BIOCHEMISTRY
UNIT-1

[DEPTH OF BIOLOGY]

CARBOHYDRATE

- Polyhydroxy aldehyde or polyhydroxy ketone.
- Carbohydrate has both – structural & metabolic role. [DEPTH OF BIOLOGY]
- Most important carbohydrate is glucose
- From glucose other carbohydrate inside the body are synthesised

- Plant synthesise glucose by photosynthesis & store in the form of starch & cellulose, while in animal carbohydrate synthesis is from fats & proteins but most of the animal carbohydrate is derived from plants only. [DEPTH OF BIOLOGY]
- It is major fuel of mammalian tissue .
[DEPTH OF BIOLOGY]

CLASSIFICATION OF CAROHYDRATE

MONOSACCHARIDES

▪It is the simple form of carbohydrate which cannot be further hydrolyse.

•It consist of aldehyde or ketone group

•3C- glyceraldehyde
•6C- glucose

DISACCHARIDES

▪It is classified into 2 monosaccharide (may be same/diff)

▪**Eg-** maltose= 2 glucose

▪Sucrose= glucose + fructose

▪lactose = glucose + galactose

OLIGOSACCHARIDE

▪It is classified into 3 monosachharide

▪Eg- maltotriose

POLYSACCHARIDE

▪It is classified up to 10 or more than 10 monosaccharide

▪Eg- cellulose, starch

IMPORTANCE

- It is chief source of energy.
- It is one of the constituent of lipid & conjugated protein.
- Its degradation product act as a catalyst.

- Certain carbohydrate derivative are used as drug like cardiac glycosites & antibiotic.

- Principal sugar in milk is lactose.

- It`s degradation product are utilised in synthesis of other substance such as fatty acid, cholesterol & amino acid.

- Inherited deficiency of certain enzyme in metabolic pathway of different carbohydrate can cause diseases like-

- Galactosemia, glycogen storage disease, lactose intolerance

LIPID

- Substance like fat, oil or wax that dissolve in OH but not in water
- Lipid contain C,H,O

Lipid perform 3 primary biological functions.

- Structural component of cell membrane

  Insulation & protection

- Important signalling molecule
- Function as energy store house

NUCLEIC ACID

[DEPTH OF BIOLOGY]

- Nucleic acid are the main information carrying molecule of cell & direct the process of protein synthesis
- Two main classes of nucleic acid are- DNA & RNA
- Function of nucleic acid is storage & expression of genetic information
- ***DNA-*** encode the information of protein synthesis

[DEPTH OF BIOLOGY]

- ***RNA-*** participate in protein synthesis

AMINO ACID [DEPTH OF BIOLOGY]

- Organic compound that contain amino + carboxyl functional group.
- The key element of amino acid are C, H, O, N

- ***Function-*** [DEPTH OF BIOLOGY]

1. building block of protein
2. Synthesis of hormone
3. Neurotransmittor

PROTEIN

[DEPTH OF BIOLOGY]

- Large, complex molecule ; long chain of amino acid hold by peptide bond
- They do most of work in cell, required for structure, function & regulation of body tissue
- ***Function-***

1. They play central role in biological process
2. Trasnport molecule such as oxygen
3. Catalyse reaction [DEPTH OF BIOLOGY]
4. Transmit message from cell to cell