MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END THEORY EXAMINATION

B.Sc.(Hons.) Horticulture

Semester	: II (New)	Term	: Second	Academic Year	: 2021-22
Course No.	: H/BOT 123	Title	: Principles of Plant Breeding		
Credits	: 3 (2+1)				
Day & Date	: Monday, 12.09.2022	Time	: 9:00 to 12:00 hrs	Total Marks	: 80

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 What is genetic male sterility? Give its main features and method of maintenance of genetic male sterility.

Q.2 Define plant breeding. Explain the various objectives of plant breeding.

Q.3 Define pollination. Explain various mechanisms that promote cross-pollination.

Q.4 What is heterosis? Enlist different theories of heterosis and explain methods of estimation of heterosis.

Q.5 Enlist different breeding methods used in self-pollinated crops. Explain Johannsen's pure line theory of selection.

Q.6 What is hybridization? Explain various steps involved in hybridization.

Q.7 Write short notes on (Any Two):

a) Megasporogenesis

b) Plant Introduction

c) Complex crosses

Q.8 Differentiate between (Any Two):

a) Sporophytic and Gametophytic incompatibility

b) Qualitative and Quantitative traits

c) Asexual and Sexual reproduction

Q.9 What is synthetic variety? Describe in detail procedure for the development of synthetic variety.

Q.10 Define clone. Explain the procedure for clonal selection after hybridization.

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SECTION 'B'

Q.11 Fill in the blanks:

1) The process of bringing wild species of plants under human management is called _____.

2) The term heterosis was first coined by_____.

3) Development of seed without fertilization is called _____.

4) The main objective of hybridization is to create _____.

5) _____ is the quickest method of plant breeding.

6) The first commercial cotton hybrid H4 was developed by the Scientist _____.

7) _____ is the Father of Green Revolution in India, who developed dwarf high yielding wheat varieties in India.

8) The headquarters of NBPGR is located at _____.

Q.12 a) Give the contribution of the following Scientists:

1) Thomas Fairchild

2) Stadler L.J.

3) Rimpau

4) Jensen N.F.

b) Define the following terms:

1) Emasculation

2) Mutation

3) Cleistogamy

4) Inbreeding

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