

Nucleic Acid

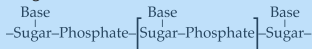
Chromosomes : Particles in nucleus responsible for heredity. Chromosomes are made up of proteins and nucleic acid.

Two types : Deoxyribonucleic acid (DNA), ribonucleic acid (RNA)

Composition : In DNA, sugar is β -D-2-deoxyribose whereas in RNA is β -D-ribose. DNA contains A,G,C,T whereas RNA has A,G,C,U.

Structure : -

Nucleoside : Formed by attachment of a base to '1' of sugar' Nucleotide : Formed by link to phosphoric acid at '5' of sugar.



Types of RNA : m-RNA, r-RNA, t-RNA

Biological Functions :

- Chemical basis of heredity.
- Responsible for identity of different species of organisms.
- Nucleic acids are responsible for protein synthesis in cell.

Biomolecules

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DNA Fingerprint: Unique sequence bases on DNA

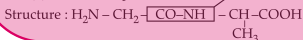
Proteins

(Polymers of α -amino acids)

Amino acids contain $-\text{NH}_2$ and $-\text{COOH}$ group.

Classification:

- On the basis of relative number of $-\text{NH}_2$ and $-\text{COOH}$ group
 - (i) Neutral – equal number of $-\text{NH}_2$ and $-\text{COOH}$ group.
 - (ii) Basic – more number of $-\text{NH}_2$ than $-\text{COOH}$ group.
 - (iii) Acidic – more number of $-\text{COOH}$ than $-\text{NH}_2$ group.
- On the basis of place of synthesis
 - (i) Essential – cannot be synthesized in the body.
 - (ii) Non-essential – synthesized in the body.
- On the basis of shape
 - (i) Fibrous – fibre – like structure
 - (ii) Globular – spherical



Enzymes

Globular proteins specific for particular reaction and for particular substrate. Mechanism : Reduces the magnitude of activation energy

Denaturation of proteins:

When a protein in its native form is subjected to physical change, globules unfold, helix get uncoiled and protein loses its biological activity.

