



GIET UNIVERSITY, GUNUPUR - 765022
B. Sc (AG) (Third Semester) Regular Examinations, Januray-2024
PBG-212 - Fundamentals of Plant Breeding

Time: 2 hrs

Maximum : 50 Marks

The figures in the right-hand margin indicate marks.

PART – A

Q.1. Fill in the blanks with suitable word / figure.

(0.5 x 10 = 5 Marks)

- a. Quantitative characters are governed by _____.
- b. Flower color is an example of _____ character.
- c. Purelines are genetically _____
- d. The parent used repeatedly in back cross breeding is known as _____
- e. In male sterile lines hybrid seeds are harvested from _____ line
- f. _____ is an example of a chemical mutagen.
- g. Genetic variation between a pure line is due to _____
- h. Non patentable IP is protected by _____ form of IPR.
- i. Embryos develop directly from nucellus, integument, and chalaza is known as _____
- j. Pedigree method takes _____ years.

Q.2. Define (or) Explain the following in one or two sentences.

(1 x 5 = 5 Marks)

- a. Multiline
- b. Synthetic variety
- c. Progeny test
- d. Selection
- e. Introduction

Q3. Match COLUMN-A with COLUMN-B

(0.5 x 10 = 5 Marks)

Column – A			Column – B	
(a)	Self-pollination		(i)	Anthesis
(b)	Self-pollinated crop		(ii)	Pureline
(c)	Multilines		(iii)	Carnation X Sweet william
(d)	Opening of flower after pollination		(iv)	Male sterility
(e)	Production of functional pollen grain		(v)	Homozygous and homogenous
(f)	Kalyan Sona		(vi)	Chasmogamy
(g)	Fairchild's mule		(vii)	Secondary introduction
(h)	Koelreuter		(viii)	Autogamy
(i)	Opening of flower		(ix)	Primary introduction
(j)	Lerma Rojo		(x)	Self-incompatibility

Q4. Write True or False against each statement

(0.5 x 10 = 5 Marks)

- a. Polyploidy was developed by colchicine treatment.
- b. Non - Mendelian population are well explained by Hardy Weinberg Law.
- c. Natural mutations are very frequent in nature.
- d. The cross between F1 and the recessive parent is known as back cross.
- e. GCA is tested for Composites varieties.
- f. In cross pollinated crop mass selection population is homozygous and heterogenous.
- g. The proportion of phenotypic variation in a population due to environment is known as heritability.
- h. In pedigree method each progeny cannot be traced back to the F2 plant from which it developed.
- i. Combination of numbers of lines each having resistance gene for different pathotypes is known as vertical resistance.
- j. In bulk breeding natural selection is operated till F6-F7 generation

PART – B

Attempt ANY FIVE questions. All question carries equal marks.

(6 x 5 = 30 Marks)

5. Write down about bulk method of breeding in details with flow chart and the achievements.
6. Rust resistance in wheat is governing by a recessive gene 'r'. Write down the methods in detailed flow chart by which we can develop a resistant wheat variety.
7. What is population improvement? Enlist the types and give the details of recurrent selection or SCA.
8. What is male sterility and describe details about CGMS system of male sterility?
9. Describe U's triangle of polyploidy with complete details.
10. Differentiate between male sterility and self-incompatibility. Write down the techniques for temporary suppression of self-incompatibility.

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