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Reg. No. :

Name :

Fifth Semester B.Sc. Degree Examination, December 2022

Career Related First Degree Programme Under CBCSS

Botany and Biotechnology

BB 1542 – GENETICS

(2013-2014 Admission)

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. What is a dihybrid cross?
2. Give the ratio for recessive epistatic gene action.
3. What are holandric genes?
4. Define cistron.
5. What are split genes?
6. State Genic balance theory.
7. Name the genetic defect associated with trisomy.
8. What is double crossing over?
9. Define oncogene.
10. What is the significance of Rh-negative blood?

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

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

11. What is three point test cross?
12. Brief a note on DNA repair mechanism.
13. What are kappa particles?
14. Explain self sterility in *Nicotiana*.
15. List the enzymes involved in DNA replication.
16. What are house keeping genes?
17. Differentiate between back cross and test cross.
18. What is linkage? What is its importance?
19. Explain dominant epistasis with example.
20. What is interference?
21. Explain the flower colour pattern in *Mirabilis jalapa*.
22. What is a genetic map?

(8 × 2 = 16 Marks)

SECTION – C

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

23. Comment on Turner's syndrome.
24. Discuss the inheritance pattern of shell coiling in snails.

25. What are transposons? Explain its types.
26. Explain the chromosomal basis of sex determination.
27. What are the functions of different types of RNA?
28. Discuss the mechanism of inheritance of ear size in Maize.
29. Briefly explain duplicate gene action in *Capsella*.
30. What are the features of genetic code?
31. Explain complementary genes with an example.

(6 × 4 = 24 Marks)

SECTION – D

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

32. Discuss in detail Mendel's laws of inheritance citing suitable crosses.
33. Explain Hershey and Chase experiment to identify DNA as the genetic material. Compare and contrast A, B and Z forms of DNA.
34. What are multiple alleles? Comment on multiple allelism in terms of blood groups in man.
35. Describe sex linked inheritance with suitable examples.

(2 × 15 = 30 Marks)