Name ..... **25U626**

Reg. No .....

**B. Sc. DEGREE END SEMESTER EXAMINATION - MARCH 2025**

**SEMESTER 6 : ZOOLOGY**

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

*(For Regular 2022 Admission and Supplementary 2021/2020/2019 Admissions)*

Time : Three Hours Max. Marks: 60

**PART A**
**Answer All (1 mark each)**

1. What are R factors?
2. Define biotechnology.
3. Define allele.
4. What do you mean by phenotype?
5. Specify the connection between linkage and cross over.
6. Define episome.
7. Expand PEV
8. Define expression vectors.

**(1 x 8 = 8)**

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

9. Find out the role of testosterone in pattern baldness.
10. Explain how according to the theory of dosage compensation is the double effect of X chromosomes in females is rectified.
11. Write a short note on artificial chromosomes.
12. Comment on Kappa particles in paramecium.
13. Differentiate between germ line and somatic mutations.
14. Give a brief account on patenting and patent protection.
15. Differentiate the terms dominance and epistasis.
16. Differentiate primary and secondary cell cultures.

**(2 x 6 = 12)**

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

17. Comment on genetic engineering for transgenic animals.
18. Outline the different patterns of single-gene disorders. Exemplify sickle cell anemia as an autosomal recessive inheritance.
19. Explain the steps in the isolation of DNA from a cell.
20. Explain Western Blotting and its applications.
21. Enlist the defining features of multiple alleles. Explain the condition taking coat colour in rabbit as an example.
22. Discuss on the hormonal influence on sex determination.

**(4 x 4 = 16)**

## PART D

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

23. Explain in detail the various steps in cell culture procedure.
24. Explain the property of vectors and elaborate on different types of vectors used in genetic engineering.
25. Summarize the techniques used to measure the outcome of the pregnancy. Evaluate critically and favourably on PD tests.
26. Elaborate on chromosomal aberrations focusing on the changes in the number of chromosomes.

**(12 x 2 = 24)**