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R – 1492

Reg. No. : .....

Name : .....

Sixth Semester B.Sc. Degree Examination, April 2023

Career Related First Degree Programme under CBCSS

Botany and Biotechnology

Core Course

BB 1641 : GENETICS

(2019 Admission onwards)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** the questions in **a** word or **one** or **two** sentences. Each question carries **1** mark.

1. Define epistasis.
2. What is the role of sigma factor?
3. What is kappa particle?
4. What is repetitive DNA?
5. Define teminism.
6. What is Rh factor?
7. Define cistron.
8. What are intra allelic gene interactions? Give a suitable example.
9. What is linkage?
10. What is satellite DNA?

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

Answer any **eight** questions. Each question carries **2** marks. (Answer not to exceed **1** paragraph)

11. Describe ABO blood group in man.

12. Write a note on incomplete dominance.

13. Explain Y linked inheritance with suitable example.

14. Differentiate between back cross and test cross.

15. Give the salient features of multiple alleles.

16. Describe Mendel's monohybrid cross.

17. What is epigenetics? Comment on its significance.

18. Give an account on X linked inheritance.

19. State law of independent assortment.

20. Explain briefly Messelson and Stahl experiment.

21. What is polygenic inheritance?

22. Differentiate between interference and coefficient of coincidence.

(8 × 2 = 16 Marks)

SECTION – C

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

23. What is genetic code? Explain its characteristics.

24. Explain the XX-XY and XX-XO type of sex determination.

25. Explain two point and three-point test cross.

26. What are transposable elements? Explain different types and its characteristics.

27. Describe various DNA repairing mechanisms.

28. Explain the role of Y chromosome in sex determination in *Melandrium*.

29. Discuss different types of genes with special emphasis on its physiological role.

30. Describe various sex chromosomal abnormalities in humans.

31. Explain different forms of DNA with illustrations.

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. Each question carries **15** marks. (Answer not to exceed **3** pages)

32. Explain extra nuclear inheritance with suitable examples.

33. Describe DNA replication in prokaryotes with suitable illustrations.

34. Explain different types of allelic and non-allelic gene interactions with examples.

35. Explain Hardy Weinberg's law. Describe various factors affecting the Hardy Weinberg's equilibrium.

(2 × 15 = 30 Marks)
