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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

(2015 – 2017 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 a test cross?
2. What are lethal genes?
3. Define complete linkage.
4. What are holandric genes?
5. What are restriction endonucleases?
6. What is Phenylketonuria?
7. What is a cosmid ?
8. What are monoclonal antibodies?
9. What are DNA vaccines?
10. What are Barr bodies?

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

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

11. Distinguish between incomplete dominance and co-dominance.

12. Write the difference between complete and incomplete linkage.

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

14. What is meant by dosage compensation?

15. What is pedigree analysis?

16. Write the symptoms of Down's syndrome.

17. Give an account of albinism.

18. What is Southern blotting?

19. What are transgenic microbes?

20. What is pleiotropism?

21. Give an account of sex determination mechanism in *Bonellia*.

22. What is meant by Robertsonian translocation?

(8 × 2 = 16 Marks)

SECTION – C

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

23. With the help of a suitable example explain complementary gene action.

24. Describe the mechanisms involved in crossing over.

25. Explain Genic balance theory of Bridges

26. Explain Mendel's dihybrid cross.

27. Explain multiple allelism with the help of a suitable example.

28. Give an account of DNA finger printing.

29. Briefly describe various gene transfer techniques.

30. Explain the Sanger method of DNA sequencing.

31. Give an account of cytoplasmic inheritance of Kappa particles in *Paramecium*.

(6 × 4 = 24 Marks)

SECTION – D

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

32. Write an essay on chromosomal mutations.

33. Describe the practical applications of biotechnology.

34. What are the characteristics of sex inked inheritance? Give a detailed account of inheritance of haemophilia in man.

35. Describe the basic steps and applications of PCR.

(2 × 15 = 30 Marks)

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