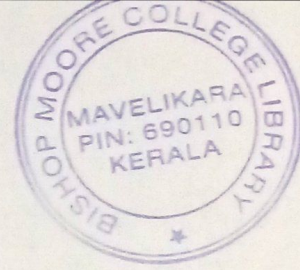


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S – 1687

Reg. No. : .....

Name : .....

**Fifth Semester B.Sc. Degree Examination, December 2023**

**First Degree Programme under CBCSS**

**Botany**

**Core Course**

**BO 1543 : CELL BIOLOGY, GENETICS AND EVOLUTIONARY BIOLOGY**

**(2019 Admission onwards)**

Time : 3 Hours

Max. Marks : 80

(Draw diagrams wherever necessary)

**PART – A**

- I. Answer **all** questions in one or two sentences. Each question carries **1** mark.
1. What are giant chromosomes?
  2. What is translocation?
  3. What are cristae?
  4. What is terminalization?
  5. What is a dihybrid cross?
  6. What does dextral refer to?

P.T.O.



7. What is Rh factor?
8. What does 9:3:4 represent?
9. What is progressive evolution?
10. What is the bottle neck effect?

(10 × 1 = 10 Marks)

### PART – B

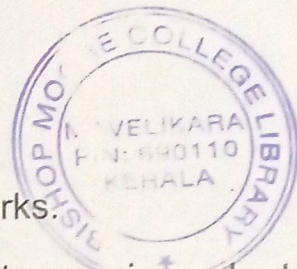
II. Answer **any eight** of the following. Each question carries **2** marks.

11. Describe the classification of chromosomes based on centromere position.
12. Define haploidy and mention its significance.
13. What is allopolyploidy?
14. List the different parts of Golgi apparatus.
15. State Mendel's second law of genetics.
16. What is the expected ratio of fruit shape in summer squash and why?
17. What is the concept of complete linkage?
18. Define interference in genetics.
19. What is 9:7 ratio? Mention the reason behind it.
20. What is Klinefelter's syndrome?
21. What is use and disuse theory?
22. Differentiate between parallel and convergent evolution.

(8 × 2 = 16 Marks)



PART – C



- III. Answer **any six** of the following. Each question carries **4** marks.
23. What is the cell cycle? Mention the significant changes that occur in each stage of cell cycle.
  24. Write a brief account various types of chromosome inversions and their significance.
  25. What are nucleoproteins? Add a note on histones and non-histones.
  26. Explain the mechanism underlying the ear size variation in maize.
  27. Explain the XX-XO and XX-XY mechanisms of sex determination.
  28. What is a crossing over? Describe the mechanism involved.
  29. Discuss the concept of multiple alleles using the blood group system as an example.
  30. Briefly describe the various mechanisms underlying speciation.
  31. Explain the postulates of Darwinism.

(6 × 4 = 24 Marks)

PART – D

- IV. Write essay on **any two** of the following. Each question carries **15** marks.
32. With labelled diagrams explain the structure and function of lysosomes.
  33. What is extranuclear inheritance? Illustrate the kappa particle in *Paramecium*.
  34. Create a checker board explain the reasons for the of 15:1 ratio in shepherd's purse plants.
  35. Describe the role of hybridization in the process of evolution.

(2 × 15 = 30 Marks)