

<Q>Which of the following pairs are structural polymers

<S>Y #

<C>starch and glycogen

<C>starch and pectin

<C+>cellulose and chitin

<C>cellulose and glycogen

<Q>In which of the following cell types the outer membrane contains carbohydrate polymers cross-linked by short peptides?

<S>Y

<C+>bacterial cells

<C>plant cells

<C>animal cells

<C>red blood cells

<Q>The molecule of the highest branching is

<S>Y

<C+>glycogen

<C>amylose

<C>amylopectin

<C>chitin

<Q>Blood groups on the erythrocyte membrane contain sphingosine, fatty acid, and a carbohydrate. Which of the following statements is CORRECT?

<S>Y

<C+>the blood group antigens differ in the type of the carbohydrate

<C>the blood group antigens differ in the type of the fatty acid

<C>the blood group antigens differ in the type of the sphingosine

<C>all the blood group antigens have the same chemical structure

<Q>Sucrose is a disaccharide which on hydrolysis gives

<S>Y

<C>one molecule of glucose and one molecule of galactose

<C>two molecules of glucose

<C+>one molecule of glucose and one molecule of fructose

<C>two molecules of fructose

<Q>The glycosidic linkage beta(1-->4) is present in

<S>Y

<C+>cellulose

<C>amylose

<C>glycogen

<C>amylopectin

<Q>Glycogen and amylose are structurally similar in that they both

<S>Y ##

<C>have beta(1-->4) and beta(1-->6) glycosidic bonds.

<C+>have alpha(1-->4) glycosidic bonds.

<C>have only alpha(1-->6) glycosidic bonds.

<C>have the same degree of branching

<Q>A branched homopolysaccharide that is found in insects is:

<S>Y

<C>Glycogen.

<C+>Chitin.
<C>Cellulose.
<C>Starch

<Q>Monosaccharides, such as ribose, fructose, glucose, and mannose differ significantly in all of the followings EXCEPT in:

<S>Y #
<C+>the number of their enantiomers .
<C>the positions of their carbonyl groups.
<C>their diastereomeric configurations.
<C>their number of carbon atoms

<Q>Which of the following pairs are energy-storage polymers

<S>Y
<C+>starch and glycogen
<C>starch and pectin
<C>cellulose and chitin
<C>cellulose and glycogen

<Q>Monosaccharides have all the following characteristics EXCEPT

<S>Y #
<C>they form sulfate esters
<C>they form phosphate esters
<C+>they are nonreducing sugars
<C>they interact to form glycosidic bonds

<Q>The polymer that contains N-acetyl glucoseamine is:

<S>Y
<C+>chitin
<C>pectin
<C>amylopectin
<C>amylose

<Q>Which of the following blood group substances contain an extra alpha-galactose residue at the non-reducing end?

<S>Y
<C>blood group A
<C+>blood group B
<C>blood group O
<C>blood groups do not contain this molecule

<Q>Which of the following statements is CORRECT?

<S>Y
<C+>amylose forms a blue color with iodine
<C>both amylose and cellulose form a blue color with iodine
<C>both amylose and cellulose form helical structure
<C>amylopectin is a linear molecule

<Q>Which of the following statements is TRUE for D-glucose

<S>Y #
<C>it exists mainly in an open chain form having alpha- and beta-forms
<C>it differs from the L-glucose in the orientation of the hydroxyl group at carbon number 1

<C+>the difference between the alpha- and beta- forms is in the orientation of the OH group at carbon number 1
<C>it is ketohexose

<Q>Cellulose fibers resemble ___ in proteins; whereas alpha-amylase is similar to ___.

<S>Y

<C>alpha-helices; beta-sheets.

<C+>beta-sheets; alpha-helices.

<C>beta-turns; coiled-coils.

<C>alpha-helices; beta-turns.

<Q>All of the followings are reducing sugars EXCEPT:

<S>Y

<C>Galactose.

<C>Glucose.

<C+>Sucrose.

<C>Lactose.

<Q>The glycosaminoglycan that acts as a common anticoagulant is

<S>Y #

<C>chondroitin sulfate

<C>dermatan sulfate

<C+>heparin

<C>keratan sulfate

<Q>Which of the following pair of monosaccharides are epimers ?

<S>Y

<C+>D-Glucose and D-Mannose.

<C>D-Galactose and D-Mannose

<C>D-Erythrose and L-erythrose

<C>D-Glucose and D-fructose

<Q>Hydrolysis of maltose will yield _____.

<S>Y

<C>glucose and galactose

<C>fructose and glucose

<C>glucose and mannose

<C+>glucose only

<Q>Which is a difference between maltose and cellobiose?

<S>Y

<C>One is the repeating unit in cellulose and the other in starch.

<C>One is linear and the other is branched.

<C+>The glycosidic bond configuration is different.

<C>The subunit sugars are not glucose for both.

<Q>Cellulose is not highly branched because it:

<S>Y

<C>does not have a polysaccharide backbone.

<C+>it does not have α -(1 \rightarrow 6) linkages.

<C>it does not have β -(1 \rightarrow 4) linkages.

<C>it is insoluble in water.

<Q>Which statement is CORRECT about chitin?

<S>Y #

<C>It is not found in insect and crustacean shells.

<C>It is not found in fungi cell walls.

<C+>It is composed of N-acetylglucosamine subunits.

<C>It is not composed of linear fibrils like cellulose.

<Q>Reaction of aldehyde with alcohol produces

<S>Y ##

<C>hemiketal

<C+>hemiacetal

<C>carboxylic acid

<C>full ketal

<Q>What type of bond links the monomers of a polysaccharide?

<S>Y

<C>glucotide bond

<C>phosphate ester bond

<C>peptide bond

<C+>glycosidic bond

<Q>A monosaccharide is

<S>Y

<C+>a compound with one carbonyl group and two or more hydroxyl groups

<C>a compound with one hydroxyl group and two or more carbonyl groups

<C>an aromatic aldehyde

<C>an aromatic ketone

<Q>Maltose consists of the following two monosaccharides:

<S>Y

<C>Galactose and mannose.

<C+>Glucose and glucose.

<C>Fructose and glucose.

<C>Galactose and Glucose

<Q>A major difference between amylose and amylopectin is that

<S>Y

<C>amylose is connected by alpha(1-4) bonds and amylopectin is connected by beta(1-4) bonds.

<C>amylose is branched and amylopectin is not.

<C+>amylopectin is branched and amylose is linear.

<C>each is composed of different types of sugar residues.

<Q>Glycogen is

<S>Y

<C>polysaccharide storage polymer found in plants

<C>a linear polysaccharide

<C+>a highly branched polysaccharide found in animals

<C> a synthetic sugar substitute

<Q>Chitin, which forms the exoskeletons of insects, is composed of

<S>Y

<C> alpha(1-4) linked N-acetylglucosamine residues

<C+>beta(1-4) linked N-acetylglucosamine residues

<C>alpha(1-4) linked glucose residues
<C>beta(1-4) linked glucose residues

<Q>The chemical name for table sugar is _____ and it is a _____.
<S>Y

<C>lactose; monosaccharide
<C>lactose; disaccharide
<C>sucrose; monosaccharide
<C+>sucrose; disaccharide

<Q>Which is not a similarity between glycogen and amylopectin?
<S>Y

<C>They each contain about 6000 glucose residues.
<C>Each has one reducing end and many nonreducing ends.
<C>Each is branched.
<C+>Each has branches of similar chain length.

<Q>Amylose differs from amylopectin in that amylose
<S>Y ##

<C>has different monomers than amylopectin.
<C>has different glycosidic bond configuration
<C>is highly branched and amylopectin is not.
<C+>forms a helix and no branch points.

<Q>Which statement is incorrect about chitin?
<S>Y #

<C>found in insect and crustacean shells.
<C>found in fungi cell walls.
<C+>composed of N-acetylgalactosamine subunits.
<C>composed of linear fibrils like cellulose.

<Q>The compounds alpha-D-fructofuranose and beta-D-fructofuranose are
_____.

<S>Y
<C>enantiomers
<C>mutamers
<C+>anomers
<C>conformational isomers

<Q>alpha-amylose is similar to ____.;whereas Cellulose fibers resemble ____
in proteins.

<S>Y
<C+> alpha-helices; beta-sheets.
<C> beta-sheets; alpha-helices.
<C> beta-turns; coiled-coils.
<C> alpha-helices; beta-turns.

<Q>Chitin and cellulose are structurally similar in that they both
<S>Y #

<C> have alpha(1->4) and beta(1->6) glycosidic bonds.
<C> have only alpha(1->4) glycosidic bonds.
<C+>have only beta(1->4) glycosidic bonds.
<C> have the same amounts of branchings.

<Q>Which of the following is an example of a storage polysaccharide made by animals?

<S>Y

<C>cellulose.

<C+>glycogen

<C>amylopectin.

<C>starch.

<Q>Cellulose differs from starch in that cellulose is

<S>Y

<C+>an beta(1-->4)-linked glucose polysaccharide.

<C>an alpha(1-->6)-linked glucose polysaccharide.

<C>an alpha(1-->4)-linked glucose polysaccharide.

<C>an alpha(1-->4)-linked mannose polysaccharide.

<Q> Which is not a glycoconjugate?

<S>Y

<C> Proteoglycan

<C> glycolipid

<C> glycoprotein

<C+> homoglycan

<Q> Which does not apply to dihydroxyacetone?

<S>Y

<C>ketose

<C>triose

<C+>chiral

<C>water-soluble

<Q> Which is true about naturally occurring monosaccharides?

<S>Y

<C>The L-isomers predominate.

<C+>The D-isomers predominate.

<C>The L and D-isomers occur in equal ratios.

<C>The ratio of L and D-isomers varies widely depending on the source.

<Q> The intramolecular cyclization reaction of glucose in solution

_____·
<S>N

<C>generates a chiral center

<C>yields a hemiacetal

<C>usually forms a pyranose

<C+>All of the above

<Q> Which statement is false about the sugar units in DNA?

<S>Y

<C>They are cyclic in DNA.

<C>It is a deoxy form of ribose

<C+>It is an epimer of glucose.

<C>It has a D-configuration

<Q> Naturally occurring glycosides have roles in cells which include

<S>N

<C>subunits of DNA.

<C>chemical signals to plants.
<C>units in cell membrane structure.
<C+>All of the above