

BIO MOLECULES

Proteins are the most abundant bio molecules of the living system. Sources- milk, pulses, fish, meat etc. **All proteins are polymers of α - amino acids.**

Amino acids- it contain amino (NH_2) and carboxyl ($-\text{COOH}$) functional groups. Depending upon the relative position of amino group with respect to carboxyl group, the amino acids can be classified as α , β , γ , and so on. **Only α - amino acids are obtained on hydrolysis of proteins.**

α - amino acids have trivial names, example- glycine is so named since it has sweet taste , tyrosine was first obtained from cheese.

CLASSIFICATION OF AMINO ACIDS

Amino acids are classified as acidic, basic, or neutral depending upon the relative no. Of amino and carboxyl groups in their molecule. **Equal no. of amino and carboxyl groups make it neutral, more no. Of amino than carboxyl groups makes it basic and more no. Of carboxyl groups as compared to amino groups make it acidic.**

Non Essential amino acids--- The amino acids, which can be synthesised in the body, are known as non-essential amino acids. Eg- alanine, asparagines, aspartate etc.

Essential amino acids----- The amino acids, which cannot be synthesised in the body and must be obtained through diet, are known as essential amino acids. Eg- valine, leucine, histidine etc.

Amino acids- colourless, crystalline solids, water soluble and high melting solids. **And behave like salts rather than simple amines or carboxylic acids, due to the presence of both acidic and basic group in the same molecule.**

Zwitter ion- In aqueous solution, the carboxyl group can lose a proton, giving rise to a dipolar ion known as zwitter ion. This is neutral but contains positive

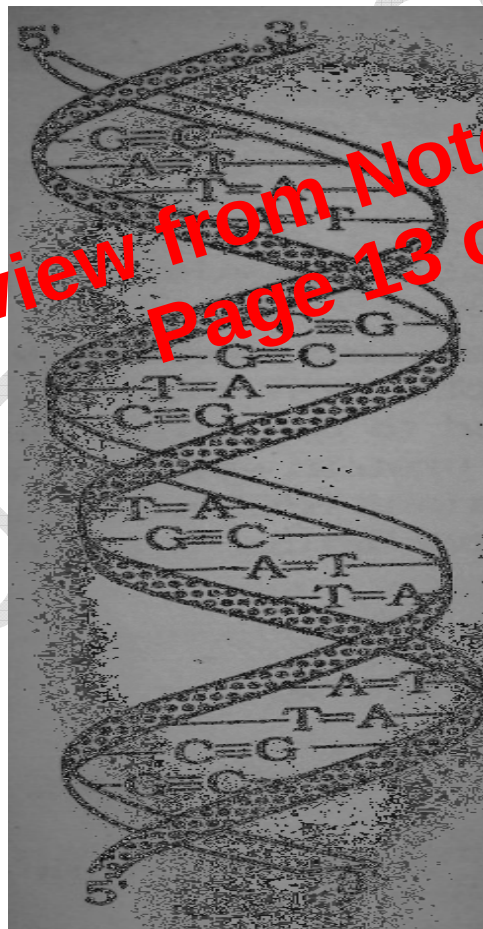
DNA contain five carbon sugar molecule called, 2- deoxyribose whereas **RNA** contain ribose.

Note - Both RNA and DNA contain **adenine, guanine and cytosine**. The fourth base is **thymine** in DNA and uracil in RNA.

DNA structure- Double strand helix structure

Adenine forms hydrogen bonds with **thymine** whereas **cytosine** forms hydrogen bonds with **guanine**.

DNA structure- Double strand helix structure



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