**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU -27**

**B.Sc (BIOTECHNOLOGY) – V SEMESTER**

**SEMESTER EXAMINATION: OCTOBER 2022**

**(Examination conducted in December 2022)**

**BT5118: IMMUNOLOGY**

**Time: 2 ½ Hours Max Marks: 70**

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

1. **Answer any TEN questions: 2 x 10 = 20 marks**
2. Define Ag-Ab precipitation with a suitable example.
3. State the products obtained after pepsin digestion of an antibody.
4. State the importance of variable regions in the antibody structure.
5. Define avidity.
6. Draw a labeled graph for humoral response.
7. What is DiGeorge syndrome?
8. What is atopy?
9. Which antibodies are capable of activating the classical complement pathway?
10. Briefly describe the structure of TCR.
11. What is anergy?
12. What are K cells ? What is their role in cell mediated immunity?
13. What is type I hypersensitivity?

**B. Answer any FIVE questions: 5 x 6 = 30 marks**

1. Describe the structure of an antibody with a suitable diagram.
2. Briefly explain the equivalence graph of antigen-antibody precipitation.
3. Explain Tonegawa’s experiment with a suitable diagram.
4. Explain the process of phagocytosis.
5. Briefly explain ADCC.
6. Briefly describe the structure of class II MHC molecule.
7. Explain alternate pathway of complement activation.

**C. Answer any TWO questions: 2 x 10 = 20 marks**

1. a. Explain V(D)J recombination in detail. What are recombination recognition sequences (RSS)? (7+3)

**OR**

b. Explain innate immunity in detail.

1. a. Describe the mechanism underlying the generation of central tolerance in T and B lymphocytes.

**OR**

b.Explain the process of endogenous antigen presentation.