Exam.Code:0436
Sub. Code: 3473

2053

M.Sc. (Biotechnology) Second Semester

MBIO-202: Biology of Immune System

Time allowed: 3 Hours

Max. Marks: 80

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Unit.*

x-x-x

I. Attempt the following:-

a) What is immunological tolerance?

b) Which markers appear first on B-Cell. Name the cytokines which help in their differentiation.

c) Define immunoprecipitation?

d) Give the function of a lymph node.

e) What are antigen-presenting cells?

f) What are superantigens?

g) Define synergy with an example.

h) Which polypeptides organize the cleft of MHC-I molecules. (8x2)

UNIT - I

II. a) Explain the phylogeny of the immune system.

b) Describe the Fab region of antibody. Discuss the clonal nature of the immune response. (8+8)

III. a) Describe the organization and structure of the thymus in humans.

b) Explain the applications of antigen-antibody interactions in immunology. (8+8)

UNIT - II

IV. a) Explain the major histocompatibility complex and the role of cell receptors in it.

b) Define the complement system and describe the classical pathway. (8+8)

V. a) Describe the hemopoiesis and differentiation of cells of the immune system.

b) Explain the lymphocyte trafficking and the process of activation of B -lymphocytes and T-lymphocytes. (8+8)

UNIT - III

VI. a) Describe the mechanism of T -cell, NK cell- and macrophages mediated lysis.

b) How cytokines regulate immune responses. Explain with examples. (8+8)

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VII. a) What are autoimmune diseases? Give their Symptoms and causes. Explain rheumatoid arthritis in detail.

b) Explain the types of hypersensitivity and the reactions leading to health issues. (8+8)

UNIT - IV

VIII. a) What are the factors responsible for the rejection of the allograft? How it can be prevented from rejection?

b) Explain tumor immunology. How do tumors escape immunity? (8+8)

IX. a) Discuss AIDS and other immuno-deficiencies.

b) Describe the hybridoma technology and applications of monoclonal antibodies. (8+8)

x-x-x