**ST.JOSEPH’S UNIVERSITY, BENGALURU -27**

Registration Number:

Date & session: 9-12-2022, 1-3pm

**B.Sc. (BIOTECHNOLOGY) – I SEMESTER**

**SEMESTER EXAMINATION: OCTOBER 2022**

**(Examination conducted in December 2022)**

**BT 121 – CELL BIOLOGY AND GENETICS**

**Time: 2 Hours Max Marks: 50**

**This paper contains ONE printed page and THREE parts**

**PART-A**

**Answer any SEVEN of the following: 7X2=14 marks**

1. What is programmed cell death?
2. What are adherens junctions and hemidesmosomes?
3. Give the structural organization of the extracellular matrix.

4. What could be the consequence of ruptured anchoring junctions?

5. What is a test cross conducted for? Give the test cross ratio for a monohybrid.

6. What are translocations? What are the different types of translocations?

7. What are point mutations? What is its genetic effect?

8. What is sex index ratio in Drosophila?

9. State four important characteristics of multiple alleles.

 **PART-B**

**Answer any FOUR of the following: 4X5=20 marks**

10. Write a note on special types of chromosomes.

11. Explain the structure and functions of microtubules.

12. Write a note on heterochromatin and euchromatin.

13. Give an account of the origin of new world cotton.

14. Explain the inheritance of coiling in Limnaea sps.

15. With the help of a suitable example, explain inhibitory epistasis.

 **PART-C**

**Answer the following: 2X8=16 marks**

16. Explain Stern’s experiment as a cytological proof of crossing over.

17. a. Explain the structure of the nucleus with its various components.

**OR**

17. b. Explain why there is a greater proportion of paracentric inversions in natural populations than pericentric inversions.