

Reg. No .....

Name .....

24U626

**B.Sc. DEGREE END SEMESTER EXAMINATION - MARCH 2024**

**SEMESTER 6 : ZOOLOGY**

**COURSE : 19U6CRZOO10 - GENETICS AND BIOTECHNOLOGY**

*(For Regular 2021 Admission and Supplementary 2020/2019 Admissions)*

Time : Three Hours

Max. Marks: 60

**PART A**

**Answer All (1 mark each)**

1. Find out the possible reasons for mutations.
2. Define fertility factor.
3. Define biotechnology.
4. What are phasmids?
5. What is gene interaction?
6. Expand PEV.
7. Why Hfr cells are called so?
8. Define allele.

**(1 x 8 = 8)**

**PART B**

**Answer any 6 (2 marks each)**

9. Explain how the theory of dosage compensation rectifies the double effect of X chromosomes in females.
10. Differentiate test cross and back cross with examples.
11. Comment on restriction enzymes.
12. Exemplify haemophilia as a result of sex linked mutation.
13. Enlist the physical signs of trisomy 21
14. Enlist the different measures adopted in negative eugenics.
15. Explain patenting.
16. Differentiate totipotent and pluripotent stem cells with examples.

**(2 x 6 = 12)**

**PART C**

**Answer any 4 (4 marks each)**

17. Discuss upon the various types of culture media.
18. Specify the Mendel's laws with suitable crosses.
19. Explain cytoplasmic inheritance.
20. Explain the steps in the isolation of DNA from a cell.
21. Outline the different patterns of single-gene disorders. Exemplify Huntington's disease as an autosomal dominant inheritance.
22. Reflect on the mutations altering the nucleotide sequences.

**(4 x 4 = 16)**

**PART D**

**Answer any 2 (12 marks each)**

23. Write an essay on genome recombination in bacteria.
24. Discuss the mechanism of the non-genetic way of sex determination using honey bee as an example.
25. Sex chromosome anomalies are gender specific. Examine the implications of the statement.
26. Explain the steps in gene cloning.

**(12 x 2 = 24)**