

D5BZL2301

Reg. No.....

Name:

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

(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. Mention the peculiar chromosomes present in the salivary glands of dipteran larvae.
2. Comment on hypertrichosis and its mode of inheritance.
3. What is lampbrush chromosome?
4. Justify the term “reduction division” in view of meiotic chromosome contents.
5. What is meant by cancer? Provide any two types of cancers.
6. Comment on apoptosis.
7. What is epistasis?
8. Describe resolving power and magnification.
9. What are the applications of phase contrast microscopy?
10. Explain the genetic basis of the co-dominance of alleles.
11. Predict the genotypes of the following individuals based on their blood group.
a) a person with A group b) a person with O group
12. What is linkage?
13. Comment on XX males
14. What is mitochondrial biogenesis?
15. Explain the Patau’s system of classification of chromosomes.

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

(Ceiling 35 marks)

16. What are the parts of a typical light microscope? Describe the advantages and disadvantages of light microscopy.

(PTO)

17. What are the cytoskeletal elements of a cell? Provide their composition and functions.
18. Describe the cell cycle with suitable illustrations. What are the different phases and checkpoints in cell cycle?
19. Briefly explain complementary and supplementary gene action with examples.
20. Compare the SEM and TEM microscopic techniques along with a neat schematic diagram.
21. What are the interactions between cells? Mention the different components involved.
22. Explain the inheritance of coat colour in rabbits with emphasis on its genetics.
23. Write notes on any two autosomal anomalies arising due to trisomic condition.

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

24. With appropriate diagrams, describe the structure of eukaryotic plasma membrane and its composition. Add a note on the different intracellular organelles.
25. What is crossing over and recombination? Explain the process of calculation of crossing frequency and its role in linkage map construction.
26. Write an essay on the different mechanisms of sex determination.
27. What is mutagenesis? Explain in detail the different mutagenic agents.

(2 x 10 = 20 Marks)