

2.8 40129 MOLECULAR BIOLOGY AND GENETIC ENGG.

UNIT-1 INTRODUCTION TO MOLECULAR BIOLOGY

- 1.1 Concepts of molecular biology,
- 1.2 Understanding the flow of information from DNA- RNA- proteins,
- 1.3 Functions of DNA and RNA

UNIT-2 DNA REPLICATION & REPAIR

- 2.1 DNA replication in prokaryotes,
- 2.2 DNA replication in eukaryotes,
- 2.3 DNA Repair

UNIT-3 ENZYMES IN GENETIC ENGINEERING

- 3.1 Definition of enzymes,
- 3.2 Different classes of enzymes and their role- Nuclease, Ligases, Polynucleotide Kinase, Alkaline Phosphatase, Polymerase, Reverse transcriptase,
- 3.3 concepts of cDNA

UNIT-4 TRANSCRIPTION IN PROKARYOTES AND EUKARYOTES

- 4.1 Definition, Structure of gene, code, codon & its role,
- 4.2 Transcription process in prokaryotes & eukaryotes,
- 4.3 Post transcription modification in eukaryotes

UNIT-5 TRANSLATION IN PROKARYOTES AND EUKARYOTES

- 5.1 Definition, Translation process in Prokaryotes & Eukaryotes,
- 5.2 Post translational modification,
- 5.3 Gene Regulation -Lac Operon

UNIT-6 BASICS OF RECOMBINANT DNA TECHNOLOGY

- 6.1 Definition and Construction of Recombinant DNA,
- 6.2 Vectors- Definition, genetic organization, properties and applications,
- 6.3 Gene transfer techniques.

Reference Books:

1. Gene Cloning by T.A. Brown
2. Molecular biology & Genetic Engg by B.D. Singh
3. Biochemistry by D. Voet and J. G. Voet
4. Molecular Cell Biology by Lodish
5. Molecular Biology by David Friefelder
6. Molecular Biology of the cell by Albertis etal