

**FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2023**  
**(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 colour blindness?
2. How can you calculate recombination frequency between genes? Explain its significance.
3. What are the functions of lysosomes?
4. What are lamp brush chromosomes? Where is it found?
5. What is apoptosis? Comment on its significance.
6. Comment on supplementary gene action.
7. Explain penetrance and expressivity of genes.
8. List out the different human blood groups according to ABO system with the antigens and antibodies present in each.
9. What is the working principle of TEM?
10. Give the composition of typical Carnoy's fluid. Mention its use.
11. What is a nucleosome?
12. What is the meaning of angiogenesis in cancer?
13. Explain the haploid- diploid mechanism of sex determination.
14. Comment on Edward's syndrome.
15. What are the symptoms associated with haemophilia?

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

**(Ceiling 35 Marks)**

16. What are the components of plasma membrane?
17. Differentiate between Light microscope and Electron microscope. What are their advantages and disadvantages?
18. What are multiple alleles? Explain with human blood group system.
19. Describe the structure and functions of mitochondria.
20. What is meant by histochemistry? Provide the histochemical methods of determining the presence of carbohydrates in tissues.
21. What is gynandromorphism? Write notes on different types of gynandromorphism.
22. Briefly explain quantitative inheritance with a suitable example.
23. Write short notes on any two autosomal recessive mutations.

**(PTO)**

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

24. Write an essay on extra cellular matrix.
25. Explain the different phases and check points in Cell cycle. Add a note on the role of centriote in animal cell division.
26. What is sex determination and differentiation? Explain the process of sex determination and differentiation in human beings.
27. Write an essay on the different gene mutations and their significance.

**(2 x 10 = 20 Marks)**