Third directed work of biochemistry

Structure and physicochemical properties of carbohydrates

Exercise1 : Indicate which of these statements is (are) correct

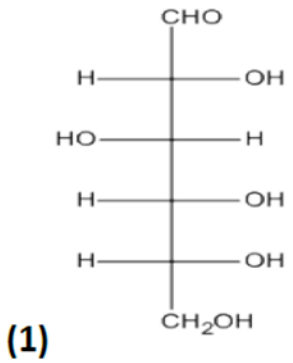
Question 1 : Concerning the cyclic structure of sugars:

- **a.** The ring is formed by a bond in the sugar molecule between two carbonyl functions.
- **b.** The pyranic form corresponds to a hererocycle with 6 vertices.
- **c.** Anomeric OH gives rise to carbon number 1 in the case of ketosis.

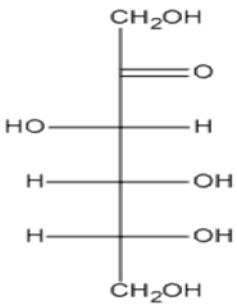
Question 2 : Concerning the carbohydrates :

- **a.** 20% of calories provided by the human diet are carbohydrates.
- **b.** Two sugars having the same number of carbons and the same chemical form, but differing in the stereoisomeric configuration of their carbons are called enantiomers.
- **c.** Ribose is a ketopentose.

Exercise 2: Give the cyclic form and the names of the compounds above. (α anomer, pyran form for compound 1 and β anomer, furan form for compounds 2 and 3).



(1)



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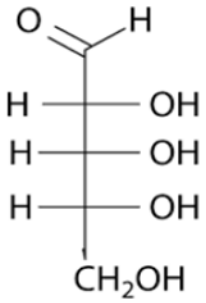

(3)

Exercice 3: Consider the following carbohydrates:

Carbohydrate A : α-D-Glucopyranosyl (1-2) β-D-Fructofuranoside;

Carbohydrate B : β-D-Galactopyranosyl (1-4) D-Glucopyranose.

Give their formulas in the cyclic representation.