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.

Bloom's: Level 1. Remember
Learning Outcome: 02.04
Section: 02.04
Topic: Chemistry

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

Bloom's: Level 1. Remember
Learning Outcome: 02.04
Section: 02.04
Topic: Chemistry

26. Which of the following is NOT a type of molecular interaction that determines the tertiary structure of a protein?
A. covalent bonds between purines and pyrimidine bases
B. ionic bonds
C. Van der Waals forces
D. covalent bonds between two cysteine amino acids
E. hydrogen bonds

Bloom's: Level 2. Understand
Learning Outcome: 02.04
Section: 02.04
Topic: Chemistry

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

Bloom's: Level 1. Remember
Learning Outcome: 02.01
Learning Outcome: 02.02
Section: 02.01
Section: 02.02
Topic: Chemistry

41. Nitrogen atoms can form a maximum of four covalent bonds with other atoms.
FALSE

Bloom's: Level 1. Remember
Learning Outcome: 02.01
Learning Outcome: 02.02
Section: 02.01
Section: 02.02
Topic: Chemistry

42. The shape of a molecule may change as atoms rotate about their covalent bonds.
TRUE

Bloom's: Level 1. Remember
Learning Outcome: 02.02
Section: 02.02
Topic: Chemistry

43. All of the physiologically important atoms of the body readily form ions.
FALSE

Bloom's: Level 2. Understand
Learning Outcome: 02.01
Section: 02.01
Topic: Chemistry

44. Water molecules can form covalent bonds with other water molecules.
FALSE

Bloom's: Level 1. Remember
Learning Outcome: 02.02
Section: 02.02
Topic: Chemistry

45. In a molecule of water, an oxygen atom forms a double bond with each of two hydrogen atoms.
FALSE

Bloom's: Level 1. Remember
Learning Outcome: 02.02
Section: 02.02
Topic: Chemistry

46. The carboxyl ion is an anion.
TRUE

Bloom's: Level 2. Understand
Learning Outcome: 02.01
Learning Outcome: 02.02
Section: 02.01
Section: 02.02
Topic: Chemistry

47. NaCl is a molecule formed by the covalent bonding of a sodium atom to a chlorine atom.
FALSE

Bloom's: Level 1. Remember
Learning Outcome: 02.02
Section: 02.02
Topic: Chemistry

48. All covalent bonds are polar.
FALSE

Bloom's: Level 1. Remember
Learning Outcome: 02.02
Section: 02.02
Topic: Chemistry

HAPS Objective: C01.01a Describe the charge, mass, and relative location of electrons, protons and neutrons with respect to the structure of an atom.
HAPS Objective: 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.
HAPS Objective: 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.
HAPS Objective: C01.01d Distinguish among the terms atomic number, mass number and atomic weight with respect to the structure of an atom.
HAPS Objective: C01.02 Compare and contrast the terms ions, electrolytes, free radicals, isotopes and radioisotopes.
HAPS Objective: C01.03 Compare and contrast the terms atoms, molecules, elements, and compounds.
HAPS Objective: C02.01a List each type of bond in order by relative strength with respect to non-polar covalent, polar covalent, ionic, and hydrogen bonds.
HAPS Objective: C02.01b Explain the mechanism of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.
HAPS Objective: C02.01c Provide biologically significant examples of each type of non-polar covalent, polar covalent, ionic, and hydrogen bonds.
HAPS Objective: C03.01 Discuss the physiologically important properties of water.
HAPS Objective: C03.02 Distinguish among the terms solution, solute, solvent, colloid suspension, and emulsion.
HAPS Objective: C03.03 Define the term salt and give examples of physiological significance.
HAPS Objective: C03.04 Define the terms pH, acid, base, and buffer and give examples of physiological significance.
HAPS Objective: C03.05 State acidic, neutral, and alkaline pH values.
HAPS Objective: C04.01 Define the term organic molecule.
HAPS Objective: C04.02 Explain the relationship between monomers and polymers.
HAPS Objective: C04.03 Define and give examples of dehydration synthesis and hydrolysis reactions.
HAPS Objective: C04.04a Identify the monomers and polymers of carbohydrates, proteins, lipids and nucleic acids.
HAPS Objective: C04.04b Compare and contrast general molecular structure of carbohydrates, proteins, lipids and nucleic acids.
HAPS Objective: C04.04c Provide specific examples of carbohydrates, proteins, lipids and nucleic acids.
HAPS Objective: C04.04d Identify dietary sources of carbohydrates, proteins, lipids and nucleic acids.
HAPS Objective: C04.04e Discuss physiological and structural roles in the human body of carbohydrates, proteins, lipids and nucleic acids.
HAPS Objective: C04.05 Describe the four levels of protein structure and discuss the importance of protein shape for protein function.
HAPS Objective: C04.06 Demonstrate factors that affect enzyme activity, including denaturation, and interpret graphs showing the effects of various factors on the rate of enzyme- catalyzed reactions.
HAPS Objective: C05.01 Describe the generalized reversible reaction for release of energy from ATP and explain the role of ATP in the cell.
HAPS Objective: C06.01 Identify the three main parts of a cell, and list the general functions of each.
HAPS Objective: C06.02 Explain how cytoplasm and cytosol are different.
HAPS Objective: C07.01 Describe how lipids are distributed in a cell membrane, and explain their function.
HAPS Objective: C07.02 Describe how carbohydrates are distributed in a cell membrane, and explain their functions.
HAPS Objective: C07.03 Describe how proteins are distributed in a cell membrane, and explain their functions.
HAPS Objective: C08.01a State the type of material moving in each of the membrane transport process – simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.
HAPS Objective: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process – simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.
HAPS Objective: C08.01c Describe the energy requirements and, if applicable, the sources of energy for each process – simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.
HAPS Objective: C08.01d Give examples of each membrane transport process in the human body – simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.
HAPS Objective: C08.02 Describe the effects of hypertonic, isotonic, and hypotonic conditions on cells.
HAPS Objective: C08.03 Demonstrate various cell transport processes and, given appropriate information, predict the outcomes of these demonstrations.
HAPS Objective: C09.01 Define the term organelle.
HAPS Objective: C09.02a each different type of organelle associated with human cells.
HAPS Objective: C09.02b Describe the structure of each different type of organelle associated with human cells.
HAPS Objective: C09.02c Describe the function of each different type of organelle associated with human cells.
HAPS Objective: C10.01 Define the terms genetic code, transcription and translation.
HAPS Objective: C10.02 Explain how and why RNA is synthesized.
HAPS Objective: C10.03 Explain the roles of tRNA, mRNA, and rRNA in protein synthesis.
HAPS Objective: C11.01 Define the term cellular respiration.
HAPS Objective: C11.02 With respect to glycolysis, the Krebs (citric acid or TCA) cycle, and the electron transport chain: compare and contrast energy input, efficiency of energy production, oxygen use, by-products and cellular location.
HAPS Objective: C12.01a Describe the events that take place in each stage of generalized cell cycle, including interphase and the stages of mitosis.
HAPS Objective: C12.01b Identify cells that are in each stage of generalized cell cycle, including interphase and the stages of mitosis.
HAPS Objective: C12.01c Analyze the functional significance of each stage of generalized cell cycle, including interphase and the stages of mitosis.
HAPS Objective: C12.02 Distinguish between mitosis and cytokinesis.
HAPS Objective: C12.03 Describe DNA replication.
HAPS Objective: C12.04 Analyze the interrelationships among chromatin, chromosomes and chromatids.
HAPS Objective: C12.05 Give examples of cell types in the body that divide by mitosis and examples of circumstances in the body that require mitotic cell division.
HAPS Objective: C13.01 Describe the events that take place in each stage of meiosis I and meiosis II.
HAPS Objective: C13.02 Identify cells that are in each stage of meiosis I and meiosis II.
HAPS Objective: C13.03 Compare and contrast the general features of meiosis I and meiosis II.
HAPS Objective: C13.04 Compare and contrast the processes of mitosis and meiosis.
HAPS Objective: C13.05 Give examples of cell types in the body that divide by meiosis and examples of circumstances in the body that require meiotic cell division.
HAPS Objective: C14.01 Provide specific examples to demonstrate how individual cells respond to their environment (e.g., in terms of organelle function, transport processes, protein synthesis, or regulation of cell cycle) in order to maintain homeostasis in the body.
HAPS Objective: C15.01 Predict factors or situations that could disrupt organelle function, transport processes, protein synthesis, or the cell cycle.
HAPS Objective: C15.02 Predict the types of problems that would occur if the cells could not maintain homeostasis due to abnormalities in organelle function, transport processes, protein synthesis, or the cell cycle.

HAPS Topic: Module C01 Atoms and molecules.
HAPS Topic: Module C02 Chemical bonding.
HAPS Topic: Module C03 Inorganic compounds and solutions.
HAPS Topic: Module C04 Organic compounds.
HAPS Topic: Module C05 Energy transfer using ATP.
HAPS Topic: Module C06 Intracellular organization of nucleus and cytoplasm.
HAPS Topic: Module C07 Membrane structure and function.
HAPS Topic: Module C08 Mechanisms for movement of materials across cell membranes.
HAPS Topic: Module C09 Organelles.
HAPS Topic: Module C10 Protein synthesis.
HAPS Topic: Module C11 Cellular respiration.
HAPS Topic: Module C12 Somatic cell division.
HAPS Topic: Module C13 Reproductive cell division.
HAPS Topic: Module C14 Application of homeostatic mechanisms.
HAPS Topic: Module C15 Predictions related to homeostatic imbalance, including disease states and disorders.

Chapter 02 Test Bank Summary

Category	*# of Questions*
Bloom's: Level 1. Remember	54
Bloom's: Level 2. Understand	11
HAPS Objective: C01.01a Describe the charge, mass, and relative location of electrons, protons and neutrons with respect to the structure of an atom.	1
HAPS Objective: 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.	1
HAPS Objective: 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.	1
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HAPS Objective: C03.02 Distinguish among the terms solution, solute, solvent, colloid suspension and emulsion.	1
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