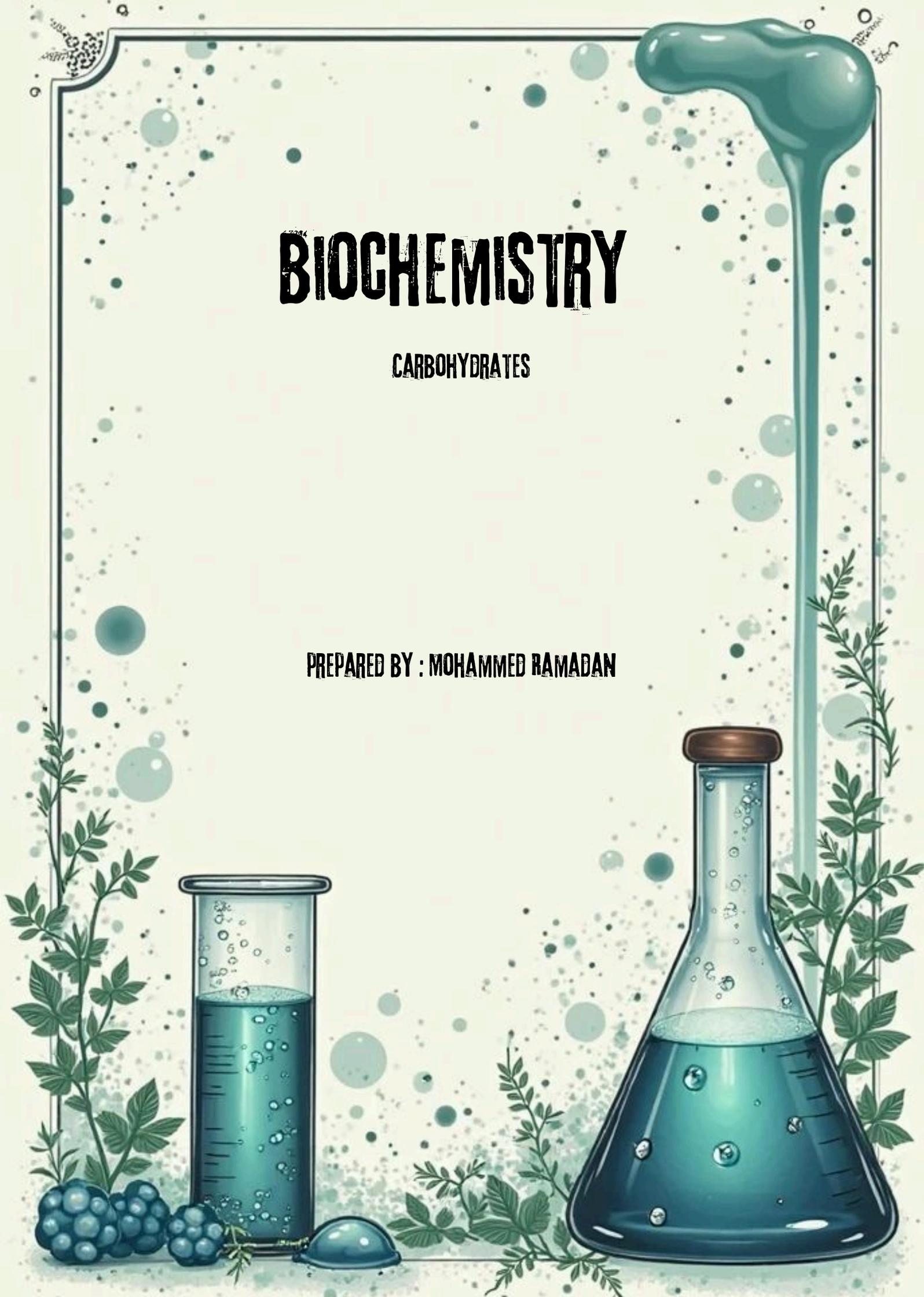


# BIOCHEMISTRY

## CARBOHYDRATES

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1. A carbohydrate molecule X contains 6 carbon atoms, a free aldehyde group, and is the main energy source for erythrocytes. Which of the following best describes X?
- A hexoketose
  - A reducing disaccharide
  - An aldohexose
  - A pentose sugar
  - A sugar alcohol
2. Disaccharide X is composed of Y and Z, joined by an  $\alpha$ -1, $\beta$ -2 glycosidic bond. Identify X, Y, and Z ?
- X = Lactose, Y = Glucose, Z = Galactose
  - X = Sucrose, Y = Glucose, Z = Fructose
  - X = Maltose, Y = Glucose, Z = Glucose
  - X = Cellobiose, Y = Glucose, Z = Glucose
  - X = Isomaltose, Y = Glucose, Z = Glucose
3. If enzyme X that normally oxidizes glucose to gluconic acid is defective, what diagnostic test will become unreliable?
- HbA1c
  - Oral glucose tolerance test
  - Benedict's test
  - Urine strip test
  - Iodine starch test
4. You are given two solutions: one contains glucose, the other fructose. Only one shows a positive result with glucose oxidase. How do you know which is which?
- The one that's sweeter is glucose
  - The one with ketone is glucose
  - The one that gives blue-black with iodine is fructose
  - The one that reacts with glucose oxidase is glucose
  - The one that forms mannitol is glucose
5. Which sugar derivative is involved in detoxification and forms part of mucopolysaccharides?
- Galactitol
  - Mannitol
  - Glucuronic acid
  - Deoxy-ribose
  - Glucosamine
6. Which of the following is not a correct pair of disaccharide and its constituent sugars?
- Sucrose – Glucose + Fructose
  - Lactose – Galactose + Glucose
  - Maltose – Glucose + Glucose
  - Isomaltose – Glucose + Fructose
  - Cellobiose – Glucose + Glucose

7. Which derived sugar is used clinically in measuring glucose levels in blood and urine ?
- Galactose
  - Gluconic acid
  - Mannitol
  - D-glucuronic acid
  - Deoxy-ribose
8. The glycosidic bond between glucose units in Isomaltose is ?
- $\alpha(1\rightarrow2)$
  - $\alpha(1\rightarrow4)$
  - $\beta(1\rightarrow4)$
  - $\alpha(1\rightarrow6)$
  - $\beta(1\rightarrow6)$
9. A patient was found to have abnormal accumulation of a sugar alcohol Y, derived from reduction of monosaccharide X. This condition may lead to cataract formation. What are X and Y?
- X = Fructose, Y = Dulcitol
  - X = Glucose, Y = Mannitol
  - X = Galactose, Y = Galactitol
  - X = Mannose, Y = Gluconic acid
  - X = Ribose, Y = Ribitol
10. A derivative sugar Y is formed from X through replacement of the OH group at C-2 with an amino group. This sugar is a component of glycosaminoglycans. What are X and Y?
- X = Ribose, Y = Ribitol
  - X = Glucose, Y = Glucosamine
  - X = Galactose, Y = Galactitol
  - X = Mannose, Y = Mannitol
  - X = Glucose, Y = Deoxyribose

Answers :-

- C
- B
- D
- D
- C
- D
- B
- D
- C
- B