2421

# 0205N172

Candidate's Seat No :_____

**MSc Sem.-2 Examination**

**408**

**MLT**

**Time : 2-30 Hours]** **May-2025** **[Max. Marks : 70**

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|---|---|---|
| Q1A | Describe the components of the innate immune system. How do they work together to provide immediate defence against pathogens? | 7 Marks |
| Q1B | Explain the complement system. Describe its activation pathways and functions in immunity. | 7 Marks |
| | OR | |
| Q1A | What are the major physical barriers in the immune system? How do they prevent microbial entry and infection? | 7 Marks |
| Q1B | Describe the role of MHC Class II molecules in the activation of T-helper cells during a bacterial infection. Explain the immunological steps involved in this process. | 7 Marks |
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| Q2A | What are antigens? Explain their types, characteristics, and role in immune recognition. | 7 Marks |
| Q2B | Discuss the mechanisms, mediators, and clinical manifestations of allergic reactions such as asthma and anaphylaxis. | 7 Marks |
| | OR | |
| Q2A | Discuss the mechanisms underlying immunological memory. How does the secondary immune response differ from the primary response in terms of speed and antibody production? | 7 Marks |
| Q2B | Outline the principles of ELISA. Compare direct, indirect, and sandwich ELISA in terms of methodology and applications. | 7 Marks |
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| Q3A | Explain the mechanisms of autoimmunity, detailing all 10 different pathways through which immune tolerance can break down. | 7 Marks |
| Q3B | Explain the difference between primary and secondary immunodeficiencies along with appropriate examples. | 7 Marks |
| | OR | |
| Q3A | Describe the pathogenesis, Symptoms, causes, and diagnostic approach for Rheumatoid Arthritis as an autoimmune disorder. | 7 Marks |
| Q3B | Explain the pathogenesis of Type 1 Diabetes Mellitus and any 3 complications related to it. | 7 Marks |
| | | |
| Q4A | Describe the role of MHC Class I molecules during a viral infection. Explain the immunological steps involved in this process. | 7 Marks |
| Q4B | Explain the structure and classes of immunoglobulins. How do their functions differ? | 7 Marks |
| | OR | |
| Q4A | Differentiate between Type I (immediate) and Type IV (delayed) hypersensitivity reactions. Include key mediators, mechanisms, and clinical examples. | 7 Marks |

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| Q4B | Explain the difference between MACS and FACS techniques | 7 Marks |
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| **Q5** | **Answer the following questions (Any Seven)** | **14 Marks** |
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| I | What is the role of lysosomes in phagocytosis? | 2 Marks |
| II | Name two immunoglobulin classes and their main functions. | 2 Marks |
| III | Differentiate between Helper T cells and Cytotoxic T cells. | 2 Marks |
| IV | Define epitope and paratope. | 2 Marks |
| V | Define antigenicity and immunogenicity. | 2 Marks |
| VI | Mention any two clinical uses of immunofluorescence. | 2 Marks |
| VII | Explain two key applications of Flow Cytometry in immunology. | 2 Marks |
| VIII | In absence of insulin, _____ is broken down by liver and it produces chemicals called _____ leading to DKA. | 2 Marks |
| IX | Define Immunophenotyping. | 2 Marks |
| X | What is the difference between monoclonal and polyclonal antibodies? | 2 Marks |
| XI | Name any two examples of Type I hypersensitivity reactions. | 2 Marks |
| XII | What is the basic principle of flow cytometry? | 2 Marks |

**BEST OF LUCK**