

Fundamentals of Biochemistry

Biochemistry · Practice Test · 20 Questions

1. What is the primary function of enzymes in biological systems?

- A) To store genetic information
- B) To transport oxygen
- C) To speed up chemical reactions
- D) To provide structural support

2. Which of the following is a major class of biological macromolecules essential for energy storage and cell membrane structure?

- A) Nucleic acids
- B) Proteins
- C) Carbohydrates
- D) Lipids

3. What is the main energy currency of the cell?

- A) Glucose
- B) DNA
- C) ATP
- D) RNA

4. Which biological molecule carries the genetic instructions for the development, functioning, growth, and reproduction of all known organisms?

- A) ATP
- B) RNA
- C) Proteins
- D) DNA

5. What are the building blocks of proteins?

- A) Nucleotides
- B) Monosaccharides
- C) Amino acids
- D) Fatty acids

6. What process do plants use to convert light energy into chemical energy in the form of glucose?

- A) Respiration
- B) Fermentation
- C) Photosynthesis
- D) Digestion

7. Which element is central to the structure of all organic molecules?

- A) Oxygen
- B) Nitrogen
- C) Sulfur
- D) Carbon

8. What is the primary function of carbohydrates in living organisms?

- A) Catalysis of reactions
- B) Energy source and structural components
- C) Information storage
- D) Defense against pathogens

9. Which type of molecule is responsible for catalyzing biochemical reactions?

- A) Lipids
- B) Carbohydrates
- C) Nucleic acids
- D) Enzymes

10. What are the basic units that make up nucleic acids like DNA and RNA?

- A) Amino acids
- B) Monosaccharides
- C) Nucleotides
- D) Fatty acids

11. A molecule that donates a hydrogen ion (H⁺) in solution is called:

- A) A base
- B) A salt
- C) An acid
- D) A buffer

12. What is the primary role of lipids in the body?

- A) Building muscle tissue
- B) Transporting oxygen
- C) Long-term energy storage and forming cell membranes
- D) Carrying genetic information

13. Which of the following is NOT one of the four major classes of biological macromolecules?

- A) Proteins
- B) Carbohydrates
- C) Minerals
- D) Lipids

14. The sequence of amino acids in a protein determines its:

- A) Energy storage capacity
- B) Solubility in water
- C) 3D structure and function
- D) Rate of replication

15. What is the process by which cells break down glucose to produce ATP and other energy molecules?

- A) Photosynthesis
- B) DNA replication
- C) Cellular respiration
- D) Protein synthesis

16. Water is often called the 'universal solvent' because:

- A) It is a very strong acid
- B) It can dissolve many different substances
- C) It is a gas at room temperature
- D) It is primarily made of carbon

17. What is the term for a molecule that is a direct product of a metabolic pathway and is then used as a substrate for another metabolic pathway?

- A) Enzyme
- B) Hormone
- C) Metabolite
- D) Antibody

18. Which type of bond holds together the two strands of a DNA molecule?

- A) Covalent bonds
- B) Ionic bonds
- C) Hydrogen bonds
- D) Peptide bonds

19. Which of these is a common monosaccharide?

- A) Sucrose
- B) Starch
- C) Fructose
- D) Cellulose

20. What is the process called when RNA is synthesized from a DNA template?

- A) Translation
- B) Replication
- C) Transcription
- D) Mutation