D5BZL2201 **Reg. No.....**

Name: .....

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

(Regular/Improvement/Supplementary)

ZOOLOGY

GZOL5B06T: CELL BIOLOGY & GENETICS

Time: 2 ½ Hours **Maximum Marks: 80**

SECTION A: Answer the following questions. Each carries *two* marks.
(Ceiling 25 marks)

1. What is Carnoy's fluid? Give its composition.
2. How does the Periodic acid-Schiff's technique work and what is it commonly used to detect?
3. Comment on the significance of F_1-F_0 particle in mitochondria.
4. What are heterolysosomes? List its functions.
5. Write short notes on histone octamer.
6. Define endomitosis. Mention its significance.
7. Write short notes on synapsis.
8. What are supplementary genes? Give an example.
9. Comment on atavism.
10. What is Genic balance theory?
11. Distinguish between transition and transversion.
12. Write down the effects of inversion mutation.
13. State the mutagenic effects of alkylating agents.
14. Comment on Euthenics.
15. List the characteristic features and genetic causes of Cri-du-Chat syndrome.

SECTION B: Answer the following questions. Each carries *five* marks.

(Ceiling 35 marks)

16. Discuss the structure and functions of microtubules.
17. Describe the structure and functions of NPC.
18. Elaborate on the features of various phases of eukaryotic cell cycle.
19. Explain any ten characteristics of cancer cells.
20. Describe dominant epistasis with a suitable example.
21. What is linkage? Discuss different types of linkages with suitable examples.
22. Explain sex determination in *Bonellia.*
23. Discuss the chromosomal anomaly and abnormal phenotypic features of Turner's and Klinefelter's syndromes.

SECTION C: Answer any *two* questions. Each carries *ten* marks.

24. Explain the principle, working mechanism and applications of Transmission Electron Microscope.
25. With a suitable diagram describe the fluid mosaic model of plasma membrane and add notes on membrane lipids, membrane proteins and membrane carbohydrates.
26. Explain the genetics of ABO blood group system and Rh factor in man. Add notes on MN blood group and Bombay phenotype.
27. What are the characteristics of sex linked inheritance? Discuss X- linked inheritance in man with two suitable examples.

(2 × 10 = 20 Marks)