2019 FEBRUARY

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

January 2019

Monday 21

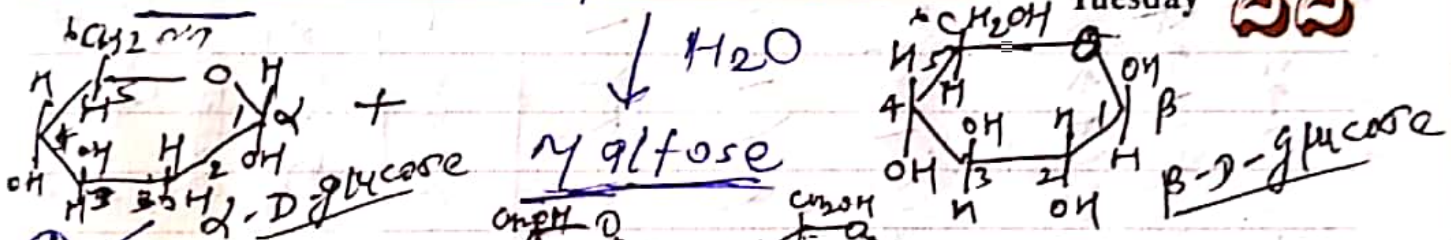
Disaccharides & glycosidic bond :-

If two sugars joined by an O-glycosidic bond, form a disaccharide.

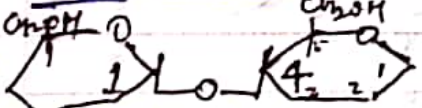
- A glycosidic bond forms between anomeric carbon and the alkoxy oxygen.

eg (a) Maltose :- Two glucose residues are joined by a glycosidic linkage between the α-anomeric form of C-1 on one sugar and the hydroxyl oxygen atom on C-4 of the adjacent sugar. and linkage is α-1,4-glycosidic bond.

α-D glucose + β-D-Glucose

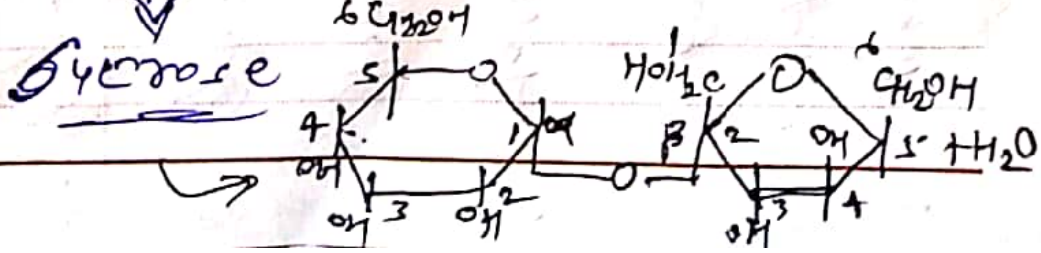


Tuesday 22

(b) Sucrose — 

anomeric carbon atoms of α-glucose unit and a β-fructose unit are joined through α-1,2-glycosidic linkage to form sucrose.

α-D glucose + β-D-Fructose



Disaccharides	Structure	Physiological role
1. Sucrose	Glucose α(1→2) Fructose	• A final Product of Photosynthesis.
2. Lactose	Galactose β(1→4) Glucose	• A major animal energy source.
3. Trehalose	Glucose α(1→1) α-glucose	• A major circulatory sugar in insects, used for energy.
4. Maltose	Glucose α(1→4) Glucose	• The dimer derived from the starch and glycogen polymers.
5. Cellobiose	Glucose β(1→4) Glucose	• The dimer of the cellulose Polymer.
6. Gentiobiose	Glucose β(1→6) glucose	• Constituents of plant glycosides and some Polysaccharides.

January 2019 Wednesday Thursday

* Hydrolysis of Sucrose →

Sucrose (Invert sugar) is dextrorotatory
Hydrolysis of it with hot dilute acid yields D-glucose & D-fructose (greater rotation than D-glucose)
The resulting mixture is levorotatory, So, hydrolysis of Sucrose is known as Inversion of sucrose & equimolar mixture of glucose & fructose is known as Invert sugar or Invertose.

eg ⇒ Murein, Dextran, cellulose, starch (Amylose & Amylopectin)
Inulin, chitin, Glycogen & Callose are Important Polysaccharides.

Polysaccharides :— Ubiquitous in nature. Also called glycans.

Two types (on basis of function)
① Structural Polysaccharide
② Storage Polysaccharides.

It may be- ① Homopolysaccharides &
② Heteropolysaccharides

e.g. ⇒ Starch, glycogen, cellulose & chitin are homopolysaccharide while glycosaminoglycans (GAGs) are Heteropolysaccharide

GAGs ⇒ eg- Hyaluronic acid, Chondroitin sulfate, Dermatan sulfate, Heparan sulfate, Heparin, Keratan sulfate

⇒ Peptidoglycan (Murein) & Lysozyme are also Heteropolysaccharide.
(Peptidoglycan ↓ present in bacterial cell wall)
(Lysozyme → degrades cell wall.)

○ **Glycoproteins** :⇒ Carbohydrate groups are covalently attached to many diff proteins to form glycoproteins. Sidechain of Asparagine → Amide N atom (N-linkage) & if sugar attached to oxygen atom in sidechain of Serine/Threonine (O-linkage)

○ **Reducing & Non reducing Sugar** :⇒

Sugar capable of reducing ferric or cupric ion are called reducing sugar.

Any sugar having aldehyde group or capable form in soln through Isomerisation called reducing sug