

**Test 2—BIOCHEMISTRY**

1. Know and understand the steps to the scientific method.
2. How do you write an if-then-because hypothesis?
3. The basic unit of mass, length, and volume in the metric system are:
4. Draw and label the modern atomic cloud model.
5. The freezing and boiling points of water in the metric system are:
6. What are the 8 properties of life?
7. Define the following:
  - a. Molecule
  - b. Element
  - c. Compound
  - d. Mixture
  - e. Atom
  
8. Describe the location, charge, and weight of these subatomic particles: proton, neutron, electron
9. Know how to balance chemical equations.
10. What is an isotope? What are radioactive isotopes used for?
11. Use your periodic table to answer the next four questions!
  - a. How many protons does an atom of carbon have?
  - b. How many neutrons does an atom of helium have?
  - c. How many electrons will calcium have in each of its shells?
  - d. How many valence electrons does one silicon have? Explain how you KNOW.
  
12. What type of electron is available to form bonds?
13. Compare and contrast ionic and covalent bonds.
14. Be able to write ionic/covalent bond formations!!!!
15. On the pH scale, what is an acid, base, neutral?
16. Acids are sour tasting, bases are \_\_\_\_\_.
17. Describe the molecular structure of the following organic compounds:
  - a. Lipid
  - b. Monosaccharide
  - c. Disaccharide
  - d. Polysaccharide
  - e. Protein
  
18. Fill in the blanks:
  - a. Simple sugars are made of \_\_\_\_\_.
  - b. A \_\_\_\_\_ is made of fatty acids and glycerol.
  - c. RNA molecules are made up of \_\_\_\_\_.
  - d. Amino acids make up \_\_\_\_\_.
  
19. Which organic compound of the four discussed is the main source of energy for living things?
20. Enzymes affect the reactions in living cells by lowering the \_\_\_\_\_.
21. Provide **two enzymes and their substrates** and explain how they behave like a lock and key IN ESSAY FORM!