

Reg. No. :

Name :

Sixth Semester B.Sc. Degree Examination, March 2020

Career Related First Degree Programme under CBCSS

**Common for Group 2 (a) Botany and Biotechnology and Group 2(b)
Biotechnology (Multimajor)**

BB 1641/BV 1641.1 : GENETICS

(2015 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

SECTION – A

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

1. What is crossing over?
2. What is chromosome mapping?
3. Define back cross
4. What is Turner's syndrome?
5. Give two examples for sex-linked inheritance.
6. How do Z form of DNA differ from 'B' DNA?
7. What are kappa particles?
8. Name the enzyme for reverse transcription.
9. What are stop codons? Give examples.
10. What is meant by gene frequency in a population?

(10 × 1 = 10 Marks)

SECTION – B

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

11. Explain the mode of inheritance in self sterility in *Nicotiana*.
12. What are Mendel's law of Inheritance?
13. Explain three point test cross.
14. Compare the mode of inheritance of pisum flower colour and *Drosophila* eye colour.
15. How satellite DNA differ from repetitive DNA. Mention their salient features.
16. Briefly explain replication in circular DNAs.
17. Describe the functions of housekeeping and luxury genes.
18. Explain the importance of primase.
19. Differentiate the A and B forms of DNA.
20. What is a genetic code? What are anti-codons and where are they located?
21. What are recon and muton?
22. What are exons and introns? What is their function?

(8 × 2 = 16 Marks)

SECTION – C

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

23. Compare and contrast multiple allelism and polygenic trait with suitable examples.
24. What are linked genes? Explain with appropriate diagram. How does linkage affect independent assortment?
25. Explain the genic balance theory of sex determination in *Drosophila*.

26. Compare the chromosomal basis of sex determination in *Melandrium album* with humans.
27. Explain the mode of inheritance of kappa particle in paramecium and shell coiling in snails.
28. Explain the role of ribosome and rRNA in translation.
29. Explain the functions and properties of tRNA.
30. What are transposons? Briefly explain the different types.
31. Who discovered semi-conservative mode of replication and explain how this was scientifically proven?

(6 × 4 = 24 Marks)

SECTION – D

Answer **any two** questions. Not more than three pages. Each question carries **15** marks.

32. Explain epistasis and different types of epistasis in detail, with examples.
33. Give a detailed account of maternal inheritance with appropriate examples.
34. Explain the functions of various enzymes involved in DNA replication and repair.
35. Explain transcription in detail with diagrams.

(2 × 15 = 30 Marks)
