

**FOURTH SEMESTER (CBCSS—UG) DEGREE EXAMINATION****APRIL 2021**

Biotechnology

BTY 4B 05—GENETICS

Time : Two Hours

Maximum : 60 Marks

**Section A***Answer at least eight questions.**Each question carries 3 marks.**All questions can be attended.**Overall Ceiling 24.*

1. State Mendelian law of dominance.
2. Differentiate between incomplete and complete penetrance.
3. What is meant by a pedigree ?
4. What are Aneuploids ?
5. What is Heterochromatin ?
6. What are lamp brush chromosomes ?
7. Comment on Ames test ?
8. What are F plasmids ?
9. What is a retrotransposon ?
10. What is sympatric speciation ?
11. What is meant by punctuated equilibria ?
12. Comment on bottleneck effect and founders effect.

(8 × 3 = 24 marks)

**Turn over**

**Section B**

*Answer at least five questions.*

*Each question carries 5 marks.*

*All questions can be attended.*

*Overall Ceiling 25.*

13. What is law of independent assortment. Explain with the help of a checker board. Write exception to this law ?
14. What are the different structural aberration in chromosomes. Explain in detail Robertsonian translocation.
15. What are the factors which deviate the Hardy- Weinberg equilibrium ?
16. What is sex linked inheritance ? Explain criss-cross inheritance with a suitable example.
17. How was Mendel's success influenced by the choice of experimental material ?
18. What are the different steps in linkage mapping of chromosomes ?
19. Comment on the sex determination mechanisms in mammals and Hymenopterans.

(5 × 5 = 25)

**Section C**

*Answer any one question.*

*The question carries 11 marks.*

20. What are the natural mechanisms of gene transfer in bacteria ?
21. Explain the inheritance of streptomycin resistance in Chlamydomonas. How do maternal inheritance and maternal effect differ ? Explain the difference between the two with suitable examples.

(1 × 11 = 11)