

M.Sc. BOTANY  
SECOND SEMESTER  
GENETICS AND PLANT BREEDING  
MSB-203

**SET  
B**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 1hr. 30 mins.

Full Marks: 35

( Objective )

Time: 15 mins.

Marks: 10

Choose the correct answer from the following:

1 × 10 = 10

- Backcross method is useful for transfer of:
  - Oligogenic characters
  - Disease resistance
  - Male sterility
  - All of these
- The term test cross was coined by:
  - Briggs
  - Bridges
  - Brim
  - Harland
- Pusa Lerma is an improved variety of:
  - Wheat
  - Maize
  - Soyabean
  - Rice
- Undesirable linkage can be broken by:
  - Pedigree method
  - Bulk method
  - Backcross method
  - All of the above
- Repeated crossing is involved in:
  - Bulk method
  - Pedigree method
  - Backcross method
  - Mass pedigree method
- Which of the following ratio shows complementary gene?
  - 9:7
  - 15:1
  - 1:2:1
  - 9:3:3:1
- Euploidy is a chromosomal variation in:
  - Size
  - Position of genes
  - Number
  - Structure
- What is the substitution of a purine base with a pyrimidine base known as?
  - Deletion
  - Transition
  - Addition
  - Transversion
- What is the chromosome number of *Triticumaestivum*?
  - 6n=42
  - 2n=42
  - 4n=52
  - 3n=48
- Colchicine is used to cause:
  - Mitotic non-disjunction
  - Meiotic non-disjunction
  - Mitotic disjunction
  - Meiotic disjunction

**( Descriptive )**

Time : 1 hr. 15 mins.

Marks : 25

[ Answer question no.1 & any two (2) from the rest ]

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|--|--------|
| 1. Describe the procedure for dominant backcross gene transfer.  | 5      |
| 2. How <i>in vitro</i> chromosomal doubling is carried out? Explain the evolution of <i>Triticum aestivum</i> with proper illustrations. | 2+8=10 |
| 3. Write short notes: (any two)<br>a) Supplementary factors<br>b) Complementary factors<br>c) Duplicate genes                            | 5+5=10 |
| 4. Write short notes on:<br>a) Hybrid varieties<br>b) Synthetic varieties  | 5+5=10 |
| 5. Discuss the inheritance of kappa particles in <i>Paramecium</i> .   | 10     |

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