Concept Review, Chapters 1-6

The numbers in parentheses indicate the questions from the chapter that correlate with the topic.

Chapter 1

1.5 Write a number in scientific notation (25, 26)

Chapter 2

2.1 Write the names and abbreviations for the metric or SI units used in measurements of volume, length, mass, temperature, and time (1-8)
2.2 Determine the number of significant figures in a measured number. (9, 10)
Identify a number as measured or exact (19, 20)
2.3 Adjust calculated answers to give the correct number of significant figures (27-30)
2.4 Use numerical prefixes to write a metric equality (39, 40)
2.5 Write a conversion factor for two units that describe the same quantity (45-54)
2.6 Use conversion factors to change from one unit to another (55-66)
2.7 Calculate the density of a substance (67-70)
Use the density to calculate the mass or volume of a substance (71-76)

Chapter 3

3.1 Classify examples of matter as pure substances or mixtures (1-6)
3.2 Identify the states and the physical and chemical properties of matter (7-14)
3.3 Given a temperature, calculate the corresponding temperature on another scale, Celsius and Kelvin only (17, 18)
3.4 Identify energy as potential or kinetic (23, 24)
Convert between units of energy (25, 26)
3.5 Use the energy values to calculate the kilocalories for a food (31-36)
3.6 Use specific heat to calculate heat loss or gain (39-42)
3.7 Describe the changes of state between solids, liquids, and gases (43, 44)

Chapter 4

4.1 Given the name of an element, write its correct symbol (1, 2)
Given the symbol of an element, write its correct name (3, 4)
4.2 Use the periodic table to identify the group and the period of an element (9, 10)
Identify an element as a metal, nonmetal, or metalloid (11, 12)
4.3 Describe the electrical charge and location in an atom for a proton, neutron, and electron (17, 18, 21, 22)
4.4 Given the atomic number and mass number of an atom, state the number of protons, neutrons, and electrons (29-32)
4.5 Determine the number of protons, neutrons, and electrons in one or more of the isotopes of an element (33-36)
4.6 Given the name or symbol of an element (up to #20), write the electron arrangement (49-52)
4.7 Use the electron arrangement of elements to determine the number of valence electrons (53-56)

Chapter 5

5.1 Describe alpha, beta, positron, and gamma radiation (1, 2)
5.2 Write a balanced nuclear equation for radioactive decay, showing mass number and atomic numbers (19-22)
5.3 Describe the units (rad and rem only) used to measure radiation (23, 24)
5.4 Given the half-life of a radioisotope, calculate the amount of radioisotope remaining after one or more half-lives (31-34)

Chapter 6

6.1 Write the symbols for the simple ions of the representative elements (1-4, 9, 10)
6.2 Using charge balance, write the correct formula for an ionic compound (17-20)
6.3 Given the formula of an ionic compound, write the correct name (21-28)
Given the name of an ionic compound, write the correct formula (29-34)
6.4 Write the name and formula for an ionic compound containing a polyatomic ion (41-46)
6.5 Given the formula of a molecular compound, write its correct name (47-50)
Given the name of a molecular compound, write its formula (51-54)
6.7 Use electronegativity to determine the polarity of a bond (67, 68)