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TRIVANDRUM

Fifth Semester B.Sc. Degree Examination, February 2021

First Degree Programme Under CBCSS

Zoology

Core Course VI

ZO 1541 : GENETICS AND BIOTECHNOLOGY

(2015 – 2017 Admission)

Time : 3 Hours Max. Marks : 80

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

1. What is cross over value?
2. Define co-dominance.
3. What is linkage?
4. Mention any two uses of transgenic microbes.
5. What is gene doping?
6. Define multiple alleles.
7. Mention any two uses of pedigree analysis.
8. What are holandric genes?
9. What is lipofection?
10. What is the significance of kappa particles in paramecium?

(10 × 1 = 10 Marks)

P.T.O.

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

11. Mention any two applications of DNA finger printing.

12. What is the role of linkers in genetic engineering?

13. What is the difference between reciprocal cross and back cross?

14. Explain genic balance theory.

15. What is the difference between sex limited and sex linked genes.

16. Mention any two uses of biotechnology in the field of agriculture.

17. Define bioethics. Give an example of a bioethical issue in the field of biotechnology.

18. Mention two applications of PCR.

19. What is hybridoma technology?

20. What is the difference between gynandromorph and an intersex?

21. What is the principle of Southern Blotting?

22. Mention any two properties of restriction endonucleases?

(8 × 2 = 16 Marks)

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

23. Explain incomplete dominance with an example.

24. Write the features of vectors used in genetic engineering.

25. Explain the basic steps in the construction of a gene map.

26. Explain maternal effects in drosophila.

27. Explain Sanger method of DNA sequencing.

28. Explain different types of Linkage.

29. Explain any four types of gene transfer methods.

30. Explain Dosage compensation.

31. Comment on Free Martin.

(6 × 4 = 24 Marks)

IV. Answer any **two** of the following. Each carries **fifteen** marks.

32. Write an account on the potential hazards of biotechnology.

33. Explain the construction of genomic and cDNA library.

34. Write an account on chromosomal anomalies in man.

35. Explain briefly different types of sex determining mechanisms.

(2 × 15 = 30 Marks)
