

MODULE 4: AMINO ACIDS, PEPTIDES AND PROTEINS

Q.1. Give example and structure of an imino acid. Why is it not a true amino acid?

Ans: **Proline/ Hydroxyproline:** An imino acid is any molecule that contains both imino ($>C=NH$) and carboxyl($-C(=O)-OH$) functional groups. Absence of free NH_2 and $COOH$ groups does not classify it as a true amino acid

Q.2. Explain importance of intra and intermolecular hydrogen bonding in the secondary structure of proteins?

Ans: Structural stability of proteins; conformational flexibility.

Q.3. What various interactions are involved in the tertiary structure of protein?

Ans:

- Polar-polar interaction,
- Hydrophobic interaction,
- Ionic interaction,
- Disulfide bonds,
- Van der Waals forces
- Hydrogen bonds.

Q.4. Enlist out important functions of proteins?

Ans: Biocatalysis:-

- Membranes are constitute of lipoprotein and some proteins are integral part of membrane. Receptors found on the membrane are also protein in nature.
- Transport and storage proteins
- Mechanical support - skin and bone are strengthened by the protein collagen.
- Antibodies of immune system are protein structures.
- Many of the hormones and growth factors such as insulin or thyroid stimulating hormone are proteins.