

# Principle paper BT 202 Molecular Biology

## Section I

### Unit 1

- 1.1. DNA super coiling: Linking number, positive and negative and negative supercoiling, role of topoisomerase and its catalytic mechanism. .
- 1.2. Organization of genome in eukaryotes and prokaryotes.
- 1.3. DNA replication: Historical prospective, catalytic mechanism of DNA polymerase Replication in bacteria
- 1.4. Replication in eukaryotes.

### Unit 2

- 2.1. DNA repair mechanisms in bacteria and eukaryotes.
- 2.2. Recombination and its types.
- 2.3. Transcription in bacteria.
- 2.4. Transcription in eukaryotes, post transcription mechanisms.

## Section II

### Unit 3

- 3.1. Genetic code and its historical perspective.
- 3.1. Translation in bacteria.
- 3.2. Translation in eukaryotes.
- 3.3. Post translation mechanisms.

### Unit 4

- 4.1. Gene regulation in bacteria. Lac operon, trp operon and arabinose operon. Immunity operon of bacteriophage.
- 4.2. Gene regulation in eukaryotes.
- 4.3. Mode of gene transfer in bacteria - Role of natural plasmids, -transformation, conjugation and transduction. Transposable elements.
- 4.4. Genetic disorders.

## References

1. **Strickberger**, *Genetics*.
2. **Benjamin Lewin**, *Genes viii*
3. **R. M. Twymen**, *Advances in Molecular Biology*
4. **Syndeer and Champness**. *Molecular genetics of bacteria*
5. **Maloy**, *Microbial genetics*
6. **Malacinski**, *Essential of molecular biology*
7. **J. D. Watson**, *Molecular Biology of the Genes*.