B 1.2 Proteins HL MC

1. **What determines the chemical properties of an amino acid?**

   A. The alpha carbon
   B. The amine group
   C. The R-group
   D. The carboxyl group

2. **Which of the following describes hydrophilic R-groups?**

   A. They are always charged.
   B. They can be polar or charged, acidic or basic.
   C. They are always non-polar.
   D. They cannot form ionic bonds.

3. **What determines the primary structure of a protein?**

   A. The folding of the protein into helices and sheets
   B. The sequence of amino acids
   C. The number of disulfide bonds in the protein
   D. The arrangement of hydrophobic and hydrophilic regions

4. **What type of bonding stabilizes the secondary structure of proteins?**

   A. Ionic bonds
   B. Hydrogen bonds
   C. Disulfide bonds
   D. Hydrophobic interactions

5. **Which structures are characteristic of the secondary structure of proteins?**

   A. Globular and fibrous structures
   B. Alpha helices and beta-pleated sheets
   C. Hydrophobic cores and membrane regions
   D. Disulfide bridges and ionic bonds

6. **What type of interaction forms a disulfide bond in the tertiary structure of proteins?**

   A. Hydrogen bonding between R-groups
   B. Covalent bonding between pairs of cysteine residues
   C. Ionic bonding between charged R-groups
   D. Hydrophobic interactions between non-polar R-groups

7. **How do hydrophobic amino acids contribute to the tertiary structure of a globular protein?**

   A. They are exposed on the protein's surface.
   B. They cluster in the protein's core.
   C. They bind to charged molecules.
   D. They form hydrogen bonds with water.

8. **Which is an example of a protein with a quaternary structure?**

    A. Insulin
    B. Collagen
    C. Haemoglobin
    D. Alpha-keratin

9. **What is the main functional difference between fibrous and globular proteins?**

    A. Fibrous proteins are enzymes, while globular proteins are structural.
    B. Fibrous proteins are structural, while globular proteins are functional.
    C. Both fibrous and globular proteins serve as structural proteins.
    D. Globular proteins are hydrophobic, while fibrous proteins are hydrophilic.

10. **Which of the following technologies has enhanced imaging of protein structures?**

    A. X-ray diffraction
    B. Polymerase chain reaction
    C. Cryogenic electron microscopy
    D. Chromatography

Answers

1. **C**
2. **B**
3. **B**
4. **B**
5. **B**
6. **B**
7. **B**
8. **C**
9. **B**
10. **C**

