

**CARMEL COLLEGE OF ARTS, SCIENCE & COMMERCE FOR WOMEN,
NUVEM – GOA.**

SEMESTER END EXAMINATION, JUNE 2022

Semester: **VI of B.Sc.**

Subject: **BOTANY**

Course Title: **Cytogenetics and Plant Breeding**

Course Code: **BOC 108**

Total Marks: **80**

Date: **/06/2022**

Duration: **2 Hours**

Total No. of Pages: **02**

Instructions: 1) *All questions are compulsory; however, internal choice is available.*
2) *Figures to the **right** indicate **maximum marks** assigned to the question.*
3) ***Draw** appropriate labelled diagrams or genetic crosses **wherever** necessary.*

Q1. Answer **any four** of the following.

(4 x 4 marks = 16)

- i. Discuss the significance of mitosis.
- ii. State the characteristics of X-linked genes.
- iii. Define translocation and its types.
- iv. What is backcross? How does it differ from testcross?
- v. List the traits and their allelic forms used by Mendel for his pea experiments.
- vi. Define linkage and linkage groups.

Q2. Write short notes on **any four** of the following.

(4 x 4 marks = 16)

- a. Cytoplasmic inheritance.
- b. Meiotic crossing over.
- c. Mass selection.
- d. Position effect in *Drosophila*.
- e. Non-ionizing radiations as mutagens.
- f. Domestication of crop plants.

Q3. A. Explain why 'Law of segregation' is also called 'Law of purity of gametes'. **(6)**

OR

- A. Explain the effect of duplicate genes with cumulative effect using a suitable example. **(6)**
- B. Discuss the inheritance of kappa particles in Paramecium. **(6)**

Q4. A. Explain the pedigree method of hybridization-cum-selection for crop improvement. (6)

OR

A. Define plant introduction. Examine its merits and demerits. (6)

B. Discuss the chromosome theory of linkage. (6)

Q5. A. What is monoploidy? Comment on its origin, morphology and uses. (6)

OR

A. Summarize duplication and its types. (6)

B. Explain sex determination in heterogametic females using any one type of system. (6)

Q6. A. Discuss any three types of chemical mutagens. (6)

OR

A. Illustrate the working mechanism of the CLB method of mutation detection. (6)

B. State the objectives of plant breeding. (6)
