



Seat No. \_\_\_\_\_

**HAJ-003-2015009**

**B. Sc. (Microbiology) (Sem. V) Examination**

**May - 2023**

**MB - 501 : Immunology**

**Faculty Code : 003**

**Subject Code : 2015009**

Time :  $2\frac{1}{2}$  / Total Marks : 70

**Instructions:**

1. All questions are Compulsory
2. Figures on the right indicate marks
3. Support your answer with suitable diagram as required.

- 1 A Objective Type question : **1×4=4**
- a. Define: Immunity
  - b. Name any two Secondary organs of Immune System.
  - c. What is Primary Immune Response?
  - d. Draw a well labelled, diagram of Neutrophiles.
- B Answer in Brief : (Any one) **2×1=2**
- a. Explain Secondary Immune response
  - b. What are Stem cells? What are its functions?
- C Answer in detail : (Any One) **3×1=3**
- a. Discuss Acquired Immunity
  - b. Explain Innate Immunity
- D Write Short notes on : (Any One) **5×1=5**
- a. Properties of Immune System
  - b. Secondary organs of Immune system

- 2 A Objective Type question : **1×4=4**
- a. Define: Immunogen
  - b. What is Monoclonal Antibody?
  - c. What is Clonal Selection Theory?
  - d. Define: Polyclonal Antibody.
- B Answer in Brief : (Any one) **2×1=2**
- a. Define microbial antigens. Enlist its various types with suitable diagram.
  - b. Draw a well labelled diagram of basic structure of Antibody molecule.
- C Answer in detail : (Any One) **3×1=3**
- a. Discuss factors influencing Immunogenicity
  - b. Explain Immunoglobulin classes and their Biological functions
- D Write Short notes on : (Any One) **5×1=5**
- a. Overview of Monoclonal Antibody
  - b. Antibody Diversity
- 3 A Objective Type question : **1×4=4**
- a. Define: MHC
  - b. What is Memory Cell?
  - c. Define: Cytokines
  - d. What is Complement system?
- B Answer in Brief : (Any one) **2×1=2**
- a. Explain Phagocytosis with suitable diagram
  - b. Describe the structure and functions of MHC Class - II molecule.
- C Answer in detail : (Any One) **3×1=3**
- a. Discuss Antigen processing and presentation.
  - b. Give an overview of Complement system.
- D Write Short notes on : (Any One) **5×1=5**
- a. Generation of Humoral Immune Response
  - b. Generation of Cell Mediated Immune Response

- 4 A Objective Type question : **1×4=4**
- a. Define: Hypersensitivity
  - b. What is Autoimmunity?
  - c. Define Immunodeficiency
  - d. What is Transplantation?
- B Answer in Brief : (Any one) **2×1=2**
- a. Enlist and define various types of Autoimmune diseases.
  - b. Enlist and define primary immunodeficiency
- C Answer in detail : (Any One) **3×1=3**
- a. Discuss Type - II Hypersensitivity Reaction
  - b. Explain mechanism of Graft Rejection.
- D Write Short notes on : (Any One) **5×1=5**
- a. Overview of Tumor immunity
  - b. Overview of Transplantation immunity
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- 5 A Objective Type question **1×4=4**
- a. Define: Normal Flora
  - b. What is Pathogenicity?
  - c. Define: Vaccines
  - d. What is infection?
- B Answer in Brief (Any one) **2×1=2**
- a. Enlist normal flora of GIT
  - b. Enlist various steps that are necessary for a successful infection.
- C Answer in detail : (Any One) **3×1=3**
- a. Discuss Microbial virulence factors
  - b. Explain mechanism of Penetration of epithelial cell layers during infection
- D Write Short notes on : (Any One) **5×1=5**
- a. Vaccines
  - b. Normal flora of healthy human host.