

Exam. Code : 107403

Subject Code : 2265

B.Sc. (Biotechnology) 3rd Semester

GENETICS

Paper—BT-6

Time Allowed—3 Hours]

[Maximum Marks—40

Note :—Section A is compulsory. Each question carries 1 mark. Attempt **FIVE** questions from Section B. Each question carries 4 marks. Attempt **TWO** questions from Section C. Each question carries 6 marks.

SECTION—A

1. Define principle of segregation and independent assortment.
2. Differentiate between prokaryotic and eukaryotic chromosome.
3. What is heterochromatin ?
4. What do you understand by epistasis ?
5. What is the significance of Linkage ?
6. Mention different types of crossing over.
7. Differentiate between transduction and transformation.
8. Name physical and chemical mutagens.

SECTION—B

1. Explain special chromosomes polytene and Lampbrush chromosomes with their significance.
2. Draw and describe centromere and telomere structure.
3. Discuss monohybrid, dihybrid and trihybrid crosses.
4. What is the importance of F₂ ratio for interaction of genes ?
5. Explain mechanism of meiotic crossing over.
6. Describe chromosomal theory of linkage.
7. Highlight practical applications of mutation.
8. Write a note on Conjugation.

SECTION—C

1. Write an essay on satellite DNA and supercoiling of DNA.
2. Discuss in detail the Multiple allelism.
3. Describe factors affecting crossing over and coupling and repulsive hypothesis in Linkage.
4. Explain the molecular basis of mutations and significance of mutation.