

## Fourth directed work of biochemistry

### Structure and physicochemical properties of carbohydrates

**Exercise 1 : Indicate which of these statements is (are) correct**

**Question 1 :** Amylopectin and glycogen are:

- linear polymers.
- both of plant origin.
- polymers containing the same types of bonds.
- of plant and animal origin respectively.

**Question 2 :** Concerning the physicochemical properties of carbohydrates:

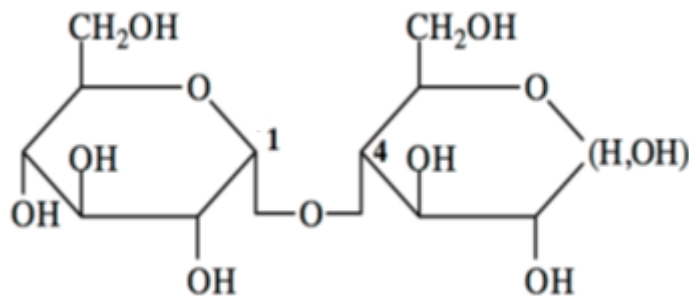
- The sugars are crystallized with ethanol.
- Sugars exhibit absorption in the visible.
- Ribose is a ketopentose.

**Exercise 2:**  $\beta$ -fructosidase hydrolyzes sucrose:  $\alpha$  D-Glucopyranosyl (1-2)  $\beta$ -D-Fructofuranoside

- Write the equation for the hydrolysis reaction by giving the structural formulas of the compounds.

**Exercise 3:** Write the structural formula of lactose:  $\beta$  -D-galactopyranosyl 1-4 D-glucopyranose

**Exercise 4:** Identify the 2 sugars that are part of the composition of this disaccharide.



- Give the chemical name of this disaccharide accounting for the 2 sugars involved, the shape of their cycle and the types of bonds between the carbohydrates.