MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Hons.) Horticulture

Semester	: I (New)	Term	: I	Academic Year	: 2019-20
Course No.	: H/BOT 112	Title	: Principles of Genetics and Cytogenetics		
Credits	: 3(2+1)				
Day & Date	: Saturday, 28.12.2019	Time	: 10.00 to 13.00	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 diagrams wherever necessary.

SECTION "A"

Q.1 State Mendel's law of inheritance. Explain any one of them with suitable example.

Q.2 Describe the DNA structure as proposed by Watson and Crick.

Q.3 Define mitosis. Explain the different stages of mitosis. Give the significance of meiosis.

Q.4 What do you mean by gene interaction? Enlist different types of gene interactions and explain any one with suitable example.

Q.5 Define mutation. Explain types of mutation and enlist applications of mutation in crop improvement.

Q.6 Write short notes (Any Two).

a) Multiple factor hypothesis

b) Extra nuclear inheritance

c) Lac operon Model

Q.7 Differentiate between the following. (Any Two)

a) Quantitative and Qualitative characters

b) Mitosis and Meiosis

c) Linkage and Crossing over

Q.8 Define linkage. Explain coupling phase and repulsion phase of linkage with suitable example.

Q.9 Define polyploidy. Give its classification and use of polyploidy in crop improvement.

Q.10 What do you mean by chromosomal aberrations? Enlist different types of chromosomal aberration and describe any one of them.

(P.T.O.)

SECTION "B"

Q.11 Give the contribution of the following scientists.

1) Barbara Mclintock

2) H.J. Muller

3) Nilsson Ehle

4) Bateson and Punnet

5) Schlieden and Schwan

6) Jacob and Monad

7) Charles Darwin

8) Lamarck

Q.12 Define the following terms.

1) Test cross

2) Sex determination

3) Genotype

4) Lethal gene

5) Multiple alleles

6) Genetic code

7) Transcription

8) Heredity