

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2026
(Fourth Semester)
Branch- BOTANY

GENETICS & PLANT 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	----- characters of pea plants was not used by Mendel in his experiments. a) Seed size b) Seed shape c) Pod length d) Flower axis	K1	CO1
	2	What is the genotypic ratio of a monohybrid cross? a) 1:2:1 b) 2:2:1 c) 2.3.4 d) 3:2:1	K2	CO1
2	3	The inheritance of ABO blood group is the best example of a) Co-dominance b) Epistasis c) Fully dominance d) Multiple allelism	K1	CO2
	4	Mostly ----- chemical compound induces polyploidy in plants. a) Colchicine b) Phenol c) Ethanol d) 2,4 D	K2	CO2
3	5	Mainly the genetic disorders are caused by----- a) Mutation b) The gender of an individual c) The gross chromosomal abnormalities d) All of the above	K1	CO3
	6	Cytoplasmic inheritance is mediated only by _____. a) Mitochondria and Chloroplast b) Nucleus c) Endoplasmic reticulum d) None of the above	K2	CO3
4	7	----- is considered as a tool to produce high quality seeds. a) Mass Selection b) Clonal selection c) Pureline Selection d) None of the above	K1	CO4
	8	Generally the hybrid is the offspring resulting from combination of two organisms through ----- a) Asexual reproduction b) Sexual reproduction c) Vegetative reproduction d) None of the above	K2	CO4
5	9	Golden rice is generally rich in ----- a) Alpha-carotene b) Beta-carotene c) Anthocyanin d) None of the above	K1	CO5
	10	Bt cotton has been genetically modified by the insertion of genes from <i>Bacillus thuringiensis</i> , is a common ----- a) Soil born bacterium b) Water born bacterium c) Air born bacterium d) None of the above	K2	CO5

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.	Explain Mendel's dihybrid cross experiment and discuss its significance in genetics.	K2	CO1
		(OR)		
	11.b.	Outline the concept of complementary genes with suitable examples and add their role in inheritance.		
2	12.a.	Develop the concept of multiple alleles with suitable examples and illustrate how they influence inheritance patterns.	K3	CO2
		(OR)		
	12.b.	Organize the process of crossing over with a neat diagram.		
3	13.a.	Identify the cytoplasmic inheritance with special reference to plastids in plants.	K3	CO3
		(OR)		
	13.b.	Prepare an essay on male sterility in maize.		
4	14.a.	Examine the process of plant introduction and add notes on its importance.	K4	CO4
		(OR)		
	14.b.	Illustrate the hybrid vigor in seed with its significance.		
5	15.a.	Survey the factors that affecting genetic improvement of crops.	K4	CO5
		(OR)		
	15.b.	Justify: Genetic improvement is playing a key role in cotton now a day.		

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	Describe in detail about Mendel's laws of inheritance.	K4	CO1
2	17	Explain the polyploidy condition in plants. and its types with significance.	K4	CO2
3	18	Discover the gene mutations in organisms and classify their various types.	K5	CO3
4	19	Analyze the different plant selection methods with their importance.	K5	CO4
5	20	Propose different approaches for genetic improvement in rice.	K6	CO5

Z-Z-Z END