

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

**SET
A**

Duration: 1hr. 30 mins.

Full Marks: 35

(Objective)

Time: 15 mins.

Marks: 10

Choose the correct answer from the following:

$1 \times 10 = 10$

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

(Descriptive)

Time : 1 hr. 15 mins.

Marks : 25

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

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

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