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# H-7321

# M.Sc. (II Semester) Examination, 2022

## BIOTECHNOLOGY

## Paper – I

## (*Immunology*)

***Time Allowed: Three Hours***

***Maximum Marks: 70***

**Section-A**

**Note:- Attempt any ten questions. Each question carries one mark.**

**Q.I. Objective Type Questions 1x10**

1. The antibody that can exist as a pentameric form is.....
2. The B-cells mature in.....
3. The antibody present in mother's milk is.....
4. HIV mainly attacks.....cells.
5. The first monoclonal antibody to have been approved for therapeutic use is .....
6. The deficiency of .....enzyme leads to SCID.





7. Type-I Hypersensitivity mainly involves which antibody?
   a) IgD b) IgE
   c) IgM d) IgG
8. Immuno-technique involving the use of chemiluminescence is:
   a) ELISA b) CLIA
   c) Isoelectric Focusing d) Immuno-Blotting
9. An example of naturally acquired active immunity would be:
   a) Immunity developed after vaccination
   b) Immunity developed due to infection
   c) Immunity developed after administration of monoclonal antibodies
   d) Immunity acquired by administration of immune serum
10. Which of the following statements is incorrect?
    a) MHC-I is present on all nucleated cells
    b) MHC-II is present only on APCs
    c) Endocytic antigens are presented to $CD8^+$ T-Cells by MHC-II
    d) None of the above
11. Antibodies are the members of Immunoglobulin Superfamily. **(State whether true or false).**

12. RIA have been largely replaced by ELISA. **(State whether true or false)**

## Section-B

**Note:- Attempt any five questions. Each question carries two marks.**

**Q. II. Very Short Answer Type (25-30 Words) 2x5**

1. Define haematopoiesis.What is a Plasma B-Cell?
2. What is an epitope?
3. Write any two demerits of RIA?
4. What are the biological functions of antibodies.
5. Write any two functions of cytokines?
6. What is meant by immunological memory?

## Section-C

**Note:- Attempt any five questions. Each question carries four marks.**

**Q.III. Short Answer Type (250 Words) 4x5**



1. Differentiate between active and passive immunity.
2. Describe MHC-Complexes in brief.
3. Give a brief account on Toll-like receptors.
4. Discuss the classical pathway of complement activation.
5. Describe various forms of ELISA in brief.
6. Describe the concept of immunological tolerance in brief.
7. Give a brief account on autoimmunity with examples.

## Section-D

**Note:- Attempt any three questions. Each question carries ten marks.**

**Q.IV. Essay type (more than 500 Words) 3x10**

1. Differentiate between antigenicity and immunogenicity. Also discuss the factors affecting antigenicity.
2. Give a detailed account on molecular mechanisms that is responsible for generation of antibody diversity.
3. Give a detailed account antigen processing and presentation.
4. Define vaccines. Give a detailed account on production of recombinant vaccines.