Human Physiology, 15e **(Fox)**
Chapter 2 Chemical Composition of the Body

1) Water makes up _____ of the total body weight of an average adult.
A) 50–60%
B) 55–65%
C) 60–70%
D) 65–75%

Answer: C
Section: 02.01
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C03.01 Discuss the physiologically important properties of water.

2) Most of the water found in the body is in the _____.
A) blood
B) intracellular fluid compartment
C) extracellular fluid compartment
D) blood and extracellular fluid compartment

Answer: B
Section: 02.01
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C03.01 Discuss the physiologically important properties of water.

3) Neutrons are uncharged particles found in the nucleus of an atom.

Answer: TRUE
Section: 02.01
Topic: Atoms and Molecules
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C01.01a Describe the charge, mass, and relative location of electrons, protons and neutrons with respect to the structure of an atom.

4) An element with 5 protons, 5 neutrons, and 5 electrons would have an atomic number of 15.

Answer: FALSE
Section: 02.01
Topic: Atoms and Molecules
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
HAPS Outcome: C01.01a Describe the charge, mass, and relative location of electrons, protons and neutrons with respect to the structure of an atom.

5) The atomic nucleus does NOT contain _____, which are negatively charged subatomic particles.
A) protons
B) electrons
C) neutrons

Answer: B
Section: 02.01
Topic: Atoms and Molecules
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C01.01a Describe the charge, mass, and relative location of electrons, protons and neutrons with respect to the structure of an atom.

6) An element with 11 neutrons, 11 protons, and 11 electrons would have a mass number of _____.
A) 11
B) 33
C) 22
D) 21

Answer: C
Section: 02.01
Topic: Atoms and Molecules
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C01.01d Distinguish among the terms atomic number, mass number and atomic weight with respect to the structure of an atom.

7) The _____ is the physical space that an electron occupies in an atom.
A) nucleus
B) orbital
C) energy level
D) Both orbital and energy level are correct.

Answer: D
Section: 02.01
Topic: Atoms and Molecules
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C01.01a Describe the charge, mass, and relative location of electrons, protons and neutrons with respect to the structure of an atom.

8) The _____ electrons are the outermost electrons of an atom.
A) kernel
B) valence
C) atomic
D) anion

Answer: B
Section: 02.01
Topic: Atoms and Molecules
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C01.01a Describe the charge, mass, and relative location of electrons, protons and neutrons with respect to the structure of an atom.

9) Isotopes have the same _____ number, but a different _____ number.
A) mass; atomic
B) neutron; mass
C) atomic; mass
D) atomic; proton

Answer: C
Section: 02.01
Topic: Atoms and Molecules
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C01.02 Compare and contrast the terms ions, electrolytes, free radicals, isotopes and radioisotopes.

10) Which of the following is NOT true of isotopes of a given atom?
A) They have the same number of neutrons.
B) They have the same number of protons.
C) They have different atomic masses.
D) All are not true regarding isotopes of a given atom.

Answer: A
Section: 02.01
Topic: Atoms and Molecules
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C01.02 Compare and contrast the terms ions, electrolytes, free radicals, isotopes and radioisotopes.

11) The term "chemical element" refers to the most common isotope of that element.

Answer: FALSE
Section: 02.01
Topic: Atoms and Molecules
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C01.03 Compare and contrast the terms atoms, molecules, elements, and compounds.

12) Which of the following subatomic particles have negligible mass?
A) Electrons
B) Neutrons
C) Protons
D) Both neutrons and protons are correct.

Answer: A
Section: 02.01
Topic: Atoms and Molecules
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C01.01a Describe the charge, mass, and relative location of electrons, protons and neutrons with respect to the structure of an atom.

13) Negatively charged ions will migrate towards the anode in an electrical field.

Answer: TRUE
Section: 02.01
Topic: Atoms and Molecules
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C01.01c Explain how ions and isotopes are produced by changing the relative number of specific subatomic particles with respect to the structure of an atom.

14) Hydrogen bonds form between the partially charged atoms of two polar molecules, such as the slightly positively charged hydrogen atom of one water molecule and the slightly negatively charged oxygen atom of another.

Answer: TRUE
Section: 02.01
Topic: Chemical Bonding
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

15) Atoms sharing a pair of electrons form covalent bonds.

Answer: TRUE
Section: 02.01
Topic: Chemical Bonding
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

16) When an atom loses one or more electrons, it _____.
A) becomes positively charged
B) becomes negatively charged
C) is called an anion
D) has no change in its charge

Answer: A
Section: 02.01
Topic: Atoms and Molecules
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C01.01c Explain how ions and isotopes are produced by changing the relative number of specific subatomic particles with respect to the structure of an atom.

17) When an atom gains one or more electrons, it _____.
A) becomes positively charged
B) has no change in its charge
C) is called an anion
D) is called a cation

Answer: C
Section: 02.01
Topic: Atoms and Molecules
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C01.01c Explain how ions and isotopes are produced by changing the relative number of specific subatomic particles with respect to the structure of an atom.

18) An atom with 5 protons, 5 neutrons, and 6 electrons would have a net charge of _____.
A) -1
B) -2
C) +1
D) +2

Answer: A
Section: 02.01
Topic: Atoms and Molecules
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
HAPS Outcome: C01.01c Explain how ions and isotopes are produced by changing the relative number of specific subatomic particles with respect to the structure of an atom.

19) The type of bond formed when atoms share electrons unequally is termed _____.
A) nonpolar covalent
B) ionic
C) polar covalent
D) van der Waals

Answer: C
Section: 02.01
Topic: Chemical Bonding
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

20) Hydration spheres can be formed by compounds which contain _____ bonds.
A) nonpolar covalent
B) polar covalent
C) ionic
D) Both polar covalent and ionic are correct.

Answer: D
Section: 02.01
Topic: Chemical Bonding
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

21) If a molecule containing primarily ionic bonds is placed in an aqueous solution, it is more likely to retain its structure than a molecule composed primarily of polar covalent bonds.

Answer: FALSE
Section: 02.01
Topic: Chemical Bonding
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
HAPS Outcome: C02.01a List each type of bond in order by relative strength with respect to non-polar covalent, polar covalent, ionic, and hydrogen bonds.

22) Hydrophobic molecules would contain _____ bonds.
A) nonpolar covalent
B) polar covalent
C) hydrogen
D) ionic

Answer: A
Section: 02.01
Topic: Chemical Bonding
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

23) Surface tension between water molecules occurs because adjacent water molecules form _____ bonds with each other.
A) nonpolar covalent
B) polar covalent
C) hydrogen
D) ionic

Answer: C
Section: 02.01
Topic: Chemical Bonding; Inorganic compounds and solutions
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C03.01 Discuss the physiologically important properties of water.; C02.01c Provide biologically significant examples of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

24) Bonds that are formed between oxygen and hydrogen atoms within water molecules are called _____.
A) hydrogen bonds
B) ionic bonds
C) nonpolar covalent bonds
D) polar covalent bonds

Answer: D
Section: 02.01
Topic: Chemical Bonding
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C03.01 Discuss the physiologically important properties of water.; C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

25) The type of bond found in sodium chloride is _____.
A) an ionic bond
B) a polar covalent bond
C) a hydrogen bond
D) a nonpolar covalent bond

Answer: A
Section: 02.01
Topic: Chemical Bonding
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
HAPS Outcome: C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.; C02.01c Provide biologically significant examples of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

26) What type of bond is formed between potassium and iodine?
A) Polar covalent bond
B) Ionic bond
C) Nonpolar covalent bond
D) Hydrogen bond

Answer: B
Section: 02.01
Topic: Chemical Bonding
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
HAPS Outcome: C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.; C02.01c Provide biologically significant examples of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

27) Which of the following would be most easily broken?
A) A hydrogen bond
B) A nonpolar covalent bond
C) An ionic bond
D) A polar covalent bond

Answer: A
Section: 02.01
Topic: Chemical Bonding
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C02.01a List each type of bond in order by relative strength with respect to non-polar covalent, polar covalent, ionic, and hydrogen bonds.

28) The pH of a solution is directly proportional to the hydrogen ion concentration of the solution.

Answer: FALSE
Section: 02.01
Topic: Inorganic compounds and solutions
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.

29) If a substance with a pH of 4 is added to a solution, the pH of that solution will decrease in proportion to the amount of hydrogen ions released into the solution.

Answer: TRUE
Section: 02.01
Topic: Inorganic compounds and solutions
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
HAPS Outcome: C03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.

30) Water molecules form _____ ions when they associate with a hydrogen ion.
A) hydroxide
B) bicarbonate
C) hydronium
D) water

Answer: C
Section: 02.01
Topic: Atoms and Molecules; Inorganic compounds and solutions
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C03.01 Discuss the physiologically important properties of water.; C03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.

31) A solution of a pH above 7 is called _____.
A) acidic
B) neutral
C) basic
D) isotonic

Answer: C
Section: 02.01
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C03.05 State acidic, neutral, and alkaline pH values.

32) Bases will _____ protons in a solution.
A) accept
B) donate
C) ignore
D) repel

Answer: A
Section: 02.01
Topic: Inorganic compounds and solutions
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
HAPS Outcome: C03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.

33) The primary buffer in the blood is the _____ buffer.
A) hydronium
B) ammonia
C) phosphate
D) bicarbonate

Answer: D
Section: 02.01
Topic: Inorganic compounds and solutions; Buffer systems and their roles in acid-base balance
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.

34) If an acid with a pH of 3 is added to a solution, yet the pH of the solution remains relatively stable, the solution must have contained bicarbonate.

Answer: TRUE
Section: 02.01
Topic: Inorganic compounds and solutions; Buffer systems and their roles in acid-base balance
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
HAPS Outcome: C03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.

35) The pH of a solution increases as the _____ ion concentration decreases.
A) hydrogen
B) hydroxide
C) bicarbonate
D) sodium

Answer: A
Section: 02.01
Topic: Inorganic compounds and solutions
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.

36) In an acidic solution, _____.
A) the OH^- ion concentration is greater than the H^+ ion concentration
B) the OH^- ion concentration is less than the H^+ ion concentration
C) the H^+ ion concentration is equal to the OH^- ion concentration
D) the H^+ ion concentration is less than the OH^- ion concentration only if the solution is buffered

Answer: B
Section: 02.01
Topic: Inorganic compounds and solutions
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.

37) A blood pH of 7.6 _____.
A) is indicative of acidosis
B) is indicative of alkalosis
C) is in the normal physiological range
D) indicates effective buffering by the bicarbonate/carbonic acid system

Answer: B
Section: 02.01
Topic: Inorganic compounds and solutions
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C03.05 State acidic, neutral, and alkaline pH values.

38) Regarding acids and bases, _____.
A) acids will increase the pH of a solution
B) bases will decrease the pH of a solution
C) acids will accept hydrogen ions in a solution
D) bases will accept hydrogen ions in a solution

Answer: D
Section: 02.01
Topic: Inorganic compounds and solutions
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.

39) Ammonia usually _____.
A) acts as a base
B) acts as an acid
C) acts as a buffer
D) ionizes to form a hydroxyl ion

Answer: A
Section: 02.01
Topic: Inorganic compounds and solutions
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.

40) Molecules that contain carbon and hydrogen atoms are _____.
A) ionic
B) inorganic
C) organic
D) carbonic

Answer: C
Section: 02.01
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.01 Define the term organic molecule.

41) Lactate is an example of an organic acid that has been ionized.

Answer: TRUE
Section: 02.01
Topic: Organic Compounds
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
HAPS Outcome: C04.01 Define the term organic molecule.

42) How many single bonds can a carbon atom form if it is double-bonded to an oxygen atom?
A) 1
B) 2
C) 3
D) 4

Answer: B
Section: 02.01
Topic: Chemical Bonding; Organic Compounds
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
HAPS Outcome: C01.01b Relate the number of electrons in an electron shell to an atoms chemical stability and its ability to form chemical bonds with respect to the structure of an atom.

43) A six-sided organic molecule with alternating double bonds is termed a(n) _____.
A) aromatic compound
B) ketone
C) alcohol
D) organic acid

Answer: A
Section: 02.01
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.01 Define the term organic molecule.

44) Ketones contain a(n) _____ group within the carbon chain.
A) hydroxyl
B) carbonyl
C) carboxyl
D) aromatic

Answer: B
Section: 02.01
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.01 Define the term organic molecule.

45) Organic acids will contain _____.
A) a carboxyl group
B) a carbonyl group
C) an amino group
D) a hydroxyl group

Answer: A
Section: 02.01
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.01 Define the term organic molecule.

46) An example of an aromatic substance is _____.
A) hexane
B) cyclohexane
C) fructose
D) benzene

Answer: D
Section: 02.01
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.01 Define the term organic molecule.

47) Molecules with the same atoms, in the same sequence, but arranged differently in space are called _____.
A) structural isomers
B) stereoisomers
C) functional groups
D) aromatic molecules

Answer: B
Section: 02.01
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.01 Define the term organic molecule.

48) Molecules that are mirror images of each other are _____.
A) enantiomers
B) geometric isomers
C) cis/trans isomers
D) structural isomers

Answer: A
Section: 02.01
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.01 Define the term organic molecule.

49) Fatty acids and glucose are the two primary, and preferred sources of energy to create ATP.

Answer: TRUE
Section: 02.02
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.

50) Glucose and lactose are structural isomers that can be used immediately by cells to create ATP.

Answer: FALSE
Section: 02.02
Topic: Organic Compounds
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

51) Molecules with the same ratio of atoms, but different arrangements of atoms, are known as _____.
A) isotopes
B) structural isomers
C) stereoisomers
D) radioactive isotopes

Answer: B
Section: 02.02
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.01 Define the term organic molecule.

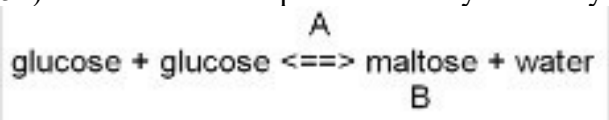
52) Covalent bonds are formed between monosaccharides through dehydration synthesis.

Answer: TRUE
Section: 02.02
Topic: Chemical Bonding
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.

53) The addition of water with the proper enzymes to a molecule is called _____.
A) dehydration synthesis
B) condensation
C) hydrolysis
D) combustion

Answer: C
Section: 02.02
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.

54) Which reaction represents a dehydration synthesis reaction?



A) Reaction A
B) Reaction B
C) Both Reaction A and Reaction B are correct.
D) Neither Reaction A nor Reaction B is correct.

Answer: A
Section: 02.02
Topic: Organic Compounds
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.

55) Sucrose is a disaccharide that is composed of _____ and _____.
A) glucose; glucose
B) glucose; galactose
C) glucose; fructose
D) fructose; galactose

Answer: C
Section: 02.02
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.; C04.04c Provide specific examples of carbohydrates, proteins, lipids and nucleic acids.

56) Which statement regarding glycogen is correct?
A) Glycogen contains more potential energy for humans than the carbohydrates found in starch.
B) Glycogen contains more potential energy for humans than cellulose.
C) Glycogen, but not cellulose, is a polysaccharide eaten and digested by humans.
D) Glycogen can be comprised of any monosaccharides.

Answer: A
Section: 02.02
Topic: Organic Compounds
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

57) An example of a monosaccharide is _____.
A) maltose
B) sucrose
C) glucose
D) glycogen

Answer: C
Section: 02.02
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

58) Despite being a more immediate source of energy for a cell, glucose must be stored as glycogen in order to prevent excess intracellular fluid from accumulating.

Answer: TRUE
Section: 02.02
Topic: Organic Compounds
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.

59) Which of the following is NOT a disaccharide?
A) Fructose
B) Sucrose
C) Maltose
D) Lactose

Answer: A
Section: 02.02
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

60) Which of the following molecules cannot be used as a source of energy for humans?
A) Glycogen
B) Cellulose
C) Triglycerides
D) Amino acids

Answer: B
Section: 02.02
Topic: Organic Compounds
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.; C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.

61) Unsaturated fatty acids contain more hydrogen atoms than saturated fatty acids of the same length.

Answer: FALSE
Section: 02.02
Topic: Organic Compounds
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.

62) If triglycerides are rapidly hydrolyzed in sufficient amounts, blood pH may increase as acidic ketone bodies are formed.

Answer: FALSE
Section: 02.02
Topic: Organic Compounds
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.; C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.

63) Steroids are derived from cholesterol.

Answer: TRUE
Section: 02.02
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.; C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.

64) In order to maintain proper health, total dietary fat intake should not exceed _____ calories for a 2000 calorie diet.
A) 100
B) 800
C) 600
D) 400

Answer: C
Section: 02.02
Topic: Organic Compounds; Introduction to nutrition
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.; C04.04d Identify dietary sources of carbohydrates, proteins, lipids and nucleic acids.

65) Which of the following is NOT a type of lipid?
A) Prostaglandins
B) Triglycerides
C) Cholesterol
D) Glycogen

Answer: D
Section: 02.02
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.; C04.04c Provide specific examples of carbohydrates, proteins, lipids and nucleic acids.

66) Lipids containing glycerol would include _____ and _____.
A) triglycerides; steroids
B) prostaglandins; phospholipids
C) triglycerides; phospholipids
D) steroids; prostaglandins

Answer: C
Section: 02.02
Topic: Organic Compounds
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

67) What molecules are liver-synthesized derivatives of free fatty acids that can be used as an immediate source of energy by many organs?
A) Glycerols
B) Ketone bodies
C) Steroids
D) Cholesterols

Answer: B
Section: 02.02
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.

68) Prostaglandins are a class of _____ that are involved in _____.
A) triglyceride; inflammation
B) carbohydrate; blood clotting
C) fatty acid; cell membrane integrity
D) fatty acid; blood clotting

Answer: D
Section: 02.02
Topic: Organic Compounds
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.; C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.

69) A molecule that is part polar and part nonpolar is called _____.
A) an enantiomer
B) a ketone body
C) unsaturated
D) amphipathic

Answer: D
Section: 02.02
Topic: Atoms and Molecules
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.

70) This group of organic compounds acts as surfactants.
A) Carbohydrates
B) Phospholipids
C) Nucleic acids
D) Prostaglandins

Answer: B
Section: 02.02
Topic: Organic Compounds
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.; C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.

71) In the formation of triglycerides, _____.
A) hydroxyl and carbonyl groups interact
B) amino and carbonyl groups interact
C) carboxyl and amino groups interact
D) carboxyl and hydroxyl groups interact

Answer: D
Section: 02.02
Topic: Organic Compounds
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.

72) Which of the following is false regarding unsaturated fatty acids?
A) They contain one or more double bonds.
B) They are found in cooking oil rather than a stick of butter.
C) All of their hydrogen ions are occupied in double bonds.
D) They can be formed from nuts and other plants.

Answer: C
Section: 02.02
Topic: Organic Compounds
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

73) Which of the following is NOT true of phospholipids?
A) They are glycolipids originally isolated from the prostate gland.
B) They are major components of the cell membrane.
C) They have a polar head and a nonpolar tail.
D) They are amphipathic molecules.

Answer: A
Section: 02.02
Topic: Organic Compounds
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

74) Ketosis _____.
A) occurs when stored fats are rapidly degraded by the body
B) stimulates an increased blood pH
C) may lead to alkalosis
D) occurs as the concentration of ketones in the urine decreases

Answer: A
Section: 02.02
Topic: Organic Compounds
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.

75) Which of the following describes a trans-fat?
A) Has carbon-carbon single bonds
B) Has carbon-carbon double bonds with hydrogens on opposite sides of the bonds
C) Has carbon-carbon double bonds with hydrogens on the same side of the bonds
D) The fatty acids form a bent chain

Answer: B
Section: 02.02
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04c Provide specific examples of carbohydrates, proteins, lipids and nucleic acids.; C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.

76) Which of the following is false regarding steroids?
A) They have three 6-carbon rings joined to one 5-carbon ring.
B) They contain a variety of functional groups.
C) They are derived from palmitate.
D) They differ in the position of the double covalent bonds between the carbon atoms in the rings.

Answer: C
Section: 02.02
Topic: Organic Compounds
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

77) Which of the following is NOT a derivative of cholesterol?
A) Corticosteroids
B) Vitamin D_3
C) Aldosterone
D) Insulin

Answer: D
Section: 02.02
Topic: Organic Compounds
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

78) Phospholipid molecules will form aggregates called _____ when placed in water.
A) surfactants
B) ketone bodies
C) prostaglandins
D) micelles

Answer: D
Section: 02.02
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.

79) What characteristic of phospholipids allows them to form the double layer seen in cell membranes?
A) They are amphipathic.
B) They are totally nonpolar.
C) They are soluble in water.
D) They are totally hydrophobic.

Answer: A
Section: 02.02
Topic: Membrane structure and function
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C07.01 Describe how lipids are distributed in a cell membrane, and explain their functions.; C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.

80) All amino acids contain carboxyl and amino groups.

Answer: TRUE
Section: 02.03
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

81) The specific sequence of amino acids in a polypeptide is known as the primary protein structure.

Answer: TRUE
Section: 02.03
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

82) _____ is a structural protein found in tendons and ligaments.
A) Collagen
B) Keratin
C) Myosin
D) Fibrin

Answer: A
Section: 02.03
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.; D03.04 Compare and contrast the roles of individual cell types and fiber types within connective tissue.

83) Peptide bonds are formed by the process of _____.
A) ketosis
B) hydrolysis
C) dehydration synthesis
D) aromatization

Answer: C
Section: 02.03
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.

84) The secondary structure of proteins is _____.
A) the linear arrangement of amino acids in the molecule
B) alpha helix coils and beta-pleated sheet folds of a protein strand
C) due to the interaction between protein subunits
D) stabilized when a protein is denatured

Answer: B
Section: 02.03
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

85) The primary structure of proteins is _____.
A) the linear arrangement of amino acids in the molecule
B) alpha helix coils and beta-pleated sheet folds of a protein strand
C) due to the interaction between protein subunits
D) stabilized when a protein is denatured

Answer: A
Section: 02.03
Topic: Organic Compounds
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

86) The subunit of protein is the _____.
A) fatty acid
B) nucleic acid
C) amino acid
D) carboxylic acid

Answer: C
Section: 02.03
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

87) What holds a protein in its tertiary structure?
A) Hydrogen bonds between nearby amino acids
B) Weak chemical bonds between widely spaced amino acids
C) Disulfide bonds between sulfur groups on cysteines
D) Both weak chemical bonds between widely spaced amino acids and disulfide bonds between sulfur groups on cysteines are correct.

Answer: D
Section: 02.03
Topic: Organic Compounds
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

88) How many amino acids are present for a polypeptide chain to be called a protein?
A) 3
B) 30
C) 50
D) 100

Answer: D
Section: 02.03
Topic: Organic Compounds
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

89) The specific shape of a protein determines its function.

Answer: TRUE
Section: 02.03
Topic: Organic Compounds
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

90) A protein that is combined with another type of molecule, such as a carbohydrate, becomes _____.
A) conjugated
B) denatured
C) hydrolyzed
D) complemented

Answer: A
Section: 02.03
Topic: Organic Compounds
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.

91) Which of the following is NOT a function of proteins in the body?
A) Carriers for membrane transport
B) Enzymes
C) Compose genes
D) Receptors for regulator molecules

Answer: C
Section: 02.03
Topic: Organic Compounds
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.

92) Keratin and collagen are considered _____ proteins.
A) functional
B) structural
C) fibrous
D) Both structural and fibrous are correct.

Answer: D
Section: 02.03
Topic: Organic Compounds
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.; C04.04c Provide specific examples of carbohydrates, proteins, lipids and nucleic acids.

93) In DNA, cytosine forms a complementary base pair with adenine.

Answer: FALSE
Section: 02.04
Topic: Nucleic acids: DNA and RNA
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

94) The nitrogenous base adenine is a _____.
A) purine
B) pyrimidine
C) steroid
D) prostaglandin

Answer: A
Section: 02.04
Topic: Nucleic acids: DNA and RNA
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

95) Which of the following is NOT a component of DNA?
A) Phosphate
B) Deoxyribose sugar
C) Guanine
D) Uracil

Answer: D
Section: 02.04
Topic: Nucleic acids: DNA and RNA
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

96) The "spiral staircase" structure of DNA is referred to as the _____.
A) tertiary structure
B) spiral structure
C) double helix
D) twist of life

Answer: C
Section: 02.04
Topic: Nucleic acids: DNA and RNA
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.

97) Which of the following is NOT one of the three types of RNA?
A) dRNA
B) tRNA
C) rRNA
D) mRNA

Answer: A
Section: 02.04
Topic: Nucleic acids: DNA and RNA
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C10.03 Explain the roles of tRNA, mRNA, and rRNA in protein synthesis.; C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

98) The base that is NOT found in RNA is _____.
A) thymine
B) guanine
C) cytosine
D) uracil

Answer: A
Section: 02.04
Topic: Nucleic acids: DNA and RNA
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.

99) Which of the following is NOT a difference between DNA and RNA?
A) They have different sugars.
B) RNA is a single strand, while DNA is a double strand.
C) DNA has thymine, while RNA has uracil.
D) They both can leave the nucleus to perform their functions.

Answer: D
Section: 02.04
Topic: Nucleic acids: DNA and RNA
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.

100) The backbone of a DNA molecule is a chain of _____.
A) alternating deoxyribose sugar and phosphate
B) alternating phosphate and nitrogen
C) alternating nitrogenous bases
D) alternating deoxyribose and ribose sugars

Answer: A
Section: 02.04
Topic: Nucleic acids: DNA and RNA
Bloom's: 1. Remember
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.

101) Which of the following is NOT a function of a purine-containing nucleotide?
A) Neurotransmitter
B) Hormone
C) Energy carrier
D) Coenzymes

Answer: B
Section: 02.04
Topic: Nucleic acids: DNA and RNA
Bloom's: 1. Remember; 2. Understand
Accessibility: Keyboard Navigation
HAPS Outcome: C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.