QPC: RN23BSCAG077

Reg. No.										

AY - 23

GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY, ODISHA, GUNUPUR
(GIET UNIVERSITY)

B. Sc (AG) (Third Semester) Examinations, February – 2022

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. NBPGR is situated at _____
b. Pureline theory was given by _____
c. Hybrid varieties are genetically _____ and _____.
d. The parent used only once in back cross breeding is known as _____
e. In male sterile lines hybrid seeds are harvested from _____ line
f. SSD method of breeding was given by _____
g. Genetic variation within a pure line is due to _____
h. Bulk method of breeding takes _____ years.
i. When embryos develop directly from nucellus, integument, and chalaza, it is known as _____.
j. Mixtures of lines each of which is resistant to all prevalent races of the disease is known as _____

Q.2. Define (or) Explain the following in one or two sentences. **(1 x 5 = 5 Marks)**

a. Half-sib
b. Synthetic variety
c. Parthenogenesis
d. Stabilising selection
e. Centre of origin

Q3. Match COLUMN-A with COLUMN-B **(0.5 x 10 = 5 Marks)**

Column – A		Column – B	
(a)	Fairchild's mule	(i)	Self-incompatibility
(b)	Pureline	(ii)	Self-pollinated crop
(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)	Self-pollination	(vii)	Secondary introduction
(h)	Koelreuter	(viii)	Autogamy
(i)	Opening of flower	(ix)	Primary introduction
(j)	Lerma Rojo	(x)	Anthesis

Q4. Write True or False against each statement **(0.5 x 10 = 5 Marks)**

a. Polyploidy can never be induced by colchicine treatment.
b. Hardy Weinberg Law explain inheritance of qualitative characters.
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 pedigree 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 pedigree method of selection in details with flow chat. Examplify how pedigree records are maintained.
6. Describe about transferring a dominant trait using back cross breeding method.
7. What is recurrent selection? Enlist the types of it and explain recurrent selection for gca.
8. What is male sterility and describe about CGMS system? How it is useful in hybrid seed production
9. Describe the role of polyploidy in crop evolution/improvement with examples.
10. Enlist the types of self-incompatibility? Discuss the homomorphic system of self-incompatibility.

--- End of Paper ---