

ch2

Student: _____

1. Chemistry deals with

- A. the composition and changes of substances that make up living as well as non-living matter.
- B. the composition of organisms only.
- C. the composition of non-living matter only.
- D. energy sources.
- E. none of the above.

2. Biochemistry is the study of

- A. the origin of life.
- B. chemical reactions in organisms.
- C. how organisms relate to their environment.
- D. how drugs affect the body.
- E. energy transfer in non-living matter.

3. Chemistry is important to the study of physiology because

- A. we eat chemicals.
- B. body functions reflect cellular functions that reflect chemical changes.
- C. drugs are chemicals.
- D. chemical reactions enable our bodies to extract energy from nutrients.
- E. all of the above.

4. Which of the following substances is an element?

- A. Iron
- B. Water
- C. Salt
- D. Glucose
- E. Fat

5. Which of the following substances account for more than 95% of the human body?

- A. Carbon, hydrogen, oxygen, nitrogen
- B. Calcium, hydrogen, oxygen, nitrogen
- C. Carbon, phosphorus, oxygen, hydrogen
- D. Calcium, phosphorus, hydrogen, nitrogen
- E. Carbon, calcium, nitrogen, hydrogen

6. The atoms of two types of elements are likely to have

- A. the same size and same weight.
- B. the same size but different weights.
- C. different sizes but the same weight.
- D. different sizes and different weights.
- E. different colors.

7. Which of the following is a form of ionizing radiation?

- A. Cosmic radiation
- B. Gamma radiation
- C. Cosmic radiation and gamma radiation
- D. Neither cosmic nor gamma radiation
- E. None of the above.

8. The atomic weight of an element whose atoms contain 8 protons, 8 electrons, and 8 neutrons is

- A. 8.
- B. 16.
- C. 24.
- D. 32.
- E. 64.

9. The atoms of the isotopes of a particular element vary in the number of

- A. electrons.
- B. protons.
- C. neutrons.
- D. nuclei.
- E. molecules.

10. The first electron shell of an atom can hold a maximum of

- A. 1 electron.
- B. 2 electrons.
- C. 4 electrons.
- D. 8 electrons.
- E. 16 electrons.

11. An atom that has 3 electrons in its second shell and a filled first shell will

- A. lose 3 electrons from its second shell.
- B. lose all of the electrons from its first shell.
- C. lose all of the electrons from its first and second shells.
- D. gain 2 electrons in its second shell.
- E. gain 5 electrons in its second shell.

12. The formula H_2O means

- A. an atom contains two hydrogen molecules and one oxygen molecule.
- B. an atom contains one hydrogen molecule and two oxygen molecules.
- C. a molecule contains two hydrogen atoms and one oxygen atom.
- D. a molecule contains one hydrogen atom and two oxygen atoms.
- E. a molecule contains two hydrogen atoms and two oxygen atoms.

13. A decomposition reaction can be symbolized by

- A. $\text{A} + \text{B} \rightarrow \text{C} + \text{D}$.
- B. $\text{A} + \text{B} \rightarrow \text{AB}$.
- C. $\text{AB} \rightarrow \text{A} + \text{B}$.
- D. $\text{C} + \text{D} \rightarrow \text{AB}$.
- E. none of the above.

14. A solution that contains equal numbers of hydrogen and hydroxyl ions is

- A. acidic.
- B. basic.
- C. alkaline.
- D. neutral.
- E. toxic.

15. Electrolytes that release hydrogen ions in water are

- A. bases.
- B. catalysts
- C. toxins.
- D. electrons.
- E. acids

16. The difference in hydrogen ion concentration between solutions with pH 4 and pH 5 is

- A. twofold.
- B. fivefold.
- C. tenfold.
- D. twentyfold.
- E. a hundredfold

17. A chemical reaction in which pairs of different molecules trade positions is a(n)

- A. decomposition reaction.
- B. exchange reaction.
- C. reversible reaction.
- D. synthesis reaction.
- E. psychotic reaction.

18. Consider the following list of commonly found items and their pH values:

Battery acid	1.0
Vinegar	2.2
Grapes	3.5-4.5
Tomato	4.0-4.5
Beer	4.2
Coffee	5.0
White bread	5.0-6.0
Butter	6.1-6.4
Egg whites	7.6-8.0
Baking soda	8.3
Milk of magnesia	10.6
Bleach	12.8

Which of the choices includes all acids?

- A. Egg whites, baking soda, milk of magnesia, and bleach
- B. Tomatoes, egg whites, and baking soda
- C. Vinegar, grapes, tomatoes, and coffee
- D. Beer, butter, and baking soda
- E. White bread, butter, and bleach

19. Electrolytes are substances that

- A. form covalent bonds with water.
- B. ionize when dissolved in water.
- C. cannot conduct electricity in solution.
- D. can electrocute someone.
- E. are not found in the human body in any appreciable amounts.

20. The pH scale measures the
- A. concentration of hydrogen ions in solution.
 - B. number of molecules of salts dissolved in water.
 - C. number of hydroxyl ions in water.
 - D. strength of an electrical current that a solution carries.
 - E. number of water molecules in solution.

21. Which of the following is the most abundant inorganic substance in cells?
- A. Carbohydrate
 - B. Water
 - C. Lipid
 - D. Protein
 - E. Bone

22. A person has alkalosis if the blood pH
- A. rises above 7.0.
 - B. drops below 7.0.
 - C. rises above 3.4.
 - D. drops below 7.4.
 - E. rises above 7.4.

23. The four most abundant elements in the human body are
- A. Na, Mg, P, and K.
 - B. Ca, C, O, and Na.
 - C. O, C, H, and N.
 - D. N, H, Mg, and K.
 - E. H₂O and CH₄.

24. Matter is composed of _____, which are composed of _____.
- A. elements; atoms
 - B. molecules; elements
 - C. atoms; molecules
 - D. chemicals; molecules
 - E. atoms; cells

25. A complete atom is electrically neutral because the number of
- A. positively charged protons and neutral neutrons are equal.
 - B. negatively charged electrons and neutral neutrons are equal.
 - C. negative electrons and positive protons are equal.
 - D. electrons is greater than the number of protons and neutrons combined.
 - E. none of the above
26. Atomic number equals the number of _____ and atomic weight equals the ____.
- A. atoms in an element; weight of all the atoms
 - B. protons in the nucleus; weight of all the electrons
 - C. neutrons in the nucleus; number of protons plus electrons
 - D. protons; number of protons plus neutrons
 - E. none of the above.
27. Synthesis reactions are particularly important in the body for
- A. release of energy.
 - B. digestion of food products.
 - C. growth of body parts.
 - D. neutralization of acids by buffers.
 - E. clearance of toxins.
28. In a covalent bond
- A. one atom shares and another atom gains electrons.
 - B. atoms share pairs of electrons.
 - C. oppositely charged atoms attract.
 - D. oppositely charged atoms repel.
 - E. all of the above.
29. On the pH scale
- A. a tenfold difference in hydrogen ion concentration separates each whole number
 - B. the lower the whole number on the scale, the greater the H^+ concentration.
 - C. pH values above 7 are basic.
 - D. pH values below 7 are acidic.
 - E. all of the above.

30. Sodium ions and calcium ions are examples of

- A. cations.
- B. dogions.
- C. anions.
- D. salts.
- E. molecules.

31. When cations and anions meet they

- A. repel.
- B. form a 3-D structure.
- C. form covalent bonds.
- D. form electrolytes.
- E. form cells.

32. An acid reacting with a base is

- A. a synthesis reaction.
- B. hydrolysis.
- C. a decomposition reaction.
- D. an exchange reaction.
- E. an explosive event.

33. Water causes ionically-bonded molecules to

- A. bond more strongly.
- B. dissociate.
- C. degrade.
- D. denature.
- E. explode.

34. Bases reacting with acids form _____ and water.

- A. buffers
- B. electrolytes
- C. salts
- D. proteins
- E. hydrochloric acid

35. Organic molecules ____, whereas inorganic molecules ____.

- A. contain carbon; do not dissolve in water
- B. do not contain carbon; do contain carbon
- C. contain carbon; do not contain carbon
- D. are small; are very large
- E. are sprinkled on organically-grown foods; are removed from foods

36. The unique, three-dimensional structure of a protein molecule is determined largely by

- A. oxygen bonds.
- B. covalent bonds.
- C. ionic bonds.
- D. hydrogen bonds.
- E. stocks and bonds.

37. In the body, oxygen

- A. reacts with water to form carbonic acid.
- B. is used in various metabolic processes.
- C. helps regulate body temperature.
- D. exchanges with carbon dioxide.
- E. releases energy from glucose during cellular respiration

38. Which of the following is characteristic of carbohydrates?

- A. They contain C, H, O, with twice as many hydrogen as oxygen atoms.
- B. They provide much of the energy that the cell requires.
- C. They often are stored as reserve energy supplies.
- D. They include sugars and starches.
- E. all of the above

39. A simple carbohydrate

- A. has a molecular formula of $C_6H_{12}O_6$.
- B. is a building block of protein.
- C. consists of several joined chains.
- D. has only one nucleotide.
- E. is a building block of fat.

40. Lipids

- A. are insoluble in water.
- B. include phospholipids, cholesterol, and fats.
- C. contain C, H, and O, but with proportionately less oxygen than in carbohydrates.
- D. are organic.
- E. all of the above

41. A protein can denature when

- A. bonds between carbon and oxygen break.
- B. weak hydrogen bonds break.
- C. peptide bonds break.
- D. hydrogen bonds form.
- E. none of the above

42. Which of the following is not organic?

- A. Oxygen
- B. Lipids
- C. Nucleic acids
- D. Enzymes
- E. Cholesterol

43. Saturated fats _____ than unsaturated fats.

- A. are heavier
- B. are more soluble in water
- C. have more single carbon-carbon bonds
- D. have fewer hydrogen atoms bonded to carbon atoms
- E. taste better

44. Proteins

- A. are structural materials
- B. are chemical messengers.
- C. contain C, H, O, and N, and sometimes sulfur.
- D. can function as enzymes.
- E. all of the above

45. An enzyme is a _____.

- A. protein that speeds up chemical reactions without being changed or depleted
- B. protein that functions as a hormone
- C. protein that inhibits chemical reactions by being changed or depleted
- D. fibrous protein that is part of certain tissues in the body
- E. fat that speeds up chemical reactions without being changed or depleted

46. The parts of a protein that change when it denatures are

- A. the primary and secondary structures.
- B. the secondary and tertiary structures.
- C. the amino acid sequence and the secondary structure.
- D. the tertiary and quaternary structures.
- E. the amino and carboxyl groups exchange locations.

47. DNA

- A. helps synthesize nucleic acids.
- B. is important in building fats.
- C. stores genetic information.
- D. is important in building carbohydrates.
- E. provides cellular energy.

48. Nucleic acids are

- A. very small, simple molecules.
- B. structural molecules that do not have a function other than support.
- C. composed of building blocks called nucleotides.
- D. sources of cellular energy.
- E. all of the above.

49. The informational content of DNA and RNA is in the nitrogenous bases because

- A. the bases are of several types and therefore can form a sequence.
- B. they contain nitrogen.
- C. the sugars and phosphates vary too much.
- D. the bases are also parts of amino acids.
- E. nitrogen comes in several different forms.

50. In phenylketonuria, an individual cannot break down the amino acid phenylalanine. Molecules that include phenylalanine build up in the blood, which causes mental retardation and other symptoms. This inherited disease can be controlled by following a diet that is very low in

- A. carbohydrates.
- B. lipids.
- C. protein.
- D. nucleic acids.
- E. tomatoes.

51. Table sugar breaking down into glucose and fructose is a(n) _____ reaction.

- A. synthesis
- B. hydrolysis
- C. decomposition
- D. exchange reaction
- E. metabolic

52. Nucleic acids include

- A. proteins and DNA.
- B. RNA and DNA.
- C. enzymes and RNA.
- D. steroids and triglycerides.
- E. vitamins and minerals.

53. DNA and RNA differ in that

- A. RNA has deoxyribose and DNA has ribose.
- B. RNA is double-stranded and DNA is single-stranded.
- C. DNA holds genetic information and RNA uses that information to synthesize protein
- D. RNA holds genetic information and DNA uses that information to synthesize protein
- E. DNA is found in males and RNA is found in females.

54. The type of organic molecule that can replicate is a

- A. protein.
- B. lipid.
- C. carbohydrate.
- D. nucleic acid.
- E. salt.

55. Conformation is

- A. the three dimensional shape of a molecule, such as a protein.
- B. the energy held in the bonds of an organic molecule, such as a protein.
- C. the ability of RNA to copy itself.
- D. a religious service.
- E. none of the above

56. An organic compound contains

- A. water and a salt.
- B. oxygen and nitrogen.
- C. carbon and oxygen.
- D. nitrogen and hydrogen.
- E. carbon and hydrogen.

57. Carbon can form ____ covalent bonds.

- A. 1
- B. 2
- C. 4
- D. 8
- E. 16

58. Which of these is not a monosaccharide?

- A. Glucose
- B. Ribose
- C. 6-carbon sugar
- D. Sucrose
- E. 5-carbon sugar

59. Glycogen is stored in the liver and _____.

- A. spleen
- B. skeletal muscles
- C. pancreas
- D. heart
- E. toenails

60. A triglyceride consists of

- A. 3 amino acids.
- B. 3 glucose molecules.
- C. 1 glycerol and 3 fatty acids.
- D. 3 fatty acids and 1 glycerol.
- E. 3 glycerols and 1 fatty acid.

61. Which of the following compounds is not hydrophilic?

- A. Carbohydrates
- B. Lipids
- C. Proteins
- D. Nucleic Acids
- E. Water

62. Which of the following molecules does not have a polar region?

- A. Water
- B. Triglycerides
- C. Tryptophan
- D. Glucose
- E. Kryptonite

63. A biomarker is

- A. a gene that encodes a particular protein.
- B. always a protein.
- C. a body chemical associated with a particular disease or exposure to a toxin.
- D. a book mark that one uses when studying from a biology textbook.
- E. a protein that encodes a particular gene.

64. An example of a biomarker is

- A. cholesterol.
- B. any DNA sequence.
- C. sodium chloride.
- D. hydrogen.
- E. all of the above.

65. A biomarker test for cancer should ideally be

- A. inexpensive
- B. easy to perform.
- C. sensitive.
- D. specific.
- E. all of the above.

66. Which of the following isotopes has the longest half-life?

- A. Iodine-131.
- B. Iron-59.
- C. Phosphorus-32.
- D. Radium-226.
- E. Fahrenheit-451.

67. The _____ uses the element iodide.

- A. spleen
- B. liver
- C. thymus
- D. thyroid
- E. spinal cord

68. The isotope most likely to be used to study the thyroid gland is

- A. iodine-141.
- B. iron-59.
- C. thallium-201.
- D. cobalt-60.
- E. carbon-14.

69. Atomic radiation is useful for treating cancer because

- A. radiation affects cancer cells but not normal cells.
- B. radiation protects normal cells against the effects of cancer.
- C. radiation harms cancer cells more readily than it does most non-cancer cells
- D. chemicals in normal cells are not affected by radiation.
- E. it kills all cells.

70. Exposure to ionizing radiation may

- A. cloud the lens of the eye.
- B. cause diabetes.
- C. cause a woman to conceive twins.
- D. cause a urinary tract infection.
- E. none of the above.

71. Which of the following is not a source of ionizing radiation?

- A. Cosmic rays from outer space
- B. Cholesterol and triglycerides
- C. Atomic and nuclear weapons
- D. Smoke detectors
- E. TV components

72. A CT scan differs from a conventional X-ray image because it is

- A. two dimensional.
- B. three dimensional.
- C. four dimensional.
- D. safer.
- E. not radioactive.

73. PET imaging follows the emission of

- A. positrons.
- B. electrons.
- C. neutrons.
- D. protons.
- E. mice.

74. Chemistry is the study of the composition of matter and how matter changes.

True False

75. The number of protons in an atom of an element equals its atomic weight.

True False

76. Radioactive isotopes have stable nuclei.

True False

77. Sodium and chloride atoms combine readily because they both lose electrons.

True False

78. The symbol Na^+ represents a sodium atom that has lost an electron.

True False

79. An atom that has gained or lost electrons is called an ion.

True False

80. Water is an example of a compound.

True False

81. A substance that releases hydrogen ions in water is a base.

True False

82. An acid reacting with a base produces a salt.

True False

83. An atom with 10 protons and 8 electrons is electrically neutral.

True False

84. Chemically inert atoms always have their outermost electron shell full.

True False

85. An acid is an electrolyte that releases hydroxyl ions (OH^-) in water. An example is sodium hydroxide.

True False

86. A base is an electrolyte that releases ions that combine with hydrogen ions. An example is potassium hydroxide (KOH).

True False

87. An electrolyte ionizes in water.

True False

88. A person with alkalosis has a blood pH less than 7.4.

True False

89. A complex carbohydrate has a phosphate group attached to a sugar molecule.

True False

90. Cholesterol, a type of lipid, is composed of 3 fatty acid chains attached to glycerol.

True False

91. Glycogen is a complex carbohydrate that we get by eating plants.

True False

92. A phospholipid differs structurally from a triglyceride in that it has three phosphate groups attached to the glycerol molecule rather than three fatty acid chains.

True False

93. Nucleic acids are composed of building blocks called amino acids, which have an amine and an acid group in the molecule.

True False

94. Proteins consist of sequences of amino acids.

True False

95. Proteins encode nucleic acids.

True False

96. DNA and RNA are nucleic acids.

True False

97. The parts of an atom that carry single negative electrical charges are called _____.

98. When atoms form chemical bonds, the subatomic particles that directly interact are the _____.

99. The type of subatomic particle that does not have an electrical charge is a _____.

100. The type of chemical bond formed when ions with opposite electrical charges attracted is an _____ bond.

101. Two or more atoms bonding form a _____.

102. The opposite of a decomposition reaction is a _____ reaction.

103. The midpoint of the pH scale is pH ____.

104. Apricots have a pH of 3.8 and apples a pH between 3.3 and 3.9. Therefore, they are _____.

105. Organic substances always contain the element _____.

106. Amino acids are building blocks of _____.

107. The amino acid sequence of a protein is its _____ structure.

108. Nucleotides are building blocks of _____.

109. _____ has the unique ability among types of organic molecules to replicate.

ch2 Key

1. Chemistry deals with

- A.** the composition and changes of substances that make up living as well as non-living matter.
- B. the composition of organisms only.
- C. the composition of non-living matter only.
- D. energy sources.
- E. none of the above.

Difficulty Level: Remember/Understand

Learning Outcome: 02.01

Shier - Chapter 02 #1

Topic: Chemistry

2. Biochemistry is the study of

- A. the origin of life.
- B.** chemical reactions in organisms.
- C. how organisms relate to their environment.
- D. how drugs affect the body.
- E. energy transfer in non-living matter.

Difficulty Level: Evaluate/Create

Learning Outcome: 02.01

Shier - Chapter 02 #2

Topic: Chemistry

3. Chemistry is important to the study of physiology because

- A. we eat chemicals.
- B. body functions reflect cellular functions that reflect chemical changes.
- C. drugs are chemicals.
- D. chemical reactions enable our bodies to extract energy from nutrients.
- E.** all of the above.

Difficulty Level: Evaluate/Create

Learning Outcome: 02.01

Shier - Chapter 02 #3

Topic: Chemistry

4. Which of the following substances is an element?

- A.** Iron
- B. Water
- C. Salt
- D. Glucose
- E. Fat

Difficulty Level: Apply/Analyze

Learning Outcome: 02.02

Shier - Chapter 02 #4

Topic: Chemistry

5. Which of the following substances account for more than 95% of the human body?

- A.** Carbon, hydrogen, oxygen, nitrogen
- B. Calcium, hydrogen, oxygen, nitrogen
- C. Carbon, phosphorus, oxygen, hydrogen
- D. Calcium, phosphorus, hydrogen, nitrogen
- E. Carbon, calcium, nitrogen, hydrogen

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #5

Topic: Chemistry

6. The atoms of two types of elements are likely to have

- A. the same size and same weight.
- B. the same size but different weights.
- C. different sizes but the same weight.
- D.** different sizes and different weights.
- E. different colors.

Difficulty Level: Evaluate/Create

Learning Outcome: 02.02

Shier - Chapter 02 #6

Topic: Chemistry

7. Which of the following is a form of ionizing radiation?

- A. Cosmic radiation
- B. Gamma radiation
- C.** Cosmic radiation and gamma radiation
- D. Neither cosmic nor gamma radiation
- E. None of the above.

Difficulty Level: Evaluate/Create

Learning Outcome: 02.02

Shier - Chapter 02 #7

Topic: Chemistry

8. The atomic weight of an element whose atoms contain 8 protons, 8 electrons, and 8 neutrons is

- A. 8.
- B. 16.**
- C. 24.
- D. 32.
- E. 64.

Difficulty Level: Apply/Analyze

Learning Outcome: 02.02

Shier - Chapter 02 #8

Topic: Chemistry

9. The atoms of the isotopes of a particular element vary in the number of

- A. electrons.
- B. protons.
- C. neutrons.**
- D. nuclei.
- E. molecules.

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #9

Topic: Chemistry

10. The first electron shell of an atom can hold a maximum of

- A. 1 electron.
- B. 2 electrons.**
- C. 4 electrons.
- D. 8 electrons.
- E. 16 electrons.

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #10

Topic: Chemistry

11. An atom that has 3 electrons in its second shell and a filled first shell will

- A. lose 3 electrons from its second shell.**
- B. lose all of the electrons from its first shell.
- C. lose all of the electrons from its first and second shells.
- D. gain 2 electrons in its second shell.
- E. gain 5 electrons in its second shell.

Difficulty Level: Apply/Analyze

Learning Outcome: 02.02

Shier - Chapter 02 #11

Topic: Chemistry

12. The formula H₂O means

- A. an atom contains two hydrogen molecules and one oxygen molecule.
- B. an atom contains one hydrogen molecule and two oxygen molecules.
- C.** a molecule contains two hydrogen atoms and one oxygen atom.
- D. a molecule contains one hydrogen atom and two oxygen atoms.
- E. a molecule contains two hydrogen atoms and two oxygen atoms.

Difficulty Level: Apply/Analyze

Learning Outcome: 02.02

Shier - Chapter 02 #12

Topic: Chemistry

13. A decomposition reaction can be symbolized by

- A. $A + B \rightarrow C + D$.
- B. $A + B \rightarrow AB$.
- C.** $AB \rightarrow A + B$.
- D. $C + D \rightarrow AB$.
- E. none of the above.

Difficulty Level: Evaluate/Create

Learning Outcome: 02.02

Shier - Chapter 02 #13

Topic: Chemistry

14. A solution that contains equal numbers of hydrogen and hydroxyl ions is

- A. acidic.
- B. basic.
- C. alkaline.
- D.** neutral.
- E. toxic.

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #14

Topic: Chemistry

15. Electrolytes that release hydrogen ions in water are

- A. bases.
- B. catalysts
- C. toxins.
- D. electrons.
- E.** acids

Difficulty Level: Evaluate/Create

Learning Outcome: 02.02

Shier - Chapter 02 #15

Topic: Chemistry

16. The difference in hydrogen ion concentration between solutions with pH 4 and pH 5 is

- A. twofold.
- B. fivefold.
- C. tenfold.**
- D. twentyfold.
- E. a hundredfold

Difficulty Level: Apply/Analyze

Learning Outcome: 02.02

Shier - Chapter 02 #16

Topic: Chemistry

17. A chemical reaction in which pairs of different molecules trade positions is a(n)

- A. decomposition reaction.
- B. exchange reaction.**
- C. reversible reaction.
- D. synthesis reaction.
- E. psychotic reaction.

Difficulty Level: Evaluate/Create

Learning Outcome: 02.02

Shier - Chapter 02 #17

Topic: Chemistry

18. Consider the following list of commonly found items and their pH values:

Battery acid	1.0
Vinegar	2.2
Grapes	3.5-4.5
Tomato	4.0-4.5
Beer	4.2
Coffee	5.0
White bread	5.0-6.0
Butter	6.1-6.4
Egg whites	7.6-8.0
Baking soda	8.3
Milk of magnesia	10.6
Bleach	12.8

Which of the choices includes all acids?

- A. Egg whites, baking soda, milk of magnesia, and bleach
- B. Tomatoes, egg whites, and baking soda
- C. Vinegar, grapes, tomatoes, and coffee**
- D. Beer, butter, and baking soda
- E. White bread, butter, and bleach

Difficulty Level: Apply/Analyze

Learning Outcome: 02.02

Shier - Chapter 02 #18

Topic: Chemistry

19. Electrolytes are substances that
- A. form covalent bonds with water.
 - B.** ionize when dissolved in water.
 - C. cannot conduct electricity in solution.
 - D. can electrocute someone.
 - E. are not found in the human body in any appreciable amounts.

Difficulty Level: Remember/Understand
Learning Outcome: 02.02
Shier - Chapter 02 #19
Topic: Chemistry

20. The pH scale measures the
- A.** concentration of hydrogen ions in solution.
 - B. number of molecules of salts dissolved in water.
 - C. number of hydroxyl ions in water.
 - D. strength of an electrical current that a solution carries.
 - E. number of water molecules in solution.

Difficulty Level: Remember/Understand
Learning Outcome: 02.02
Shier - Chapter 02 #20
Topic: Chemistry

21. Which of the following is the most abundant inorganic substance in cells?
- A. Carbohydrate
 - B.** Water
 - C. Lipid
 - D. Protein
 - E. Bone

Difficulty Level: Evaluate/Create
Learning Outcome: 02.03
Shier - Chapter 02 #21
Topic: Chemistry

22. A person has alkalosis if the blood pH
- A. rises above 7.0.
 - B. drops below 7.0.
 - C. rises above 3.4.
 - D. drops below 7.4.
 - E.** rises above 7.4.

Difficulty Level: Remember/Understand
Learning Outcome: 02.02
Shier - Chapter 02 #22
Topic: Chemistry

23. The four most abundant elements in the human body are

- A. Na, Mg, P, and K.
- B. Ca, C, O, and Na.
- C.** O, C, H, and N.
- D. N, H, Mg, and K.
- E. H₂O and CH₄.

Difficulty Level: Evaluate/Create

Learning Outcome: 02.02

Shier - Chapter 02 #23

Topic: Chemistry

24. Matter is composed of _____, which are composed of _____.

- A.** elements; atoms
- B. molecules; elements
- C. atoms; molecules
- D. chemicals; molecules
- E. atoms; cells

Difficulty Level: Evaluate/Create

Learning Outcome: 02.02

Shier - Chapter 02 #24

Topic: Chemistry

25. A complete atom is electrically neutral because the number of

- A. positively charged protons and neutral neutrons are equal.
- B. negatively charged electrons and neutral neutrons are equal.
- C.** negative electrons and positive protons are equal.
- D. electrons is greater than the number of protons and neutrons combined.
- E. none of the above

Difficulty Level: Evaluate/Create

Learning Outcome: 02.02

Shier - Chapter 02 #25

Topic: Chemistry

26. Atomic number equals the number of _____ and atomic weight equals the _____.

- A. atoms in an element; weight of all the atoms
- B. protons in the nucleus; weight of all the electrons
- C. neutrons in the nucleus; number of protons plus electrons
- D.** protons; number of protons plus neutrons
- E. none of the above.

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #26

Topic: Chemistry

27. Synthesis reactions are particularly important in the body for

- A. release of energy.
- B. digestion of food products.
- C.** growth of body parts.
- D. neutralization of acids by buffers.
- E. clearance of toxins.

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #27

Topic: Chemistry

28. In a covalent bond

- A. one atom shares and another atom gains electrons.
- B.** atoms share pairs of electrons.
- C. oppositely charged atoms attract.
- D. oppositely charged atoms repel.
- E. all of the above.

Difficulty Level: Evaluate/Create

Learning Outcome: 02.02

Shier - Chapter 02 #28

Topic: Chemistry

29. On the pH scale

- A. a tenfold difference in hydrogen ion concentration separates each whole number
- B. the lower the whole number on the scale, the greater the H^+ concentration.
- C. pH values above 7 are basic.
- D. pH values below 7 are acidic.
- E.** all of the above.

Difficulty Level: Evaluate/Create

Learning Outcome: 02.02

Shier - Chapter 02 #29

Topic: Chemistry

30. Sodium ions and calcium ions are examples of

- A.** cations.
- B. dogions.
- C. anions.
- D. salts.
- E. molecules.

Difficulty Level: Apply/Analyze

Learning Outcome: 02.02

Shier - Chapter 02 #30

Topic: Chemistry

31. When cations and anions meet they

- A. repel.
- B.** form a 3-D structure.
- C. form covalent bonds.
- D. form electrolytes.
- E. form cells.

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #31

Topic: Chemistry

32. An acid reacting with a base is

- A. a synthesis reaction.
- B. hydrolysis.
- C. a decomposition reaction.
- D.** an exchange reaction.
- E. an explosive event.

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #32

Topic: Chemistry

33. Water causes ionically-bonded molecules to

- A. bond more strongly.
- B.** dissociate.
- C. degrade.
- D. denature.
- E. explode.

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #33

Topic: Chemistry

34. Bases reacting with acids form _____ and water.

- A. buffers
- B.** electrolytes
- C. salts
- D. proteins
- E. hydrochloric acid

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #34

Topic: Chemistry

35. Organic molecules _____, whereas inorganic molecules _____.
- A. contain carbon; do not dissolve in water
 - B. do not contain carbon; do contain carbon
 - C. contain carbon; do not contain carbon**
 - D. are small; are very large
 - E. are sprinkled on organically-grown foods; are removed from foods

Difficulty Level: Evaluate/Create
Learning Outcome: 02.03
Shier - Chapter 02 #35
Topic: Chemistry

36. The unique, three-dimensional structure of a protein molecule is determined largely by
- A. oxygen bonds.
 - B. covalent bonds.
 - C. ionic bonds.
 - D. hydrogen bonds.**
 - E. stocks and bonds.

Difficulty Level: Remember/Understand
Learning Outcome: 02.03
Shier - Chapter 02 #36
Topic: Chemistry

37. In the body, oxygen
- A. reacts with water to form carbonic acid.
 - B. is used in various metabolic processes.
 - C. helps regulate body temperature.
 - D. exchanges with carbon dioxide.
 - E. releases energy from glucose during cellular respiration**

Difficulty Level: Evaluate/Create
Learning Outcome: 02.03
Shier - Chapter 02 #37
Topic: Chemistry

38. Which of the following is characteristic of carbohydrates?
- A. They contain C, H, O, with twice as many hydrogen as oxygen atoms.
 - B. They provide much of the energy that the cell requires.
 - C. They often are stored as reserve energy supplies.
 - D. They include sugars and starches.
 - E. all of the above**

Difficulty Level: Evaluate/Create
Learning Outcome: 02.03
Shier - Chapter 02 #38
Topic: Chemistry

39. A simple carbohydrate

- A.** has a molecular formula of $C_6H_{12}O_6$.
- B. is a building block of protein.
- C. consists of several joined chains.
- D. has only one nucleotide.
- E. is a building block of fat.

Difficulty Level: Remember/Understand

Learning Outcome: 02.03

Shier - Chapter 02 #39

Topic: Chemistry

40. Lipids

- A. are insoluble in water.
- B. include phospholipids, cholesterol, and fats.
- C. contain C, H, and O, but with proportionately less oxygen than in carbohydrates.
- D. are organic.
- E.** all of the above

Difficulty Level: Remember/Understand

Learning Outcome: 02.03

Shier - Chapter 02 #40

Topic: Chemistry

41. A protein can denature when

- A. bonds between carbon and oxygen break.
- B.** weak hydrogen bonds break.
- C. peptide bonds break.
- D. hydrogen bonds form.
- E. none of the above

Difficulty Level: Remember/Understand

Learning Outcome: 02.03

Shier - Chapter 02 #41

Topic: Chemistry

42. Which of the following is not organic?

- A.** Oxygen
- B. Lipids
- C. Nucleic acids
- D. Enzymes
- E. Cholesterol

Difficulty Level: Evaluate/Create

Learning Outcome: 02.03

Shier - Chapter 02 #42

Topic: Chemistry

43. Saturated fats _____ than unsaturated fats.
- A. are heavier
 - B. are more soluble in water
 - C. have more single carbon-carbon bonds**
 - D. have fewer hydrogen atoms bonded to carbon atoms
 - E. taste better

Difficulty Level: Evaluate/Create
Learning Outcome: 02.03
Shier - Chapter 02 #43
Topic: Chemistry

44. Proteins
- A. are structural materials
 - B. are chemical messengers.
 - C. contain C, H, O, and N, and sometimes sulfur.
 - D. can function as enzymes.
 - E. all of the above**

Difficulty Level: Remember/Understand
Learning Outcome: 02.03
Shier - Chapter 02 #44
Topic: Chemistry

45. An enzyme is a _____.
- A. protein that speeds up chemical reactions without being changed or depleted**
 - B. protein that functions as a hormone
 - C. protein that inhibits chemical reactions by being changed or depleted
 - D. fibrous protein that is part of certain tissues in the body
 - E. fat that speeds up chemical reactions without being changed or depleted

Difficulty Level: Evaluate/Create
Learning Outcome: 02.03
Shier - Chapter 02 #45
Topic: Chemistry

46. The parts of a protein that change when it denatures are
- A. the primary and secondary structures.
 - B. the secondary and tertiary structures.**
 - C. the amino acid sequence and the secondary structure.
 - D. the tertiary and quaternary structures.
 - E. the amino and carboxyl groups exchange locations.

Difficulty Level: Evaluate/Create
Learning Outcome: 02.03
Shier - Chapter 02 #46
Topic: Chemistry

47. DNA

- A. helps synthesize nucleic acids.
- B. is important in building fats.
- C.** stores genetic information.
- D. is important in building carbohydrates.
- E. provides cellular energy.

Difficulty Level: Evaluate/Create
Learning Outcome: 02.03
Shier - Chapter 02 #47
Topic: Chemistry

48. Nucleic acids are

- A. very small, simple molecules.
- B. structural molecules that do not have a function other than support.
- C.** composed of building blocks called nucleotides.
- D. sources of cellular energy.
- E. all of the above.

Difficulty Level: Evaluate/Create
Learning Outcome: 02.03
Shier - Chapter 02 #48
Topic: Chemistry

49. The informational content of DNA and RNA is in the nitrogenous bases because

- A.** the bases are of several types and therefore can form a sequence.
- B. they contain nitrogen.
- C. the sugars and phosphates vary too much.
- D. the bases are also parts of amino acids.
- E. nitrogen comes in several different forms.

Difficulty Level: Evaluate/Create
Learning Outcome: 02.03
Shier - Chapter 02 #49
Topic: Chemistry

50. In phenylketonuria, an individual cannot break down the amino acid phenylalanine. Molecules that include phenylalanine build up in the blood, which causes mental retardation and other symptoms. This inherited disease can be controlled by following a diet that is very low in

- A. carbohydrates.
- B. lipids.
- C. protein.**
- D. nucleic acids.
- E. tomatoes.

Difficulty Level: Apply/Analyze

Learning Outcome: 02.03

Shier - Chapter 02 #50

Topic: Chemistry

51. Table sugar breaking down into glucose and fructose is a(n) _____ reaction.

- A. synthesis
- B. hydrolysis
- C. decomposition**
- D. exchange reaction
- E. metabolic

Difficulty Level: Apply/Analyze

Learning Outcome: 02.02

Shier - Chapter 02 #51

Topic: Chemistry

52. Nucleic acids include

- A. proteins and DNA.
- B. RNA and DNA.**
- C. enzymes and RNA.
- D. steroids and triglycerides.
- E. vitamins and minerals.

Difficulty Level: Apply/Analyze

Learning Outcome: 02.03

Shier - Chapter 02 #52

Topic: Chemistry

53. DNA and RNA differ in that

- A. RNA has deoxyribose and DNA has ribose.
- B. RNA is double-stranded and DNA is single-stranded.
- C.** DNA holds genetic information and RNA uses that information to synthesize protein
- D. RNA holds genetic information and DNA uses that information to synthesize protein
- E. DNA is found in males and RNA is found in females.

Difficulty Level: Evaluate/Create

Learning Outcome: 02.03

Shier - Chapter 02 #53

Topic: Chemistry

54. The type of organic molecule that can replicate is a

- A. protein.
- B. lipid.
- C. carbohydrate.
- D.** nucleic acid.
- E. salt.

Difficulty Level: Evaluate/Create

Learning Outcome: 02.03

Shier - Chapter 02 #54

Topic: Chemistry

55. Conformation is

- A.** the three dimensional shape of a molecule, such as a protein.
- B. the energy held in the bonds of an organic molecule, such as a protein.
- C. the ability of RNA to copy itself.
- D. a religious service.
- E. none of the above

Difficulty Level: Apply/Analyze

Learning Outcome: 02.03

Shier - Chapter 02 #55

Topic: Chemistry

56. An organic compound contains

- A. water and a salt.
- B. oxygen and nitrogen.
- C. carbon and oxygen.
- D. nitrogen and hydrogen.
- E.** carbon and hydrogen.

Difficulty Level: Evaluate/Create

Learning Outcome: 02.02

Shier - Chapter 02 #56

Topic: Chemistry

57. Carbon can form ____ covalent bonds.

- A. 1
- B. 2
- C. 4**
- D. 8
- E. 16

Difficulty Level: Remember/Understand
Learning Outcome: 02.03
Shier - Chapter 02 #57
Topic: Chemistry

58. Which of these is not a monosaccharide?

- A. Glucose
- B. Ribose
- C. 6-carbon sugar
- D. Sucrose**
- E. 5-carbon sugar

Difficulty Level: Evaluate/Create
Learning Outcome: 02.03
Shier - Chapter 02 #58
Topic: Chemistry

59. Glycogen is stored in the liver and _____.

- A. spleen
- B. skeletal muscles**
- C. pancreas
- D. heart
- E. toenails

Difficulty Level: Remember/Understand
Learning Outcome: 02.03
Shier - Chapter 02 #59
Topic: Chemistry

60. A triglyceride consists of

- A. 3 amino acids.
- B. 3 glucose molecules.
- C. 1 glycerol and 3 fatty acids.
- D. 3 fatty acids and 1 glycerol.**
- E. 3 glycerols and 1 fatty acid.

Difficulty Level: Evaluate/Create
Learning Outcome: 02.03
Shier - Chapter 02 #60
Topic: Chemistry

61. Which of the following compounds is not hydrophilic?

- A. Carbohydrates
- B. Lipids**
- C. Proteins
- D. Nucleic Acids
- E. Water

Difficulty Level: Evaluate/Create

Learning Outcome: 02.03

Shier - Chapter 02 #61

Topic: Chemistry

62. Which of the following molecules does not have a polar region?

- A. Water
- B. Triglycerides**
- C. Tryptophan
- D. Glucose
- E. Kryptonite

Difficulty Level: Evaluate/Create

Learning Outcome: 02.03

Shier - Chapter 02 #62

Topic: Chemistry

63. A biomarker is

- A. a gene that encodes a particular protein.
- B. always a protein.
- C. a body chemical associated with a particular disease or exposure to a toxin.**
- D. a book mark that one uses when studying from a biology textbook.
- E. a protein that encodes a particular gene.

Difficulty Level: Remember/Understand

Shier - Chapter 02 #63

Topic: Chemistry

64. An example of a biomarker is

- A. cholesterol.**
- B. any DNA sequence.
- C. sodium chloride.
- D. hydrogen.
- E. all of the above.

Difficulty Level: Apply/Analyze

Shier - Chapter 02 #64

Topic: Chemistry

65. A biomarker test for cancer should ideally be

- A. inexpensive
- B. easy to perform.
- C. sensitive.
- D. specific.
- E.** all of the above.

Difficulty Level: Evaluate/Create
Shier - Chapter 02 #65
Topic: Chemistry

66. Which of the following isotopes has the longest half-life?

- A. Iodine-131.
- B. Iron-59.
- C. Phosphorus-32.
- D.** Radium-226.
- E. Fahrenheit-451.

Difficulty Level: Remember/Understand
Shier - Chapter 02 #66
Topic: Chemistry

67. The _____ uses the element iodide.

- A. spleen
- B. liver
- C. thymus
- D.** thyroid
- E. spinal cord

Difficulty Level: Remember/Understand
Shier - Chapter 02 #67
Topic: Chemistry

68. The isotope most likely to be used to study the thyroid gland is

- A.** iodine-141.
- B. iron-59.
- C. thallium-201.
- D. cobalt-60.
- E. carbon-14.

Difficulty Level: Remember/Understand
Shier - Chapter 02 #68
Topic: Chemistry

69. Atomic radiation is useful for treating cancer because
- A. radiation affects cancer cells but not normal cells.
 - B. radiation protects normal cells against the effects of cancer.
 - C.** radiation harms cancer cells more readily than it does most non-cancer cells
 - D. chemicals in normal cells are not affected by radiation.
 - E. it kills all cells.

Difficulty Level: Evaluate/Create
Shier - Chapter 02 #69
Topic: Chemistry

70. Exposure to ionizing radiation may
- A.** cloud the lens of the eye.
 - B. cause diabetes.
 - C. cause a woman to conceive twins.
 - D. cause a urinary tract infection.
 - E. none of the above.

Difficulty Level: Remember/Understand
Shier - Chapter 02 #70
Topic: Chemistry

71. Which of the following is not a source of ionizing radiation?
- A. Cosmic rays from outer space
 - B.** Cholesterol and triglycerides
 - C. Atomic and nuclear weapons
 - D. Smoke detectors
 - E. TV components

Difficulty Level: Apply/Analyze
Shier - Chapter 02 #71
Topic: Chemistry

72. A CT scan differs from a conventional X-ray image because it is
- A. two dimensional.
 - B.** three dimensional.
 - C. four dimensional.
 - D. safer.
 - E. not radioactive.

Difficulty Level: Evaluate/Create
Shier - Chapter 02 #72
Topic: Chemistry

73. PET imaging follows the emission of

- A.** positrons.
- B. electrons.
- C. neutrons.
- D. protons.
- E. mice.

Difficulty Level: Remember/Understand

Shier - Chapter 02 #73

Topic: Chemistry

74. Chemistry is the study of the composition of matter and how matter changes.

TRUE

Difficulty Level: Remember/Understand

Learning Outcome: 02.01

Shier - Chapter 02 #74

Topic: Chemistry

75. The number of protons in an atom of an element equals its atomic weight.

FALSE

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #75

Topic: Chemistry

76. Radioactive isotopes have stable nuclei.

FALSE

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #76

Topic: Chemistry

77. Sodium and chloride atoms combine readily because they both lose electrons.

FALSE

Difficulty Level: Evaluate/Create

Learning Outcome: 02.02

Shier - Chapter 02 #77

Topic: Chemistry

78. The symbol Na^+ represents a sodium atom that has lost an electron.

TRUE

Difficulty Level: Apply/Analyze

Learning Outcome: 02.02

Shier - Chapter 02 #78

Topic: Chemistry

79. An atom that has gained or lost electrons is called an ion.

TRUE

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #79

Topic: Chemistry

80. Water is an example of a compound.

TRUE

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #80

Topic: Chemistry

81. A substance that releases hydrogen ions in water is a base.

FALSE

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #81

Topic: Chemistry

82. An acid reacting with a base produces a salt.

TRUE

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #82

Topic: Chemistry

83. An atom with 10 protons and 8 electrons is electrically neutral.

FALSE

Difficulty Level: Apply/Analyze

Learning Outcome: 02.02

Shier - Chapter 02 #83

Topic: Chemistry

84. Chemically inert atoms always have their outermost electron shell full.

TRUE

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #84

Topic: Chemistry

85. An acid is an electrolyte that releases hydroxyl ions (OH^-) in water. An example is sodium hydroxide.

FALSE

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #85

Topic: Chemistry

86. A base is an electrolyte that releases ions that combine with hydrogen ions. An example is potassium hydroxide (KOH).

TRUE

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #86

Topic: Chemistry

87. An electrolyte ionizes in water.

TRUE

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #87

Topic: Chemistry

88. A person with alkalosis has a blood pH less than 7.4.

FALSE

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #88

Topic: Chemistry

89. A complex carbohydrate has a phosphate group attached to a sugar molecule.

FALSE

Difficulty Level: Evaluate/Create

Learning Outcome: 02.03

Shier - Chapter 02 #89

Topic: Chemistry

90. Cholesterol, a type of lipid, is composed of 3 fatty acid chains attached to glycerol.

FALSE

Difficulty Level: Apply/Analyze

Learning Outcome: 02.03

Shier - Chapter 02 #90

Topic: Chemistry

91. Glycogen is a complex carbohydrate that we get by eating plants.

FALSE

Difficulty Level: Apply/Analyze

Learning Outcome: 02.03

Shier - Chapter 02 #91

Topic: Chemistry

92. A phospholipid differs structurally from a triglyceride in that it has three phosphate groups attached to the glycerol molecule rather than three fatty acid chains.

FALSE

Difficulty Level: Evaluate/Create

Learning Outcome: 02.03

Shier - Chapter 02 #92

Topic: Chemistry

93. Nucleic acids are composed of building blocks called amino acids, which have an amine and an acid group in the molecule.

FALSE

Difficulty Level: Evaluate/Create

Learning Outcome: 02.03

Shier - Chapter 02 #93

Topic: Chemistry

94. Proteins consist of sequences of amino acids.

TRUE

Difficulty Level: Remember/Understand

Learning Outcome: 02.03

Shier - Chapter 02 #94

Topic: Chemistry

95. Proteins encode nucleic acids.

FALSE

Difficulty Level: Evaluate/Create

Learning Outcome: 02.03

Shier - Chapter 02 #95

Topic: Chemistry

96. DNA and RNA are nucleic acids.

TRUE

Difficulty Level: Remember/Understand

Learning Outcome: 02.03

Shier - Chapter 02 #96

Topic: Chemistry

97. The parts of an atom that carry single negative electrical charges are called _____.

electrons

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #97

Topic: Chemistry

98. When atoms form chemical bonds, the subatomic particles that directly interact are the _____.

electrons

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #98

Topic: Chemistry

99. The type of subatomic particle that does not have an electrical charge is a _____.

neutron

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #99

Topic: Chemistry

100. The type of chemical bond formed when ions with opposite electrical charges attracted is an _____ bond.

ionic

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #100

Topic: Chemistry

101. Two or more atoms bonding form a _____.

molecule

Difficulty Level: Remember/Understand

Learning Outcome: 02.02

Shier - Chapter 02 #101

Topic: Chemistry

102. The opposite of a decomposition reaction is a _____ reaction.

synthesis

Difficulty Level: Evaluate/Create

Learning Outcome: 02.02

Shier - Chapter 02 #102

Topic: Chemistry

103. The midpoint of the pH scale is pH ___.

7

Difficulty Level: Apply/Analyze

Learning Outcome: 02.02

Shier - Chapter 02 #103

Topic: Chemistry

104. Apricots have a pH of 3.8 and apples a pH between 3.3 and 3.9. Therefore, they are _____.

bases

Difficulty Level: Apply/Analyze

Learning Outcome: 02.02

Shier - Chapter 02 #104

Topic: Chemistry

105. Organic substances always contain the element _____.

carbon

Difficulty Level: Remember/Understand

Learning Outcome: 02.03

Shier - Chapter 02 #105

Topic: Chemistry

106. Amino acids are building blocks of _____.

protein

Difficulty Level: Remember/Understand

Learning Outcome: 02.03

Shier - Chapter 02 #106

Topic: Chemistry

107. The amino acid sequence of a protein is its _____ structure.

primary

Difficulty Level: Remember/Understand

Learning Outcome: 02.03

Shier - Chapter 02 #107

Topic: Chemistry

108. Nucleotides are building blocks of _____.
nucleic acids

Difficulty Level: Remember/Understand

Learning Outcome: 02.03

Shier - Chapter 02 #108

Topic: Chemistry

109. _____ has the unique ability among types of organic molecules to replicate.
DNA

Difficulty Level: Remember/Understand

Learning Outcome: 02.03

Shier - Chapter 02 #109

Topic: Chemistry

ch2 Summary

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