

**CLASS- XI (2024-25)**  
**COURSE**  
**STRUCTURE**

**One Paper**

**Time: 3 hrs.**  
**Max. Marks 70+30**

<b>Units</b>		<b>Marks</b>
Unit- I	Biotechnology: An overview	5
Unit-II	Molecules of Life	20
Unit-III	Genetics and Molecular Biology	20
Unit-IV	Cells and Organisms	25
	Practical	30
	<b>Total</b>	<b>100</b>

**CLASS XI**  
**(Theory)**

**One Paper Time: 3 hrs.**

**Total Marks: 70**

**Unit-I Biotechnology: An overview**

**5 Marks**

**Chapter 1: Biotechnology: An Overview**

Historical Perspectives, Technology and Applications of Biotechnology, Global market and Biotech Products.

**Unit-II Molecules of Life**

**20 Marks**

**Chapter 1: Biomolecules: Building Blocks**

Building Blocks of Carbohydrates - Sugars and their Derivatives, Building Blocks of Proteins

- Amino Acids, Building Blocks of Lipids - Simple Fatty Acids, Glycerol and Cholesterol, Building Blocks of Nucleic Acids – Nucleotides.

**Chapter 2: Macromolecules: Structure & Function**

Carbohydrates - The Energy Givers, Proteins - The Performers, Enzymes - The Catalysts, Lipids and Biomembranes - The Barriers, Nucleic Acids - The Managers

### **Unit-III Genetics and Molecular Biology**

**20 Marks**

#### **Chapter 1: Concepts of Genetics**

Historical Perspective, Multiple Alleles, Linkage and Crossing Over, Genetic Mapping.

#### **Chapter 2: Genes and Genomes: Structure and Function**

Discovery of DNA as Genetic Material, DNA Replication, Fine Structure of the Genes, From Gene to Protein, Transcription – The Basic Process, Genetic Code, Translation, Mutations, Human Genetic Disorders.

### **Unit IV Cells and Organisms**

**25 Marks**

#### **Chapter 1: The Basic Unit of Life**

Cell Structure and Components, Organization of Life

#### **Chapter 2: Cell Growth and Development**

Cell Division, Cell Cycle, Cell Communication, Nutrition, Reproduction, Immune Response in Animals.

### **PRACTICALS**

**Note: Every student is required to do the following experiments during the academic session.**

1. Preparation of buffers and pH determination
2. Sterilization techniques
3. Preparation of bacterial growth medium
4. Cell counting
5. Sugar Estimation using Di Nitro Salicylic Acid test (DNS test)
6. Assay for amylase enzyme
7. Protein estimation by biuret method

### **Scheme of Evaluation**

**Time: 3 Hours**

**Max. Marks 30**

**The scheme of evaluation at the end of session will be as under:**

Two experiments	:	20
Marks Viva on experiments	:	5
Marks Practical record	:	5 Mark