MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END THEORY EXAMINATION
B.Sc.(Hons.) Agriculture

Semester	: III (New)	Term	: First	Academic Year	: 2023-24
Course No.	: GPB 232	Title	: Fundamentals of Plant Breeding		
Credits	: 2 (1+1)				
Day & Date	: Wednesday, 13.12.2023	Time	: 9:00 to 11:00 hrs.	Total Marks	: 40

Note :
1. Solve **ANY EIGHT** questions from **SECTION 'A'.**
2. All questions from **SECTION 'B'** are compulsory.
3. All questions carry equal marks.
4. Draw neat diagram wherever necessary.

SECTION 'A'

Q.1 Define self incompatibility, classify it and explain its utilization in plant breeding.

Q.2 Write short notes on (Any Two):

a) Transgenic Male Sterility (TrGMS)

b) Landmark achievements in Plant Breeding

c) Heritability

Q.3 What is panmictic population? Explain Hardy-Weinberg Law and factors affecting gene frequency in population.

Q.4 Enlist different breeding methods of self and cross pollinated crops.

Q.5 Define heterosis. Enlist different theories of heterosis and explain overdominance hypothesis of heterosis.

Q.6 Differentiate between the following (Any Two):

a) Cytoplasmic male sterility (CMS) and Cytoplasmic-genic male sterility (CGMS)

b) Pedigree method and Backcross method

c) Mass selection and Pure line selection

Q.7 What is wide hybridization? Describe applications of wide hybridization in crop improvement.

Q.8 a) Give the characteristic features of mutation.

b) What is clone? Give the various characteristics of clone.

Q.9 Define aneuploid. Describe in brief the types of aneuploid.

Q.10 What is synthetic variety? Discuss the various operations involved in production of synthetic variety.

(P.T.O.)

SECTION 'B'

Q.11 a) Spell out the following abbreviations:

1) CIMMYT 2) NBPGR

b) Give the contribution of the following Scientists:

1) C.T. Patel 2) Comstock, Robinson and Harvey

Q.12 Fill in the blanks:

1) _____ method is called as evolutionary method of breeding.

2) Wheat dwarfing gene *Rht1* encodes _____ proteins that repress transcription of gibberellin responsive genes.

3) _____ method is particularly suited for developing populations of recombinant inbred lines (RILs).

4) _____ is used as tester in Recurrent Selection for SCA (RSSCA).

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