

M. Sc. BOTANY
III SEMESTER EXAMINATION DECEMBER 2024

Paper Name: **Plant Breeding**
Time: **2 ½ hours**

Paper Code: **MBO-DCE302**
Maximum Marks: **60**

Note: This paper has 03 sections A, B, and C.

Section A: Answer all the questions.

Section B: Attempt any 04 out of 06

Section C: Attempt any 02 out of 05

Abbreviations used: CO-Course Outcomes CLO 1: recognize aims and basic concepts of plant breeding (understand); CLO 2: evaluate the various methods of crop improvement (evaluate); CLO 3: produce new hybrids with desirable traits (create); and CLO 4: access the role of molecular markers in crop improvement (evaluate). BLT-Bloom's Taxonomy Levels 1- Remembering, 2-Understanding, 3-Applying, 4-Analyzing, 5-Evaluating, 6-Creating

SECTION A

Very Short Type Question (15 questions)

15 x 1 = 15 marks

Q. No.	Question	Marks	CO	BTL
1	Define apomixis.	1	1	1
2	What is sporogenesis?	1	1	1
3	What is secondary introduction of plants	1	2	2
4	Name any two crops introduced in India by East India company.	1	1	2
5	Differentiate between trisomy and tetrasomy.	1	2	4
6	What is inbreeding depression?	1	1	3
7.	What is the primary purpose of molecular maps in crop improvement?	1	2	2
8.	What is RADP?	1	1	1
9.	What is the role of the centromere and telomere in chromosome organization?	1	3	4
10.	Write one significance of ribosomal RNA (rRNA) genes in cytogenetic studies?	1	4	3
11.	What is base substitution?	1	1	1
12.	Which technique is commonly used for DNA fingerprinting in crop improvement?	1	3	2
13.	Chemical agents that induce mutations are known as	1	1	1
14.	Mention full form of ICAR.	1	1	1
15.	Name hybrid variety of wheat	1	2	3

SECTION B

Short Type Question. (Attempt any **FOUR**)

4 x 5 = 20 marks

Q. No.	Question	Marks	CO	BTL
1	Explain mutational breeding method used for improvement in asexually propagating plants.	5	1	3
2	What is aneuploidy? What are its different types, explain with examples	5	2	2
3	Why is DNA fingerprinting important in crop improvement programs. Discuss briefly.	5	4	4
4	“Introduction of polyploidy is a revolutionary method for development of seedless fruits”. Justify the statement with suitable examples.	5	3	3
5	What are hybridization based markers. Explain with examples.	5	4	1
6	Discuss merits and demerits of mutation.	5	2	2

SECTION C

Long type Question (Attempt any **TWO**)

2 x 12.5 = 25 marks

Q. No.	Question	Marks	CO	BTL
1	What is Plant Introduction? Explain its types and agencies involved.	12.5	1	2
2	What is karyotype ? Write its molecular basis of chromosome pairing.	12.5	2	3
3	Molecular markers plays revolutionary role in gene identification in crops. Explain marker assisted selection.	12.5	4	4
4	Explain the concept of polyploidy, its types, and their significance in crop improvement.	12.5	3	3
