

Unique Paper Code (UPC) : 32531502
Name of the Paper : Immunology
Name of the Course : B.Sc. (Hons.) Microbiology
Semester : 5
Duration : 4 hours including time taken for downloading question paper and uploading answer sheets
Maximum marks : 75

On first page, please write the following details:

1. Date and time of examination (DD/MM/YYYY, Hours:Min)
2. Examination Roll Number
3. Name of the Program, i.e. B.Sc. (H) Microbiology
4. Semester
5. Unique Paper Code (UPC)
6. Title of the Paper
7. Name of the College
8. Email ID of the student
9. Mobile Number of the student

SET 1

Attempt any **four** questions. **All** questions carry equal marks. Please answer on A4 size sheets and mark the page number at the top of each page.

1. Discuss the experiments conducted to elucidate the structure of antibody. Explain the statement- antibodies can act as an antigen describing different antigenic determinants present on it. $9.75+9=18.75$
2. Compare the formation of C3 convertase in classical and alternate pathway of complement activation? Discuss the role of amplification step in complement activation. Why is IgM a better activator of complement? Name and explain the importance of peptides generated during complement activation. How does C9 polymerization contribute to the biological consequences of complement activation? $7+2+3+3.75+3=18.75$
3. Define antigen and antigenicity. What properties of a substance can make it a good antigen? What type of immune response is generated against altered cells and how are they killed? Explain. $3+ 5+ 10.75=18.75$
4. Enlist all professional APCs and their properties. Name and describe the structure, function and organization of the molecule present on their surface responsible for

presentation of antigen. Giving suitable example of antigen, explain the mechanism of its processing and presentation along with the molecule. What mechanism is involved in generation of diversity in MHC molecules? $6+4+6.75+2=18.75$

5. Which type of hypersensitivity is represented by hemolytic disease of newborns? Explain. How is hypersensitivity different from immunodeficiency? Write briefly about any two important immunodeficiency diseases in humans. What inferences can be drawn from the studies of DiGeorge Syndrome? Describe an animal model of immunodeficiency. $4+3+5+3+3.75=18.75$

6. Which cells are responsible for specificity of an immune response? How can these cells be identified using the technique of immunofluorescence? Name the organs where these cells generate immune response against an antigen. Draw a diagram of one of the important organ in detail and explain its structure and function. What is lymphoma and explain the therapies which can be used for its treatment? $1+4+1+6.75+6=18.75$