

Total No. of Questions : 8]

SEAT No. :

P3214

[5032] - 13

[Total No. of Pages :2

M.Sc-I

BOTANY

**BO-1.3 : Genetics and Plant Breeding
(2008 Pattern) (Semester-I) (New)**

Time : 3 Hours]

[Max. Marks :80

Instructions to the candidates:

- 1) Answer any Five, questions, taking at least Two questions from each sections.*
- 2) Answer to the Two sections should be written in Separate answer books.*
- 3) All questions carry Equal marks.*
- 4) Neat diagram must be drawn wherever necessary.*

SECTION-I

Q1) Define mutation Explain the physical and chemical mutagens with respect to their mechanism of action. **[16]**

Q2) With the help of suitable examples explain complementary, Emistatic and additive interaction of genes. **[16]**

Q3) Explain in detail of the following:

- a) Gene and genotype frequencies, **[8]**
- b) Crossing over in inversion hetero zygotes **[8]**

Q4) Write short notes on any two of the following: **[16]**

- a) Duplication,
- b) Multiple factors hypothesis,
- c) Genetic erosion.

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SECTION-II

Q5) What is cytoplasmic inheritance ? With the help of suitable example explain the interaction between nuclear and cytoplasmic genes. **[16]**

Q6) What is male sterility? With the help of suitable examples explain types and mechanisms of male sterility. **[16]**

Q7) Explain:

- a) Concept of inbreeding depression and its effects in breeding. **[8]**
- b) Role of genetic diversity in crop improvement. **[8]**

Q8) Write short notes on any two of the following: **[16]**

- a) Aneuploidy and its importance,
- b) Karyotype analysis
- c) Effect of selection on hardy weinberg equilibrium.

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