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

Semester	: I (New)	Term	: First	Academic Year	: 2023-24
Course No.	: H/BOT 112	Title	: Principles of Genetics and Cytogenetics		
Credits	: 3 (2+1)				
Day & Date	: Monday, 08.01.2024	Time	: 10:00 to 13:00 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 Define Inheritance. Enlist characters studied by Mendel. Explain law of independent assortment with example.

Q.2 Define Linkage. Enlist types of linkage and state features of linkage.

Q.3 What is Chromosomal aberration? Enlist types and subtypes of chromosomal aberration. Explain in detail the duplication type.

Q.4 What is Genetic code? Enlist types of genetic codon. Describe in short the properties of genetic code.

Q.5 What is DNA replication? State different types of DNA replication and explain the semi-conservative DNA replication.

Q.6 Define Gene interaction. Enlist different types of gene interaction with their ratios. Explain dihybrid interaction with suitable example.

Q.7 Define Mitosis. Explain in detail stages of mitosis. Give significance of mitosis.

Q.8 What is Chromosome? Describe DNA double helix model proposed by Watson and Crick.

Q.9 Describe Nilsson-Ehle's concept of multiple factor hypothesis with suitable example.

Q.10 Write short notes on (Any Two):

a) Cytoplasmic inheritance

b) Central dogma

c) Mutation

(P.T.O.)

SECTION 'B'

Q.11 Define the following terms:

1) Genetics
2) Crossing over
3) Genotype
4) Homozygous
5) Hybrid
6) Genome
7) Pleiotropism
8) Expressivity

Q.12 Fill in the blanks:

1) Alternative form of gene is known as _____.
2) _____ is known as powerhouse of cell.
3) Test cross is a cross of F_1 with _____ parent.
4) Germplasm theory was proposed by _____ in 1989.
5) Masking effect of one gene over another is known as _____.
6) Crossing over takes place in the _____stage.
7) The genotypic ratio of a monohybrid cross is _____.
8) The membrane around the vacuole is known as _____.

✧ ✧ ✧ ✧ ✧ ✧ ✧ ✧ ✧