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| Reg. No. | : | |
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| 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?

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

 $(10 \times 1 = 10 \text{ Marks})$

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.

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- 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.

 $(8 \times 2 = 16 \text{ Marks})$

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?

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38. What is extra chromosomal inheritance? Explain with shell coiling in snails.

 $(6 \times 4 = 24 \text{ Marks})$

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.

 $(2 \times 15 = 30 \text{ Marks})$

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