

***Biology Today and Tomorrow Without Physiology 6th
edition Starr Test Bank***

SKU: 9780357127551-TEST-BANK

Chapter 02—Molecules of Life

Multiple Choice

1. Hydrogenation is a _____.
a. manufacturing process that adds hydrogen atoms to carbohydrates
b. natural process that adds hydrogen atoms to carbohydrates
c. manufacturing process that adds hydrogen atoms to oils
d. natural process that removes hydrogen atoms from fats
e. manufacturing process that removes hydrogen atoms from fats

ANSWER: c
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.1 A Big Fat Problem
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.01 - Application
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

2. The human body requires about ____ of fat each day to stay healthy.
a. one teaspoon
b. four teaspoons
c. one tablespoon
d. four tablespoons
e. one cup

ANSWER: c
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.1 A Big Fat Problem
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.01 - Application
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

3. The main source of *trans* fats in the American diet has been _____.
a. red meat
b. dairy products
c. seafood
d. grains
e. vegetable oils

ANSWER: e
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.1 A Big Fat Problem

Chapter 02—Molecules of Life

QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
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DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

4. A typical fat molecule has ____ fatty acid tails.

- a. one
- b. two
- c. three
- d. four
- e. five

ANSWER: c
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.1 A Big Fat Problem
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.01 - Application
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

5. Which invention led to *trans* fats being marketed as a solid cooking fat?

- a. the electric light
- b. the telephone
- c. the automobile
- d. the microwave oven
- e. the refrigerator

ANSWER: a
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.1 A Big Fat Problem
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.01 - Application
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

6. The atomic number is determined by the number of ____.

- a. protons
- b. neutrons
- c. electrons
- d. protons plus neutrons
- e. protons plus electrons

Chapter 02—Molecules of Life

ANSWER: a
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.2 Atoms
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.02.02 - Explain the difference between an atom and an element.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

7. Carbon has an atomic number of 6. Carbon 14 has _____.

- a. 6 neutrons and 6 protons
- b. 6 neutrons and 8 protons
- c. 8 neutrons and 6 protons
- d. 14 neutrons and 6 protons
- e. 14 protons and 6 neutrons

ANSWER: c
POINTS: 1
DIFFICULTY: Bloom's: Apply
REFERENCES: 2.2 Atoms
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.02.02 - Explain the difference between an atom and an element.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

8. Tracers are used in what form of medical test?

- a. PET scans
- b. CT scans
- c. sonograms
- d. x-rays
- e. MRI

ANSWER: a
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.2 Atoms
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.02.03 - Describe radioactive decay.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

9. We can accurately determine the age of a rock or fossil by measuring its _____.

- a. proton concentration

Chapter 02—Molecules of Life

- b. electron concentration
- c. neutron concentration
- d. isotope concentration
- e. ion concentration

ANSWER: d

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.2 Atoms

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.02.03 - Describe radioactive decay.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

10. Helium, neon, and argon are ____.

- a. extremely stable because they have vacancies in their outer shells
- b. extremely stable because they do not have any vacancies in their outer shells
- c. extremely unstable because they have vacancies in their outer shells
- d. extremely unstable because they do not have any vacancies in their outer shells
- e. extremely unstable because they have vacancies in their inner shells

ANSWER: b

POINTS: 1

DIFFICULTY: Bloom's: Understand

REFERENCES: 2.2 Atoms

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.02.04 - Use the concept of vacancies to explain the chemical activity of atoms.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

11. The nucleus of an atom contains ____.

- a. protons only
- b. electrons only
- c. neutrons only
- d. protons and neutrons
- e. protons and electrons

ANSWER: d

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.2 Atoms

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.02.02 - Explain the difference between an atom and an element.

Chapter 02—Molecules of Life

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

12. The negative subatomic particle is the ____.

- a. neutron
- b. proton
- c. electron
- d. quark
- e. Higg's boson

ANSWER: c

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.2 Atoms

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.02.02 - Explain the difference between an atom and an element.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

13. The positive subatomic particle is the ____.

- a. neutron
- b. proton
- c. electron
- d. positron
- e. quark

ANSWER: b

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.2 Atoms

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.02.02 - Explain the difference between an atom and an element.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

14. Oxygen has an atomic number of 8. This means that oxygen has ____.

- a. eight electrons in its outer most shell
- b. eight neutrons in its nucleus
- c. four protons and four neutrons in its nucleus
- d. eight protons in its nucleus
- e. eight protons and eight neutrons in its nucleus

ANSWER: d

POINTS: 1

DIFFICULTY: Bloom's: Apply

Chapter 02—Molecules of Life

REFERENCES: 2.2 Atoms
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.02.02 - Explain the difference between an atom and an element.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

15. The neutral subatomic particle is the ____.

- a. neutron
- b. proton
- c. electron
- d. quark
- e. Higg's boson

ANSWER: a
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.2 Atoms
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.02.02 - Explain the difference between an atom and an element.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

16. Carbon 14 radioisotopes decay into stable ____.

- nitrogen 15 isotopes
- a. carbon 13 isotopes
 - b. nitrogen atoms
 - c. carbon atoms
 - d. nitrogen 15 isotopes
 - e. sodium atoms

ANSWER: b
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.2 Atoms
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.02.03 - Describe radioactive decay.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

17. An atom that carries a charge is called a(n) ____.

- a. ion
- b. molecule
- c. compound

Chapter 02—Molecules of Life

d. element

e. microelement

ANSWER: a

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.2 Atoms

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.02.04 - Use the concept of vacancies to explain the chemical activity of atoms.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

18. A(n) ____ is a type of chemical bond in which a strong mutual attraction forms between ions of opposite charge.

a. hydrogen bond

b. nonpolar bond

c. polar bond

d. covalent bond

e. ionic bond

ANSWER: e

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.3 Chemical Bonds

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.03.01 - Describe a chemical bond.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

19. The bond in table salt (NaCl) is ____.

a. polar

b. ionic

c. covalent

d. double

e. nonpolar

ANSWER: b

POINTS: 1

DIFFICULTY: Bloom's: Understand

REFERENCES: 2.3 Chemical Bonds

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.03.01 - Describe a chemical bond.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

Chapter 02—Molecules of Life

20. In ____ bonds, atoms share electrons equally.

- a. double
- b. ionic
- c. polar covalent
- d. nonpolar covalent
- e. hydrogen

ANSWER: d

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.3 Chemical Bonds

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.03.01 - Describe a chemical bond.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

21. Which type of chemical bond is found within a water molecule?

- a. hydrogen
- b. ionic
- c. polar covalent
- d. nonpolar covalent
- e. triple

ANSWER: c

POINTS: 1

DIFFICULTY: Bloom's: Understand

REFERENCES: 2.3 Chemical Bonds

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.03.02 - Explain polarity in terms of ionic bonds and covalent bonds.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

22. The positively charged ion, potassium, and the negatively charged ion, fluoride, will form what kind of bond?

- a. ionic
- b. polar covalent
- c. nonpolar covalent
- d. hydrogen
- e. isotonic

ANSWER: a

POINTS: 1

DIFFICULTY: Bloom's: Understand

REFERENCES: 2.3 Chemical Bonds

QUESTION TYPE: Multiple Choice

Chapter 02—Molecules of Life

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.03.02 - Explain polarity in terms of ionic bonds and covalent bonds.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

23. Which of the following molecules would be considered a covalent compound?

- a. oxygen (O₂)
- b. sodium chloride (NaCl)
- c. water (H₂O)
- d. a diamond (C)
- e. ozone (O₃)

ANSWER: c

POINTS: 1

DIFFICULTY: Bloom's: Apply

REFERENCES: 2.3 Chemical Bonds

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.03.01 - Describe a chemical bond.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

24. The structural formula for molecular oxygen is depicted as O=O. What kind of bond holds molecular oxygen together?

- a. ionic
- b. polar covalent
- c. single covalent
- d. double covalent
- e. triple covalent

ANSWER: d

POINTS: 1

DIFFICULTY: Bloom's: Apply

REFERENCES: 2.3 Chemical Bonds

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.03.01 - Describe a chemical bond.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

25. Which substance is hydrophobic?

- a. canola oil
- b. sodium chloride
- c. sugar
- d. water
- e. the potassium ion

Chapter 02—Molecules of Life

ANSWER: a
POINTS: 1
DIFFICULTY: Bloom's: Apply
REFERENCES: 2.4 Special Properties of Water
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.04.03 - Describe the way an ionic substance dissolves in water.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

26. Fats will dissolve in ethanol. Ethanol is an example of a ____.

- a. solute
- b. solution
- c. solvent
- d. salt
- e. ion

ANSWER: c
POINTS: 1
DIFFICULTY: Bloom's: Apply
REFERENCES: 2.4 Special Properties of Water
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.04.03 - Describe the way an ionic substance dissolves in water.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

27. Which bond is weakest?

- a. ionic
- b. double covalent
- c. polar covalent
- d. nonpolar covalent
- e. hydrogen

ANSWER: e
POINTS: 1
DIFFICULTY: Bloom's: Understand
REFERENCES: 2.4 Special Properties of Water
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

28. Water molecules are attracted to one another because the ____.

Chapter 02—Molecules of Life

- a. slightly positive charge of the hydrogen atom from one molecule of water attracts the slightly negative charge of the oxygen atom from another molecule
- b. slightly negative charge of the hydrogen atom from one molecule of water attracts the slightly negative charge of the oxygen atom from another molecule
- c. slightly positive charge of the hydrogen atom attracts the oxygen within the same molecule of water, which leads to an increase in its polarity
- d. water molecules participate in nonpolar covalent bonds, which increase the attraction of the molecules to each other
- e. water molecules bind to each other through their mutual attraction to ionic compounds

ANSWER: a

POINTS: 1

DIFFICULTY: Bloom's: Understand

REFERENCES: 2.4 Special Properties of Water

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.04.02 - Draw a hydrogen bond between two water molecules.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

29. A solution is a uniform mixture in which a ____ is dissolved completely in a ____.

- a. salt; solute
- b. solute; salt
- c. solute; solvent
- d. solvent; salt
- e. solvent; solute

ANSWER: c

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.4 Special Properties of Water

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.04.03 - Describe the way an ionic substance dissolves in water.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

30. Surface tension is an example of ____.

- a. hydrophobicity
- b. concentration
- c. evaporation
- d. cohesion
- e. polarity

ANSWER: d

POINTS: 1

DIFFICULTY: Bloom's: Remember

Chapter 02—Molecules of Life

REFERENCES: 2.4 Special Properties of Water

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

31. Sweating to keep cool in the summer is the result of ____.

- a. hydrogen bonds breaking to release energy
- b. hydrogen bonds forming, which requires energy
- c. evaporation of water absorbing energy
- d. cohesion of water molecules giving off energy
- e. cohesion of water molecules requiring energy

ANSWER: c

POINTS: 1

DIFFICULTY: Bloom's: Understand

REFERENCES: 2.4 Special Properties of Water

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

32. Hydrogen bonding ____ the movement of molecules, therefore, substances that form a lot of hydrogen bonds, like water, will require ____ energy to increase their temperature by one degree Celsius.

- a. decreases; less
- b. decreases; more
- c. does not affect; no additional
- d. increases; less
- e. increases; more

ANSWER: b

POINTS: 1

DIFFICULTY: Bloom's: Analyze

REFERENCES: 2.4 Special Properties of Water

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

33. When water molecules form into ice, ____.

- a. the water molecules jiggle more

Chapter 02—Molecules of Life

- b. their structure becomes less rigid
- c. the water molecules pack less densely
- d. hydrogen bonds between water molecules readily break
- e. evaporation of water molecules happens more readily

ANSWER: c

POINTS: 1

DIFFICULTY: Bloom's: Understand

REFERENCES: 2.4 Special Properties of Water

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

34. Hydrophobic molecules are ____ water.

- a. attracted by
- b. absorbed by
- c. repelled by
- d. mixed with
- e. polarized by

ANSWER: c

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.4 Special Properties of Water

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

35. ____ is the tendency of water molecules to stay attached to one another.

- a. Adhesion
- b. Cohesion
- c. Fusion
- d. Interaction
- e. Junction

ANSWER: b

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.4 Special Properties of Water

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

Chapter 02—Molecules of Life

LEARNING OBJECTIVES: BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

36. Which property of water molecules is responsible for movement of water from roots to leaves in a plant?

- a. hydrophobicity
- b. temperature stability
- c. fusion
- d. solvent polarity
- e. cohesion

ANSWER: e

POINTS: 1

DIFFICULTY: Bloom's: Analyze

REFERENCES: 2.4 Special Properties of Water

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

37. Glucose dissolves in water because it ____.

- a. ionizes
- b. is a polysaccharide
- c. is polar and forms many hydrogen bonds with water molecules
- d. has a very reactive primary structure
- e. is an isotope

ANSWER: c

POINTS: 1

DIFFICULTY: Bloom's: Analyze

REFERENCES: 2.4 Special Properties of Water

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

38. A uniform mixture is called a ____.

- a. concentration
- b. salt
- c. solute
- d. solution
- e. solvent

Chapter 02—Molecules of Life

ANSWER: d
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.4 Special Properties of Water
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

39. A solution at a pH of 10 contains how many times more hydrogen ions than a solution at a pH of 7?
- a. 2
 - b. 3
 - c. 10
 - d. 100
 - e. 1,000

ANSWER: e
POINTS: 1
DIFFICULTY: Bloom's: Apply
REFERENCES: 2.5 Acids and Bases
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.05.01 - Define pH.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

40. Of these pH values, which has the highest concentration of hydrogen ions?
- a. 1
 - b. 3
 - c. 5
 - d. 7
 - e. 9

ANSWER: a
POINTS: 1
DIFFICULTY: Bloom's: Understand
REFERENCES: 2.5 Acids and Bases
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.05.01 - Define pH.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

41. Nearly all of life's chemistry occurs near a pH range of ____.

Chapter 02—Molecules of Life

- a. 1–2
- b. 3–4
- c. 5–6
- d. 7–8
- e. 9–10

ANSWER: d
POINTS: 1
DIFFICULTY: Bloom's: Apply
REFERENCES: 2.5 Acids and Bases
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.05.01 - Define pH.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

42. What category of compounds helps our body fluids to stay within a consistent pH range?
- a. solvents
 - b. buffers
 - c. solutes
 - d. acids
 - e. bases

ANSWER: b
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.5 Acids and Bases
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.05.03 - Describe the way that buffers work.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

43. ____ is one of the substances that maintains our blood pH between 7.35 and 7.45.
- a. Water
 - b. Carbonic acid
 - c. Hydrochloric acid
 - d. Hydrogen peroxide
 - e. Sodium hydroxide

ANSWER: b
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.5 Acids and Bases
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.05.03 - Describe the way that buffers work.

Chapter 02—Molecules of Life

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

44. Which two atoms are found in all organic compounds?

- a. carbon and hydrogen
- b. carbon and oxygen
- c. oxygen and hydrogen
- d. carbon and phosphorous
- e. oxygen and sulfur

ANSWER: a

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.6 The Chemistry of Biology

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.06.01 - Explain the basic structure of an organic molecule.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

45. Which is an organic molecule?

- a. carbon dioxide (CO₂)
- b. water (H₂O)
- c. methane (CH₄)
- d. hydrochloric acid (HCl)
- e. oxygen (O₂)

ANSWER: c

POINTS: 1

DIFFICULTY: Bloom's: Apply

REFERENCES: 2.6 The Chemistry of Biology

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.06.01 - Explain the basic structure of an organic molecule.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

46. Large polymers are formed from smaller subunits by which type of reaction?

- a. oxidation
- b. reduction
- c. condensation
- d. hydrolysis
- e. decarboxylation

ANSWER: c

POINTS: 1

Chapter 02—Molecules of Life

DIFFICULTY: Bloom's: Remember
REFERENCES: 2.6 The Chemistry of Biology
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.06.03 - Explain how the molecules of life are polymers.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

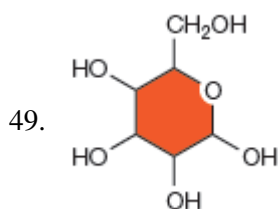
47. The breakdown of large molecules by enzymes and the addition of water is known as a ____ reaction.
- a. oxidation
 - b. reduction
 - c. condensation
 - d. hydrolysis
 - e. decarboxylation

ANSWER: d
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.6 The Chemistry of Biology
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.06.04 - Give an example of a metabolic reaction.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

48. The chemical reactions that cells use to acquire and use energy to live, grow, and reproduce are called ____.
- a. hydrolysis
 - b. condensation
 - c. phosphorylation
 - d. metabolism
 - e. oxidation

ANSWER: d
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.6 The Chemistry of Biology
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.06.04 - Give an example of a metabolic reaction.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

Chapter 02—Molecules of Life



How many carbons are present in this figure?

- a. zero
- b. four
- c. five
- d. six
- e. seven

ANSWER: d

POINTS: 1

DIFFICULTY: Bloom's: Apply

REFERENCES: 2.6 The Chemistry of Biology

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.06.01 - Explain the basic structure of an organic molecule.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

50. Which organic molecule is a carbohydrate monomer?

- a. triglyceride
- b. fatty acid
- c. nucleotide
- d. amino acid
- e. monosaccharide

ANSWER: e

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.6 The Chemistry of Biology

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.06.01 - Explain the basic structure of an organic molecule.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

51. Glucose monomers linked into a highly branched chain make up ____.

- a. glycogen
- b. cellulose
- c. fructose
- d. starch
- e. sucrose

Chapter 02—Molecules of Life

ANSWER: a
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.7 Carbohydrates
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.07.01 - Describe the structure of carbohydrates and explain their roles in cells.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

52. Sucrose is composed of ____.
- a. two molecules of fructose
 - b. two molecules of glucose
 - c. a molecule of fructose and a molecule of glucose
 - d. a molecule of fructose and a molecule of galactose
 - e. two molecules of galactose

ANSWER: c
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.7 Carbohydrates
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.07.01 - Describe the structure of carbohydrates and explain their roles in cells.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

53. Plants store their excess carbohydrates in the form of ____.
- a. cellulose
 - b. starch
 - c. glycogen
 - d. sucrose
 - e. galactose

ANSWER: b
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.7 Carbohydrates
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.07.02 - Using an example, explain how the structure of a polysaccharide gives rise to its function.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

Chapter 02—Molecules of Life

54. Glycogen is a polysaccharide used for energy storage by ____.

- a. plants
- b. animals
- c. protists
- d. bacteria
- e. archaea

ANSWER: b

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.7 Carbohydrates

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.07.03 - Name the function that glycogen serves in the human body.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

55. Which type of bonding allows the long, straight chains of cellulose to lock together tightly?

- a. hydrogen
- b. polar covalent
- c. ionic
- d. nonpolar covalent
- e. metallic

ANSWER: a

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.7 Carbohydrates

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.07.02 - Using an example, explain how the structure of a polysaccharide gives rise to its function.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

56. Cellulose is ____.

- a. the most complex of the organic compounds
- b. a polymer of glucose and fructose
- c. a polymer of glucose and galactose
- d. a component of plasma membranes
- e. a material found in plant cell walls

ANSWER: e

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.7 Carbohydrates

QUESTION TYPE: Multiple Choice

Chapter 02—Molecules of Life

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.07.02 - Using an example, explain how the structure of a polysaccharide gives rise to its function.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

57. ____ is a monosaccharide.

- a. Cellulose
- b. Fructose
- c. Glycogen
- d. Starch
- e. Sucrose

ANSWER: b

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.7 Carbohydrates

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.07.01 - Describe the structure of carbohydrates and explain their roles in cells.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

58. Humans do not contain the enzymes to break down ____.

- a. cellulose
- b. fructose
- c. glycogen
- d. starch
- e. sucrose

ANSWER: a

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.7 Carbohydrates

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.07.02 - Using an example, explain how the structure of a polysaccharide gives rise to its function.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

59. A triglyceride molecule is made up of ____.

- a. one glycerol and two fatty acids
- b. two fatty acids and two glycerols
- c. one fatty acid and three glycerols
- d. one glycerol and three fatty acids

Chapter 02—Molecules of Life

e. one glycerol and two fatty acids

ANSWER: d

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.8 Lipids

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.08.01 - Describe a fat, and identify the difference between saturated and unsaturated fats.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

60. In a cell membrane, the phospholipid heads are ____.

- a. hydrophobic
- b. nonpolar
- c. dissolved in the cell's watery interior
- d. sandwiched between the phospholipid tails
- e. formed by fatty acids

ANSWER: c

POINTS: 1

DIFFICULTY: Bloom's: Understand

REFERENCES: 2.8 Lipids

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.08.03 - Describe the lipid bilayer.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

61. Unsaturated fats ____.

- a. are solid at room temperature
- b. have at least one double bond in their fatty acid tail
- c. are saturated with hydrogen atoms
- d. mainly come from animals
- e. consist of straight chain fatty acids

ANSWER: b

POINTS: 1

DIFFICULTY: Bloom's: Understand

REFERENCES: 2.8 Lipids

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.08.01 - Describe a fat, and identify the difference between saturated and unsaturated fats.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

Chapter 02—Molecules of Life

62. All steroids have ____.
- a. the same number of double bonds
 - b. double bonds in the same positions
 - c. four carbon rings
 - d. the same functional groups
 - e. the same number and positions of double bonds

ANSWER: c

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.8 Lipids

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.08.04 - Give one example of a molecule that is made from cholesterol.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

63. Which food product would likely contain the largest amount of unsaturated fat?
- a. butter
 - b. lard
 - c. cream
 - d. olives
 - e. cheese

ANSWER: d

POINTS: 1

DIFFICULTY: Bloom's: Analyze

REFERENCES: 2.8 Lipids

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.08.01 - Describe a fat, and identify the difference between saturated and unsaturated fats.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

64. Fats that contain ____ double bonds are liquids at room temperature, whereas fats that contain ____ double bonds are solids at room temperature.
- a. *trans*; *cis*
 - b. *cis*; *trans*
 - c. hydrogenated; partially hydrogenated
 - d. partially hydrogenated; hydrogenated
 - e. unsaturated; saturated

ANSWER: b

POINTS: 1

DIFFICULTY: Bloom's: Understand

Chapter 02—Molecules of Life

REFERENCES: 2.8 Lipids

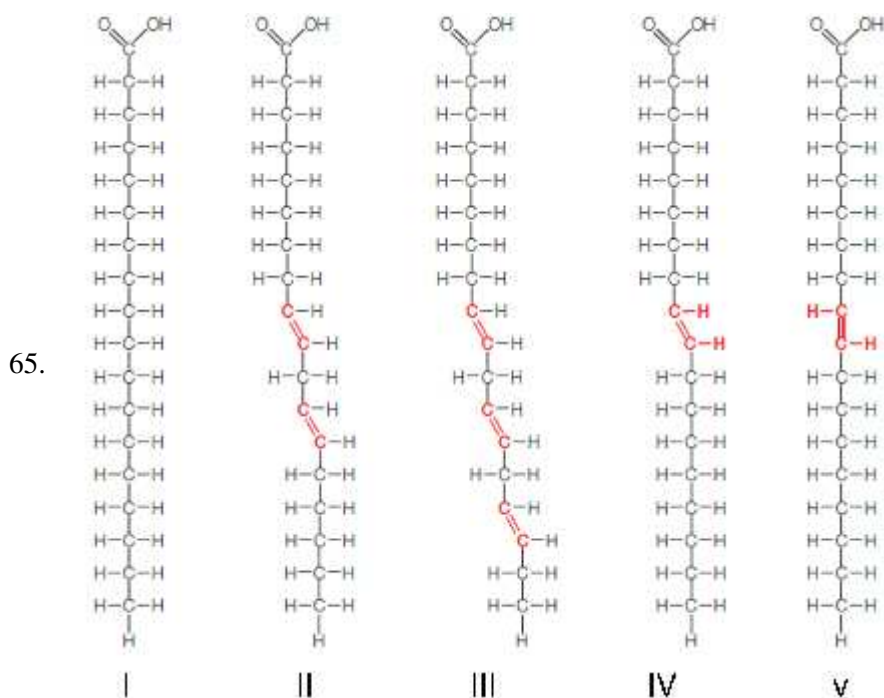
QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.08.01 - Describe a fat, and identify the difference between saturated and unsaturated fats.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM



In the given figure, which fatty acid(s) is/are most likely to be solid at room temperature?

- a. I
- b. II, III, and IV
- c. II, III, IV, and V
- d. I and IV
- e. I and V

ANSWER: e

POINTS: 1

DIFFICULTY: Bloom's: Apply

REFERENCES: 2.8 Lipids

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.08.01 - Describe a fat, and identify the difference between saturated and unsaturated fats.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

66. A(n) ____ is a protein monomer.

Chapter 02—Molecules of Life

- a. nucleotide
- b. monosaccharide
- c. simple sugar
- d. amino acid
- e. ribose

ANSWER: d

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.9 Proteins

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.09.01 - Draw the generalized structure of an amino acid.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

67. Primary protein structure is dependent upon ____.

- a. hydrophobic interactions
- b. hydrogen bonds between two amino acids
- c. covalent linkages between carbons and nitrogens of adjacent amino acids
- d. covalent linkages between carbons and oxygens of adjacent amino acids
- e. covalent linkages between the polypeptide and sugars or lipids

ANSWER: c

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.9 Proteins

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.09.02 - Describe and give general examples of the four levels of protein structure.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

68. Which type of bond exists between two amino acids in a protein?

- a. peptide
- b. ionic
- c. hydrogen
- d. amino
- e. sulfhydryl

ANSWER: a

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.9 Proteins

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

Chapter 02—Molecules of Life

LEARNING OBJECTIVES: BTAT.STAR.21.02.09.02 - Describe and give general examples of the four levels of protein structure.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

69. Two amino acids are bonded together to form a dipeptide by which type of reaction?

- a. condensation
- b. oxidation reduction
- c. hydrolysis
- d. decomposition
- e. acid–base

ANSWER: a

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.9 Proteins

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.09.02 - Describe and give general examples of the four levels of protein structure.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

70. Protein misfolding causes ____.

- a. Creutzfeldt–Jakob disease
- b. arthritis
- c. immunodepression
- d. schizophrenia
- e. tuberculosis

ANSWER: a

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.9 Proteins

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.09.03 - Using an appropriate example, explain why changes in protein structure can be dangerous.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

71. When a protein denatures, which type of bonding is affected?

- a. covalent
- b. peptide
- c. ionic
- d. hydrogen
- e. metallic

Chapter 02—Molecules of Life

ANSWER: d
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.9 Proteins
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.09.03 - Using an appropriate example, explain why changes in protein structure can be dangerous.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

72. A protein that is linked to a carbohydrate is known as a ____.
- a. glycoprotein
 - b. lipoprotein
 - c. fibrous proteins
 - d. denatured proteins
 - e. prions

ANSWER: a
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.9 Proteins
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.09.02 - Describe and give general examples of the four levels of protein structure.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

73. Nucleotides are monomers of ____.
- a. complex lipids
 - b. proteins
 - c. polysaccharides
 - d. nucleic acids
 - e. cellulose

ANSWER: d
POINTS: 1
DIFFICULTY: Bloom's: Remember
REFERENCES: 2.10 Nucleic Acids
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.10.01 - Use an example to describe the structure of a nucleic acid.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

Chapter 02—Molecules of Life

74. A nucleotide consists of ____.

- a. a five-carbon sugar, a nitrogenous acid, and a phosphate group
- b. a six-carbon sugar, a nitrogenous base, and a phosphate group
- c. a five-carbon sugar, a nitrogenous base, and a phosphate group
- d. a six-carbon sugar, a nitrogenous acid, and a phosphate group
- e. a four-carbon sugar, a nitrogenous acid, and a phosphate group

ANSWER: c

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.10 Nucleic Acids

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.10.01 - Use an example to describe the structure of a nucleic acid.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

75. In a polymer of nucleotides, how does one nucleotide attach to another?

- a. The base of one nucleotide is attached to the base of the next.
- b. The base of one nucleotide is attached to the sugar of the next.
- c. The sugar of one nucleotide is attached to the sugar of the next.
- d. The phosphate group of one nucleotide is attached to the base of the next.
- e. The phosphate group of one nucleotide is attached to the sugar of the next.

ANSWER: e

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.10 Nucleic Acids

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.10.01 - Use an example to describe the structure of a nucleic acid.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

76. Which type of bonds hold the two chains of DNA together in a DNA molecule?

- a. hydrogen
- b. polar covalent
- c. nonpolar covalent
- d. ionic
- e. peptide

ANSWER: a

POINTS: 1

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.10 Nucleic Acids

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

Chapter 02—Molecules of Life

LEARNING OBJECTIVES: BTAT.STAR.21.02.10.01 - Use an example to describe the structure of a nucleic acid.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

Matching

Match the following terms to the correct description.

- a. mass number
- b. atomic number
- c. radioisotope
- d. isotopes
- e. ions

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.2 Atoms

QUESTION TYPE: Matching

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.02.02 - Explain the difference between an atom and an element.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

77. forms of an element that differ in the number of neutrons their atoms carry

ANSWER: d

POINTS: 1

78. number of protons in the atomic nucleus

ANSWER: b

POINTS: 1

79. isotope with an unstable nucleus

ANSWER: c

POINTS: 1

80. total number of protons and neutrons in the nucleus of an atom

ANSWER: a

POINTS: 1

81. atoms with more or less electrons than protons

ANSWER: e

POINTS: 1

Match the following terms to the correct description.

- a. acid
- b. base
- c. neutral
- d. buffer
- e. pH

Chapter 02—Molecules of Life

DIFFICULTY: Bloom's: Apply
REFERENCES: 2.5 Acids and Bases
QUESTION TYPE: Matching
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.05.02 - Differentiate between acids and bases.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

82. solution that contains the same concentration of H^+ ions as OH^- ions

ANSWER: c

POINTS: 1

83. measure of the relative concentration of hydrogen ions in a solution

ANSWER: e

POINTS: 1

84. substance that releases hydrogen ions in solution

ANSWER: a

POINTS: 1

85. substance that accepts hydrogen ions in solution

ANSWER: b

POINTS: 1

86. substance that can maintain the pH of a solution at a relatively constant level

ANSWER: d

POINTS: 1

The following are types of chemical bonds. Match these to the correct description. (The bonds may fit more than one description.)

a. hydrogen

b. ionic

c. covalent

DIFFICULTY: Bloom's: Apply
REFERENCES: 2.3 Chemical Bonds
QUESTION TYPE: Matching
HAS VARIABLES: False
LEARNING OBJECTIVES: BTAT.STAR.21.02.03.01 - Describe a chemical bond.
DATE CREATED: 11/18/2019 2:48 PM
DATE MODIFIED: 12/4/2019 6:11 AM

87. the bond between the atoms in an NaCl molecule

ANSWER: b

POINTS: 1

88. the bond between the hydrogen atoms of molecular hydrogen

Chapter 02—Molecules of Life

ANSWER: c

POINTS: 1

89. the bond that breaks when salts dissolve in water

ANSWER: b

POINTS: 1

90. the bond in which electrons are shared

ANSWER: c

POINTS: 1

91. the bond that holds organic molecules together

ANSWER: c

POINTS: 1

The following are types of chemical bonds. Match these to the correct description.

a. hydrogen

b. cohesion

c. evaporation

DIFFICULTY: Bloom's: Remember

REFERENCES: 2.4 Special Properties of Water

QUESTION TYPE: Matching

HAS VARIABLES: False

LEARNING OBJECTIVES: BTAT.STAR.21.02.04.01 - Using appropriate examples, explain how the polarity of the water molecule gives rise to properties of water that are essential to life.

DATE CREATED: 11/18/2019 2:48 PM

DATE MODIFIED: 12/4/2019 6:11 AM

92. the bond that gives water special properties

ANSWER: a

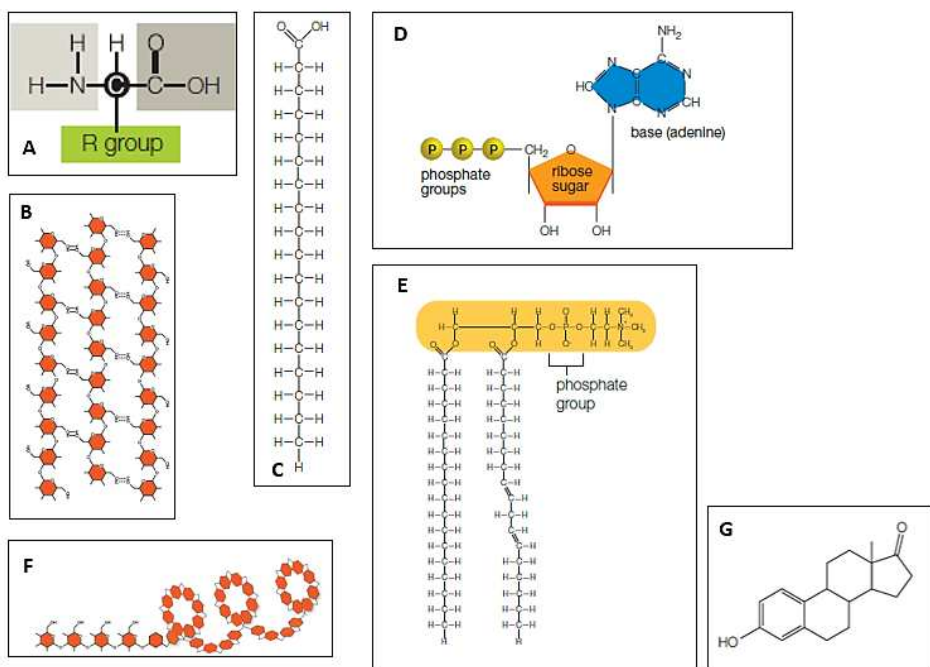
POINTS: 1

93. the property that allows certain insects to walk on water

ANSWER: b

POINTS: 1

Chapter 02—Molecules of Life



Match the structures with the appropriate label in the given figure.

- A
- B
- C
- D
- E
- F
- G

DIFFICULTY:

Bloom's: Apply

REFERENCES:

2.8 Lipids

QUESTION TYPE:

Matching

HAS VARIABLES:

False

LEARNING OBJECTIVES: BTAT.STAR.21.02.08.01 - Describe a fat, and identify the difference between saturated and unsaturated fats.

DATE CREATED:

11/18/2019 2:48 PM

DATE MODIFIED:

12/4/2019 6:11 AM

94. fatty acid

ANSWER: c

POINTS: 1

95. phospholipid

ANSWER: e

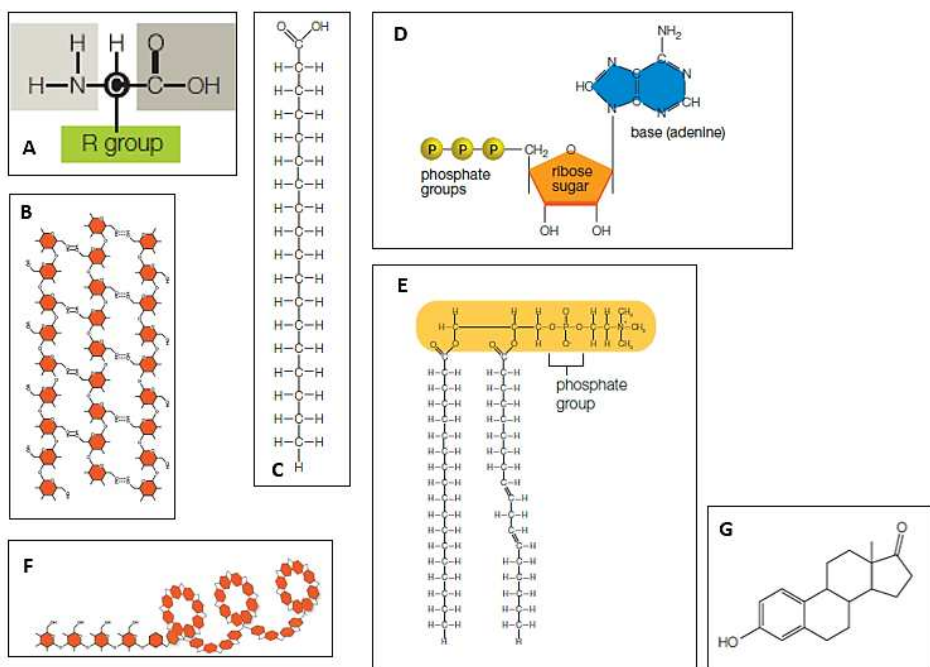
POINTS: 1

96. steroid

ANSWER: g

POINTS: 1

Chapter 02—Molecules of Life



Match the structures with the appropriate label in the given figure.

- a. A b. B
- c. C d. D
- e. E f. F
- g. G

DIFFICULTY:

Bloom's: Apply

REFERENCES:

2.9 Proteins

QUESTION TYPE:

Matching

HAS VARIABLES:

False

LEARNING OBJECTIVES:

BTAT.STAR.21.02.09.02 - Describe and give general examples of the four levels of protein structure.

DATE CREATED:

11/18/2019 2:48 PM

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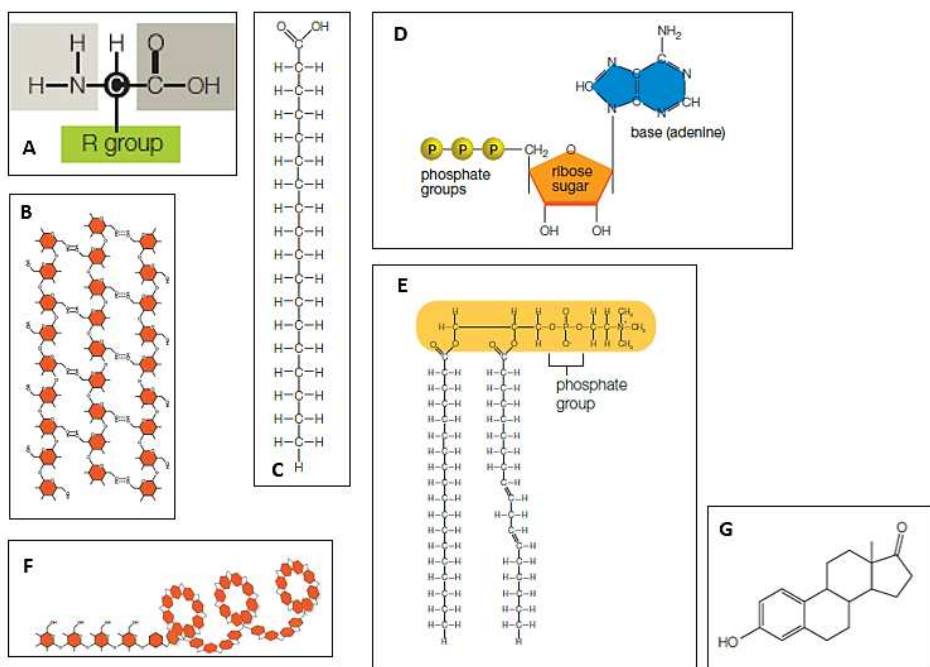
12/4/2019 6:11 AM

97. amino acid

ANSWER: a

POINTS: 1

Chapter 02—Molecules of Life



Match the structures with the appropriate label in the given figure.

- a. A b. B
- c. C d. D
- e. E f. F
- g. G

DIFFICULTY:

Bloom's: Apply

REFERENCES:

2.7 Carbohydrates

QUESTION TYPE:

Matching

HAS VARIABLES:

False

LEARNING OBJECTIVES:

BTAT.STAR.21.02.07.02 - Using an example, explain how the structure of a polysaccharide gives rise to its function.

DATE CREATED:

11/18/2019 2:48 PM

DATE MODIFIED:

12/4/2019 6:11 AM

98. cellulose

ANSWER: b

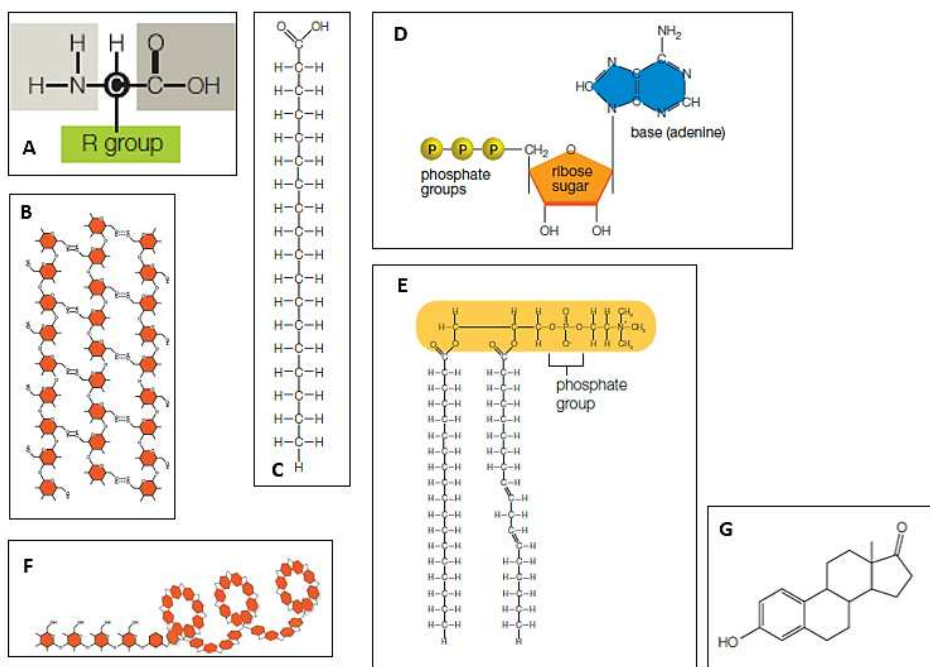
POINTS: 1

99. starch

ANSWER: f

POINTS: 1

Chapter 02—Molecules of Life



Match the structures with the appropriate label in the given figure.

- a. A b. B
- c. C d. D
- e. E f. F
- g. G

DIFFICULTY:

Bloom's: Apply

REFERENCES:

2.10 Nucleic Acids

QUESTION TYPE:

Matching

HAS VARIABLES:

False

LEARNING OBJECTIVES: BTAT.STAR.21.02.10.01 - Use an example to describe the structure of a nucleic acid.

DATE CREATED:

11/18/2019 2:48 PM

DATE MODIFIED:

12/4/2019 6:11 AM

100. nucleotide

ANSWER: d

POINTS: 1