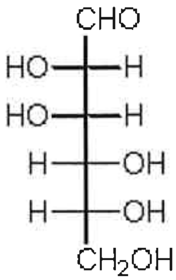
Names:

Jeopardy

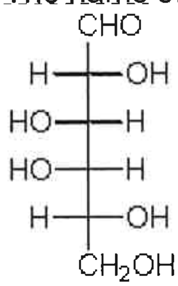
50 The definition of a sugar - polyhydroxy-aldehyde and ketone

100 A 6-member heterocyclic ring containing oxygen and two double bonds within the ring. pyran

150 The name for this structures suggests segregation - D-mannose



200 The name of this structure suggests symmetry D-Galactose



250 The name of the simplest ketose : dihydroxacetone

NAMES
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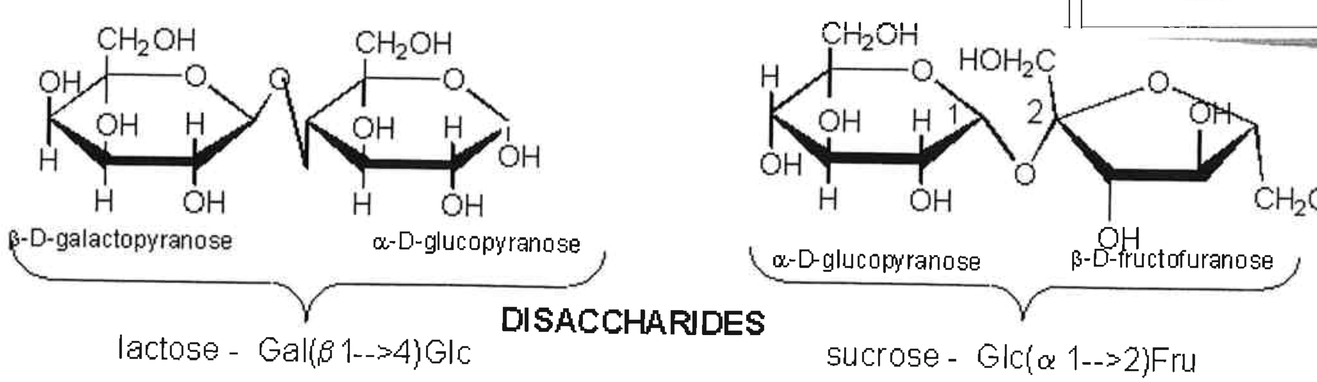
CHEMISTRY

50 This reaction is typical of aldehydes and nucleophiles: nucleophile addition

100 This adds to a hemiacetal to form an acetal. Alcohol

THE DAILY DOUBLE

150 The disaccharide sucrose, Glc α(1--> 2) Frc can not do this, but the disaccha β(1 --> 4) Glc can. Frc not reducing ~~sugar~~



CHEMISTRY
50
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200 This reagent and catalyst can be used to cleave acetal links -H20 and acid

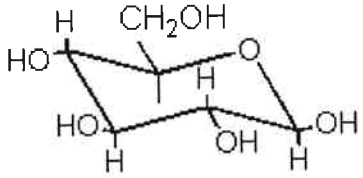
250 amide: peptide bond :: acetal: _glycosidic bond_____

1

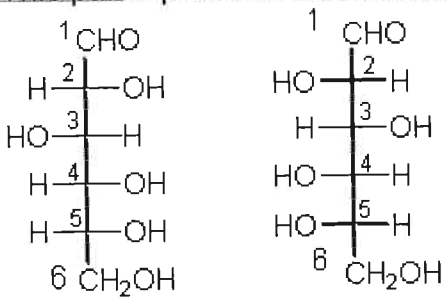
ISOMERS

The only aldose with all bulky substituents in the equatorial position

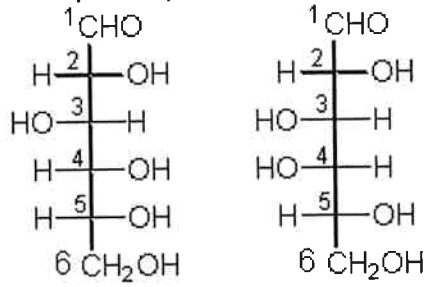
50 beta-D-glucopyranose



100 This pair represents a certain kind of configurational isomers - enantiomers



150 This pair represents a certain kind of configurational isomers. Diastereomers or epimers



200 The penultimate C (and last chiral C) contains an OH that points to the right in this kind of sugar. D-sugar

250 These two different types of conformers of aldoses are clearly different from configuration isomers. chair/boat

ISOMERS
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100
150
200
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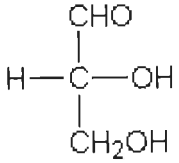
PROJECTIONS

50 The dominant form of Glc in solution: beta-D-glucopyranose

100 The dominate form of Glc in a polysaccharide: beta-D-glucopyranose

150 The dominant form of fructose in solution: beta-D-fructofuranose

200 This is the simplest 3C aldose : glyceraldehyde



250 The direction that an -OH group points in a Haworth projection if it points to the right in the aldose or ketose linear form: Down

PROJECTIONS
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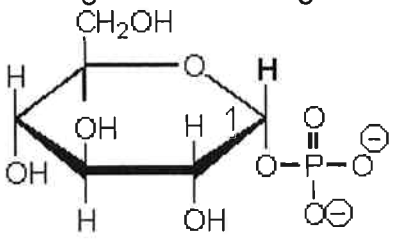
DERIVATIVES

50 This sugar contains a phosphate group, which are common in sugar derivatives as they undergo catabolic degradation in cells. α-D-Glucose-1-phosphate



DERIVATIVES
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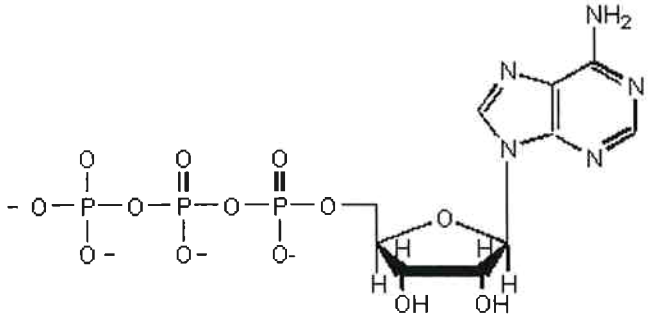
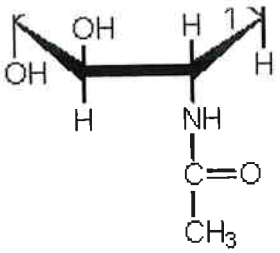
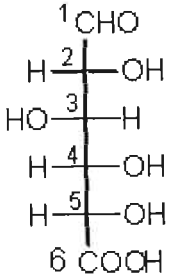
100 This sugar is in ATP: D-ribose



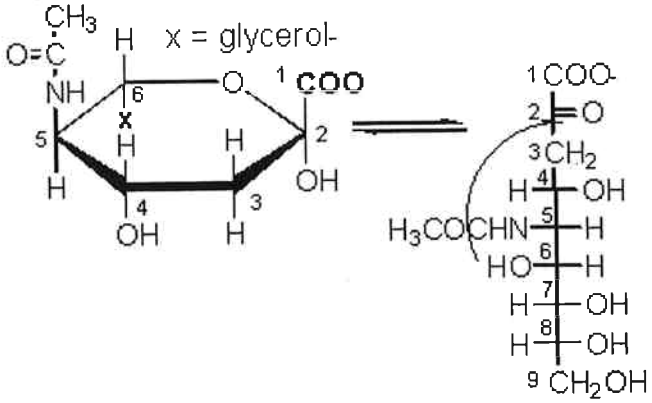
150 The name of this sugar implies that it is a sugar-amine derivative: β-D-N-acetylglucosamine



200 The name of this sugar derivative implies that it is an acid. D-glucuronic acid



250 This structure, derived from D-Man and pyruvic acid, might prove to be the one which most separates human and chimps. Sialic acid acid or N-acetylneuraminic acid



DOUBLE J

POLYSACCHARIDES

100 This polysaccharide is used for energy storage in plants: starch

200 This different polysaccharide is used for energy storage in animals. glycogen

300 This polysaccharide is the major constituents of exoskeletons. Chitin

400 This link glycosidic link is found in glycogen and starch: alpha-1,4

500 This glycosidic link is found in cellulose. beta-1,4

POLYSAC.
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GAG'S

100 This is the number of monosaccharides in the repeat unit of glycosoaminoglycans. two

200 This carboxylic acid derivative of glucose is fond in heparin and chondrotin sulfate. D-glucuronic acid

300 This glycosidic link connects monomers in the dissacharide repeat of heparin. alpha-1,4

400 This glycosoaminoglycan is found in synovial fluid: hyaluronic acid

500 This is the net charge at physiological pH on the repeat dissacharide unit of heparin. 4-

GAG'S
100
200
300
400
500

CELL WALL

100 Found in bacteria, these structures contain both carbohydrate and amino acids. peptidoglycans

200 Bacteria cell walls contain a repeat of this dissacharide unit. NAM-NAG or N-acetylmuramic acid-N-acetylglucosamine

300 The link between NAM on adjacent strands of a bacterial cell wall contains a pentapeptide of this amino acid. Glycine

DAILY DOUBLE

400 Attached to NAN in Gram + bacterial cell walls, teichoic acid consists of a polymer of this molecule linked by phosphodiester bonds. glycerol or ribitol

500 The names of two unusual amino acids found in bacterial cell walls. D-isoglutamic and D-Ala

WALLS
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GLYCOPROTEINS

GLYCOPROTEIN
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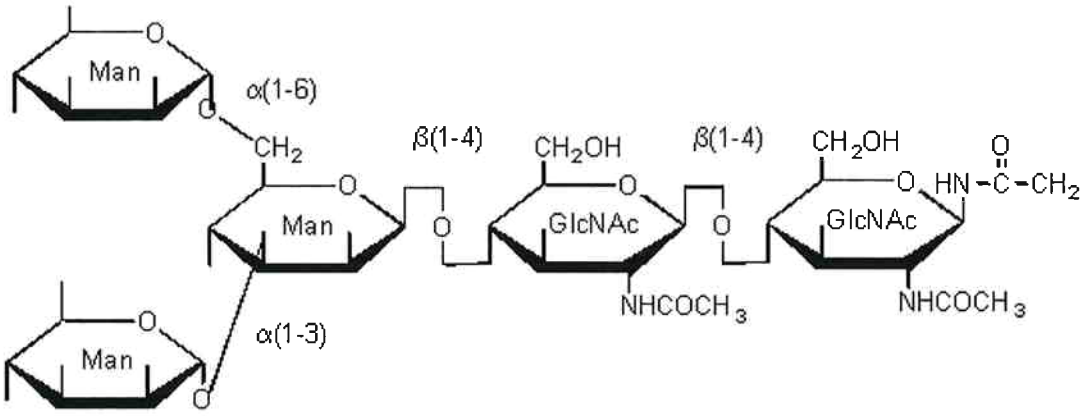
100 N-linked oligosaccharides ususally connect to a protein at this amino acid. Asparagine

200 O-linked oligosaccharides usually connect to a protein at this amino acid. Ser or Thr

300 This sugar is found in all high mannose, N-linked oligosaccharides in glycoproteins. Mannose

400 Complex N-linked oligosaccharides in glycoproteins usually terminate in this sugar derivatives. Sialic acids like N-acetylneuraminic acid

500 This structure is usually found in these types of N-linked oligosaccharides Core Oligosacc or Man_3 $(GlcNAc)_2$ in glycoproteins



PG/MEMBRANES
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PROTEOGLYCANS AND MEMBRANES

100 This kind of glycoprotein has an extensive amount of glycosoaminoglycan covalently attached to a protein core. proteoglycan

200 These two sites are where you would expect to find proteoglycans.in the bilayer and extracellular matrix or joints

300 Water-soluble proteins can be attached to membranes by attaching a isoprenoid derivative to this amino acid.Cys

400 The phospholipid is often attached to GlcNAc in soluble glycoproteins and anchors them to membranes. PI - phosphatidylinositol

500 Of a eukaryotic, Gram (+) bacteria, or Gram (-) bacteria, the one with the most complicated membrane/cell wall structure. Gram (-) bacteria