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Reg. No. : .....

Name : .....

Fifth Semester B.Sc. Degree Examination, December 2022.

First Degree Programme under CBCSS

Zoology

Core Course – VI

ZO 1541 – GENETICS AND BIOTECHNOLOGY

(2018 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer the following questions in one to two sentences. Each question carries 1 mark.

1. What is monohybrid cross?
2. What are linkage groups?
3. Define sex index.
4. What are chemical mutagens?
5. What is synapsis?
6. What are freemartins?
7. What is a plasmid?
8. What is lipofection?

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9. What are DNA vaccines?

10. What is meant by trisomy?

(10 x 1 = 10 Marks)

SECTION – B

Answer **any eight** of the following. (Answer not to exceed one paragraph) Each question carries **2** marks.

11. Distinguish between dominance and epistasis.

12. Write the difference between complete and incomplete linkage.

13. What are sex limited genes? Give an example.

14. What is meant by two point test cross?

15. What is pedigree analysis?

16. Write the symptoms of Turner's syndrome.

17. Give an account of transfection.

18. Distinguish between intersex and Gynandromorphs

19. What are monoclonal antibodies?

20. What is pleiotropism ? Write an example

21. Explain the role of environment in the sex determination in *Bonellia.*

22. Distinguish between Back cross and Reciprocal cross?

23. What is bioremediation?

24. Write the difference between somatic and germ line gene therapy?

25. What are lethal genes? Give an example

26. What are cDNA libraries?

(8 x 2 = 16 Marks)

SECTION – C

Answer **any six** of the following. (Answer not to exceed 120 words) Each question carries **4** marks.

27. With the help of a suitable example explain co-epistasis.

28. Describe the mechanisms involved in crossing over

29. What is meant by dosage compensation? Add a note on Lyon hypothesis

30. Briefly explain polygenic inheritance.

31. Explain the inheritance of blood groups in man.

32. Give an account of basic steps of PCR.

33. Give an account of restriction endonucleases.

34. Explain different kinds of structural aberrations of chromosomes.

35. Describe the practical applications of biotechnology in medicine.

36. Explain any two inborn errors of metabolism.

37. Give an account of Human Genome Project.

38. Describe the maternal effect in *Drosophila.*

(6 × 4 = 24 Marks)

SECTION – D

Answer **any two** of the following. Each question carries **15** marks.

39. Write an essay on chromosomal mechanisms of sex determination.

40. Give an account of Chromosomal anomalies in man.

41. What are characteristics of sex inked inheritance? Give a detailed account of inheritance of colour blindness in man.

42. Describe the methods of DNA sequencing..

43. Write an essay on dihybrid cross experiment conducted by Mendel. Add a note on the law of independent assortment.

44. Explain different blotting techniques and their applications.

(2 × 15 = 30 Marks)
