Registration Number:

Date & Session:

# ST. JOSEPH'S UNIVERSITY, BENGALURU -27
## B.Sc. (BIOTECHNOLOGY) – I SEMESTER
## SEMESTER EXAMINATION: OCTOBER 2023
**(Examination conducted in December 2023)**

## BT 5223 – Immunology and Medical Biotechnology

**Time: 2 Hours** **Max Marks: 60**

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

### PART-A

**Answer any TEN of the following:** **10 X 2= 20 marks**

1. Define immunogenicity.
2. What is a superantigen? Give an example.
3. Which type of vaccine is DPT?
4. Briefly state the principle of MTT assay.
5. State two ways by which microbes can infect our body.
6. State the importance of a secondary antibody in a Western Blot.
7. What is an isograft?
8. Define agglutination.
9. Briefly explain the mechanism of action of a mast cell.
10. What is the importance of thymic education?
11. What are the fragments that are produced from papain digestion of an antibody?
12. State the components of a death receptor complex.

### PART-B

**Answer any FOUR of the following:** **4 X 5 = 20 marks**

13. Explain graft versus host disease with a suitable diagram.
14. Explain the importance of the gut-brain axis.
15. Explain each stage of the humoral response in detail.
16. Describe the granzyme-perforin pathway with a suitable diagram.
17. Explain the different steps of antigen presentation using MHCI with the help of a suitable diagram.
18. Explain the process of transcytosis of IgA.

### PART-C

**Answer any TWO of the following:** **2 x 10 = 20 marks**

19. Explain tumor staging by the TNM system. (5 marks) Discuss the different mechanisms of pathogenesis of cancer. (5 marks)
20. Explain in detail the process of T-cell-dependent activation of B lymphocytes. (7 marks) State the importance of primary follicles in secondary lymphoid organs. (3 marks)
21. Explain with the help of suitable diagrams the mechanisms by which peripheral tolerance is induced in our body.