

**Exam. Code : 210001**

**Subject Code : 3779**

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

**GENETICS AND EVOLUTION**

**Paper : BOT-C517**

Time Allowed—3 Hours] [Maximum Marks—50

**Note :—** Candidates are required to attempt **five** questions, selecting at least **one** from each section. The **fifth** question may be attempted from any section. Each question carries **10** marks.

**SECTION—A**

1. Give detailed account of Cis-Trans complementation test. Discuss its significance, rationale and limitations. 10
2. "Genetic information is stored in DNA". Comment upon the statement and discuss the experiment which gave proof for this. 10

**SECTION—B**

3. What do you understand by Genetic regulation of cell cycle ? With the help of a well labelled diagram of cell cycle, discuss different factors that play role in regulation of mitotic cell cycle in eukaryotes. 10

4. What do you understand by mutations ? With the help of suitable diagram, discuss molecular basis of mutations. 10

**SECTION—C**

5. Give a detailed account of "Somatic Cell Hybridization". 10
6. What do you understand by "Induction and Repression in Prokaryotes" ? Give an account of an Inducible operon. 10

**SECTION—D**

7. Give an account of inheritance pattern of autopolyploids. 10
8. Discuss any **two** of the following (5 marks each) :
  - (a) Evolutionary time scale
  - (b) Major groups of plants and animals
  - (c) Modes of speciation. 10