

Biochemistry Fundamentals

Biochemistry · Answer Key · 15 Questions

1. Which of the following is the primary energy currency of the cell?

- A) Glucose
- B) ATP**
- C) NAD⁺
- D) DNA

2. What type of bond links amino acids together in a polypeptide chain?

- A) Glycosidic bond
- B) Phosphodiester bond
- C) Peptide bond**
- D) Hydrogen bond

3. Which organelle is responsible for cellular respiration and ATP production?

- A) Nucleus
- B) Ribosome
- C) Endoplasmic reticulum
- D) Mitochondrion**

4. The building blocks of nucleic acids (DNA and RNA) are called:

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

5. Enzymes are biological catalysts, and their activity can be regulated by:

- A) Increasing temperature indefinitely
- B) Changing the pH drastically
- C) Competitive and non-competitive inhibition**
- D) Removing all substrate

6. What is the main function of DNA?

- A) Catalyzing metabolic reactions
- B) Storing genetic information**
- C) Transporting oxygen
- D) Providing structural support

7. Lipids are a diverse group of molecules that are generally:

- A) Hydrophilic
- B) Soluble in water
- C) Hydrophobic**
- D) Charged

8. Which process involves the synthesis of RNA from a DNA template?

- A) Replication
- B) Translation
- C) Transcription**
- D) Reverse transcription

9. The process by which cells break down glucose to produce ATP in the absence of oxygen is called:

- A) Aerobic respiration
- B) Photosynthesis
- C) Fermentation**
- D) Glycogenesis

10. What is the primary structural component of cell membranes?

- A) Triglycerides
- B) Phospholipids**
- C) Steroids
- D) Waxes

11. Which molecule carries amino acids to the ribosome during protein synthesis?

- A) mRNA
- B) rRNA
- C) tRNA**
- D) snRNA

12. The three-dimensional shape of a protein is crucial for its:

- A) Solubility in water
- B) Charge
- C) Function**
- D) Molecular weight

13. What is the process of protein synthesis called?

- A) Transcription
- B) Replication
- C) Translation**
- D) Duplication

14. Which type of molecule acts as an enzyme, catalyzing biochemical reactions?

- A) Carbohydrate
- B) Lipid
- C) Nucleic acid

D) Protein

15. The complete set of genetic material in an organism is known as its:

A) Genome

- B) Proteome
- C) Transcriptome
- D) Metabolome