

**Exam. Code : 210001**

**Subject Code : 4791**

**M.Sc. (Botany) 1<sup>st</sup> Semester**

**GENETICS AND EVOLUTION**

**Paper—BOT-C517**

Time Allowed—3 Hours]

[Maximum Marks—50

**Note :—** Candidates are to attempt **five** questions, **one** from each Section. **Fifth** question may be attempted from any Section. All questions carry equal marks.

**SECTION—A**

1. Write notes on :—
  - (a) Complex loci in eukaryotes 4
  - (b) Split genes 3
  - (c) Pseudogenes. 3
2. Give a detailed account of DNA replication. Support your answer with the help of suitable diagrams. 10

**SECTION—B**

3. What do you understand by oncogenes ? Discuss biochemistry and molecular biology of cancer. 10
4. Define mutations. Discuss in detail about spontaneous and induced mutations. 10

### SECTION-C

5. What do you understand by Transposable elements ?  
Give an account of transposable elements in eukaryotes. 10
6. Define crossing over. With the help of properly labelled diagrams, discuss molecular mechanism of crossing over. 10

### SECTION-D

7. Write notes on (5 marks each) :—
- (a) Role of polyploidy in evolution
  - (b) Major groups of plants and animals. 10
8. Write notes on any two of the following (5 each) :—
- (a) Inheritance pattern in autopolyploids.
  - (b) Hardy-Weinberg Law
  - (c) Modes of Speciation. 10