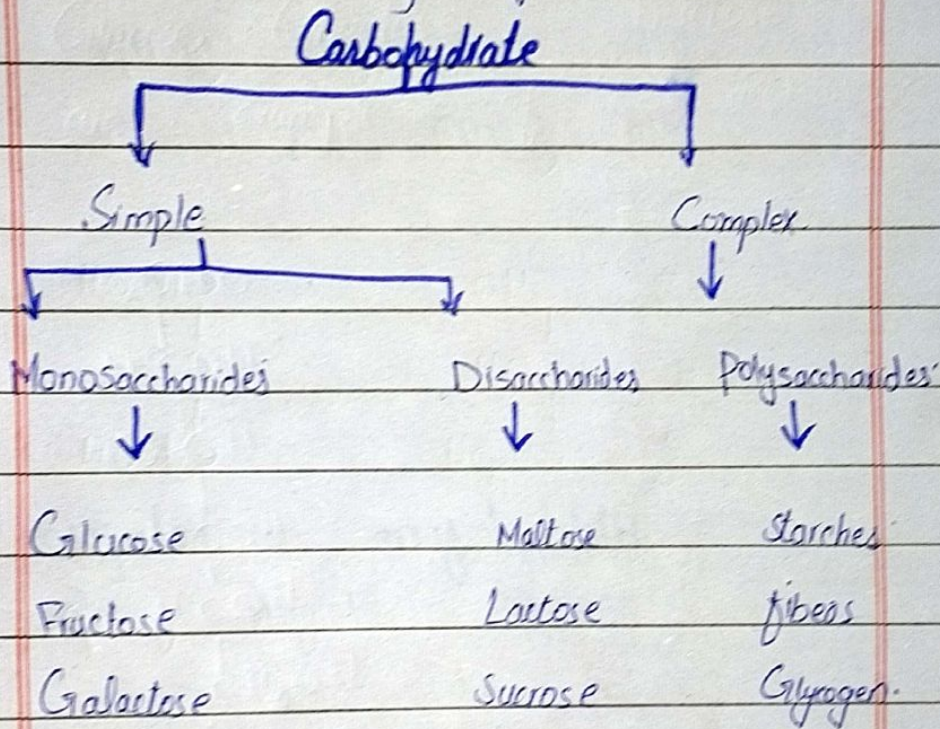


General Science Assignment

Classification of Carbohydrates

Carbohydrates are called Saccharides which is derived from Greek word 'Sakcharon' meaning Sugar.



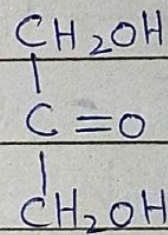
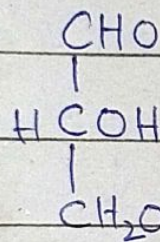
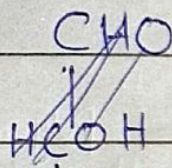
Simple Carbohydrates:-

(i)

Monosaccharides:-

These are simple sugar. They are sweet in taste and easily

Soluble in water and cannot be hydrolysed into simple sugar. They are either polyhydroxy aldehyde or ketones. All carbon atom in monosaccharides except one have hydroxyl group. The remaining carbon atom is either aldehyde group or keto group.



Aldehyde form

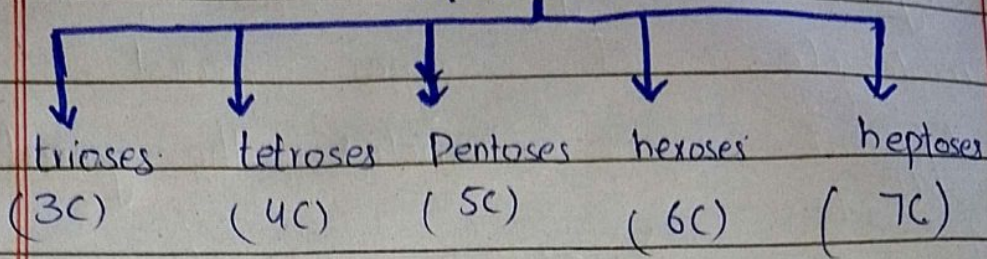
Keto form

Sugar having aldehyde group is called aldo sugar.

Sugar having keto group is called keto group.

Monosaccharide have 3 to 7 carbon atom and are classified as

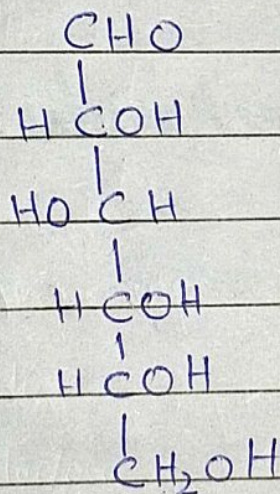
Mono saccharides



General formula of monosaccharides is $C_n(H_2O)_n$.

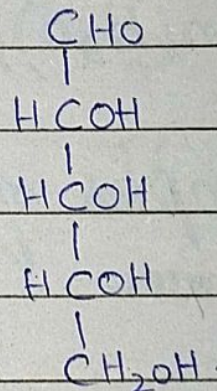
Examples of Monosaccharides:-

Glucose, Galactose, Fructose are example of monosaccharides.



Glucose (A hexose sugar)

(ii)



Ribose (A pentose sugar)

Oligosaccharides

In Greek, word @ligo means few. oligosaccharides are compound

Sugar that yield 2 to 10 molecules of same and different monosaccharides. The general formula is

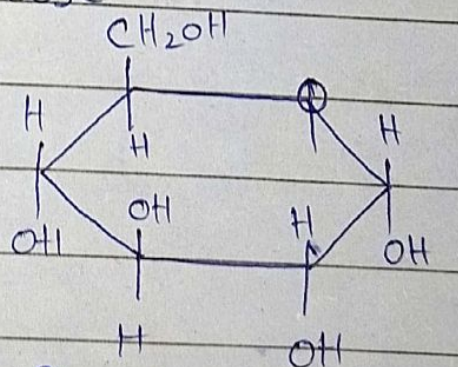
↳ oligosaccharide yielding 2 monosaccharides are called disaccharides and so on. formula of disaccharide is

$$C_n(H_2O)_{n-1}$$

Examples of monosaccharides:-
Sucrose

Common table sugar = glucose +

Fructose



Structure of glucose.

(ii)

Polysaccharides:

Poly is greek word meaning many. They yield more than 10 monosaccharides on hydrolysis

↳ Homopolysaccharides:-

monosaccharides having same type e.g starch, glucose

↳ Hetro-polysaccharides:-

monosaccharides of different types e.g Hyaluronic acid and chondroitin

Question No 2

Classification of proteins

Proteins are classified on

basis of their structure
and biological function.

Classification of Proteins

On basis of Structure

(a) Primary Structure of proteins:-

Proteins exist as long chain of amino acids arranged in a particular sequence. They are non functional proteins
e.g. Haemoglobin protein

~~keratin fibres~~

(b) Secondary structure of proteins:-

Polypeptide chain is coiled in a spiral to make three dimensional structure, amino acid are connected by hydrogen bond e.g.

keratin and silk fibres.

(c) Tertiary Structure of protein:-

Long chain polypeptide are stabilized by folding and by formation of ionic or hydrophobic bond or disulphide bridge

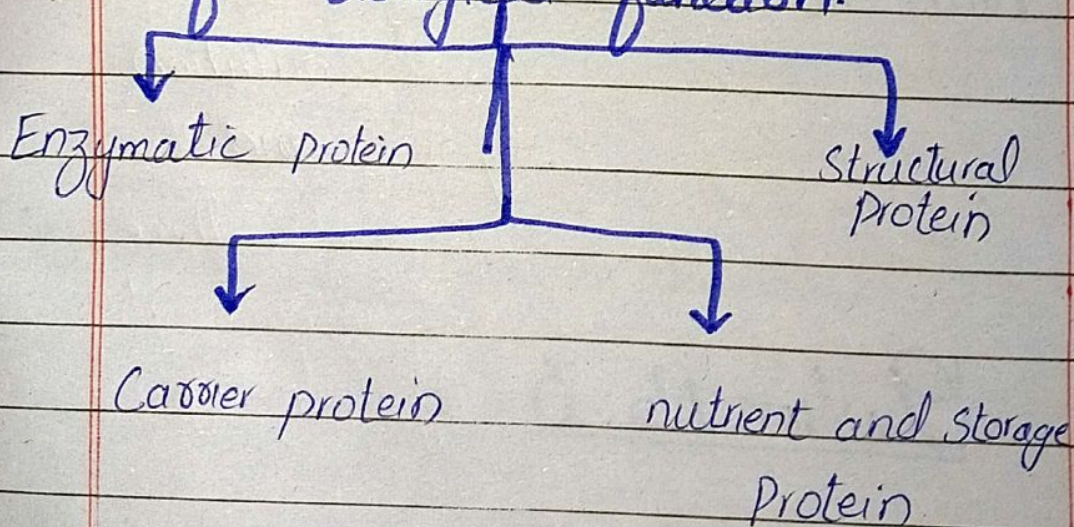
e.g Globulins of blood

(d) Quaternary Structure of protein:-

Assembly of protein in a more than one polypeptide unit

e.g hemoglobin and insulin

Protein classification on basis of biological function.



(i) Enzymatic proteins:-

These are highly specialized proteins with catalytic activity. Enzymes catalyze a variety of functions e.g. Urease, catalase.

(ii) Structural proteins:-

These help in providing strength and protection to biological structure. e.g. Collagen, elastin.

(iii) Carrier proteins:-

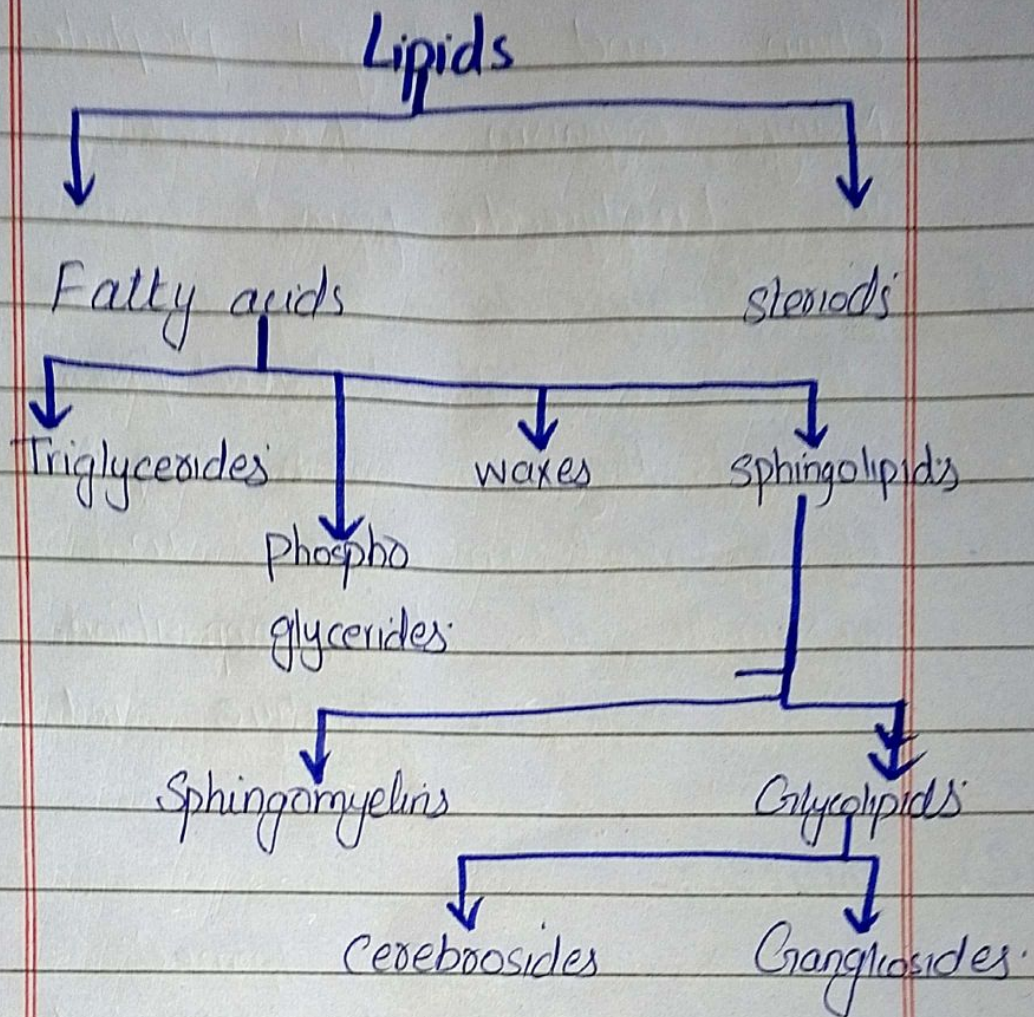
These proteins help in transport of ions or molecules in body. e.g. myoglobin, haemoglobin.

(iv) Nutrient and storage proteins:-

These proteins provide nutrition to growing embryos and store ions.

Question No: 3

Lipids are classified on basis of structural relationship.



Lipids from fatty Acid:-

Fatty acids are carboxylic acid with 12-22 Carbon atoms

Connected in a long, unbranched chain.

(a) Triglycerides:-

Triglycerides are ester of fatty acid and alcohol. These are formed from two fatty acid

Chain and charged phosphate.
Many organism store energy
in triglyceride form

(b) Phosphoglycerides:-

They are glycerol based phospholipid. They are main component of biological membrane in eukaryotic cell. Its composition affects membrane structure and properties

(c) Waxes:-

waxes are esters formed from long chain fatty acid and long chain alcohol. Most natural waxes are mixture of such esters. waxes protect plants from water loss and abrasive damage; and water barrier for insects, birds, and animals such as sheep

(d) Sphingolipids:-

Sphingolipids are fatty acids amides formed from a fatty acid attached to an amino alcohol backbone called sphingosine along with either a phosphate or a carbohydrate. These are important for structure and function of cellular membrane.

Sphingomyelin:-

It is composed of sphingosine, fatty acid and phosphocholine. It is basic structural skeleton.

Glycolipids:-

It is comprised of carbohydrate and sphingolipid linked together by a glycosidic bond. These glycolipids are part of cell membrane and involve in cell-cell interaction.

eg glycerglycolipids

DATE: ___/___/20__

(2) Steroides:-

Steroides are hormones which are basically organic compound synthesized in glands and transported to by blood stream to various tissues in order to trigger desired process. Steriod. comprised of three fused six-membrane and five membrane ring.