models, and e) ball-and-stick models and space-filling models. (Section 2.10)
- I can relate structural formulas to chemical formulas. (Section 2.10)
- I can tell if a substance is ionic or covalent-molecular just by looking at its formula. (Section 2.11)
- Know all of the names of the ions on your flash cards. (Section 2.12)
- I can write formulas for names and names for formulas for ionic compounds, (Section 2.12)
- I can write formulas for names and names for formulas for binary covalent-molecular compounds, (Section 2.12)