

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)  
BSc DEGREE EXAMINATION MAY 2017  
(Fourth Semester)  
Branch- BOTANY

GENETICS & GENETIC IMPROVEMENT OF CROPS

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 2 = 20)

- 1 Comment on 9:3:3:1 ratio.
- 2 Define epistasis.
- 3 What are the multiple alleles?
- 4 Write the significance of Tetrads.
- 5 Mention any two chemical mutagens.
- 6 What is maternal inheritance?
- 7 Define hybrid vigour.
- 8 Write any two objectives of plant breeding.
- 9 Write any two breeding institutes of India.
- 10 Write the names of any two cultivars of sugarcane.

SECTION - B (25 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 5 = 25)

- 11 a Explain the laws of inheritance and their exceptions.  
OR  
b Give an account on incomplete dominance with an example.
- 12 a Write an account on multiple factor hypothesis.  
OR  
b Explain the mechanism of crossing over.
- 13 a Give a brief account on the types of chromosomal mutations.  
OR  
b Distinguish between cytoplasmic inheritance and chromosomal inheritance.
- 14 a Describe the steps involved in pure line selection.  
OR  
b Write notes on hybridization technique.
- 15 a Discuss the measures involved in the genetic improvement of cotton.  
OR •  
b Give an account of the genetically improved varieties of wheat and their significance.

SECTION - C (30 Marks)

Answer any THREE Questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30)

- 16 Explain the gene interaction with reference to supplementary genes .
- 17 Discuss the types of polyploidy and write the significance.
- 18 Write an essay on antibiotic resistance inherited through chloroplast.
- 19' Explain the steps involved in breeding for disease resistance.
- 20 Describe the measures taken for the genetic improvement of rice varieties.