

Date:09-03-2022

Registration number:

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

**B.Sc. BIOTECHNOLOGY- V SEM**

**SEMESTER EXAMINATION: October 2021**

(Exams conducted March 2022)

**BT 5118 - Immunology**

Time- 2 ½ hrs Max Marks-70

This question paper contains 1 printed page and 3 parts

**Part A**

**I.Answer any 10 questions 10 x 2 = 20 Marks**

1. Name the composition of the membrane attack complex of the complement system.
2. State the function of CLIP.
3. State the steps involved in degranulation of basophils.
4. What is the function of M cells in Peyer’s patches?
5. What is an apoptosome?
6. What is the importance of negative selection during T cell maturation?
7. Define clonal anergy.
8. Draw a labelled structure of the IgA molecule.
9. Name the gene segments present in the immunoglobulin heavy and light chain genes.
10. What are CDRs and why are they important?
11. State the components of the HAT selection medium.
12. What is the instructive theory of antibody production?

**Part B**

**II.Answer any 5 questions 5 x 6 = 30 Marks**

1. Differentiate between central and peripheral tolerance.
2. Describe in detail the type of hypersensitivity that leads to formation of granulomas.
3. Describe the MHC II pathway with the help of a schematic diagram.
4. Explain the process of inflammation in detail.
5. State the cause and one relevant symptom of the following:
   1. Myasthenia gravis
   2. Systemic lupus erythematosus
   3. Hashimoto’s thyroiditis
6. Describe the process of affinity maturation of antibodies. Where does it take place?
7. What is the role of disulfide bonds in maintaining antibody structure?

**Part C**

**III.Answer any 2 questions 2 x 10 = 20 Marks**

1. A. Explain the complement pathway that is independent of antibodies. What are opsonins? (8 + 2)

**OR**

B. How is antibody diversity generated? Describe in detail.

1. A. State the process of B cell maturation and activation in detail.

**OR**

1. What is class switching and how is it achieved in B-cells?