Chapter 1 Review
Introduction to Chemistry

Vocabulary:
1. matter – anything that has mass and occupies space
2. chemistry – the study of composition of matter and the changes the matter undergoes
3. organic chemistry – the study of things containing carbon
4. inorganic chemistry – opposite of organic chem.
5. biochemistry – the study of living things.
6. analytical chemistry – the study of matter composition.
7. physical chemistry – the study of mechanism, rate, and energy.
8. pure chemistry – pursuit of chemical knowledge for its own sake.
9. applied chemistry – research directed toward a practical goal or explanation
10. scientific method – logical, systematic approach to the solution of a scientific problem.
11. observation - Using your senses to obtain information.
12. hypothesis - proposed explanation for an observation.
13. experiment – a procedure used to test the hypothesis.
14. independent variable – the variable that you change.
15. model – representation of an object or event
16. theory - well tested explanation for a broad set of observations
17. scientific law – a concise statement that summarizes the results of many observations and experiments.

Multiple Choice Questions:
1.) Which is not a step to successful problem-solving?
- a. reading a problem more than once
- b. checking work
- c. looking up missing facts
- d. Simplifying work by not using units of measure

2.) If you love carbon, which branch of science should you plan on studying?
- a. physical
- b. inorganic
- c. analytical
- d. organic

3.) Jim wanted to buy apples. He decided to test which are the best apples by leaving the green, yellow, and red apples in room temperature and seeing how long each one lasted. He then made the temperature a bit lower and then a bit higher with the same types of apples to see how long those lasted. The type of apple is the?
- a. Independent variable
- b. Dependent variable
- c. quantitative
- d. qualitative

4.) Which of the following is not matter?
   a. Air
   b. Skin
   c. Water
   d. Energy

5.) Which is the best definition of chemistry?
   a. The study of the contents of matter and its chemical properties.
   b. The study of chemical reactions in elements.
   c. The study of the contents of molecules.
   d. The study of ions and atoms.

MC Answers:
1.) (***d***)
2.) (***d***) Explanation: Organic Chem is the study of molecules containing carbon.
3.) (***a***) Explanation: The *dependent variable* is how long the apples can stay in the room (Time.) The *independent variable*s are the temperatures and the types of the apple.
4.) (***d***)
5.) (***a***)

Short Answer Questions:
1.) What type of chemist could study how an athlete uses energy during competition and how do you know?

2.) Four beakers have a total weight of 2.0 lb. Each beaker weighs 0.5 lb. Describe *two different ways* to calculate the weight of 2 beakers.

3.) Why is it important for firefighters or even reporters to understand chemistry?

4.) How many days would it take to count a million pennies if you count one penny each second?

5.) If a scientist was interested in leaves, what sort of thing could he study that involves leaves *and* chemistry?

6.) What type of scientist is most likely to do each activity?
   a. explain why paint is stirred before it is used.
   b. explain what keeps paint attached to the steel frame of an automobile
   c. identify the type of paint chips found at the scene of a hit-and-run accident.
   d. investigate the effect of leaded paint on the development of a young child.

SA Answers:

1.) A Biochemist or a Physical Chemist.
2.) You can divide 2.0 by 4 and multiply that answer (0.5) by 2. Or you can divide 2.0 by 2 to get 1 as well.
3.) They must know what can put fire out and what can stop the heat and energy of fire. (Physical chem.)
4.) 12 days
5.) The changing colors of the leaves in Autumn.
6.) A. Analytical chemist
    B. Pure Chemist
    C. Applied chemist
    D. Biochemist