

# MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD

## SEMESTER END THEORY EXAMINATION

### B.Sc. (Hons.) Agri-Business Management

Semester : I (New)	[ICAR - Sixth Deans' Committee Syllabus]	Acad. Year : 2025-26
Course No. : GPB-111	Title : Introduction to Genetics and Plant Breeding	
Credit Hrs. : 2(1+1)	Time : 10:00 to 12:00 hrs.	Total Marks : 40
Day, Date : Friday, 13.02.2026		

Note: Draw neat diagram wherever necessary

#### SECTION 'A' : Questions with Descriptive Long Answers (Any 4) Marks

- Q.1 Enlist different types of mutagen with example. Write the applications of mutation in crop improvement. 6
- Q.2 Define Mitosis. Explain different phases of mitosis with diagram. 6
- Q.3 Define Male sterility. Explain different types of male sterility. 6
- Q.4 Defines Self incompatibility. Enlist its different types and explain the applications of self incompatibility in Plant Breeding. 6
- Q.5 a) Write the advantages and disadvantages of Clonal selection method. 3  
b) Explain the structure of chromosome with well labelled diagram. 3
- Q.6 a) Write merits and demerits of Back cross method of breeding. 3  
b) Explain the Mendel's law of segregation with an example. 3

#### SECTION 'B' : Questions with Descriptive Short Answers (Any 4)

- Q.7 Write the reasons for Mendel's success. 2
- Q.8 Enlist the mechanisms that promote cross-pollination. 2
- Q.9 Write the significance of sexual reproduction in Plant Breeding. 2
- Q.10 Write the limitations of Pure line selection method of Plant Breeding. 2
- Q.11 Define Synthetic variety. Enlist the steps involved in development of synthetic variety. 2

#### SECTION 'C' : Objective-type Compulsory Questions

- Q.12 Define the following terms: 4

1) Genetics      2) Plant Breeding      3) Genotype      4) Test cross

- Q.13 Match the pairs: 4

'A'	'B'
1) T.S. Venkatraman	a) Jumping genes in maize
2) N.G.P. Rao	b) Sugarcane Breeder
3) Barbara McClintock	c) Discovered the nucleus in cell
4) Robert Brown	d) Sorghum Breeder

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