

This question paper contains 3 printed pages]

Your Roll No. :

Sl. No. of Q. Paper : **3013** **I**

Unique Paper Code : 2173522006

Name of the Paper : DSE: Biomolecules-I

Name of the Course : **B.Sc. (Prog.) Life Sciences**

Semester : IV/VI

Time : 2 Hours **Maximum Marks : 60**

Instructions for Candidates :

- (a) Write your Roll No. on the top immediately on receipt of this question paper.
 - (b) Attempt any **FOUR** questions out of **SIX**. All parts of a question should be attempted together.
 - (c) Each question carries **15 marks**.
- 1.** (a) Explain the open-chain and cyclic structure of glucose with suitable diagrams.
- (b) Explain glycosidic linkage and discuss different types found in disaccharides.
- (c) Compare starch and cellulose in terms of structure and function. (5,5,5)

P.T.O.

- 2.** (a) Differentiate between reducing and non-reducing sugar. Explain why glucose is a reducing sugar but sucrose is not.
 (b) Describe the concept of epimers and anomers with suitable examples.
 (c) Write a short notes on:
 (5,5,5)
 (i) Maltose
 (ii) Lactose
- 3.** (a) Describe the Watson crick model of DNA. How does this model explain the stability and replication of genetic material?
 (b) Compare DNA and RNA in terms of structure, composition, and biological roles. Why is DNA more stable than RNA?
 (c) Describe the process of DNA replication. How does the complementary nature of bases ensure fidelity in replication?
 (5,5,5)
- 4.** (a) Compare nucleosides and nucleotides. How does the addition of phosphate groups influence the structure and biological function?

- (b) Explain the different types of RNA (mRNA, tRNA, rRNA). How does each type contribute to protein synthesis?
 (c) Draw the structure (any two) Adenine, guanine, thymine, cytosine and explain codons with their role. (5,5,5)
- 5.** (a) Describe rancidity and reversion. What are their causes and how can they be prevented?
 (b) Write a short note on steroid hormones and their general properties.
 (c) What are lipoproteins? Briefly mention their function. (5,5,5)
- 6.** (a) Define saponification value. What does it indicate about fatty acids?
 (b) Differentiate between oils and fats based on structure and physical properties.
 (c) Explain the biological importance of triglycerides. (5,5,5)
