

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2024
(Fourth Semester)

Branch – BOTANY

GENETICS AND PLANT BREEDING /
GENETICS & GENETIC IMPROVEMENT CROPS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 The tendency of offspring to differ from parents is called
(i) variation (ii) heredity (iii) inheritance (iv) resemblance
- 2 Linkage results in _____
(i) Formation of more Dominant phenotype
(ii) Formation of more Wild phenotype
(iii) Formation of more parental phenotype
(iv) Formation of more recombinant phenotype
- 3 What stores the genetic information in DNA?
(i) Sugar (ii) Phosphate
(iii) Nitrogenous base (iv) Polymerase
- 4 Acclimatization is
(i) A process of adjustment by crop plants to environment
(ii) Related with the clay
(iii) Removal of female parts of a flower
(iv) Changing of climatical condition
- 5 The desired varieties of economically useful crops are raised through
(i) Vernalization (ii) Mutation
(iii) Natural selection (iv) Hybridization

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a) Explain epistasis and its types.
OR
b) Describe incomplete dominance.
- 7 a) Elucidate the linkage and its significance.
OR
b) Analyze the types of ploidy.
- 8 a) Bring out the importance of gene mutations.
OR
b) Describe mutagens and its types.

Cont...

- 9 a) Outline the objectives of plant breeding.
OR
b) Explain heterosis and its significance.
- 10 a) Infer the genetic improvement of wheat crop.
OR
b) Narrate the story of genetically improved sugarcane crop.

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a) Explain Dihybrid cross with suitable example.
OR
b) Discuss in detail the complementary factors.
- 12 a) Discover the mechanism of crossing over.
OR
b) What are multiple allelic genes? Explain the blood groups in man as an example of multiple allelic genes.
- 13 a) Interpret the plastids inheritance in *Mirabilis*.
OR
b) Examine the cytoplasmic male sterility in Maize.
- 14 a) Inspect the steps involved in mass selection.
OR
b) Summarize the procedure for hybridization.
- 15 a) Discuss the important achievements and undesirable consequences of plant breeding.
OR
b) Explain the genetic improvement of paddy.

Z-Z-Z

END