Mader's Understanding Human Anatomy & Physiology 10th edition Longenbaker Test Bank

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Mader's Understanding Human Anatomy & Physiology, 10e **(Longenbaker)**
Chapter 2 Chemistry of Life

1) The smallest unit of matter that enters into chemical reactions is the
A) molecule.
B) atom.
C) compound.
D) neutrino.

Answer: B
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.01 Describe how an atom is organized, and tell why atoms interact
HAPS Objective: C.01.03 Compare and contrast the terms atoms, molecules, elements, and compounds.

2) An element is any substance that contains one type of
A) molecule.
B) isotope.
C) atom.
D) proton.

Answer: C
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.01 Describe how an atom is organized, and tell why atoms interact
HAPS Objective: C.01.03 Compare and contrast the terms atoms, molecules, elements, and compounds.

3) Over 90% of the body is composed of four elements: carbon, nitrogen, chlorine, and hydrogen.

Answer: FALSE
Explanation: The four most common elements in the body are: carbon, nitrogen, oxygen, and hydrogen.
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.01 Describe how an atom is organized, and tell why atoms interact
HAPS Objective: C.01.03 Compare and contrast the terms atoms, molecules, elements, and compounds.

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4) The positively charged particles in the nucleus of an atom are
A) neutrons.
B) electrons.
C) protons.
D) isotopes.

Answer: C
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.01 Describe how an atom is organized, and tell why atoms interact
HAPS Objective: C.01.01a Describe the charge, mass, and relative location of electrons, protons and neutrons with respect to the structure of an atom

5) The atomic mass of a proton is
A) 0 atomic mass units.
B) 2 atomic mass units.
C) 1 atomic mass unit.
D) –1 atomic mass unit.

Answer: C
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.01 Describe how an atom is organized, and tell why atoms interact
HAPS Objective: C.01.01d Distinguish among the terms atomic number, mass number and atomic weight with respect to the structure of an atom

6) Which of the following subatomic particles are found in the nucleus of an atom?
A) Protons and electrons
B) Electrons and neutrons
C) Protons and shells
D) Neutrons and protons

Answer: D
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.01 Describe how an atom is organized, and tell why atoms interact
HAPS Objective: C.01.01a Describe the charge, mass, and relative location of electrons, protons and neutrons with respect to the structure of an atom

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7) The number of protons in an atom is called the
A) atomic number.
B) atomic weight.
C) mass number.
D) combining weight.

Answer: A
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.01 Describe how an atom is organized, and tell why atoms interact
HAPS Objective: C.01.01a Describe the charge, mass, and relative location of electrons, protons and neutrons with respect to the structure of an atom

8) The shells or orbitals around the nucleus of an atom are also known as
A) energy levels.
B) Golgi radii.
C) satellites.
D) resonance particles.

Answer: A
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.01 Describe how an atom is organized, and tell why atoms interact
HAPS Objective: C.01.01a Describe the charge, mass, and relative location of electrons, protons and neutrons with respect to the structure of an atom

9) The number of _____ determines the identity of an atom.
A) neutrons
B) protons
C) electrons
D) prions

Answer: B
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.01 Describe how an atom is organized, and tell why atoms interact
HAPS Objective: C.01.01a Describe the charge, mass, and relative location of electrons, protons and neutrons with respect to the structure of an atom; C.01.01d Distinguish among the terms atomic number, mass number and atomic weight with respect to the structure of an atom

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10) The number of _____ determines the chemical activity of an atom.
A) neutrons
B) protons
C) electrons
D) prions

Answer: C
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.01 Describe how an atom is organized, and tell why atoms interact
HAPS Objective: C.01.01b Relate the number of electrons in an electron shell to an atoms chemical stability and its ability to form chemical bonds.

11) Which best describes an ion?
A) Contains an unequal number of electrons and protons
B) Contains a different number of neutrons
C) Contains more protons than neutrons
D) Contains equal numbers of protons, electrons, and neutrons

Answer: A
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.01 Describe how an atom is organized, and tell why atoms interact
HAPS Objective: C.01.01c Explain how ions and isotopes are produced by changing the relative number of specific subatomic particles with respect to the structure of an atom

12) The mass number of an element is equal to the number of
A) protons plus the number of neutrons.
B) protons plus the number of electrons.
C) protons.
D) electrons plus the number of neutrons.

Answer: A
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.01 Describe how an atom is organized, and tell why atoms interact
HAPS Objective: C.01.01d Distinguish among the terms atomic number, mass number and atomic weight with respect to the structure of an atom

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13) An atom or group of atoms with a charge is called a(n)
A) molecule.
B) isotope.
C) compound.
D) ion.

Answer: D
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.03 Distinguish between an ionic bond and a covalent bond.
HAPS Objective: C.01.02 Compare and contrast the terms ions, electrolytes, free radicals, isotopes and radioisotopes

14) Irregular heartbeats (arrhythmias) have been known to be related to abnormal levels of which ion?
A) Bicarbonate
B) Peroxide
C) Chloride
D) Potassium

Answer: D
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.03 Distinguish between an ionic bond and a covalent bond.
HAPS Objective: C.03.03 3. Define the term salt and give examples of physiological significance

15) Atoms with more than one shell are most stable when the outermost shell contains _____ electrons.
A) 10
B) 1
C) 8
D) 6

Answer: C
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.01 Describe how an atom is organized, and tell why atoms interact
HAPS Objective: C.01.01b Relate the number of electrons in an electron shell to an atoms chemical stability and its ability to form chemical bonds.

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16) Exactly 6.02 x 10^{23} atoms of any element is called one _____ of that element.
A) atomic mass unit
B) isotope
C) mole
D) mouse

Answer: C
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.01 Describe how an atom is organized, and tell why atoms interact
HAPS Objective: C.01.01d Distinguish among the terms atomic number, mass number and atomic weight with respect to the structure of an atom

17) Different forms of the same element with different numbers of neutrons are called
A) molecules.
B) compounds.
C) isotopes.
D) lattices.

Answer: C
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.02 Define radioactive isotopes, and describe how they can be used in the diagnosis and treatment of disease
HAPS Objective: C.01.01c 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) If the atomic number of an element is 9 and the mass number is 19, how many neutrons does the atom have?
A) 10
B) 9
C) 19
D) 28

Answer: A
Section: 02.02
Topic: Atoms and molecules
Bloom's: 3. Apply
Learning Outcome: 02.01 Describe how an atom is organized, and tell why atoms interact
HAPS Objective: C.01.01c Explain how ions and isotopes are produced by changing the relative number of specific subatomic particles with respect to the structure of an atom; C.01.01d Distinguish among the terms atomic number, mass number and atomic weight with respect to the structure of an atom

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19) If the atomic number of an element is 27 and the mass number is 60, how many neutrons does the atom have?
A) 27
B) 33
C) 87
D) 60

Answer: B
Section: 02.01
Topic: Atoms and molecules
Bloom's: 3. Apply
Learning Outcome: 02.02 Define radioactive isotopes, and describe how they can be used in the diagnosis and treatment of disease
HAPS Objective: C.01.01d Distinguish among the terms atomic number, mass number and atomic weight with respect to the structure of an atom

20) Compared to stable isotopes, radioactive isotopes
A) emit energy.
B) lose or gain neutrons.
C) lose or gain electrons.

Answer: A
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.02 Define radioactive isotopes, and describe how they can be used in the diagnosis and treatment of disease
HAPS Objective: C.01.02 Compare and contrast the terms ions, electrolytes, free radicals, isotopes and radioisotopes

21) Low levels of radiation can effectively
A) sterilize dental products.
B) destroy cancer cells.
C) serve as tracers to detect cellular changes.
D) sterilize postal deliveries.

Answer: C
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.02 Define radioactive isotopes, and describe how they can be used in the diagnosis and treatment of disease
HAPS Objective: C.01.02 Compare and contrast the terms ions, electrolytes, free radicals, isotopes and radioisotopes

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22) What makes an isotope radioactive?
A) It has more protons than electrons.
B) It releases energy to become stable.
C) It releases hydrogen ions into solution.
D) It breaks down into hydrogen and electrons.

Answer: B
Section: 02.01
Topic: Atoms and molecules
Bloom's: 2. Understand
Learning Outcome: 02.02 Define radioactive isotopes, and describe how they can be used in the diagnosis and treatment of disease
HAPS Objective: C.01.02 Compare and contrast the terms ions, electrolytes, free radicals, isotopes and radioisotopes

23) Chemically, a radioactive isotope behaves the same way as the stable isotopes of a given element.

Answer: TRUE
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.02 Define radioactive isotopes, and describe how they can be used in the diagnosis and treatment of disease
HAPS Objective: C.01.02 Compare and contrast the terms ions, electrolytes, free radicals, isotopes and radioisotopes

24) The chemical unit formed when atoms bond together is called a(n)
A) molecule.
B) ion.
C) isotope.
D) buffer.

Answer: A
Section: 02.01
Topic: Atoms and molecules; Chemical bonding
Bloom's: 1. Remember
Learning Outcome: 02.03 Distinguish between an ionic bond and a covalent bond.
HAPS Objective: C.01.03 Compare and contrast the terms atoms, molecules, elements, and compounds.

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25) High levels of radiation are NOT used
A) to sterilize medical equipment.
B) to kill cancer cells.
C) as tracers to detect molecular changes.

Answer: C
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.02 Define radioactive isotopes, and describe how they can be used in the diagnosis and treatment of disease
HAPS Objective: C.01.02 Compare and contrast the terms ions, electrolytes, free radicals, isotopes and radioisotopes

26) Molecules often form from
A) the shape of the individual atoms.
B) the attraction between electrons.
C) the sharing of electrons.
D) a drive toward solubility.

Answer: C
Section: 02.01
Topic: Chemical bonding
Bloom's: 1. Remember
Learning Outcome: 02.03 Distinguish between an ionic bond and a covalent bond.
HAPS Objective: C.02.01b Explain the mechanism of each type of bond With respect to non-polar covalent, polar covalent, ionic, and hydrogen bonds

27) A molecule made of two or more different atoms bonded together is called a(n)
A) ion.
B) isotope.
C) atom.
D) compound.

Answer: D
Section: 02.01
Topic: Atoms and molecules; Chemical bonding
Bloom's: 1. Remember
Learning Outcome: 02.03 Distinguish between an ionic bond and a covalent bond.
HAPS Objective: C.01.03 Compare and contrast the terms atoms, molecules, elements, and compounds.

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28) An anion is an atom or molecule that
A) is positively charged.
B) is negatively charged.
C) emits radioactive energy.

Answer: B
Section: 02.01
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.01 Describe how an atom is organized, and tell why atoms interact
HAPS Objective: C.01.02 Compare and contrast the terms ions, electrolytes, free radicals, isotopes and radioisotopes

29) A bond created from the attraction between positively and negatively charged ions is a(n) _____ bond.
A) covalent
B) hydrogen
C) ionic
D) metallic

Answer: C
Section: 02.01
Topic: Chemical bonding
Bloom's: 1. Remember
Learning Outcome: 02.03 Distinguish between an ionic bond and a covalent bond.
HAPS Objective: C.02.01b Explain the mechanism of each type of bond With respect to non-polar covalent, polar covalent, ionic, and hydrogen bonds

30) Sodium chloride dissociates when dissolved in water. Therefore, it is considered a _____.
A) salt
B) compound
C) acid
D) base

Answer: A
Section: 02.01
Topic: Chemical bonding
Bloom's: 1. Remember
Learning Outcome: 02.03 Distinguish between an ionic bond and a covalent bond.
HAPS Objective: C.03.03 Define the term salt and give examples of physiological significance.

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31) A bond created from the sharing of electrons between two atoms is a(n) _____ bond.
A) covalent
B) hydrogen
C) ionic
D) metallic

Answer: A
Section: 02.01
Topic: Chemical bonding
Bloom's: 1. Remember
Learning Outcome: 02.03 Distinguish between an ionic bond and a covalent bond.
HAPS Objective: C.02.01b Explain the mechanism of each type of bond With respect to non-polar covalent, polar covalent, ionic, and hydrogen bonds

32) When two pairs of electrons are shared between two atoms, a _____ bond is formed.
A) single covalent
B) double covalent
C) quadruple ionic
D) double ionic

Answer: B
Section: 02.01
Topic: Chemical bonding
Bloom's: 1. Remember
Learning Outcome: 02.03 Distinguish between an ionic bond and a covalent bond.
HAPS Objective: C.02.01b Explain the mechanism of each type of bond With respect to non-polar covalent, polar covalent, ionic, and hydrogen bonds

33) When one atom has a stronger attraction for shared electrons than the other atom, a(n) _____ covalent bond is formed.
A) polar
B) nonpolar
C) ionic
D) metallic

Answer: A
Section: 02.01
Topic: Chemical bonding
Bloom's: 1. Remember
Learning Outcome: 02.03 Distinguish between an ionic bond and a covalent bond.
HAPS Objective: C.02.01b Explain the mechanism of each type of bond With respect to non-polar covalent, polar covalent, ionic, and hydrogen bonds

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34) Ionic bonds involve _____, while covalent bonds involve _____.
A) the transfer of electrons; the sharing of electrons
B) the sharing of electrons; the donation of electrons
C) weak attractions; the donation of electrons
D) swapping of electrons for protons; weak attractions

Answer: A
Section: 02.01
Topic: Chemical bonding
Bloom's: 1. Remember
Learning Outcome: 02.03 Distinguish between an ionic bond and a covalent bond.
HAPS Objective: C.02.01b Explain the mechanism of each type of bond With respect to non-polar covalent, polar covalent, ionic, and hydrogen bonds

35) Equal sharing of electrons is a characteristic of a _____ covalent bond, while unequal sharing is in a _____ bond.
A) polar; nonpolar
B) nonpolar; polar

Answer: B
Section: 02.01
Topic: Chemical bonding
Bloom's: 1. Remember
Learning Outcome: 02.03 Distinguish between an ionic bond and a covalent bond.
HAPS Objective: C.02.01b Explain the mechanism of each type of bond With respect to non-polar covalent, polar covalent, ionic, and hydrogen bonds

36) The most abundant molecule in living organisms is
A) water.
B) glucose.
C) oxygen.
D) ammonia.

Answer: A
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Learning Outcome: 02.04 Describe the characteristics of water and three functions of water in the human body.
HAPS Objective: C.03.01 Discuss the physiologically important properties of water.

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37) Organic compounds always contain _____ atoms.
A) water
B) carbon
C) nitrogen
D) oxygen

Answer: B
Section: 02.02
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.07 List the four classes of macromolecules in cells, and distinguish between a dehydration reaction and a hydrolysis reaction.
HAPS Objective: C.04.04b Compare and contrast general molecular structure With respect to carbohydrates, proteins, lipids and, nucleic acids

38) Water molecules are
A) polar.
B) nonpolar.

Answer: A
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Learning Outcome: 02.04 Describe the characteristics of water and three functions of water in the human body.
HAPS Objective: C.03.01 Discuss the physiologically important properties of water.

39) The attraction between a slightly positive hydrogen to a slightly negative oxygen of another molecule describes a(n) _____ bond.
A) hydrogen
B) oxygen
C) nitrogen
D) ionic

Answer: A
Section: 02.02
Topic: Chemical bonding
Bloom's: 1. Remember
Learning Outcome: 02.04 Describe the characteristics of water and three functions of water in the human body.
HAPS Objective: C.02.01b Explain the mechanism of each type of bond With respect to non-polar covalent, polar covalent, ionic, and hydrogen bonds

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40) Which of the following is NOT a property of water?
A) High heat capacity
B) Low heat of vaporization
C) Solvent for polar and ionic compounds
D) Cohesiveness

Answer: B
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Learning Outcome: 02.04 Describe the characteristics of water and three functions of water in the human body.
HAPS Objective: C.03.01 Discuss the physiologically important properties of water.

41) Which of the following is NOT a property of water?
A) The ability to cling to other water molecules, yet flow
B) The ability to facilitate chemical reactions
C) The ability to insulate the body from temperature extremes
D) The ability to dissolve nonpolar, hydrophobic molecules

Answer: D
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Learning Outcome: 02.04 Describe the characteristics of water and three functions of water in the human body.
HAPS Objective: C.03.01 Discuss the physiologically important properties of water.

42) Substances that dissolve in water are called
A) hydrophilic.
B) hydrophobic.
C) hydrophoric.
D) hydrochromic.

Answer: A
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Learning Outcome: 02.04 Describe the characteristics of water and three functions of water in the human body.
HAPS Objective: C.03.01 Discuss the physiologically important properties of water.

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43) The ability of water molecules to cling to each other is _____, while the ability to cling to other surfaces is _____.
A) cohesion; adhesion
B) dissolving; vaporization
C) adhesion; cohesion
D) cohesion; dissolving

Answer: A
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Learning Outcome: 02.04 Describe the characteristics of water and three functions of water in the human body.
HAPS Objective: C.03.01 Discuss the physiologically important properties of water.

44) The ability of water to absorb large amounts of heat energy without changing its temperature is a
A) low specific heat capacity.
B) low heat of vaporization.
C) high specific heat capacity.
D) high heat of vaporization.

Answer: C
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Learning Outcome: 02.04 Describe the characteristics of water and three functions of water in the human body.
HAPS Objective: C.03.01 Discuss the physiologically important properties of water.

45) A substance that dissociates in water, releasing hydrogen ions, is a(n)
A) salt.
B) base.
C) protein.
D) acid.

Answer: D
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Learning Outcome: 02.05 Explain the difference between an acid and a base using examples.
HAPS Objective: C.03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.

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46) A substance that can take up hydrogen ions or release hydroxide ions in water is a(n)
A) salt.
B) base.
C) protein.
D) acid.

Answer: B
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Learning Outcome: 02.05 Explain the difference between an acid and a base using examples.
HAPS Objective: C.03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.

47) Hydrochloric acid is considered a strong acid because it
A) produces very few hydrogen ions in water.
B) produces many hydroxide ions in water.
C) produces many hydrogen ions in water.
D) dissociates very little in water.

Answer: C
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 2. Understand
Learning Outcome: 02.05 Explain the difference between an acid and a base using examples.
HAPS Objective: C.03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.

48) A weak base will accept many hydrogen ions, while a strong base will accept only a few hydrogen ions.

Answer: FALSE
Explanation: A strong base will accept many hydrogen ions.
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 2. Understand
Learning Outcome: 02.05 Explain the difference between an acid and a base using examples.
HAPS Objective: C.03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.

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49) The lower the pH,
A) the lesser the hydrogen ion concentration.
B) the more acidic the solution.
C) the lesser the hydrogen ion concentration and the more acidic the solution.
D) the greater the hydroxide ion concentration.
E) the more basic the solution and the greater the hydroxide ion concentration.

Answer: B
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Learning Outcome: 02.06 Use and understand the pH scale.
HAPS Objective: C.03.05 State acidic, neutral, and alkaline pH values.

50) The pH of the blood is slightly basic. Which of the following describes this pH?
A) 6.4
B) 12.6
C) 4.7
D) 7.4

Answer: D
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Learning Outcome: 02.06 Use and understand the pH scale.
HAPS Objective: C.03.05 State acidic, neutral, and alkaline pH values.

51) A pH of 5.5 would be considered
A) acidic.
B) basic.
C) neutral.

Answer: A
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Learning Outcome: 02.06 Use and understand the pH scale.
HAPS Objective: C.03.05 State acidic, neutral, and alkaline pH values.

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52) A pH of 7.0 would be considered
A) acidic.
B) basic.
C) neutral.

Answer: C
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Learning Outcome: 02.06 Use and understand the pH scale.
HAPS Objective: C.03.05 State acidic, neutral, and alkaline pH values.

53) Compared to a solution with a pH of 7, a solution with a pH of 5 would have a concentration of H^+ that is
A) two times higher.
B) one hundred times higher.
C) two times lower.
D) two hundred times lower.

Answer: B
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 3. Apply
Learning Outcome: 02.06 Use and understand the pH scale.
HAPS Objective: C.03.05 State acidic, neutral, and alkaline pH values.

54) A blood pH of 7.2 would be considered _____, while a pH of 7.6 would be _____.
A) acidosis; alkalosis
B) alkalosis; acidosis
C) acidosis; normal
D) alkalosis; hyperalkalosis
E) Both values are within the normal range.

Answer: A
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Learning Outcome: 02.06 Use and understand the pH scale.
HAPS Objective: C.03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.; C.03.05 State acidic, neutral, and alkaline pH values.

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55) Chemicals that help keep body fluids within a normal pH range are called
A) acids.
B) bases.
C) buffers.
D) salts.

Answer: C
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Learning Outcome: 02.06 Use and understand the pH scale.
HAPS Objective: C.03.05 State acidic, neutral, and alkaline pH values.

56) Orange juice is acidic. When people drink orange juice and the acid enters their blood, the extra hydrogen ions combine with _____, providing a helpful buffer.
A) hemoglobin
B) calcium
C) bicarbonate
D) hydrochloric acid

Answer: C
Section: 02.02
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.06 Use and understand the pH scale.
HAPS Objective: C.03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.

57) An electrolyte is a substance that releases _____ when dissolved in water.
A) ions
B) electrons
C) bases

Answer: A
Section: 02.02
Topic: Inorganic compounds and solutions
Bloom's: 1. Remember
Learning Outcome: 02.06 Use and understand the pH scale.
HAPS Objective: C.01.02 Compare and contrast the terms ions, electrolytes, free radicals, isotopes and radioisotopes; C.03.03 Define the term salt and give examples of physiological significance.

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58) Which four are the main macromolecules found in cells?
A) Proteins
B) Water
C) Carbohydrates
D) Nucleic acids
E) Lipids

Answer: A, C, D, E
Section: 02.03
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.07 List the four classes of macromolecules in cells, and distinguish between a dehydration reaction and a hydrolysis reaction.
HAPS Objective: C.04.04a Identify the monomers and polymers With respect to carbohydrates, proteins, lipids and, nucleic acids

59) Which pair does NOT correctly match a macromolecule with its monomer?
A) carbohydrate - monosaccharide
B) lipid - citric acid
C) protein - amino acid
D) nucleic acid - nucleotide

Answer: B
Section: 02.03
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.08 Name the individual subunits that comprise carbohydrates, lipids, proteins, and nucleic acids.
HAPS Objective: C.04.04a Identify the monomers and polymers With respect to carbohydrates, proteins, lipids and, nucleic acids

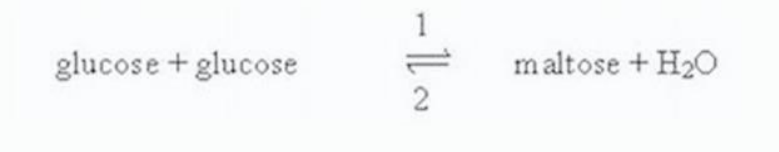
60) The subunit molecules for proteins are
A) nucleic acids.
B) amino acids.
C) fatty acids.
D) monosaccharides.

Answer: B
Section: 02.03
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.08 Name the individual subunits that comprise carbohydrates, lipids, proteins, and nucleic acids.
HAPS Objective: C.04.04a Identify the monomers and polymers With respect to carbohydrates, proteins, lipids and, nucleic acids

61) Which arrow in the following equation represents dehydration?

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A) Arrow 1
B) Arrow 2

Answer: A
Section: 02.03
Topic: Organic compounds
Bloom's: 2. Understand
Learning Outcome: 02.07 List the four classes of macromolecules in cells, and distinguish between a dehydration reaction and a hydrolysis reaction.
HAPS Objective: C.04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.

62) The addition of water in an enzyme-catalyzed reaction is a(n) _____ reaction.
A) dehydration
B) hydrolysis
C) exchange
D) neutralization

Answer: B
Section: 02.03
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.07 List the four classes of macromolecules in cells, and distinguish between a dehydration reaction and a hydrolysis reaction.
HAPS Objective: C.04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.

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63) When two hydrogen atoms and one oxygen atom are removed from adjacent monomers, the overall chemical reaction results in
A) hydrolysis.
B) forming an acid.
C) methyl exchange.
D) dehydration synthesis.

Answer: D
Section: 02.03
Topic: Organic compounds
Bloom's: 2. Understand
Learning Outcome: 02.07 List the four classes of macromolecules in cells, and distinguish between a dehydration reaction and a hydrolysis reaction.
HAPS Objective: C.04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.; C.04.02 Explain the relationship between monomers and polymers.

64) The main function of carbohydrates is to provide
A) cellular energy.
B) insulation.
C) transport molecules.
D) hereditary information.

Answer: A
Section: 02.04
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.09 Give some examples of different types of carbohydrates and their specific functions in cells.
HAPS Objective: C.04.04e Discuss physiological and structural roles in the human body With respect to carbohydrates, proteins, lipids and, nucleic acids

65) A monosaccharide of five carbons is a
A) hexose sugar.
B) glycerol.
C) fatty acid.
D) pentose sugar.

Answer: D
Section: 02.04
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.09 Give some examples of different types of carbohydrates and their specific functions in cells.
HAPS Objective: C.04.04a Identify the monomers and polymers With respect to carbohydrates, proteins, lipids and, nucleic acids; C.04.04c Provide specific examples With respect to carbohydrates, proteins, lipids and, nucleic acids

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66) The monomer of carbohydrates is a
A) nucleotide.
B) fatty acid.
C) monosaccharide.
D) amino acid.

Answer: C
Section: 02.04
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.09 Give some examples of different types of carbohydrates and their specific functions in cells.
HAPS Objective: C.04.04a Identify the monomers and polymers With respect to carbohydrates, proteins, lipids and, nucleic acids

67) Which of the following is NOT a monosaccharide?
A) Glucose
B) Fructose
C) Sucrose
D) Galactose

Answer: C
Section: 02.04
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.09 Give some examples of different types of carbohydrates and their specific functions in cells.
HAPS Objective: C.04.04c Provide specific examples With respect to carbohydrates, proteins, lipids and, nucleic acids

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

Answer: B
Section: 02.04
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.09 Give some examples of different types of carbohydrates and their specific functions in cells.
HAPS Objective: C.04.04c Provide specific examples With respect to carbohydrates, proteins, lipids and, nucleic acids

69) Which of the following contains many units of glucose?
A) Protein

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B) Fat
C) Nucleic acid
D) Starch

Answer: D
Section: 02.04
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.09 Give some examples of different types of carbohydrates and their specific functions in cells.
HAPS Objective: C.04.04a Identify the monomers and polymers With respect to carbohydrates, proteins, lipids and, nucleic acids

70) Glycogen is
A) a monosaccharide used for quick energy.
B) a protein found in cell membranes.
C) a polysaccharide used as stored energy in animals.
D) a fat found in margarine.

Answer: C
Section: 02.04
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.09 Give some examples of different types of carbohydrates and their specific functions in cells.
HAPS Objective: C.04.04c Provide specific examples With respect to carbohydrates, proteins, lipids and, nucleic acids

71) Which are characteristics of starch? Choose all that apply.
A) It is a polysaccharide.
B) It is a disaccharide.
C) It is found in plants.
D) It is found in animals.

Answer: A, C
Section: 02.04
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.09 Give some examples of different types of carbohydrates and their specific functions in cells.
HAPS Objective: C.04.04c Provide specific examples With respect to carbohydrates, proteins, lipids and, nucleic acids

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72) Which of the following is the main component of fiber in our diet?
A) Glycogen
B) Protein
C) Cellulose
D) Starch

Answer: C
Section: 02.04
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.09 Give some examples of different types of carbohydrates and their specific functions in cells.
HAPS Objective: C.04.04c Provide specific examples With respect to carbohydrates, proteins, lipids and, nucleic acids; C.04.04e Discuss physiological and structural roles in the human body With respect to carbohydrates, proteins, lipids and, nucleic acids

73) Which class of organic compounds is most consistently insoluble in water?
A) Sugars
B) Lipids
C) Nucleotides
D) Proteins

Answer: B
Section: 02.05
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.10 Describe the composition of a neutral fat, and give examples of how lipids function in the body.
HAPS Objective: C.04.04b Compare and contrast general molecular structure With respect to carbohydrates, proteins, lipids and, nucleic acids

74) Which of the following is NOT a function of lipids?
A) Long-term energy storage
B) Formation of antibodies
C) Formation of cell membranes
D) Component of sex hormones

Answer: B
Section: 02.05
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.10 Describe the composition of a neutral fat, and give examples of how lipids function in the body.
HAPS Objective: C.04.04e Discuss physiological and structural roles in the human body With respect to carbohydrates, proteins, lipids and, nucleic acids

75) Fats are usually liquid at room temperature and oils are solids.

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Answer: FALSE
Explanation: Fats are usually solid at room temperature and oils are liquid.
Section: 02.05
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.10 Describe the composition of a neutral fat, and give examples of how lipids function in the body.
HAPS Objective: C.04.04b Compare and contrast general molecular structure With respect to carbohydrates, proteins, lipids and, nucleic acids

76) Which type of macromolecule is composed of one glycerol plus three fatty acids?
A) Neutral fat
B) Phospholipid
C) Nucleic acid
D) Protein
E) Bile

Answer: A
Section: 02.05
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.10 Describe the composition of a neutral fat, and give examples of how lipids function in the body.
HAPS Objective: C.04.04a Identify the monomers and polymers With respect to carbohydrates, proteins, lipids and, nucleic acids; C.04.04b Compare and contrast general molecular structure With respect to carbohydrates, proteins, lipids and, nucleic acids

77) The process that allows fats to mix with water, particularly so digestion can occur, is called
A) hydrolysis.
B) degradation.
C) dehydration.
D) emulsification.

Answer: D
Section: 02.05
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.10 Describe the composition of a neutral fat, and give examples of how lipids function in the body.
HAPS Objective: C.04.04e Discuss physiological and structural roles in the human body With respect to carbohydrates, proteins, lipids and, nucleic acids

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78) When fatty acids contain one or more double bonds, they are considered
A) saturated.
B) unsaturated.
C) emulsified.
D) synthesized.

Answer: B
Section: 02.05
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.10 Describe the composition of a neutral fat, and give examples of how lipids function in the body.
HAPS Objective: C.04.04a Identify the monomers and polymers With respect to carbohydrates, proteins, lipids and, nucleic acids

79) What makes a phospholipid different from a fat?
A) Fats are neutral while phospholipids are ionized.
B) Fats are liquid while phospholiopids are solid.
C) Fats are ionized while phospholipids are neutral.
D) Fats are basic while phospholipids are acidic.

Answer: A
Section: 02.05
Topic: Organic compounds
Bloom's: 2. Understand
Learning Outcome: 02.10 Describe the composition of a neutral fat, and give examples of how lipids function in the body.
HAPS Objective: C.04.04b Compare and contrast general molecular structure With respect to carbohydrates, proteins, lipids and, nucleic acids; C.04.04c Provide specific examples With respect to carbohydrates, proteins, lipids and, nucleic acids

80) The macromolecules that are the main component of cell membranes are
A) steroids.
B) triglycerides.
C) phospholipids.
D) prostaglandins.

Answer: C
Section: 02.05
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.10 Describe the composition of a neutral fat, and give examples of how lipids function in the body.
HAPS Objective: C.04.04e Discuss physiological and structural roles in the human body With respect to carbohydrates, proteins, lipids and, nucleic acids

81) Steroids differ in structure from other lipids in that they have a backbone of

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A) four fused carbon rings.
B) branched chains of carbons.
C) saturated carbon chains.
D) unsaturated carbon chains.

Answer: A
Section: 02.05
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.10 Describe the composition of a neutral fat, and give examples of how lipids function in the body.
HAPS Objective: C.04.04b Compare and contrast general molecular structure With respect to carbohydrates, proteins, lipids and, nucleic acids

82) Which are characteristics of cholesterol? Choose all that apply.
A) It is a type of protein.
B) It is hydrophobic.
C) It is an important component of cell membranes.
D) It is an energy-storage molecule.

Answer: B, C
Section: 02.05
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.10 Describe the composition of a neutral fat, and give examples of how lipids function in the body.
HAPS Objective: C.04.04c Provide specific examples With respect to carbohydrates, proteins, lipids and, nucleic acids; C.04.04e Discuss physiological and structural roles in the human body With respect to carbohydrates, proteins, lipids and, nucleic acids

83) Which of the following is NOT a function of proteins?
A) Providing structural support
B) Serving as chemical messengers
C) Generating muscle contractions
D) Storing chemical energy

Answer: D
Section: 02.06
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.; C.07.03 Describe how proteins are distributed in a cell membrane, and explain their functions.

84) Which of the following is NOT a function of proteins?
A) They form enzymes to speed up reactions.

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B) They form the backbone of cell membranes.
C) They form hemoglobin to transport oxygen in the blood.
D) They form antibodies to protect the body from disease.

Answer: B
Section: 02.06
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.04e Discuss physiological and structural roles in the human body With respect to carbohydrates, proteins, lipids and, nucleic acids; C.07.03 Describe how proteins are distributed in a cell membrane, and explain their functions.

85) How many different amino acids compose all human polypeptides (proteins)?
A) 10
B) 15
C) 20
D) 25

Answer: C
Section: 02.06
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

86) The sequence of amino acids makes up the _____ structure of a protein.
A) primary
B) secondary
C) tertiary
D) quaternary

Answer: A
Section: 02.06
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

87) The coiling or folding of a polypeptide chain is the _____ structure of a protein.
A) primary
B) secondary

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C) tertiary
D) quaternary

Answer: B
Section: 02.06
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

88) The coiling and folding of a polypeptide chain into a more circular molecule is the _____ structure of a protein.
A) primary
B) secondary
C) tertiary
D) quaternary

Answer: C
Section: 02.06
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

89) Proteins that have more than one polypeptide arranged together have a _____ structure.
A) primary
B) secondary
C) tertiary
D) quaternary

Answer: D
Section: 02.06
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

90) The differences between one polypeptide and another lies in
A) the type of peptide bond they contain.
B) the type of sugar they contain.
C) whether they are saturated or not.

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D) the sequence of amino acids.

Answer: D
Section: 02.06
Topic: Organic compounds
Bloom's: 2. Understand
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

91) Any process that causes an irreversible change in the shape of a protein is called
A) denaturation.
B) emulsification.
C) hydrolysis.
D) degradation.

Answer: A
Section: 02.06
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

92) Irreversible changes in the shape of a protein result from
A) extreme heat and pH.
B) freezing temperatures and changes in air pressure.
C) the presence of catalysts.
D) steroid action.

Answer: A
Section: 02.06
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

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93) Which of the following can denature proteins? Choose all that apply.
A) High salt concentration
B) High temperature
C) Low calcium concentration
D) Low pH

Answer: B, D
Section: 02.06
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

94) The sum of all the chemical reactions that occur in a cell is called
A) emulsification.
B) metabolism.
C) denaturation.
D) synthesis.

Answer: B
Section: 02.06
Topic: Atoms and molecules
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.

95) What is the role of an enzyme in a chemical reaction?
A) Raises the energy of activation
B) Raises the temperature of the reaction
C) Lowers the energy of activation
D) Lowers the temperature of the reaction

Answer: C
Section: 02.06
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.06 Demonstrate factors that affect enzyme activity, including denaturation, and interpret graphs showing the effects of various factors on the rate of enzyme-catalyzed reactions.

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96) In the reactions that occur in metabolism, enzymes function as
A) amino acids.
B) lipids.
C) catalysts.
D) compounds.

Answer: C
Section: 02.06
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.

97) The substance that an enzyme acts upon is its
A) substrate.
B) active site.
C) catalyst.
D) product.

Answer: A
Section: 02.06
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.06 Demonstrate factors that affect enzyme activity, including denaturation, and interpret graphs showing the effects of various factors on the rate of enzyme-catalyzed reactions.

98) An enzyme's specificity for its substrate is due to
A) the shape of its active site.
B) its denaturation.
C) the presence of cofactors or coenzymes.

Answer: A
Section: 02.06
Topic: Organic compounds
Bloom's: 2. Understand
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.04e Discuss physiological and structural roles in the human body With respect to carbohydrates, proteins, lipids and, nucleic acids; C.04.06 Demonstrate factors that affect enzyme activity, including denaturation, and interpret graphs showing the effects of various factors on the rate of enzyme-catalyzed reactions.; C.04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

99) The area of the enzyme that binds to its substrate is called the

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A) active site.
B) catalyst.
C) activation energy.
D) product.

Answer: A
Section: 02.06
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.06 Demonstrate factors that affect enzyme activity, including denaturation, and interpret graphs showing the effects of various factors on the rate of enzyme-catalyzed reactions.

100) Enzymes catalyze degradation reactions but not synthesis reactions.

Answer: FALSE
Explanation: Enzymes can serve as catalysts in both synthesis and degradation reactions.
Section: 02.06
Topic: Organic compounds
Bloom's: 2. Understand
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.06 Demonstrate factors that affect enzyme activity, including denaturation, and interpret graphs showing the effects of various factors on the rate of enzyme-catalyzed reactions.

101) What role can inorganic metals such as iron or zinc have in a reaction?
A) A catalyst
B) A coenzyme
C) A substrate
D) A cofactor

Answer: D
Section: 02.06
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.06 Demonstrate factors that affect enzyme activity, including denaturation, and interpret graphs showing the effects of various factors on the rate of enzyme-catalyzed reactions.

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102) To help catalyze reactions, certain vitamins act as _____ in some chemical reactions.
A) coenzymes
B) substrates
C) steroids
D) energy sources

Answer: A
Section: 02.06
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.06 Demonstrate factors that affect enzyme activity, including denaturation, and interpret graphs showing the effects of various factors on the rate of enzyme-catalyzed reactions.

103) Which of the following types of reactions involves the production of a larger product by combining smaller reactants?
A) Degradation
B) Replacement
C) Synthesis
D) Decomposition

Answer: C
Section: 02.06
Topic: Chemical bonding
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.

104) A hydrolysis reaction is an example of which reaction type?
A) Decomposition
B) Synthesis
C) Replacement
D) Neutralization

Answer: A
Section: 02.06
Topic: Chemical bonding
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.

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105) When a single atom of one molecule trades places with a single atom of another molecule, the swapping is called a _____ reaction.
A) replacement
B) degradation
C) ionization
D) neutralization

Answer: A
Section: 02.06
Topic: Chemical bonding
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.

106) Some disease-causing agents are infectious proteins called
A) viruses.
B) bacteria.
C) flukes.
D) prions.

Answer: D
Section: 02.06
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.11 State the major functions of proteins, and tell how globular proteins are organized.
HAPS Objective: C.04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

107) Which of the following is NOT a component of a nucleotide?
A) Pentose sugar
B) Phosphate group
C) Glucose
D) Nitrogen-containing base

Answer: C
Section: 02.07
Topic: Organic compounds
Bloom's: 1. Remember
Learning Outcome: 02.12 Describe the structure and function of DNA and RNA in cells.
HAPS Objective: C.04.04a Identify the monomers and polymers With respect to carbohydrates, proteins, lipids and, nucleic acids; C.04.04b Compare and contrast general molecular structure With respect to carbohydrates, proteins, lipids and, nucleic acids

108) Which are examples of nucleic acids? Choose all that apply.

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A) Deoxyribonucleic acid
B) Amino acid
C) Ribonucleic acid
D) Glucose

Answer: A, C
Section: 02.07
Topic: Nucleic acids: DNA and RNA
Bloom's: 1. Remember
Learning Outcome: 02.12 Describe the structure and function of DNA and RNA in cells.
HAPS Objective: C.04.04c Provide specific examples With respect to carbohydrates, proteins, lipids and, nucleic acids

109) A gene is a segment of DNA that is described as a blueprint for production of a
A) protein
B) lipid
C) complex carbohydrate
D) methyl group

Answer: A
Section: 02.07
Topic: Nucleic acids: DNA and RNA
Bloom's: 2. Understand
Learning Outcome: 02.12 Describe the structure and function of DNA and RNA in cells.
HAPS Objective: C.04.04e Discuss physiological and structural roles in the human body With respect to carbohydrates, proteins, lipids and, nucleic acids; C.10.01 Define the terms genetic code, transcription and translation.

110) Which of the following is NOT a nitrogen base found in DNA?
A) Uracil
B) Adenine
C) Guanine
D) Cytosine

Answer: A
Section: 02.07
Topic: Nucleic acids: DNA and RNA
Bloom's: 1. Remember
Learning Outcome: 02.12 Describe the structure and function of DNA and RNA in cells.
HAPS Objective: C.04.04a Identify the monomers and polymers With respect to carbohydrates, proteins, lipids and, nucleic acids

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111) The shape of the DNA molecule is a(n)
A) single strand.
B) globule.
C) double helix.
D) inverted T.

Answer: C
Section: 02.07
Topic: Nucleic acids: DNA and RNA
Bloom's: 1. Remember
Learning Outcome: 02.12 Describe the structure and function of DNA and RNA in cells.
HAPS Objective: C.04.04b Compare and contrast general molecular structure With respect to carbohydrates, proteins, lipids and, nucleic acids

112) The backbone or sides of a DNA helix consists of
A) nitrogen base pairs.
B) a sugar-phosphate chain.
C) an adenine-ribose chain.
D) a glucose-phosphate chain.

Answer: B
Section: 02.07
Topic: Nucleic acids: DNA and RNA
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Learning Outcome: 02.12 Describe the structure and function of DNA and RNA in cells.
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113) The rungs of the DNA ladder are composed of
A) nitrogen base pairs.
B) sugar-phosphate chain.
C) adenine-ribose chain.
D) glucose-phosphate chain.

Answer: A
Section: 02.07
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114) In the DNA molecule, the complementary base pair of adenine is always
A) uracil.
B) cytosine.
C) thymine.
D) guanine.

Answer: C
Section: 02.07
Topic: Nucleic acids: DNA and RNA
Bloom's: 1. Remember
Learning Outcome: 02.12 Describe the structure and function of DNA and RNA in cells.
HAPS Objective: C.04.04a Identify the monomers and polymers With respect to carbohydrates, proteins, lipids and, nucleic acids; C.04.04b Compare and contrast general molecular structure With respect to carbohydrates, proteins, lipids and, nucleic acids

115) In the DNA molecule, the complementary base pair of cytosine is always
A) uracil.
B) guanine.
C) adenine.
D) thymine.

Answer: B
Section: 02.07
Topic: Nucleic acids: DNA and RNA
Bloom's: 1. Remember
Learning Outcome: 02.12 Describe the structure and function of DNA and RNA in cells.
HAPS Objective: C.04.04b Compare and contrast general molecular structure With respect to carbohydrates, proteins, lipids and, nucleic acids

116) A three-base sequence on DNA and therefore RNA codes for a(n)
A) glucose.
B) fatty acid.
C) amino acid.
D) steroid.

Answer: C
Section: 02.07
Topic: Nucleic acids: DNA and RNA
Bloom's: 1. Remember
Learning Outcome: 02.12 Describe the structure and function of DNA and RNA in cells.
HAPS Objective: C.10.01 Define the terms genetic code, transcription and translation.

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117) Which of the following is NOT true of RNA?
A) It is single stranded.
B) It has uracil instead of thymine.
C) It has ribose sugar.
D) It has a helical structure.

Answer: D
Section: 02.07
Topic: Nucleic acids: DNA and RNA
Bloom's: 1. Remember
Learning Outcome: 02.12 Describe the structure and function of DNA and RNA in cells.
HAPS Objective: C.04.04e Discuss physiological and structural roles in the human body With respect to carbohydrates, proteins, lipids and, nucleic acids

118) Which of the following molecules is the primary energy carrier in cells?
A) DNA
B) ATP
C) RNA
D) GNA

Answer: B
Section: 02.07
Topic: Energy transfer using ATP
Bloom's: 1. Remember
Learning Outcome: 02.13 Explain the importance of ATP in the body.
HAPS Objective: C.05.01 Describe the generalized reversible reaction for release of energy from ATP and explain the role of ATP in the cell.

119) What is the main molecule that provides the energy to produce ATP?
A) Phosphate
B) Glucose
C) RNA
D) Uracil

Answer: B
Section: 02.07
Topic: Energy transfer using ATP
Bloom's: 1. Remember
Learning Outcome: 02.13 Explain the importance of ATP in the body.
HAPS Objective: C.05.01 Describe the generalized reversible reaction for release of energy from ATP and explain the role of ATP in the cell.

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120) Protein synthesis and muscle contraction are examples of cellular functions that _____ ATP.
A) generate
B) consume
C) are independent of

Answer: B
Section: 02.07
Topic: Energy transfer using ATP
Bloom's: 2. Understand
Learning Outcome: 02.13 Explain the importance of ATP in the body.
HAPS Objective: C.05.01 Describe the generalized reversible reaction for release of energy from ATP and explain the role of ATP in the cell.

121) Which of the following contains high-energy phosphate bonds?
A) DNA
B) Glycogen
C) RNA
D) ATP

Answer: D
Section: 02.07
Topic: Energy transfer using ATP
Bloom's: 1. Remember
Learning Outcome: 02.13 Explain the importance of ATP in the body.
HAPS Objective: C.05.01 Describe the generalized reversible reaction for release of energy from ATP and explain the role of ATP in the cell.

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