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M – 1518

Reg. No. : .....

Name : .....

**Fifth Semester B.Sc. Degree Examination, December 2021**

**First Degree Programme under CBCSS**

**Botany**

**Core Course**

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

**(2019 Admission)**

Time : 3 Hours

Max. Marks : 80

PART – A

Answer **all** questions in a word or **one/two** sentences. Each question carries **1** mark.

1. What are dictyosomes?
2. What is a dihybrid cross?
3. Define genetic drift.
4. What is Rh factor?
5. What is nucleolar organizer?
6. What is mean by coupling phase in linkage?
7. What is mean by microevolution?

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8. Define map distance.
9. What is the function of ribosomes?
10. Define hemizygotic condition.

(10 × 1 = 10 Marks)

PART – B

Answer **any eight** questions. Each question carries **2** marks. Answer not to exceed **one** paragraph.

11. How gap phase is important in cell cycle?
12. Why all backcrosses are not categorized as testcross?
13. How Lamarck explained the occurrence of long neck in giraffe?
14. What do you understand from the term incomplete dominance?
15. What is translocation heterozygote?
16. What are duplicative dominant genes?
17. What is convergent evolution? Cite a suitable example.
18. Define interference and coincidence.
19. What are the functions of microtubules?
20. How complete linkage is different from incomplete linkage?
21. Define the term isolation. How it has impact on evolution?
22. What is sex linked inheritance? Give an example.
23. Explain cell theory.

24. How maternal inheritance is different from maternal influence?
25. What are the effects of B-chromosomes on the carrying organism?
26. Explain chromosomal basis of sex determination.

(8 × 2 = 16 Marks)

### PART – C

Answer **any six** questions. Each question carries **4** marks. Short essay type.

27. What is an inversion? Explain the different types and its effects during cell division.
28. Briefly explain important Mendelian principles.
29. How finches have evolved in Galapagos Island?
30. With the help of punnet square explain the comb pattern in poultry.
31. Describe the structure of an interphase nucleus.
32. Give an account on multiple alleles? Explain with ABO blood group in man.
33. With the help of schematic diagram explain the structure and functions of Golgi complex.
34. What is mean by linkage and crossing over? Give an account on crossing over.
35. Explain the significance of meiosis.
36. Explain any two sex chromosomal anomalies in man.
37. Define mutation and genetic drift. How these factors contribute towards evolution?
38. What is extra chromosomal inheritance? Explain with shell coiling in snails.

(6 × 4 = 24 Marks)

PART – D

Answer **any two** questions. Each question carries **15** marks. Essay type.

39. With the help of suitable labelled diagrams explain the process of meiosis I.
40. What are the characteristics of polygenic inheritance? Explain the quantitative inheritance in the skin colour of humans.
41. How hybridization, mutation and polyploidy contributed in evolution of plants?
42. What is epistasis? How dominant epistasis is different from recessive epistasis? Explain with suitable examples.
43. Explain with different levels of organization of DNA.
44. Differentiate between two-point and three-point testcrosses? Explain the steps involved in the mapping of genes using three-point testcross.

**(2 × 15 = 30 Marks)**

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