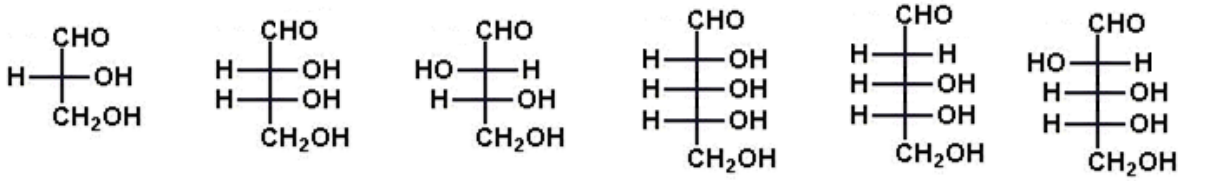
HOMEWORK #8

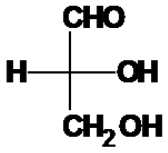
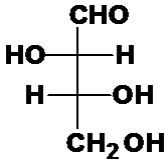
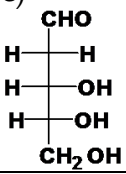
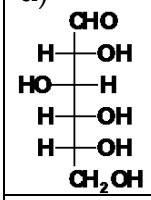
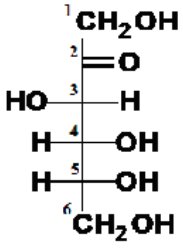
CHEM 121, section 1 Winter 2015 **Printed Name:** _____
Background and Chps. 18. Carbohydrates
Homework February* 6, 2015 *by 12:15 PM! **Group Name:** _____

1) (2 pts) Give names of the following carbohydrates. Identify (*) the chiral carbon atoms

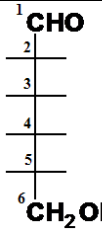
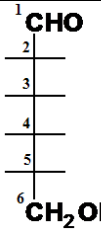
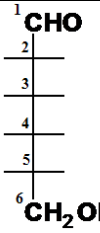
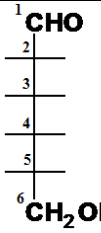
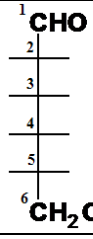
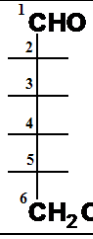
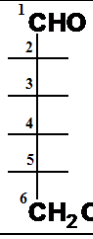
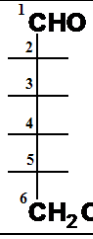


a) _____ b) _____ c) _____ d) _____ e) _____ f) _____

2) (4 pts.) Circle the correct classifications that apply to the following carbohydrates.

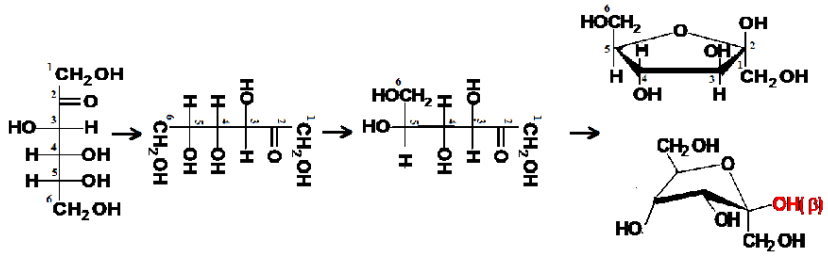
Carbohydrate	Formula	Type	Carbons	Named	Configu-ration
a) 	$C_nH_{2n}O_n$=	Aldose/ketose	Triose/ Tetrose/ Pentose/ Hexose	Name:	D/L
b) 	$C_nH_{2n}O_n$=	Aldose/ketose	Triose/ Tetrose/ Pentose/ Hexose	Name:	D/L
c) 	$C_nH_{2n}O_n$=	Aldose/ketose	Triose/ Tetrose/ Pentose/ Hexose	Name:	D/L
d) 	$C_nH_{2n}O_n$=	Aldose/ketose	Triose/ Tetrose/ Pentose/ Hexose	Name:	D/L
e) 	$C_nH_{2n}O_n$=	Aldose/ketose	Triose/ Tetrose/ Pentose/ Hexose	Name:	D/L

3) (3 pts.) Complete the names, circle carbon atom numbers of the OH group which is on the left and the structure for following aldohexoses.

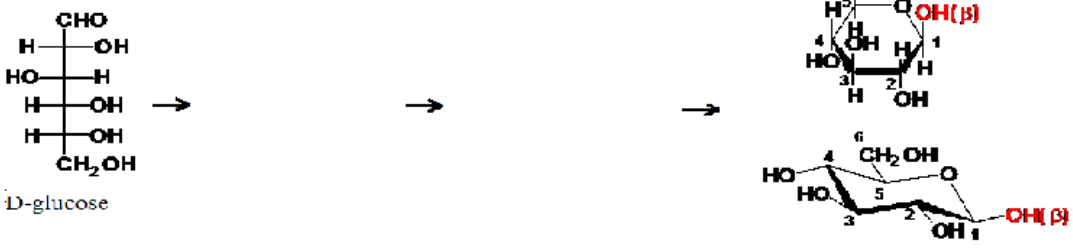
All	**Altruists**	**Gladly**	**Make**
Name:_____	Name: _____	Name: _____	Name: _____
C2/C3/C4	C2/C3/C4	C2/C3/C4	C2/C3/C4
			
Gum	**in**	**Gallon**	**Tanks**
Name: _____	Name: _____	Name: _____	Name: _____
C2/C3/C4	C2/C3/C4	C2/C3/C4	C2/C3/C4
			

4) (3 pts.) Complete the hemiacetal structures for following carbohydrates. Circle the **anomeric carbon atom**.

The following diagram shows how to get the cyclic hemiacetal form of the ketohexose sugar D-fructo**furanose** with β-anomeric

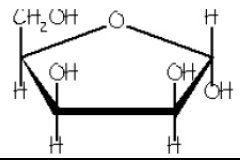
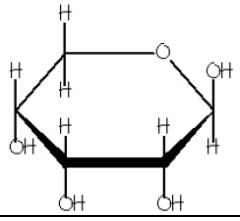


a) Complete following diagram to get the cyclic hemiacetal form of the aldohexose sugar D-gluco**pyranose** with β-anomeric configuration.



b) Draw the structure of β-D-mannopyranose
c) What is the difference between pynanose and furanose types of sugars? d) What is the difference between α and β forms of cyclic hemiacetal forms of sugars?

5) (3 pts.) Convert the hemiacetal cyclic structures (Haworth Projections) for following carbohydrates to Fischer Projections.

The following diagram shows how to get the cyclic hemiacetal form of the hexoketose sugar D-fructo**furanose** with b-anomeric			
a) Haworth Projections of cyclic hemiacetal. 	Name of the compound:	Fischer Projection of linear form:	Name of the compound:
b) Haworth Projections of cyclic hemiacetal. 	Name of the compound:	Fischer Projection of linear form:	Name of the compound:

6) (2 pts) What are the following? What is/are glucosidic linkage found in them?

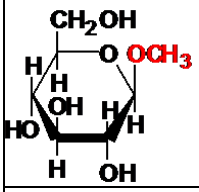
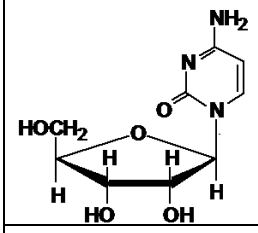
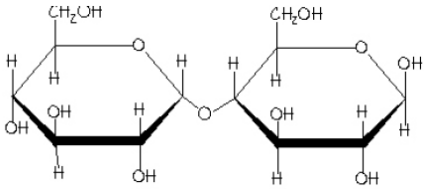
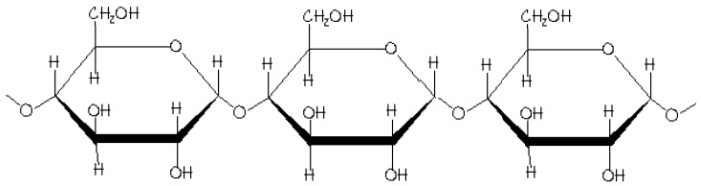
a) **Starch:**

b) **Amylopectin:**

c) **Glycogen:**

d) **Cellulose**

7) (3 pts.) Answer following question about glycosidic bond of the di-, oligo- and poly- saccarides.

a) Name of the following glucoside	**Answer**
	
b) Name of the following N-Glycoside	**Answer**
	
c) a) Name of the following glucoside.	**Answer**
	
d) The following is a part of a cellulose polymeric chain. What is the type of glucosidic linkage?	**Answer**
	
e)What is DNA? Describe the components.	
f)What is RNA? Describe the components.	