

CARBOHYDRATE EXERCISE TEST

1)	Insert the missing words. The following structure represents a <u>(1)</u> and a <u>(2)</u> in series <u>(3)</u>
A	1 = aldose, 2 = pyranose, 3 = α.
B	1 = ketose, 2 = furanose, 3 = β.
C	1 = ketose, 2 = furanose, 3 = α.
D	1 = aldose, 2 = pyranose, 3 = β.
2)	Indicate how many aldoses and ketoses, furanoses and pyranoses are present in maltose.
A	1 aldose, 1 ketose, 1 furanose, 1 pyranose.
B	2 aldoses, 0 ketoses, 0 furanoses, 2 pyranoses.
C	0 aldoses, 2 ketoses, 1 furanose, 1 pyranose.
D	1 aldose, 1 ketose, 0 furanoses, 2 pyranoses.
3)	Indicate in which carbon atom D-mannose is an epimer of D-glucose.
A	2-C.
B	3-C.
C	4-C.
D	It is not the epimer.
4)	Indicate a sugar that has 3 stereocenters, considering only the open chain structure.
A	D-Mannose.
B	D-Glucose.
C	D- Ribose.
D	D- Glyceraldehyde.
5)	Indicate the type of monosaccharide shown in the figure.
A	D- Ketopentose.
B	L- Aldotetrose.
C	L- Aldohehexose.
D	D-Aldopentose.
6)	Indicare quanti aldoses e ketoses, furanosì e piranosì sono presenti nel cellobiosio.
A	1 aldose, 1 ketose, 2 furanoses, 0 pyranoses.
B	2 aldoses, 0 ketoses, 1 furanose, 1 pyranose.
C	2 aldoses, 0 ketoses, 2 furanoses, 0 pyranoses.
D	2 aldoses, 0 ketoses, 0 furanoses, 2 pyranoses.

7)	Indicate the incorrect statement regarding D-glyceraldehyde. A It's a triose. B In Fischer's projection, the OH group bonded to the chiral center is on the right. C It is stereochemistry S. D It is an aldose.
8)	Indicate the relationship between α -D-fructofuranose and α -D-fructopyranose. A Epimers. B Enantiomers. C Diastereomers. D Structural isomers.
9)	Indicate in which carbon atom the D-idose, shown in the figure, is an epimer of D-glucose.. <div style="text-align: center;"> $\begin{array}{c} \text{CHO} \\ \\ \text{HO} - \text{C} - \text{H} \\ \\ \text{H} - \text{C} - \text{OH} \\ \\ \text{HO} - \text{C} - \text{H} \\ \\ \text{H} - \text{C} - \text{OH} \\ \\ \text{CH}_2\text{OH} \end{array}$ </div> A 2-C. B 3-C. C 4-C. D It is not the epimer.
10)	Indicate how many aldoses and ketoses, furanoses, and pyranoses are present in lactose.. A 2 aldoses, 0 ketoses, 2 furanoses, 0 pyranoses. B 0 aldoses, 2 ketoses, 2 furanoses, 0 pyranoses. C 2 aldoses, 0 ketoses, 0 furanoses, 2 pyranoses. D 0 aldoses, 2 ketoses, 0 furanoses, 2 pyranoses.
11)	Indicate which of the following compounds is D-fructose.. <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;"> $\begin{array}{c} \text{CH}_2\text{OH} \\ \\ =\text{O} \\ \\ \text{H} - \text{C} - \text{OH} \\ \\ \text{H} - \text{C} - \text{OH} \\ \\ \text{H} - \text{C} - \text{OH} \\ \\ \text{CH}_2\text{OH} \end{array}$ A </div> <div style="text-align: center;"> $\begin{array}{c} \text{CH}_2\text{OH} \\ \\ =\text{O} \\ \\ \text{HO} - \text{C} - \text{H} \\ \\ \text{H} - \text{C} - \text{OH} \\ \\ \text{H} - \text{C} - \text{OH} \\ \\ \text{CH}_2\text{OH} \end{array}$ B </div> <div style="text-align: center;"> $\begin{array}{c} \text{CH}_2\text{OH} \\ \\ =\text{O} \\ \\ \text{H} - \text{C} - \text{OH} \\ \\ \text{HO} - \text{C} - \text{H} \\ \\ \text{H} - \text{C} - \text{OH} \\ \\ \text{CH}_2\text{OH} \end{array}$ C </div> <div style="text-align: center;"> $\begin{array}{c} \text{CH}_2\text{OH} \\ \\ =\text{O} \\ \\ \text{HO} - \text{C} - \text{H} \\ \\ \text{HO} - \text{C} - \text{H} \\ \\ \text{H} - \text{C} - \text{OH} \\ \\ \text{CH}_2\text{OH} \end{array}$ D </div> </div>

12)	<p>Indicate the types of joints present in raffinose..</p> <p>A 1 = 1→2; 2 = 1→4. B 1 = 1→6; 2 = 1→6.</p> <p>C 1 = 1→6; 2 = 1→2. D 1 = 1→2; 2 = 1→6.</p>
13)	<p>Indicate the molecular formula of gentiobiose, knowing that it is a reducing disaccharide that forms D-glucose upon hydrolysis.</p> <p>A C₁₂H₂₄O₁₂. B C₁₂H₂₂O₁₁. C C₁₁H₂₂O₁₁.</p> <p>D C₁₁H₂₀O₁₀.</p>
14)	<p>Indicate the incorrect statement about D-glucose.</p> <p>A It has a ketone group. B It has a primary alcohol group.</p> <p>C It has four secondary alcohol groups. D It has six carbon atoms..</p>