

M.Sc. (Botany) Semester - 1 (CBCS) Examination
Nov/Dec-2023 (SYLLABUS YEAR JUNE-2023)
Molecular Biology, Genetics & Evolution (Core)

Time: 2:30 Hours**Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q.1 Answer the following (any seven out of ten, each of **two marks) 14**

- (1) Explain of LacZ gene.
- (2) Explain the stop codon.
- (3) Explain the law of c value paradox in molecular biology.
- (4) Define genetic linkage.
- (5) Write law of independent assortment in brief.
- (6) What is aneuploidy?
- (7) Define chemical mutagen.
- (8) What is natural selection? explain in brief.

Q.2 Answer the following (any two out of three, each of **seven marks) 14**

- (1) Explain the genetics of speciation.
- (2) Explain Hardy-Weinberg genetic equilibrium and explain its assumption.
- (3) Explain the law dominance and segregation in mendelian genetics.

Q.3 Answer the following (any two out of three, each of **seven marks) 14**

- (1) Write a note on genetic mapping.
- (2) Explain the structural differences between prokaryotic and eukaryotic DNA.
- (3) Explain the DNA replication in detail.

Q.4 Answer the following (any two out of three, each of **seven marks) 14**

- (1) Explain the Lac operon.
- (2) Explain the concept of gene.
- (3) Explain post translational modifications.

Q.5 Answer the following (any two out of three, each of **seven marks) 14**

- (1) Describe spontaneous and induce mutation.
- (2) Describe the types of Chromosomal aberration.
- (3) Explain the concept of DNA repair mechanism.
