## STRUCTURE AND FUNCTION OF LARGE BIOLOGICAL MOLECULES

The most important large molecules found in all living things can be sorted out into 4 main classes: lipids, carbohydrates, proteins, nucleic acids. On molecular scale carbohydrates, proteins, nucleic acids are huge and therefore called macromolecules. These molecules are chainlike molecules, polymers, made up of similar or identical building blocks linked by covalent bonds. Large biomolecules are constantly broken down and synthesized by the cell. **Dehydration reactions** are reactions where molecules are covalently linked to each other with a loss of water, these reactions make bio molecules. Hydrolysis breaks down large molecules. It is the reverse process of dehydration reaction. These processes are made easier by enzymes. **Enzymes** are specialized macromolecules that speed up chemical reactions.

## Carbohydrates

Carbohydrates include sugars and polymers of sugars. The simples of earbohydrates are monosaccharides. Monosaccharides generally have herecular formula of (CH2O)n.Glucose is the most common more and levice The sugar molecule has a carbopylo dup C=O and multiple hydroxyl groups -OH Depending on the location of the carbonyl 🕼 a ketose.aldose has a Glucose group, the sugar one be either and carbol vi group at the ends of the carbon skeleton ketone has a carbonyl group within the carbon skeleton.

HO

HC

OH.



Disaccharide consists of 2 monosaccharides joined by a glycosidic linkage, a bond formed between 2 monosaccharides through dehydration reaction. Some of these disaccharides are maltose, sucrose and lactose. Maltose is formed by linking 2 glucose molecules and is used in brewing beer. Sucrose or table sugar is formed by glucose and fructose. Lactose is a sugar present in milk and is formed by glucose and galactose. Polysaccharides are macromolecules, made of few hundred or few thousand monosaccharides. They have many different purposes. Some are storage units, others are building materials for structures that protect the cell. For example, plants store