

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**BSc DEGREE EXAMINATION DECEMBER 2024
(Fourth Semester)**

Branch – **BOTANY**

GENETICS AND PLANT BREEDING

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks

(5 x 1 = 5)

- 1 If the genotype consists of only one type of allele. It is called
(i) homozygous (ii) heterozygous
(iii) momoallelic (iv) uniallelic
- 2 Who put forward the "Theory of linkage"
(i) Sutton (ii) Morgan
(iii) De Vries (iv) Bateson and Punnet
- 3 Name the type of mutation in which the cause of mutation is not known?
(i) Spontaneous mutation (ii) Suppressor mutation
(iii) Nonsense mutation (iv) Mis-sense mutation
- 4 Emasculation is
(i) Removal of male parts from a bisexual flower
(ii) Removal of female parts
(iii) Removal of male and female parts
(iv) None of the above
- 5 The Golden Rice variety is rich in
(i) Vitamin C (ii) Beta carotene and ferritin
(iii) Biotin (iv) Lysine

SECTION - B (15 Marks)

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks

(5 x 3 = 15)

- 6 a) Analyze the monohybrid cross.
OR
b) Describe about the complementary genes.
- 7 a) Summarize the mechanism of crossing-over.
OR
b) Bring out the significance of Polyploidy.
- 8 a) Inspect the cytoplasmic male sterility in Maize.
OR
b) Briefly explain chromosomal translocation with suitable example.

Cont...

- 9 a) Outline the importance of hybrid vigour.
OR
b) Narrate the steps involved in plant acclimatization.
- 10 a) Identify the genetic improvement of paddy.
OR
b) How are wheat genetically improved?

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry **EQUAL** Marks (5 x 6 = 30)

- 11 a) Analyze the Incomplete dominance in detail.
OR
b) Discuss about the laws of inheritance and their expectations.
- 12 a) Elucidate the characteristics of multiple alleles with suitable examples.
OR
b) Briefly explain about tetrad analysis.
- 13 a) Give the different types of mutations and mutagens.
OR
b) Highlight the causes, mechanism and types of chromosomal mutation.
- 14 a) Summarize the procedure for plant introduction.
OR
b) Discover the procedure for pure line selection.
- 15 a) Discuss the genetic improvement of wheat crop.
OR
b) Point out the genetic improvement of Sugarcane.

Z-Z-Z

END