

Q1W4- Test 1- Chemistry of life

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- ____ 1. Electrons move about the nucleus of an atom in regions called ____.
- electron clouds
 - nuclei
 - air
 - isotopes
- ____ 2. When molecules of glucose and fructose combine to form sucrose, they do so by ____.
- hydrolysis
 - electron clouds
 - condensation
 - radiation
- ____ 3. The early atmosphere lacked an ozone layer to protect early life forms from the sun's harmful UV rays. Which property of water would allow life to continue under these unfavorable conditions?
- Water is polar, allowing it to dissolve other polar substances.
 - Water contains the oxygen necessary for life.
 - Water expands when it freezes, which allows a protective layer of ice to form at the surface of a body of water.
 - All of the above
- ____ 4. Which of the following does NOT describe a polymer?
- Polymers are made of monomers.
 - Polymers are large molecules.
 - Polymers usually form by covalent bonding.
 - Polymers are broken down by the process of hydrogenation.
- ____ 5. A very strong base might have a pH of ____.
- 3
 - 5
 - 9
 - 13
- ____ 6. A particle is found to have 8 protons, 10 electrons, and 10 neutrons. What is it?
- Oxygen-20
 - Oxygen-20 ion with a -2 charge
 - Oxygen-18
 - Oxygen-18 ion with a -2 charge
- ____ 7. Water dissolves many ionic and molecular compounds because of its ____.
- ionic bonding
 - polarity
 - covalent bonding
 - hydrogen bonding
- ____ 8. Glucose and fructose, with the formula $C_6H_{12}O_6$, differ in ____.
- numbers of atoms
 - arrangement of atoms
 - kinds of atoms
 - arrangement of electrons
- ____ 9. Carbon compounds that come from living organisms are called ____ compounds.
- water
 - organic
 - homogeneous
 - biological
- ____ 10. Which of the following can NOT occur during a chemical reaction?
- New atoms can be made.
 - Bonds between atoms can be broken.
 - New molecules can be made.
 - Bonds between atoms can be formed.
- ____ 11. Unlike carbohydrates and fats, proteins contain ____.
- nitrogen
 - carbon
 - hydrogen
 - oxygen
- ____ 12. The various enzymes in our bodies are ____.
- lipids
 - carbohydrates
 - nucleotides
 - proteins
- ____ 13. Which of the following is NOT true of trace elements?

- a. They are obtained from foods.
 - b. They are found in very small quantities.
 - c. They are nonessential to most organisms.
 - d. None of the above
- _____ 14. Carbon-12, carbon-13, and carbon-14 are _____.
a. isotopes
b. polymers
c. radioisotopes
d. macromolecules
- _____ 15. The nucleus of an atom contains _____.
a. protons and neutrons
b. neutrons and electrons
c. protons and electrons
d. protons, neutrons, and electrons
- _____ 16. How many electrons can a carbon atom share?
a. one
b. two
c. three
d. four
- _____ 17. Which of the images in Figure 6-4 depicts dynamic equilibrium?

Figure 6-4

- _____ 18. _____ represents a formula for a chemical compound.
- a. H c. P
b. C d. H₂O
- _____ 19. Which of the following is NOT true of lipids?
- a. They are commonly called fats and oils.
b. They are hydrophobic.
c. They are good for energy storage.
d. They are polar.
- _____ 20. An unsaturated lipid contains _____.
- a. more oxygen than hydrogen c. ionic bonds
b. double bonds d. only one fatty acid
- _____ 21. How does temperature affect the rate of diffusion?
- a. An increase in temperature causes faster diffusion by increasing the speed of molecular movement.
b. An increase in temperature causes faster diffusion by decreasing the speed of molecular movement.
c. An increase in temperature causes slower diffusion by eliminating Brownian movement.
d. An increase in temperature has no effect on the rate of diffusion.
- _____ 22. What are the basic building blocks of proteins?
- a. nucleic acids c. amino acids
b. peptide bonds d. glycerol and fatty acids
- _____ 23. Which element would need to be removed from the molecule in Figure 6-5 to make it unsaturated?

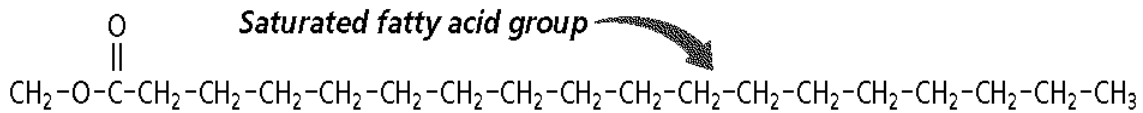


Figure 6-5

- | | |
|-------------|---------------|
| a. carbon | c. oxygen |
| b. hydrogen | d. phosphorus |

Matching

Match each item with the correct statement below.

- | | |
|-------------------|---------------|
| a. cellulose | e. polymer |
| b. polar molecule | f. solution |
| c. nucleus | g. enzyme |
| d. peptide bond | h. metabolism |

- _____ 24. all the chemical changes that occur within an organism
- _____ 25. center of an atom
- _____ 26. large molecule formed when many smaller molecules bond together
- _____ 27. bond formed between amino acids
- _____ 28. glucose polymer that forms the cell walls of plants
- _____ 29. protein that speeds up a chemical reaction
- _____ 30. molecule with unequal distribution of charge

=====