

Roll No. :

Total No. of Questions : 11]

[Total No. of Printed Pages : 3

BFMS-402

M.Sc. (Final) Examination, 2023

BOTANY

Paper - VI

**(Molecular Biology, Genetics, Biotechnology,
Plant Breeding and Biometry)**

Time : 3 Hours]

[Maximum Marks : 75

Section-A

(Marks : 2 × 10 = 20)

Note :- Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

Section-B

(Marks : 5 × 5 = 25)

Note :- Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **5** marks.

Section-C

(Marks : 10 × 3 = 30)

Note :- Answer any *three* questions out of five (Answer limit **500** words). Each question carries **10** marks.

Section-A

1. Define the following :

(i) Super coiled DNA

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(1)

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- (ii) Okazaki fragments
- (iii) Operon
- (iv) Transversion
- (v) Somatic hybridization
- (vi) Cloning vector
- (vii) Hybridization
- (viii) Pureline
- (ix) Kurtosis
- (x) Co-efficient of variation

Section-B

2. "DNA replication is semiconservative." Explain.

Or

Describe Southern blotting and its applications.

3. Write a short note on cytoplasmic inheritance.

Or

What is Crossing Over ? Describe its mechanism and significance.

4. What is Anther Culture ? Describe its technique and significance.

Or

Describe plasmid and cosmid vector in detail.

5. Explain the mass selection method of crop improvement and its significance.

Or

What is heterosis and inbreeding depression ? What role does it play in crop productivity ?

6. Explain standard deviation and its merits as a measure of dispersion.

Or

Explain chi-square test for goodness of fit.

Section–C

7. Explain the steps involved in processing of hnRNA.
8. What is Polyploidy ? Describe its type with suitable examples and role in evolution.
9. What are Transgenic Plants ? Discuss the various methods of gene transfer in plants.
10. What is Hybridization ? Explain various steps involved in hybridization of crop plants.
11. Give an account of the types of correlation.