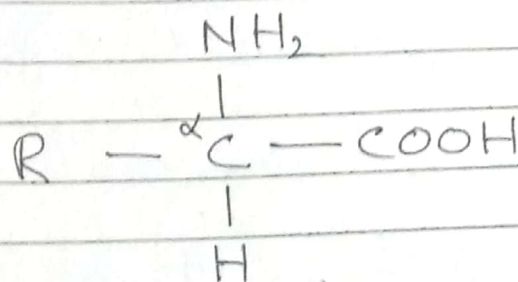


Amino acid or α -amino acid

Amino acids are compounds that contain at least one carboxylic group ($-\text{COOH}$) and one amino group ($-\text{NH}_2$). In alpha amino acid, the amino group is located on the alpha carbon. They have general formula.



Where R may be H, alkyl group or may be quite complex containing other functional groups.

Classification:

About 20 amino acids are commonly found in protein, but more than hundred occur naturally. All amino acids found in protein are α -amino acid.

Amino acids may be classified

(A) Based on chemical behaviour amino acids are classified as.

- 1/ Acidic amino acid - These amino acids contain a carboxylic or carboxamide group in the side chain
e.g., Aspartic acid, glutamic acid

(2) Basic amino acid - Amino acids contain a basic group such as amino or imidazole ring in their side chain.
e.g., Lysine, histidine.

3/ Neutral amino acid - They contain alkyl or aromatic ring, thiol group ($-SH$) or heterocyclic group in the side chain.
e.g., Glycine, phenylalanine, cystine etc.

(B) Based on nutritional importance amino acids are classified as.

1/ Essential amino acids - The amino acids that are not synthesised by body and are required to be taken externally through diet are termed as essential amino acids.
e.g., Valine, Phenylalanine, lysine etc.

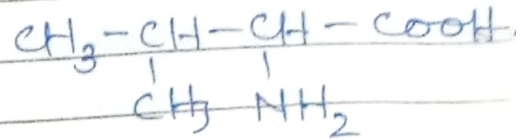
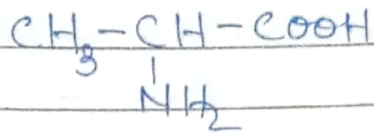
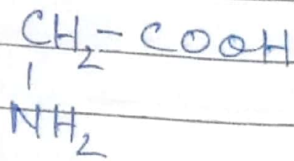
2/ Semi-essential amino acids - These amino acids are not synthesised in human body in sufficient amount during growth. However they are essential (in pregnant woman, lactating mothers and growing children). They ~~are~~ have an important role as growth promoting nutrients.
e.g., Arginine, histidine.

3/ Non-essential amino acids - These amino acids can be synthesised by human body from other materials through a series of biochemical reactions.
e.g., Glycine, Alanine etc.

Common amino acids.

163690

Nomenclature of α amino acids.



IUPAC: 2-Amino
name ethanoic acid.

2-Aminopropanoic
acid.

2-Amino-3-methyl
butanoic acid.

Common Glycine
name:

Alanine

Valine

Abbrevia Gly
tion:

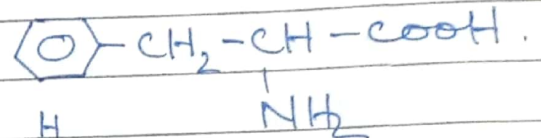
Ala

Val.

Name - symbol - Formula.

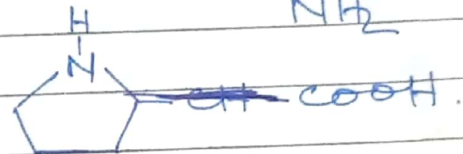
Phenylalanine

Phe



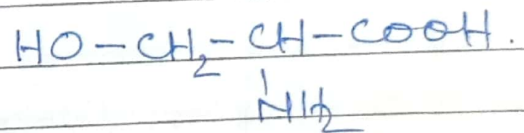
Proline

Pro



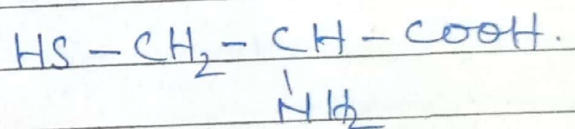
Serine

Ser



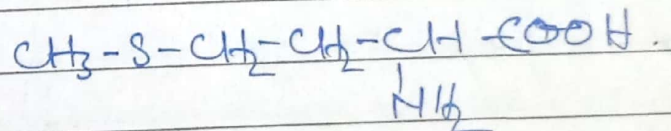
Cysteine

Cys



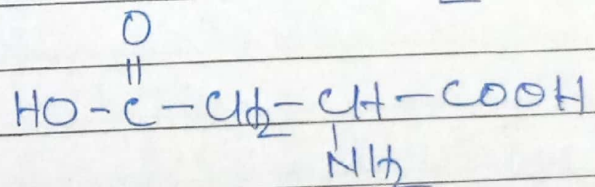
Methionine

Met



Aspartic acid

Asp



Lysine

Lys

