(Pages : 4) K – 3318

Reg. No. : .....

Name : .....

ALL SAINTS COLLEGE LIBRARY
No.....
TRIVANDRUM

Fifth Semester B.Sc. Degree Examination, February 2021

First Degree Programme Under CBCSS

Zoology

Core Course VI

ZO 1541 : GENETICS AND BIOTECHNOLOGY

(2018 Admission – Regular)

Time : 3 Hours Max. Marks : 80

I. Answer the following questions (in **one** or **two** sentences. **1** mark each)

1. Define pleiotropism.
2. What are holandric genes? Give an example.
3. Define epistasis.
4. What is chromosome map?
5. What is Lyon hypothesis?
6. What is Edward syndrome?
7. What are cosmids?

P.T.O.

8. Define western blot.

9. What are sex influenced genes?

10. What are interferons?

(10 × 1 = 10 Marks)

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

11. What is incomplete dominance? Give an example.

12. Explain chromosome theory of linkage.

13. Comment on genic balance theory of sex determination.

14. Write notes on induced mutation.

15. Mention the salient features of cytoplasmic inheritance.

16. Write short notes on hybridoma technology.

17. What is gene therapy?

18. Explain lipofection.

19. Describe the process of construction of cDNA library.

20. Enumerate the applications of DNA fingerprinting.

21. What are transgenic organisms? Give examples.

22. Distinguish between intersexes and gynanders.

23. Define Genotype and Phenotype.

24. What are complementary genes?

25. What are molecular probes?

26. What are barr bodies?

(8 × 2 = 16 Marks)

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

27. Explain polygenic inheritance with an example.

28. Explain the inheritance pattern of Haemophilia.

29. Explain the law of independent assortment with an example.

30. What are kappa particles? Explain its inheritance.

31. Write short notes on Phenylketonuria and alkaptonuria.

32. Describe any two sex chromosomal anomalies.

33. Explain automated DNA sequencing method.

34. What is PCR? Mention the major applications of it.

35. Enumerate the potential hazards of biotechnology.

36. Describe the different types of linkage and their significance.

37. Explain shot — gun method of gene transfer.

38. Explain practical application of biotechnology in medicine

(6 × 4 = 24 M

K

IV. Answer **any two** of the following (Each carries **15** marks)

39. What is crossing over? Describe the mechanism, types, factors affecting and significances of crossing over.

40. Explain multiple allelism with reference to human blood groups.

41. What are chromosomal mutations? Explain both structural and numerical changes.

42. Write an essay on genetic engineering and rDNA technology.

43. Describe in detail the different types of blotting techniques.

44. Describe the chromosomal mechanism of sex determination. Explain with examples how environmental and hormonal factors influence sex determination.

($2 \times 15 = 30$ Marks)