

Test 2—BIOCHEMISTRY

Directions: Write all answers to these questions on a SEPARATE SHEET of PAPER.

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. What is an isotope? What are radioactive isotopes used for?
10. 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.
11. What type of electron is available to form bonds?
12. On the pH scale, what is an acid, base, neutral?
13. Acids are sour tasting, bases are _____.
14. 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 _____.
15. Which organic compound out of the four discussed is the main source of energy for living things?
16. Give two concrete examples of each of the following:
 - i. Carbohydrate
 - ii. Protein
 - iii. Lipid
 - iv. Nucleic acid
17. Enzymes affect the reactions in living cells by lowering _____.
18. Provide **one enzyme and its substrates** and explain how they behave like a lock and key IN ESSAY FORM.