

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2024
(First Semester)

Branch - BOTANY

PLANT GENETICS AND BREEDING

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	In what mode of inheritance the F1 progeny exhibit characteristics of both the parents? a) Complete dominance b) incomplete dominance c) co-dominance d) multiple allelism	K1	CO1
	2	Show which is pseudoallele? a) Allele with similar function b) Allele with similar structure c) Allele with similar function and structure d) Alleles with similar function and different structure	K2	CO2
2	3	Find out the crossing over takes place in a) Pachytene stage b) Anaphase stage c) Diakinesis stage d) Leptotene stage	K1	CO1
	4	Linkage results in a) Formation of more dominant phenotype b) Formation of more wild phenotype c) Formation of more parental phenotype d) Formation of more recombinant phenotype	K2	CO2
3	5	What is the inheritance of characters by plasmogenes known as? a) Extrafield inheritance b) Maternal inheritance c) Extrachromosomal inheritance d) Paternal inheritance	K1	CO1
	6	Why cytoplasmic male sterility is employed in plant breeding? a) To control male gametes b) To control female gametes c) To produce nonviable eggs d) To produce hybrid seeds	K2	CO1
4	7	Pure lines and inbreed lines are a) Homogenous and homozygous b) Homogeneous and heterozygous c) Heterogenous and heterozygous d) Heterogenous and homozygous	K1	CO2
	8	-----is unrelated processes to hybridization? a) Emasculation b) Selection of parents c) Bagging d) crossing or artificial pollination	K2	CO2
5	9	Mention which is not a necessary condition of Hardy Weinberg Equilibrium? a) Large population b) Random mating c) No mutation d) Migration of individuals	K1	CO1
	10	Interpret which of the following is not involved in classical plant breeding practices? a) The hybridization of pure lines b) Molecular biology c) Artificial selection of plants d) Desirable traits of higher yield	K2	CO2

Cont...

SECTION - B (35 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Analyze the mechanism of incomplete dominance.	K4	CO3
	(OR)			
	11.b.	Categorize the various types of lethal factors.		
2	12.a.	List out the different kinds of linkage and its significance.	K4	CO3
	(OR)			
	12.b.	Distinguish between coupling and repulsion with suitable examples.		
3	13.a.	Evaluate the various causes of polyploidy with suitable examples.	K5	CO5
	(OR)			
	13.b.	Critically analyze the cytoplasmic male sterility in Maize.		
4	14.a.	Compile the objectives of Plant Breeding.	K6	CO4
	(OR)			
	14.b.	Elaborate account on the procedure of pure line selection.		
5	15.a.	Explain the different types of mutation breeding.	K5	CO5
	(OR)			
	15.b.	Evaluate the farmer's rights.		

SECTION -C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Prove the Mendel's Laws of inheritance with suitable experiments.	K5	CO5
2	17	Explain the mechanism of crossing over and its significance.	K5	CO5
3	18	Analyze the various types of chromosomal aberration and its genetic significance.	K4	CO3
4	19	Categorize the various steps involved in hybridization techniques.	K4	CO3
5	20	Elaborate account on Hardy Weinberg law and its applications.	K6	CO5

Z-Z-Z END