Vander's Human Physiology 15th edition Widmaier Test Bank

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Vander's Human Physiology, 15e **(Widmaier)**
Chapter 2 Chemical Composition of the Body and Its Relation to Physiology

1) Which correctly describes the structure of an atom?
A) There are the same number of protons and neutrons.
B) There are the same number of protons and electrons.
C) There are the same number of neutrons and electrons.
D) The number of protons, neutrons, and electrons never changes.
E) There are never the same number of neutrons and protons.

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

2) Which of the following is unique to atoms of each element?
A) The number of electrons
B) The number of neutrons
C) The number of protons
D) The number of bonds it can form
E) The ratio of protons to electrons

Answer: C
Section: 02.01
Topic: Atoms and molecules
Bloom's: Level 1. Remember
HAPS Topic: Module C01 Atoms and molecules.
HAPS Outcome: C01.01a Describe the charge, mass, and relative location of electrons, protons and neutrons with respect to the structure of an atom.

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3) Carbon-12 and carbon-14 are isotopes. How are they different from each other?
A) They have different numbers of protons.
B) They have different numbers of neutrons.
C) They have different numbers of electrons.
D) They can form different numbers of chemical bonds.
E) They have different number of energy shells

Answer: B
Section: 02.01
Topic: Atoms and molecules
Bloom's: Level 1. Remember
HAPS Topic: Module C01 Atoms and molecules.
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.

4) Which describes a covalent bond?
A) The positive side of one molecule is attracted to the negative side of another
B) A bond between water molecules
C) A bond between two oppositely charged ions
D) A bond between two free radicals
E) Two atoms share electrons with each other from their outermost shell

Answer: E
Section: 02.02
Topic: Chemical bonding
Bloom's: Level 1. Remember
HAPS Topic: Module C02 Chemical bonding.
HAPS Outcome: C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

5) Ions are _____.
A) electrically neutral
B) electrically charged
C) formed by the gain or loss of protons from the nucleus
D) not soluble in water
E) nonpolar atoms

Answer: B
Section: 02.01
Topic: Atoms and molecules
Bloom's: Level 1. Remember
HAPS Topic: Module C01 Atoms and molecules.
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.; C01.02 Compare and contrast the terms ions, electrolytes, free radicals, isotopes and radioisotopes.

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6) When magnesium loses electrons to become an ion, what does it become?
A) A covalent molecule
B) A cation
C) An anion
D) A new element
E) A free radical

Answer: B
Section: 02.01
Topic: Atoms and molecules
Bloom's: Level 2. Understand
HAPS Topic: Module C01 Atoms and molecules.
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.

7) If a sports beverage advertises that it replaces the body's electrolytes, what does the drink contain?
A) Sugars that were broken down for energy
B) Ionic forms of mineral elements
C) Lipids that form the membranes of cells
D) Oxygen and gases used by metabolism
E) Vitamins

Answer: B
Section: 02.01
Topic: Atoms and molecules; Inorganic compounds and solutions
Bloom's: Level 1. Remember
HAPS Topic: Module C01 Atoms and molecules.; Module C03 Inorganic compounds and solutions.
HAPS Outcome: C01.02 Compare and contrast the terms ions, electrolytes, free radicals, isotopes and radioisotopes.; Q03.01 Define electrolyte.

8) Of these major ions found in the body, which one carries a negative charge?
A) Chloride
B) Sodium
C) Potassium
D) Hydrogen
E) Calcium

Answer: A
Section: 02.01
Topic: Atoms and molecules; Inorganic compounds and solutions
Bloom's: Level 1. Remember
HAPS Topic: Module C01 Atoms and molecules.
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.

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9) Sodium ions have a single positive charge. Table salt is formed by the ionic bond between sodium ions and ions of chloride. Which of the following must be true of chloride?
A) It is an anion.
B) It is a cation.
C) It is electrically neutral.
D) It is non-polar.
E) It is a free radical.

Answer: A
Section: 02.01
Topic: Atoms and molecules; Chemical bonding
Bloom's: Level 4. Analyze
HAPS Topic: Module C01 Atoms and molecules.; Module C02 Chemical bonding.
HAPS Outcome: C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.; C01.01a Describe the charge, mass, and relative location of electrons, protons and neutrons with respect to the structure of an atom.

10) Which describes a characteristic of free radicals?
A) They rapidly oxidize other atoms by removing an electron.
B) They are inert molecules that don't interact readily with other molecules.
C) They contain two electrons in the outermost orbital.
D) They have extra neutrons in their nuclei.
E) They are found in high quantities in most sports drinks.

Answer: A
Section: 02.02
Topic: Atoms and molecules
Bloom's: Level 1. Remember
HAPS Topic: Module C01 Atoms and molecules.
HAPS Outcome: C01.02 Compare and contrast the terms ions, electrolytes, free radicals, isotopes and radioisotopes.

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11) Oxygen forms covalent bonds with two atoms of hydrogen to form H_2O (water). How many electrons are found in oxygen's outer shell?
A) 1
B) 2
C) 4
D) 6
E) 8

Answer: D
Section: 02.02
Topic: Chemical bonding
Bloom's: Level 3. Apply
HAPS Topic: Module C01 Atoms and molecules.; Module C02 Chemical bonding.
HAPS Outcome: C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.; 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.

12) Muscle cell contraction is facilitated by a small electrical current. Which types of molecules are likely involved?
A) Free radicals
B) Isotopes
C) Electrolytes
D) Gasses
E) Vitamins

Answer: C
Section: 02.01
Topic: Inorganic compounds and solutions
Bloom's: Level 3. Apply
HAPS Topic: Module C01 Atoms and molecules.
HAPS Outcome: C01.02 Compare and contrast the terms ions, electrolytes, free radicals, isotopes and radioisotopes.

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13) Which of the following is *not* true of a polar chemical bond?
A) It is covalent.
B) It is ionized.
C) It has opposite electrical charge at each end.
D) It has no net electrical charge.

Answer: B
Section: 02.02
Topic: Chemical bonding
Bloom's: Level 2. Understand
HAPS Topic: Module C02 Chemical bonding.
HAPS Outcome: C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

14) Which best describes a hydrolysis reaction?
A) Molecules are broken down into smaller ones by breaking covalent bonds within water molecules and transferring hydrogen atoms and hydroxyl groups to the smaller ones.
B) Electrically charged molecules separate into ions when they dissolve in water, and then hydrogen ions and hydroxyl groups covalently attach themselves to the oppositely charged ions.
C) Large molecules are assembled from smaller ones by breaking water into hydrogen and hydroxyl ions.
D) Dissolving a large molecule in water reduces it to its individual atoms.
E) The breaking of hydrogen bonds between any two molecules.

Answer: A
Section: 02.03
Topic: Chemical bonding
Bloom's: Level 2. Understand
HAPS Topic: Module C02 Chemical bonding.; Module C04 Organic compounds.
HAPS Outcome: C04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.

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15) Oil is spilled into the ocean. What do you expect will happen?
A) Most of the oil will quickly disperse and mix in with water and form hydrogen bonds.
B) Most of the oil molecules will clump and exclude water.
C) Most of the oil will form bonds with the water molecules to form new covalently bonded structures.
D) Water molecules will absorb the oil molecules and break them apart.
E) The hydrogen and oxygen atoms within the oil will become water.

Answer: B
Section: 02.03
Topic: Chemical bonding; Inorganic compounds and solutions
Bloom's: Level 3. Apply
HAPS Topic: Module C02 Chemical bonding.; Module C03 Inorganic compounds and solutions.
HAPS Outcome: C02.01c Provide biologically significant examples of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.; C03.01 Discuss the physiologically important properties of water.

16) Molecules that have properties of both polar and nonpolar molecules are called
A) hydrophobic.
B) hydrophilic.
C) amphipathic.
D) unipolar.
E) bipolar.

Answer: C
Section: 02.03
Topic: Chemical bonding; Membrane structure and function
Bloom's: Level 1. Remember
HAPS Topic: Module C02 Chemical bonding.; Module C07 Membrane structure and function.
HAPS Outcome: C02.01c Provide biologically significant examples of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

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17) You're designing a new drug to treat allergies. You'd like for your therapy to be able to dissolve through the lipid bilayers of cell membranes; therefore, _____ molecules will make excellent drug choices.
A) polar
B) ionic
C) electrolyte
D) non-polar
E) radioactive

Answer: D
Section: 02.03
Topic: Inorganic compounds and solutions; Mechanisms for movement across cell membranes
Bloom's: Level 4. Analyze
HAPS Topic: Module C03 Inorganic compounds and solutions.; Module C08 Mechanisms for movement of materials across cell membranes.
HAPS Outcome: C08.03 Demonstrate various cell transport processes and, given appropriate information, predict the outcomes of these demonstrations.; C03.01 Discuss the physiologically important properties of water.

18) The pH of a solution
A) is a measure of the concentration of hydrogen atoms in the solution.
B) is a measure of the concentration of hydrogen ions bound to other molecules in the solution.
C) is a measure of the concentration of free hydrogen ions in the solution.
D) increases as the acidity of the solution increases.
E) increases as the free hydrogen ion concentration in the solution increases.

Answer: C
Section: 02.03
Topic: Inorganic compounds and solutions
Bloom's: Level 1. Remember
HAPS Topic: Module C03 Inorganic compounds and solutions.
HAPS Outcome: C03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.

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19) Most of the body weight of an average human is what substance?
A) Water
B) Protein
C) Minerals
D) Lipids
E) Carbohydrates

Answer: A
Section: 02.03
Topic: Inorganic compounds and solutions
Bloom's: Level 1. Remember
HAPS Topic: Module Q02 Description of the major fluid compartments.
HAPS Outcome: Q02.01 Describe the fluid compartments (including the subdivisions of the extracellular fluid) and state the relative volumes of each.

20) Which chemical group does glucose best fit into?
A) Monosaccharides
B) Disaccharides
C) Polysaccharides
D) Glycoproteins
E) Phospholipids

Answer: A
Section: 02.04
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.04c Provide specific examples of carbohydrates, proteins, lipids and nucleic acids.

21) Carbohydrates are stored in animal cells in the form of
A) cellulose.
B) starch.
C) triacylglycerol.
D) glycogen.
E) protein.

Answer: D
Section: 02.04
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
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.

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22) Hydrolysis of glycogen will have what effect on blood glucose level?
A) Increase blood glucose level
B) Decrease blood glucose level
C) No effect on blood glucose level

Answer: A
Section: 02.04
Topic: Organic compounds
Bloom's: Level 3. Apply
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.; C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.

23) What are the two main atoms in lipids, and what type of bonds connect them?
A) Carbon and oxygen, connected by polar covalent bonds.
B) Carbon and hydrogen, connected by non-polar covalent bonds
C) Carbon and hydrogen, connected by ionic bonds
D) Carbon and hydrogen, connected by hydrogen bonds
E) Oxygen and hydrogen, connected by hydrogen bonds

Answer: B
Section: 02.04
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.

24) Which statement is FALSE with regard to proteins?
A) Their roles in the body include acting as enzymes, providing structural support, and signaling between cells.
B) They make up a greater percentage of body mass than carbohydrates do.
C) They are composed of nucleic acids.
D) They are macromolecules with subunits linked by polypeptide bonds.
E) They are polymers made up of amino acids.

Answer: C
Section: 02.04
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.

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25) What best describes the main determinant of the secondary structure of a protein?
A) The sequence of the various amino acids that make up a polypeptide chain
B) The total number of amino acids that make up a polypeptide chain, and its overall resulting length
C) The total number of polypeptide chains that combine to determine the overall size of the protein
D) Molecular interactions between widely separated regions of a polypeptide, such as disulfide bonds, that stabilize the folded conformation
E) Molecular interactions along a polypeptide chain that fold various regions into alpha helices or beta sheets

Answer: E
Section: 02.04
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

26) Within a single protein, which of the following are you likely to find?
A) Ionic bonds
B) Hydrogen bonds
C) Disulfide bridges
D) Hydrophobic interactions
E) You are likely to find all of these within a single protein.

Answer: E
Section: 02.04
Topic: Organic compounds
Bloom's: Level 2. Understand
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

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27) Which of the following is NOT a type of molecular interaction that determines the tertiary structure of a protein?
A) Covalent bonds between purine and pyrimidine bases
B) Ionic bonds
C) Van der Waals forces
D) Covalent bonds between two cysteine amino acids
E) Hydrogen bonds

Answer: A
Section: 02.04
Topic: Organic compounds
Bloom's: Level 2. Understand
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.; C04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

28) What is the term describing the covalent bond formed between two amino acids?
A) Glycosidic bond
B) Peptide bond
C) Phosphodiester bond
D) Ester bond
E) Hydrolytic bond

Answer: B
Section: 02.04
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.

29) A single genetic mutation will change a protein at what level of structure?
A) Primary
B) Secondary
C) Tertiary
D) Quaternary
E) A single genetic mutation could change all of these

Answer: E
Section: 02.04
Topic: Organic compounds
Bloom's: Level 3. Apply
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

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30) Which is a correct description of nucleic acids?
A) They are polymers of subunits containing glucose and amino acids.
B) They are polymers of subunits containing glucose, a phosphate group, and an amino acid.
C) They are polymers of subunits containing a phosphate group, a sugar, and a purine or pyrimidine base.
D) They are polymers of subunits containing a phosphate group, a sugar, and an amino acid.
E) They are long polymers of amino acids, folded into an alpha helix.

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

31) The atomic number of an element is given by the number of electrons in the atom.

Answer: FALSE
Section: 02.01
Topic: Atoms and molecules
Bloom's: Level 1. Remember
HAPS Topic: Module C01 Atoms and molecules.
HAPS Outcome: C01.01d Distinguish among the terms atomic number, mass number and atomic weight with respect to the structure of an atom.

32) The atomic number of an element refers to the number of particles in its atomic nucleus.

Answer: FALSE
Section: 02.01
Topic: Atoms and molecules
Bloom's: Level 1. Remember
HAPS Topic: Module C01 Atoms and molecules.
HAPS Outcome: C01.01a Describe the charge, mass, and relative location of electrons, protons and neutrons with respect to the structure of an atom.; C01.01d Distinguish among the terms atomic number, mass number and atomic weight with respect to the structure of an atom.

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33) Trace elements such as zinc and manganese are found in minute quantities in the body but do not serve any known function.

Answer: FALSE
Section: 02.01
Topic: Inorganic compounds and solutions
Bloom's: Level 1. Remember
HAPS Topic: Module O01 Nutrition.
HAPS Outcome: List the important dietary minerals and describe the major uses of each mineral in the body.

34) The number of covalent bonds that can be formed by a given atom depends upon the number of electrons present in the outermost orbit.

Answer: TRUE
Section: 02.02
Topic: Chemical bonding
Bloom's: Level 1. Remember
HAPS Topic: Module C02 Chemical bonding.
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.

35) Nitrogen atoms can form a maximum of four covalent bonds with other atoms.

Answer: FALSE
Section: 02.01; 02.02
Topic: Chemical bonding
Bloom's: Level 1. Remember
HAPS Topic: Module C02 Chemical bonding.
HAPS Outcome: C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

36) The shape of a molecule may change as atoms rotate about their covalent bonds.

Answer: TRUE
Section: 02.02
Topic: Chemical bonding
Bloom's: Level 1. Remember
HAPS Topic: Module C02 Chemical bonding.
HAPS Outcome: C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

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37) All of the physiologically important atoms of the body readily form ions.

Answer: FALSE
Section: 02.01
Topic: Atoms and molecules
Bloom's: Level 2. Understand
HAPS Topic: Module C01 Atoms and molecules.
HAPS Outcome: C02.01c Provide biologically significant examples of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

38) Water molecules can form covalent bonds with other water molecules.

Answer: FALSE
Section: 02.02
Topic: Chemical bonding
Bloom's: Level 2. Understand
HAPS Topic: Module C02 Chemical bonding.
HAPS Outcome: C02.01c Provide biologically significant examples of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.; C03.01 Discuss the physiologically important properties of water.

39) The carboxyl ion is an anion.

Answer: TRUE
Section: 02.02
Topic: Organic compounds
Bloom's: Level 2. Understand
HAPS Topic: Module C01 Atoms and molecules.; Module C04 Organic compounds.
HAPS Outcome: C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.; 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.

40) NaCl is a molecule formed by the covalent bonding of a sodium atom to a chlorine atom.

Answer: FALSE
Section: 02.02
Topic: Chemical bonding
Bloom's: Level 1. Remember
HAPS Topic: Module C02 Chemical bonding.
HAPS Outcome: C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

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41) All covalent bonds are polar.

Answer: FALSE
Section: 02.02
Topic: Chemical bonding
Bloom's: Level 1. Remember
HAPS Topic: Module C02 Chemical bonding.
HAPS Outcome: C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

42) During hydrolysis, hydrogen ions and hydroxyl groups are formed.

Answer: TRUE
Section: 02.03
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.

43) In general, polar molecules will dissolve in polar solvents, while nonpolar molecules cannot.

Answer: TRUE
Section: 02.03
Topic: Chemical bonding
Bloom's: Level 1. Remember
HAPS Topic: Module C02 Chemical bonding.
HAPS Outcome: C03.01 Discuss the physiologically important properties of water.

44) Solutes that do not dissolve in water are called hydrophilic.

Answer: FALSE
Section: 02.03
Topic: Inorganic compounds and solutions
Bloom's: Level 1. Remember
HAPS Topic: Module C03 Inorganic compounds and solutions.
HAPS Outcome: C02.01c Provide biologically significant examples of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

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45) Phospholipids are examples of amphipathic molecules.

Answer: TRUE
Section: 02.04
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.04c Provide specific examples of carbohydrates, proteins, lipids and nucleic acids.

46) Comparing two cups of coffee, one with no sugar added and the other has had a packet of sugar dissolved in it, we can say that the coffee with sugar is more concentrated.

Answer: TRUE
Section: 02.03
Topic: Inorganic compounds and solutions
Bloom's: Level 3. Apply
HAPS Topic: Module C03 Inorganic compounds and solutions.
HAPS Outcome: C03.02 Distinguish among the terms solution, solute, solvent, colloid suspension, and emulsion.

47) A solution with a pH of 8 is more acidic than one with a pH of 3.

Answer: FALSE
Section: 02.03
Topic: Inorganic compounds and solutions
Bloom's: Level 1. Remember
HAPS Topic: Module C03 Inorganic compounds and solutions.
HAPS Outcome: C03.05 State acidic, neutral, and alkaline pH values.

48) A solution with a pH of 8 contains more H^+ ions than a solution with a pH of 3.

Answer: FALSE
Section: 02.03
Topic: Inorganic compounds and solutions
Bloom's: Level 2. Understand
HAPS Topic: Module C03 Inorganic compounds and solutions.
HAPS Outcome: C03.05 State acidic, neutral, and alkaline pH values.

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49) Fatty acids are examples of organic molecules.

Answer: TRUE
Section: 02.04
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

50) When multiple repeating simple sugar molecules combine to form a larger molecule, it is called a polysaccharide.

Answer: TRUE
Section: 02.04
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.

51) The term "blood sugar level" refers to the concentration of disaccharides in the blood.

Answer: FALSE
Section: 02.04
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.

52) Saturated fats contain carbon atoms linked by double bonds.

Answer: FALSE
Section: 02.04
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.; C04.04c Provide specific examples of carbohydrates, proteins, lipids and nucleic acids.

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53) Cholesterol is a phospholipid.

Answer: FALSE
Section: 02.04
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.04c Provide specific examples of carbohydrates, proteins, lipids and nucleic acids.

54) Glycoproteins are protein molecules with molecules of glycogen attached to the amino acid side chains.

Answer: FALSE
Section: 02.04
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.04c Provide specific examples of carbohydrates, proteins, lipids and nucleic acids.

55) A molecule composed of two atoms of the same element, such as fluorine (Fl_2), can be formed by a polar covalent bond.

Answer: FALSE
Section: 02.02
Topic: Chemical bonding
Bloom's: Level 3. Apply
HAPS Topic: Module C02 Chemical bonding.
HAPS Outcome: C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.

56) The majority of the molecules in the human body are polar.

Answer: TRUE
Section: 02.03
Topic: Inorganic compounds and solutions
Bloom's: Level 2. Understand
HAPS Topic: Module C03 Inorganic compounds and solutions.
HAPS Outcome: C02.01c Provide biologically significant examples of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.; C03.01 Discuss the physiologically important properties of water.

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57) The sequence of amino acids in a protein is known as the secondary structure.

Answer: FALSE
Section: 02.04
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

58) A protein may consist of more than one polypeptide chain.

Answer: TRUE
Section: 02.04
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

59) If a protein's conformation changes it is likely that its function will change as well.

Answer: TRUE
Section: 02.04
Topic: Organic compounds
Bloom's: Level 2. Understand
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

60) Substitution of one amino acid for a different one in a given protein always significantly alters the conformation of that protein.

Answer: FALSE
Section: 02.04
Topic: Organic compounds
Bloom's: Level 2. Understand
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.

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61) In DNA, thymine binds with adenine and cytosine binds with uracil.

Answer: FALSE
Section: 02.04
Topic: Nucleic acids: DNA and RNA
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.04c Provide specific examples of carbohydrates, proteins, lipids and nucleic acids.; C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.

62) Water is only lost from the body in urine formation.

Answer: FALSE
Section: 02.03
Topic: Inorganic compounds and solutions
Bloom's: Level 1. Remember
HAPS Topic: Module C03 Inorganic compounds and solutions.
HAPS Outcome: C03.01 Discuss the physiologically important properties of water.

63) Dehydration reactions among glucose monomers will produce polysaccharides such as glycogen.

Answer: TRUE
Section: 02.04
Topic: Organic compounds
Bloom's: Level 3. Apply
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.02 Explain the relationship between monomers and polymers.; C04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.

64) Dehydration reactions between carboxyl groups and phosphate groups result in peptide bond formation.

Answer: FALSE
Section: 02.04
Topic: Organic compounds
Bloom's: Level 2. Understand
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.02 Explain the relationship between monomers and polymers.; C04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.

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65) A 1 molar solution of glucose and 1 molar solution of NaCl have the same number of glucose and NaCl molecules.

Answer: TRUE
Section: 02.03
Topic: Inorganic compounds and solutions
Bloom's: Level 3. Apply
HAPS Topic: Module C03 Inorganic compounds and solutions.
HAPS Outcome: C03.02 Distinguish among the terms solution, solute, solvent, colloid suspension, and emulsion.

66) A person experiencing liver failure is likely to have lower levels of triglycerides in their body than a person with a healthy liver.

Answer: TRUE
Section: 02.04
Topic: Organic compounds
Bloom's: Level 3. Apply
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.

67) Simple macromolecules with fewer numbers of bonds yield more energy to fuel cell processes than large macromolecules.

Answer: FALSE
Section: 02.04
Topic: Organic compounds
Bloom's: Level 3. Apply
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.04d Identify dietary sources 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.

68) Estrogen is a steroid hormone, therefore it will readily dissolve through a lipid bilayer.

Answer: TRUE
Section: 02.04
Topic: Organic compounds
Bloom's: Level 3. Apply
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.

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69) Which of the following words can be used to describe water?
A) Ion
B) Polar
C) Molecule
D) Atom
E) Lipophilic

Answer: B, C
Section: 02.03
Topic: Inorganic compounds and solutions
Bloom's: Level 2. Understand
HAPS Topic: Module C03 Inorganic compounds and solutions.
HAPS Outcome: C03.01 Discuss the physiologically important properties of water.

70) Hydrogen bonds can break in high temperature conditions. Which of the following molecules is likely to break apart or change shape at high temperatures?
A) DNA
B) RNA
C) Triglycerides
D) Proteins
E) Polysaccharides

Answer: A, D
Section: 02.04
Topic: Chemical bonding; Organic compounds
Bloom's: Level 3. Apply
HAPS Topic: Module C02 Chemical bonding.; Module C04 Organic compounds.
HAPS Outcome: C02.01c Provide biologically significant examples of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.; C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.

71) Which of the following contain phosphate groups?
A) Amino acids
B) Monosaccharides
C) Nucleotides
D) Phospholipids
E) Cholesterol

Answer: C, D
Section: 02.04
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.

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72) Dehydration reactions are involved in the production of _____.
A) polysaccharides
B) monosaccharides
C) triglycerides
D) polypeptides
E) nitrogenous Bases

Answer: A, C, D, E
Section: 02.04
Topic: Organic compounds
Bloom's: Level 1. Remember
HAPS Topic: Module C04 Organic compounds.
HAPS Outcome: C04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.

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