

Chapter – 9 | BIOMOLECULES

QUIZ-01

1. The most abundant chemical component in living organisms is:

- A. Protein
B. Water
C. Lipid
D. Nucleic acid (B)

Explanation: Water forms about 70–90% of the total cellular mass, making it the most abundant chemical in living organisms.

2. Amino acids are called α -amino acids because amino and carboxyl groups are attached to:

- A. Different carbon atoms
B. Same α -carbon atom
C. Nitrogen atom
D. Phosphate group (B)

Explanation: Amino acids have both amino and acidic groups attached to the same α -carbon.

3. Lipids are generally:

- A. Water soluble
B. Water insoluble
C. Made only of nucleotides
D. Always proteins (B)

Explanation: Lipids are generally insoluble in water and include fatty acids, glycerol, fats, oils and phospholipids.

4. Which of the following is a secondary metabolite?

- A. Amino acid
B. Glucose
C. Alkaloid
D. Fatty acid (C)

Explanation: Alkaloids are secondary metabolites, while amino acids, sugars and fatty acids are primary metabolites.

5. Which biomolecule is not strictly a macromolecule but appears in the acid-insoluble fraction?

- A. Protein
B. Nucleic acid
C. Polysaccharide
D. Lipid (D)

Explanation: Lipids have lower molecular weight but appear in the acid-insoluble fraction because they are associated with membranes.

6. Proteins are polymers of:

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

Explanation: Proteins are polypeptides made up of amino acids linked by peptide bonds.

7. Cellulose is a homopolymer of:

- A. Fructose
B. Glucose
C. Amino acids
D. Nucleotides (B)

Explanation: Cellulose is made of only one type of monosaccharide, glucose, so it is a homopolymer.

8. The building block of nucleic acids is:

- A. Amino acid
B. Fatty acid
C. Nucleotide
D. Glycerol (C)

Explanation: DNA and RNA are polynucleotides, and each nucleotide contains a nitrogen base, sugar and phosphate.

9. The sequence of amino acids in a protein is called its:

- A. Primary structure
B. Secondary structure
C. Tertiary structure
D. Quaternary structure (A)

Explanation: Primary structure refers to the exact sequence of amino acids in a protein chain.

10. The enzyme activity is reduced when malonate competes with succinate for the active site of succinic dehydrogenase. This is called:

- A. Allosteric activation
B. Competitive inhibition
C. Denaturation
D. Coenzyme action (B)

Explanation: Malonate resembles succinate and competes for the enzyme's active site, so it acts as a competitive inhibitor.