

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)  
BSc DEGREE EXAMINATION MAY 2019  
(Fourth Semester)  
Branch - BOTANY

**GENETICS AND 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 Define phenotype.
- 2 Write notes on alleles.
- 3 What is autopolyploidy?
- 4 Define multiple alleles.
- 5 Write notes on mutation.
- 6 How will you achieve malesterility?
- 7 Define Acclimatization.
- 8 Comment on the term Emasculation.
- 9 Write any two disease resistant varieties of cotton.
- 10 Name any two sugarcane breeding institutes in India.

**SECTION - B (25 Marks!)**

Answer ALL Questions

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

- 11 a State and explain the laws of heredity.  
OR  
b Briefly explain the phenomenon of 'Epistasis'.
- 12 a With suitable example explain about 'Incomplete linkage'.  
OR  
b Explain various types of polyploidy.
- 13 a Write an account on induced mutations.  
OR  
b Briefly explain the types of chromosomal mutation.
- 14 a Give a note on plant acclimatization.  
OR  
b Explain the steps involved in mass selection.
- 15 a Enumerate the aims of paddy breeding.  
OR  
b Explain the steps involved in cotton breeding.

**SECTION - C (30 Marks)**

Answer any THREE Questions

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

- 16 Explain Mendel's Dihybrid cross.
- 17 Write an essay on multiple factor hypothesis with a suitable example.
- 18 Explain how cytoplasmic inheritance takes place in *Mirabilis*.
- 19 Discuss the procedure for plant introduction and acclimatization.
- 20 Describe the techniques involved in wheat breeding.