

MSC-8

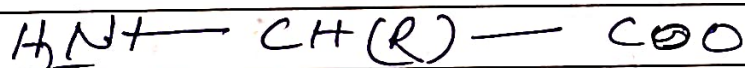
Topic - Structure and Classification of Amino acid.

Amino acids are organic compounds that serve as the building blocks of proteins. All proteins are polymers made from amino acids.

Structure of Amino acids :-

General structure -

Most amino acids have a common basic structure -



Components :-

1. Amino group ($-NH_2$)

> Basic in nature

> Can accept a proton (H^+)

2. Carboxy group ($-COOH$)

> Acidic in nature

> Can donate a proton (H^+)

3. Central (a) Carbon atom

> Attached to four different groups (except glycine)

Teacher's Signature : _____

4. Hydrogen atom ($-H$)

5. Side chain (R -group)

> Different for each amino acid

> Determines chemical nature and function.

Zwitterion form:

> In physiological pH (7.4) amino acids exists as zwitterions.

> Both positive and negative charges are present



Optical Activity:

> Most amino acids are optically active (chiral)

> Glycine is the only exception ($R=H$)

> proteins contain L-amino acids only

AMINO ACID			
Nonpolar, aliphatic R groups			
	Glycine	Alanine	Valine
	Leucine	Methionine	Isoleucine
Polar, uncharged R groups			
	Serine	Threonine	Cysteine
	Proline	Asparagine	Glutamine

AMINO ACID			
Positively charged R groups			
	Lysine	Arginine	
		Histidine	
Negatively charged R groups			
	Aspartate	Glutamate	
Nonpolar, aromatic R groups			
	Phenylalanine	Tyrosine	Tryptophan