

Chapter 2 (MC): Some Basic Chemistry

MULTIPLE CHOICE

1. Which element is NOT paired with its correct symbol?
- | | |
|------------------|-----------------|
| a. carbon – C | c. nitrogen – N |
| b. potassium – P | d. cobalt – Co |

ANS: B PTS: 1 REF: Rev Ques 1

2. Which element is NOT paired with its correct symbol?
- | | |
|---------------|-------------------|
| a. sodium – S | c. magnesium – Mg |
| b. oxygen – O | d. chlorine – Cl |

ANS: A PTS: 1 REF: Rev Ques 1

3. Which element is NOT paired with its correct symbol?
- | | |
|-----------------|-----------------|
| a. hydrogen – H | c. calcium – Ca |
| b. sulfur – S | d. iron – I |

ANS: D PTS: 1 REF: Rev Ques 1

4. For sodium, sulfur, zinc, and chlorine, the correct chemical symbols, in order, are:
- | | |
|------------------|-----------------|
| a. S, Su, Z, Cl | c. No, Su, Z, C |
| b. Na, S, Zn, Cl | d. Na, S, Z, Cl |

ANS: B PTS: 1 REF: Rev Ques 1

5. For iron, iodine, potassium, and phosphorus, the correct chemical symbols, in order, are:
- | | |
|-----------------|----------------|
| a. I, Io, P, Ph | c. I, Io, K, P |
| b. Fe, I, P, Ph | d. Fe, I, K, P |

ANS: D PTS: 1 REF: Rev Ques 1

6. For cobalt, copper, calcium, and carbon, the correct chemical symbols, in order, are:
- | | |
|-------------------|------------------|
| a. Cb, Co, Ca, C | c. Cb, Cu, Cm, C |
| b. Co, Cp, Ca, Cr | d. Co, Cu, Ca, C |

ANS: D PTS: 1 REF: Rev Ques 1

7. An ionic bond is formed when:
- an atom of sodium loses an electron to another atom of sodium
 - an atom of sodium shares two electrons with two atoms of chlorine
 - an atom of sodium gains an electron from an atom of chlorine
 - an atom of sodium loses an electron to an atom of chlorine

ANS: D PTS: 1 REF: Rev Ques 2

8. Which statement is NOT true of ions?
- An ion has either a positive or negative charge.
 - Atoms become ions by gaining or losing protons.
 - Ions with unlike charges are attracted to one another and form ionic bonds.

d. An atom that loses an electron will have a charge of +1.

ANS: B PTS: 1 REF: Rev Ques 2

9. An atom that has gained an electron is now called:

- a. an ion that is neutral
- b. an ion with a charge of +1
- c. an ion with a charge of -1
- d. an atom with a charge of +1

ANS: C PTS: 1 REF: Rev Ques 2

10. A cation has a:

- a. positive charge
- b. negative charge
- c. neutral charge
- d. none of these, because the charge may vary

ANS: A PTS: 1 REF: Rev Ques 2

11. An anion has a:

- a. positive charge
- b. negative charge
- c. neutral charge
- d. none of these, because the charge may vary

ANS: B PTS: 1 REF: Rev Ques 2

12. A cation has a:

- a. positive charge, and an example is a chloride ion
- b. negative charge, and an example is a potassium ion
- c. positive charge, and an example is a calcium ion
- d. negative charge, and an example is an iron ion

ANS: C PTS: 1 REF: Rev Ques 2

13. An anion has a:

- a. positive charge, and an example is a hydrogen ion
- b. negative charge, and an example is a bicarbonate ion
- c. positive charge, and an example is a chloride ion
- d. negative charge, and an example is a sodium ion

ANS: B PTS: 1 REF: Rev Ques 2

14. Which statement is NOT true of ionic bonds?

- a. They form salts.
- b. In the solid state they are very strong.
- c. In water, many ionic bonds weaken.
- d. They involve the sharing of electrons.

ANS: D PTS: 1 REF: Rev Ques 2

15. The term *dissociation* refers to:

- a. ionic bonds
- b. the breaking of bonds in a water solution
- c. both A and B
- d. both A and B, and covalent bonds

ANS: C PTS: 1 REF: Rev Ques 2

16. A synonym for dissociation is:
- a. decomposition
 - b. ionization
 - c. synthesis
 - d. reformulation

ANS: B PTS: 1 REF: Rev Ques 2

17. Dissociation of salts is important to:
- a. free ions to take part in other reactions
 - b. produce energy
 - c. keep salt molecules stable in water
 - d. keep salt molecules stable as solids

ANS: A PTS: 1 REF: Rev Ques 2

18. Ionization of salts such as sodium chloride takes place:
- a. when the temperature rises
 - b. when the temperature falls
 - c. in the solid state
 - d. in water

ANS: D PTS: 1 REF: Rev Ques 2

19. A covalent bond is formed when:
- a. two or more atoms share electrons
 - b. two atoms form ions and are attracted to each other
 - c. one atom loses two electrons that are gained by another atom
 - d. a carbon atom loses all of its electrons to other atoms

ANS: A PTS: 1 REF: Rev Ques 3

20. A bond in which electrons are shared between atoms is:
- a. ionic
 - b. reciprocal
 - c. covalent
 - d. di-electron

ANS: C PTS: 1 REF: Rev Ques 3

21. An atom of carbon has ____ electrons to share to form ____ bonds.
- a. 2/ionic
 - b. 4/covalent
 - c. 2/covalent
 - d. 4/ionic

ANS: B PTS: 1 REF: Rev Ques 3

22. Which statement is NOT true of covalent bonds?
- a. These bonds are not weakened when in water.
 - b. A molecule of water is formed by covalent bonds.
 - c. These bonds involve the sharing of electrons.
 - d. The atoms of most inorganic molecules are bonded by covalent bonds.

ANS: D PTS: 1 REF: Rev Ques 3

23. The bonds that help maintain the three-dimensional shape of proteins and nucleic acids are:
- a. covalent bonds
 - b. hydrogen bonds
 - c. ionic bonds
 - d. water bonds

ANS: B PTS: 1 REF: Rev Ques 3

24. The bonds that make water cohesive are:
- a. disulfide bonds
 - b. hydrogen bonds
 - c. ionic bonds
 - d. water bonds

ANS: B PTS: 1 REF: Rev Ques 3

25. The bonds that hold the two chains of an insulin molecule together are:
- a. disulfide bonds
 - b. peptide bonds
 - c. ionic bonds
 - d. protein bonds

ANS: A PTS: 1 REF: Rev Ques 3

26. Disulfide bonds may be part of:
- a. some starches
 - b. some proteins
 - c. DNA and RNA
 - d. true fats

ANS: B PTS: 1 REF: Rev Ques 3

27. Large molecules of glycogen are made of the smaller subunits called:
- a. glucose
 - b. fatty acids and glycerol
 - c. amino acids
 - d. nucleotides

ANS: A PTS: 1 REF: Rev Ques 4

28. Glucose molecules are the subunits of:
- a. starch
 - b. glycogen
 - c. both A and B
 - d. both A and B, and cellulose

ANS: D PTS: 1 REF: Rev Ques 4

29. Glycogen and starch are ____ that are made of ____.
- a. disaccharides/sucrose
 - b. polysaccharides/glucose
 - c. disaccharides/glucose
 - d. polysaccharides/sucrose

ANS: B PTS: 1 REF: Rev Ques 4

30. Glucose is a molecule that is a:
- a. hexose sugar
 - b. monosaccharide
 - c. both A and B
 - d. both A and B, and inorganic

ANS: C PTS: 1 REF: Rev Ques 4

31. Glucose is a molecule that is a:
- a. double sugar
 - b. hexose sugar
 - c. pentose sugar
 - d. triple sugar

ANS: B PTS: 1 REF: Rev Ques 4

32. The chemical formula for glucose is:
- a. $C_{12}H_6O_{12}$
 - b. $C_{12}H_6O_6$
 - c. $C_6H_6O_6$
 - d. $C_6H_{12}O_6$

ANS: D PTS: 1 REF: Rev Ques 4

33. Glucose, fructose, and galactose are:
- hexose sugars
 - monosaccharides
 - both A and B
 - both A and B, and all have the same chemical formula

ANS: D PTS: 1 REF: Rev Ques 4

34. Large molecules of true fats are made of the smaller subunits called:
- fatty acids and glucose
 - fatty acids and glycerol
 - amino acids
 - nucleotides

ANS: B PTS: 1 REF: Rev Ques 4

35. Fatty acids and glycerol are the subunits of:
- phospholipids
 - true fats
 - both A and B
 - both A and B, and cholesterol

ANS: C PTS: 1 REF: Rev Ques 4

36. Large molecules of protein are made of the smaller subunits called:
- glucose
 - fatty acids and glycerol
 - amino acids
 - nucleotides

ANS: C PTS: 1 REF: Rev Ques 4

37. Which statement is NOT true of amino acids?
- They all contain the elements C, H, O, and N.
 - They are the subunits of proteins.
 - A chain of amino acids is linked by ionic bonds.
 - There are about 20 different amino acids in human proteins.

ANS: C PTS: 1 REF: Rev Ques 4

38. Large molecules of DNA and RNA are made of the smaller subunits called:
- glucose
 - fatty acids and glycerol
 - amino acids
 - nucleotides

ANS: D PTS: 1 REF: Rev Ques 4

39. Which statement is NOT true of the subunits of organic molecules?
- Glycogen is made of glucose.
 - Glycerol is found in true fats and in diglycerides.
 - DNA subunits are called deoxyprecursors.
 - The subunits of enzymes are amino acids.

ANS: C PTS: 1 REF: Rev Ques 4

40. Which statement is NOT true of saturated fats?
- Most are plant oils.
 - They have the maximum number of hydrogens.

- c. They have single bonds between carbons.
- d. They have been implicated in heart disease.

ANS: A PTS: 1 REF: Rev Ques 4

41. Which statement is NOT true of unsaturated fats?
- a. They have one or more double bonds between carbons.
 - b. They have the maximum number of hydrogens.
 - c. Most are plant oils.
 - d. They are made of fatty acids and glycerol.

ANS: B PTS: 1 REF: Rev Ques 4

42. The fluid found within lymph vessels is called:
- a. lymph
 - b. plasma
 - c. intracellular fluid
 - d. tissue fluid

ANS: A PTS: 1 REF: Rev Ques 5

43. Lymph is a fluid that is found:
- a. in lymph vessels
 - b. in tissue spaces
 - c. both A and B
 - d. both A and B, and between cells

ANS: A PTS: 1 REF: Rev Ques 5

44. The fluid found within veins is called:
- a. lymph
 - b. plasma
 - c. intracellular fluid
 - d. tissue fluid

ANS: B PTS: 1 REF: Rev Ques 5

45. Plasma is a fluid that is found:
- a. in veins
 - b. in arteries
 - c. both A and B
 - d. both A and B, and in capillaries

ANS: D PTS: 1 REF: Rev Ques 5

46. The fluid found within cells is called:
- a. intercellular fluid
 - b. plasma
 - c. intracellular fluid
 - d. extracellular fluid

ANS: C PTS: 1 REF: Rev Ques 5

47. Intracellular fluid is found:
- a. within cells
 - b. between cells
 - c. both A and B
 - d. both A and B, and in tissue spaces

ANS: A PTS: 1 REF: Rev Ques 5

48. The fluid found in spaces between cells is called:
- a. lymph
 - b. plasma
 - c. intracellular fluid
 - d. tissue fluid

ANS: D PTS: 1 REF: Rev Ques 5

49. The fluid found in spaces between cells is called:
- a. tissue fluid
 - b. intercellular fluid
 - c. both A and B
 - d. both A and B, and lymph

ANS: C PTS: 1 REF: Rev Ques 5

50. Intercellular fluid is found:
- a. within cells
 - b. between cells
 - c. both A and B
 - d. both A and B, and around cells

ANS: B PTS: 1 REF: Rev Ques 5

51. The fact that water changes temperature slowly is important for:
- a. digestion of food
 - b. pumping of the heart
 - c. keeping a fairly constant body temperature
 - d. nerve impulse transmission

ANS: C PTS: 1 REF: Rev Ques 6

52. Water can absorb a great deal of heat, and this is important for:
- a. sweating to lose excess body heat
 - b. digestion of very large meals
 - c. nerve impulse transmission
 - d. production of RBCs

ANS: A PTS: 1 REF: Rev Ques 6

53. The process of sweating depends upon water as a:
- a. solvent
 - b. lubricant
 - c. transporter
 - d. heat absorber

ANS: D PTS: 1 REF: Rev Ques 6

54. The sense of taste depends upon water as a:
- a. solvent
 - b. lubricant
 - c. transporter
 - d. heat absorber

ANS: A PTS: 1 REF: Rev Ques 7

55. The excretion of waste products in urine depends upon water as a:
- a. solvent
 - b. lubricant
 - c. cushion
 - d. heat absorber

ANS: A PTS: 1 REF: Rev Ques 7

56. Which of these is NOT an example of the importance of water as a solvent?
- a. the senses of smell and taste
 - b. synovial fluid in joints
 - c. transport of nutrients in the blood
 - d. excretion of waste products in urine

ANS: B PTS: 1 REF: Rev Ques 7

57. Swallowing depends upon water as a:
- a. solvent
 - b. lubricant
 - c. cushion
 - d. heat absorber

ANS: B PTS: 1 REF: Rev Ques 7

58. Which of these is an example of the lubricant function of water?
- a. the senses of smell and taste
 - b. synovial fluid in joints
 - c. transport of nutrients in the blood
 - d. excretion of waste products in urine

ANS: B PTS: 1 REF: Rev Ques 7

59. The storage form for glucose in the liver is:
- a. glycogen
 - b. true fats
 - c. pentose sugars
 - d. oligosaccharides

ANS: A PTS: 1 REF: Rev Ques 8

60. The storage form for energy in adipose tissue is:
- a. glycogen
 - b. true fats
 - c. pentose sugars
 - d. oligosaccharides

ANS: B PTS: 1 REF: Rev Ques 8

61. The carbohydrates that are part of DNA and RNA are:
- a. glucose
 - b. starch
 - c. pentose sugars
 - d. oligosaccharides

ANS: C PTS: 1 REF: Rev Ques 8

62. The pentose sugars are part of:
- a. starches
 - b. DNA and RNA
 - c. specialized enzymes
 - d. cell membranes

ANS: B PTS: 1 REF: Rev Ques 8

63. The self antigens on cell membranes are:
- a. starch
 - b. pentose sugars
 - c. glucose
 - d. oligosaccharides

ANS: D PTS: 1 REF: Rev Ques 8

64. The oligosaccharides are attached to:
- a. DNA and RNA as part of the genetic code
 - b. certain enzymes as part of the active site
 - c. structural proteins to provide stability
 - d. cell membranes as self antigens

ANS: D PTS: 1 REF: Rev Ques 8

65. The disaccharides are sugars that:
- a. will be digested and used for energy, such as sucrose
 - b. will become part of DNA and RNA
 - c. will be digested for energy, such as fructose
 - d. are part of specialized enzymes

ANS: A PTS: 1 REF: Rev Ques 8

66. Which of these is NOT a disaccharide?

- a. sucrose
- b. galactose
- c. maltose
- d. lactose

ANS: B PTS: 1 REF: Rev Ques 8

67. Disaccharides in the diet are digested and used for:

- a. energy
- b. amino acids
- c. proteins
- d. cell membranes

ANS: A PTS: 1 REF: Rev Ques 8

68. Sucrose and lactose are:

- a. monosaccharides
- b. disaccharides
- c. oligosaccharides
- d. polysaccharides

ANS: B PTS: 1 REF: Rev Ques 8

69. The precursor molecule for steroid hormones is:

- a. cholesterol
- b. cellulose
- c. phospholipids
- d. enzymes

ANS: A PTS: 1 REF: Rev Ques 8

70. Cholesterol is important for the:

- a. synthesis of steroid hormones
- b. production of vitamin D
- c. both A and B
- d. both A and B, and as part of cell membranes

ANS: D PTS: 1 REF: Rev Ques 8

71. Vitamin D may be synthesized in the body from:

- a. amino acids
- b. phospholipids
- c. cholesterol
- d. disaccharides

ANS: C PTS: 1 REF: Rev Ques 8

72. The undigested part of food that promotes peristalsis is:

- a. cholesterol
- b. cellulose
- c. true fats
- d. proteins

ANS: B PTS: 1 REF: Rev Ques 8

73. For people, the function of cellulose is to promote:

- a. energy production between meals
- b. peristalsis
- c. loss of heat in hot weather
- d. retention of heat in cold weather

ANS: B PTS: 1 REF: Rev Ques 8

74. The genetic material (genetic code) within cells is:

- a. enzymes
- b. RNA
- c. DNA
- d. phospholipids

ANS: C PTS: 1 REF: Rev Ques 8

75. The function of DNA is to:
- be the genetic code within cells
 - serve as the site of protein synthesis
 - both A and B
 - both A and B, and form chromosomes

ANS: A PTS: 1 REF: Rev Ques 8

76. The function of RNA is:
- protein synthesis
 - cell respiration
 - to help synthesize DNA
 - to help synthesize ATP

ANS: A PTS: 1 REF: Rev Ques 8

77. RNA is different from DNA in that:
- RNA is a single strand of amino acids
 - RNA has the base uracil where DNA has thymine
 - both A and B
 - neither A nor B

ANS: B PTS: 1 REF: Rev Ques 8

78. The catalysts of cellular reactions are:
- phospholipids
 - nucleic acids
 - hexose sugars
 - enzymes

ANS: D PTS: 1 REF: Rev Ques 8

79. Within the body, proteins may be:
- enzymes
 - hormones
 - structural components of tissues
 - all of these

ANS: D PTS: 1 REF: Rev Ques 8

80. Which organic molecule is NOT part of cell membranes?
- glucose
 - protein
 - phospholipid
 - cholesterol

ANS: A PTS: 1 REF: Rev Ques 8

81. Which of the following are energy-storage molecules?
- glucose and proteins
 - glycogen and true fats
 - proteins and glycogen
 - true fats and amino acids

ANS: B PTS: 1 REF: Rev Ques 8

82. Which statement is NOT true of organic molecules?
- DNA is the genetic code in chromosomes.
 - Hormones may be steroids or proteins.
 - Phospholipids are part of cell membranes.
 - Oligosaccharides are energy-storage molecules.

ANS: D PTS: 1 REF: Rev Ques 8

83. Which statement is NOT true of organic molecules?

- a. RNA is important for protein synthesis.
- b. Cholesterol is part of cell membranes.
- c. Glucose is the most important pentose sugar.
- d. All enzymes are proteins.

ANS: C PTS: 1 REF: Rev Ques 8

84. The raw materials, or reactants, of cell respiration are:

- a. glucose and oxygen
- b. water and glucose
- c. oxygen and carbon dioxide
- d. carbon dioxide and glucose

ANS: A PTS: 1 REF: Rev Ques 9

85. Which of these is NOT a product of cell respiration?

- a. water
- b. carbon dioxide
- c. ATP
- d. oxygen

ANS: D PTS: 1 REF: Rev Ques 9

86. The purpose of cell respiration is to produce:

- a. ATP from water
- b. ATP from glucose
- c. carbon dioxide from ATP
- d. water from ATP

ANS: B PTS: 1 REF: Rev Ques 9

87. The waste product of cell respiration is:

- a. carbon dioxide
- b. water
- c. ATP
- d. heat

ANS: A PTS: 1 REF: Rev Ques 10

88. Biologically useful energy is released in cell respiration in the form of:

- a. light
- b. heat
- c. ATP
- d. movement

ANS: C PTS: 1 REF: Rev Ques 10

89. Cell respiration enables our cells to release the potential energy found in molecules of:

- a. water
- b. glucose
- c. oxygen
- d. minerals

ANS: B PTS: 1 REF: Rev Ques 10

90. In cell respiration, the breakdown of glucose to form ATP must take place in the presence of:

- a. carbon dioxide
- b. water
- c. hydrogen
- d. oxygen

ANS: D PTS: 1 REF: Rev Ques 10

91. If too much carbon dioxide accumulates in cells and tissues:

- a. the pH will decrease
- b. cell membranes will rupture
- c. the pH will increase
- d. cell membranes will shrivel

ANS: A PTS: 1 REF: Rev Ques 10

92. Which statement is NOT true of cell respiration?
- a. It is the link between eating and breathing.
 - b. The water produced must be excreted or the cell will burst.
 - c. One of the energy products is heat.
 - d. ATP is biologically useful energy.

ANS: B PTS: 1 REF: Rev Ques 10

93. The element that carries oxygen in red blood cells is:
- a. iron
 - b. calcium
 - c. iodine
 - d. cobalt

ANS: A PTS: 1 REF: Rev Ques 11

94. The element that provides strength in bones and teeth is:
- a. iron
 - b. calcium
 - c. zinc
 - d. iodine

ANS: B PTS: 1 REF: Rev Ques 11

95. Two elements that provide strength in bones and teeth are:
- a. iron and calcium
 - b. calcium and potassium
 - c. sodium and phosphorus
 - d. calcium and phosphorus

ANS: D PTS: 1 REF: Rev Ques 11

96. The element that is part of the hormone thyroxine is:
- a. calcium
 - b. cobalt
 - c. iodine
 - d. sodium

ANS: C PTS: 1 REF: Rev Ques 11

97. The element iodine is an essential part of the hormone:
- a. insulin
 - b. thyroxine
 - c. estrogen
 - d. growth hormone

ANS: B PTS: 1 REF: Rev Ques 11

98. The element that is part of vitamin B₁₂ is:
- a. sodium
 - b. copper
 - c. calcium
 - d. cobalt

ANS: D PTS: 1 REF: Rev Ques 11

99. The element cobalt is an essential part of vitamin:
- a. C
 - b. D
 - c. B₆
 - d. B₁₂

ANS: D PTS: 1 REF: Rev Ques 11

100. Two elements that are necessary for nerve impulse transmission are:
- a. sodium and potassium
 - b. iron and copper
 - c. calcium and phosphorus
 - d. sulfur and cobalt

ANS: A PTS: 1 REF: Rev Ques 11

101. The element that is necessary for blood clotting is:
- a. sulfur
 - b. calcium
 - c. copper
 - d. potassium

ANS: B PTS: 1 REF: Rev Ques 11

102. The element that is part of some amino acids and forms bonds in proteins is:
- a. sulfur
 - b. calcium
 - c. copper
 - d. potassium

ANS: A PTS: 1 REF: Rev Ques 11

103. Two elements that are necessary for cell respiration are:
- a. sodium and potassium
 - b. calcium and phosphorus
 - c. iodine and sulfur
 - d. iron and copper

ANS: D PTS: 1 REF: Rev Ques 11

104. All organic molecules contain the elements:
- a. C, H, and N
 - b. C, H, and O
 - c. C, O, and N
 - d. H, O, and N

ANS: B PTS: 1 REF: Rev Ques 11

105. A large organic molecule made of the elements C, H, O, N, and P would most likely be a:
- a. nucleic acid
 - b. polysaccharide
 - c. protein
 - d. true fat

ANS: A PTS: 1 REF: Rev Ques 11

106. A large organic molecule made of the elements C, H, O, N, and S would most likely be a:
- a. nucleic acid
 - b. polysaccharide
 - c. protein
 - d. true fat

ANS: C PTS: 1 REF: Rev Ques 11

107. Which statement is NOT true of the elements in the human body?
- a. Iron is part of hemoglobin.
 - b. The hormone thyroxine contains copper.
 - c. Sodium is needed for nerve-impulse transmission.
 - d. Phosphorus is part of bones and teeth.

ANS: B PTS: 1 REF: Rev Ques 11

108. Which statement is NOT true of the elements in the human body?
- a. Calcium is necessary for blood clotting.
 - b. Potassium is needed for nerve-impulse transmission.

- c. Sulfur is part of some carbohydrates.
- d. Vitamin B₁₂ contains cobalt.

ANS: C PTS: 1 REF: Rev Ques 11

109. A solution that has more hydrogen ions than hydroxyl ions is:
- a. a base
 - b. an acid
 - c. neutral
 - d. none of these

ANS: B PTS: 1 REF: Rev Ques 12

110. An acid solution has:
- a. more hydroxyl ions than hydrogen ions
 - b. more hydroxyl ions than water ions
 - c. more hydrogen ions than water ions
 - d. more hydrogen ions than hydroxyl ions

ANS: D PTS: 1 REF: Rev Ques 12

111. A solution that has more hydroxyl ions than hydrogen ions is:
- a. neutral
 - b. a base
 - c. an acid
 - d. none of these

ANS: B PTS: 1 REF: Rev Ques 12

112. An alkaline (basic) solution has:
- a. more hydroxyl ions than hydrogen ions
 - b. more hydroxyl ions than water ions
 - c. more hydrogen ions than water ions
 - d. more hydrogen ions than hydroxyl ions

ANS: A PTS: 1 REF: Rev Ques 12

113. A solution that has equal numbers of hydrogen and hydroxyl ions is:
- a. neutral
 - b. a base
 - c. an acid
 - d. none of these

ANS: A PTS: 1 REF: Rev Ques 12

114. On the pH scale, acids are indicated by numbers:
- a. above 10
 - b. below 10
 - c. above 7
 - d. below 7

ANS: D PTS: 1 REF: Rev Ques 12

115. On the pH scale, bases are indicated by numbers:
- a. below 4
 - b. below 7
 - c. above 4
 - d. above 7

ANS: D PTS: 1 REF: Rev Ques 12

116. A solution with a pH of 7.5 would be:
- a. slightly acidic
 - b. strongly acidic
 - c. slightly alkaline
 - d. strongly alkaline

ANS: C PTS: 1 REF: Rev Ques 12

117. A solution with a pH of 2.5 would be:
- a. slightly acidic
 - b. strongly acidic
 - c. slightly alkaline
 - d. strongly alkaline

ANS: B PTS: 1 REF: Rev Ques 12

118. Which statement is NOT true of the pH scale?
- a. It ranges from 0 through 14.
 - b. It is a measure of the hydrogen and hydroxyl ions in a solution.
 - c. The more hydrogen ions present, the higher the pH.
 - d. A pH of 7 is considered neutral.

ANS: C PTS: 1 REF: Rev Ques 12

119. Which statement is NOT true of pH and human body fluids?
- a. Blood has a very narrow normal pH range.
 - b. Gastric juice may have a pH of 2.
 - c. The pH of urine may be acidic or alkaline and still be in the normal range.
 - d. The normal pH range of intestinal secretions is acidic.

ANS: D PTS: 1 REF: Rev Ques 12

120. The normal pH range of blood is _____, which is _____.
- a. 6.75–6.95/slightly acidic
 - b. 7.35–7.45/slightly alkaline
 - c. 7.10–7.20/slightly alkaline
 - d. 6.90–7.15/neutral

ANS: B PTS: 1 REF: Rev Ques 13

121. Which pH would NOT be in the normal range for human blood?
- a. 7.30
 - b. 7.39
 - c. 7.40
 - d. All of these are within the normal range.

ANS: A PTS: 1 REF: Rev Ques 13

122. A blood pH of 7.36 is:
- a. slightly alkaline and in the normal range
 - b. slightly acidic and in the normal range
 - c. slightly alkaline and too high for the normal range
 - d. slightly acidic and too low for the normal range

ANS: A PTS: 1 REF: Rev Ques 13

123. A blood pH of 7.44 is:
- a. slightly alkaline and in the normal range
 - b. slightly acidic and in the normal range
 - c. slightly alkaline and too high for the normal range
 - d. slightly acidic and too low for the normal range

ANS: A PTS: 1 REF: Rev Ques 13

ANS: C PTS: 1 REF: Rev Ques 15

132. The active site of an enzyme:
- is the part where the substrate molecules fit
 - has a particular and specific shape
 - both A and B
 - both A and B, and it changes when other reactions are needed

ANS: C PTS: 1 REF: Rev Ques 15

133. Which statement is NOT true of the active site theory of enzyme functioning?
- An enzyme may catalyze many different kinds of reactions.
 - It depends on the shapes of the enzyme and the substrate molecules.
 - An enzyme remains unchanged when the reaction is complete.
 - An enzyme catalyzes only one type of reaction.

ANS: A PTS: 1 REF: Rev Ques 15

134. The purpose of enzyme catalysts is to:
- slow down reactions
 - transmit electrical nerve impulses
 - speed up reactions by adding heat
 - speed up reactions without the addition of heat

ANS: D PTS: 1 REF: Rev Ques 15

135. Heat may disrupt the functioning of an enzyme because:
- human enzymes function only at 98.6°F
 - heat can break peptide bonds
 - water molecules are attracted to the enzyme, and denature it
 - heat can break hydrogen bonds and denature the enzyme

ANS: D PTS: 1 REF: Rev Ques 15

136. A heavy-metal ion may disrupt the functioning of an enzyme because:
- substrates bond to the metal ion
 - a metal ion may change the shape of the active site
 - metal ions raise the pH of cellular fluid
 - metal ions displace enzymes in intracellular fluid

ANS: B PTS: 1 REF: Rev Ques 15

137. A decrease in pH may disrupt the functioning of an enzyme because:
- the enzyme must help out the bicarbonate buffer system
 - the active site becomes clogged with excess water
 - the substrate fits into the active site but cannot get out
 - excess hydrogen ions may block the active site

ANS: D PTS: 1 REF: Rev Ques 15

138. A synthesis reaction involves:
- | | |
|---------------------------|--------------------------------------|
| a. the formation of bonds | c. the release of energy |
| b. the breaking of bonds | d. the creation of smaller molecules |

ANS: A PTS: 1 REF: Rev Ques 16

139. A decomposition reaction involves:
- a. the creation of large molecules
 - b. the formation of bonds
 - c. the need for energy to create bonds
 - d. the breaking of bonds

ANS: D PTS: 1 REF: Rev Ques 16

140. A reaction in which the bonds of a large molecule are broken is called a:
- a. synthesis reaction
 - b. catalytic reaction
 - c. decomposition reaction
 - d. debonding reaction

ANS: C PTS: 1 REF: Rev Ques 16

141. A reaction in which smaller molecules are bonded to form larger ones is called a:
- a. composition reaction
 - b. synthesis reaction
 - c. thesis reaction
 - d. decomposition reaction

ANS: B PTS: 1 REF: Rev Ques 16

142. The type of reaction more likely to release energy is a:
- a. decomposition reaction
 - b. composition reaction
 - c. synthesis reaction
 - d. thesis reaction

ANS: A PTS: 1 REF: Rev Ques 16

143. With respect to the glucose molecule involved, cell respiration is a(n):
- a. synthesis reaction
 - b. decomposition reaction
 - c. thesis reaction
 - d. antithesis reaction

ANS: B PTS: 1 REF: Rev Ques 16