

details of constitution of some disaccharides.

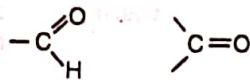
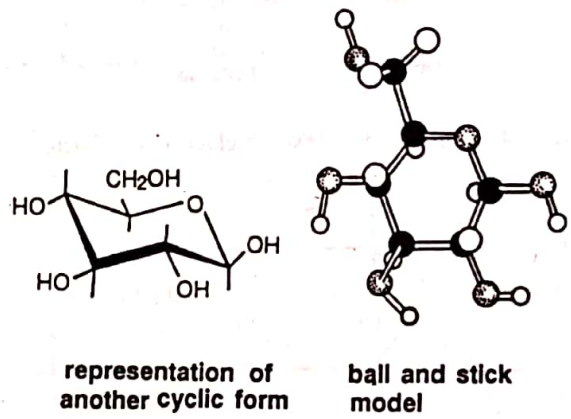
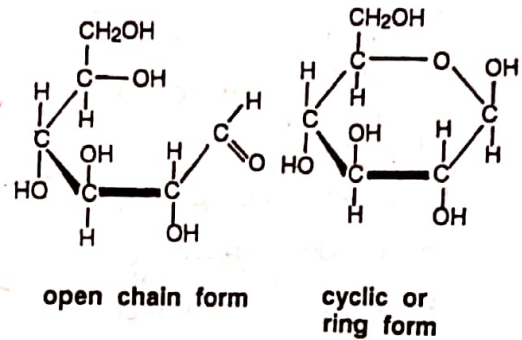
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Disaccharide	Monosaccharide	Glycosidic linkage
1. Lactose	D-glucose + D-Galactose	β -1,4
2. Maltose	D-glucose + D-glucose	α -1,4
3. Cellobiose	D-glucose + D-glucose	β -1,4
4. Isomaltose	D-glucose + D-glucose	α -1,4
5. Sucrose	D-glucose + D-fructose	α -1, β -2

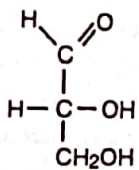
Several trisaccharides ($C_{18}H_{36}O_{18}$) of biological importance are also known. Raffinose is one such trisaccharide with monosaccharide units, D-glucose, D-fructose and D-galactose. Other trisaccharides are mannotriose, rabinose, rhamnose, st. gentianaose and melicitose. Sugars of higher order also known. The sugars consisting of fewer sugar residues (generally 2-9) are often collectively described as oligosaccharides. Fig:

Table 3.2 Common monosaccharides.

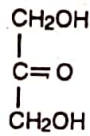
Monosaccharides with general formula (CH ₂ O) _n	Examples	
	Aldehydes	Ketones
1 Trioses, C ₃ H ₆ O ₃	Glyceraldehyde	Dihydroxyacetone
2 Tetroses, C ₄ H ₈ O ₄	Erythrose	Erythrulose
3 Pentoses, C ₅ H ₁₀ O ₅	Deoxyribose	Ribose
4 Hexoses, C ₆ H ₁₂ O ₆	Glucose	Fructose



monosaccharides are aldehydes or ketones having two or more hydroxyl groups and a general formula (CH₂O)_n



glyceraldehyde (an aldose)



dihydroxyacetone (a ketone)

Fig. 3.1. Two simplest monosaccharides, glyceraldehyde and dihydroxyacetone.

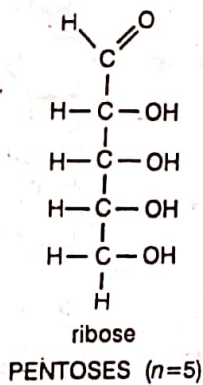
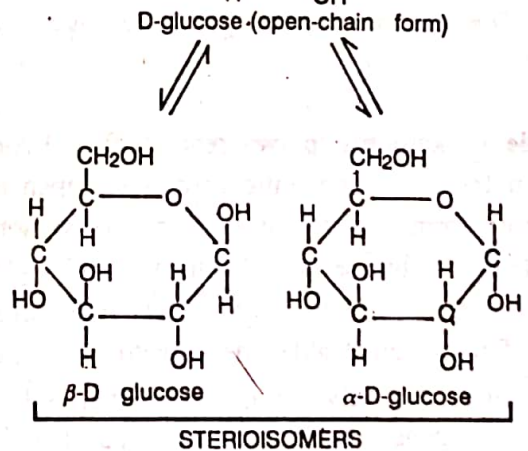
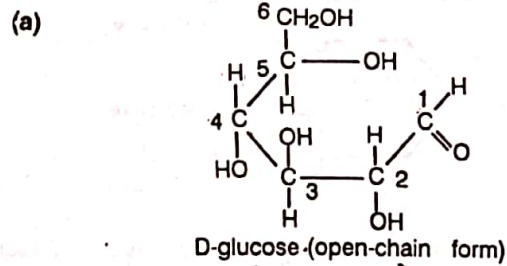
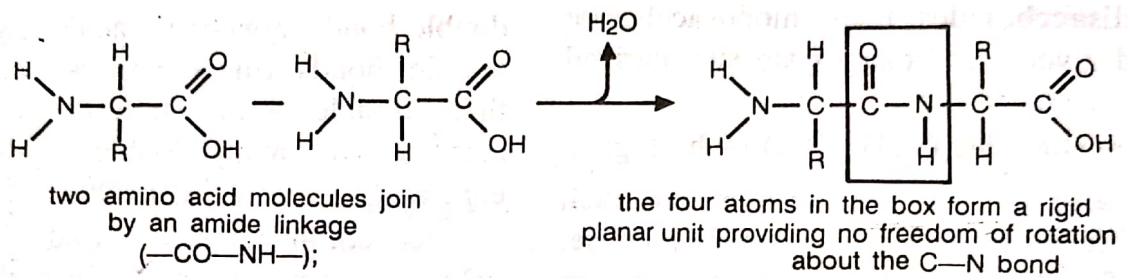


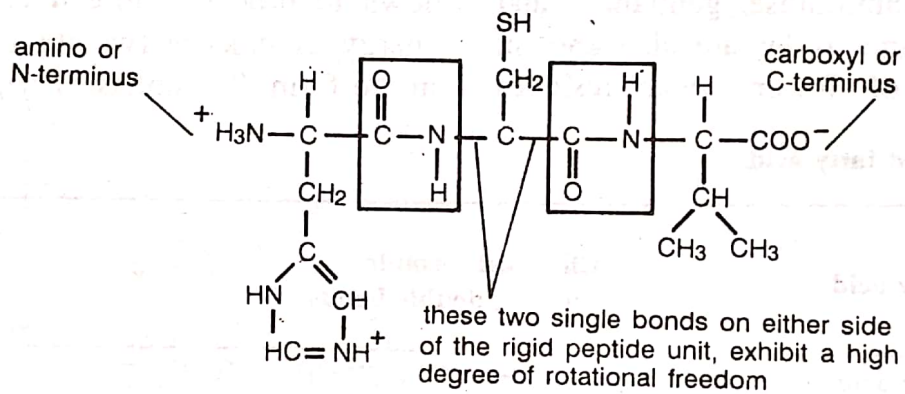
Fig. 3.2. A common pentose-ribose sugar.

ranging from 3 to 7. The simplest of these monosaccharides are those, with n = 3 giving a





(a) formation of a dipeptide



(b) a tripeptide (HIS-CYS-VAL) showing N-terminus (always written to the left and C-terminus always written to the right)

Fig. 3.8. (a) Formation of a peptide bond between two amino acids giving a dipeptide and (b) a tripeptide with N-terminus and C-terminus.