

2072

M.Sc. (Bio-Informatics) Second Semester
MBIN-8010: Immunology and Cell Biology

Time allowed: 3 Hours

Max. Marks: 60

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting atleast one question from each Unit.

x-x-x

1. Answer the following briefly:

- Vesicular budding
- Apoptosis and its significance.
- MHC-I and its function.
- Immunological tolerance
- G1 Phase
- Autoimmune disorder
- JAK-STAT
- IL-2 and IL-10

(1 ½ x8=12)

UNIT-I

- What do you know about the lymphocyte production and their differentiation?
- Describe the structure of a typical immunoglobulin? What are domains? How IgG differ from IgM with respect to structure and functions?

(6+6=12)

3.a) Discuss how antibody diversity is generated in humans?

- Explain the types of immunity. How the activation of B- cells take place? What is clonal proliferation?

(6+6=12)

UNIT-II

4. a) What are Antigen presenting cells? Describe the mechanism of exogenous and endogenous Antigen processing.

- Explain the types of transplantation and the immunology of graft rejection.
- Write the principle and applications of Immunofluorescence technique.

(4+4+4=12)

5.a) What do you know about prediction software and vaccine design?

- Give a comparison of Hypersensitivity Type -I and Type- II.
- How monoclonal antibodies are generated? What are their applications .

(4+4+4=12)

UNIT-III

5.a)How the translocation of proteins take place across the ER and Golgi?

- Discuss the mechanism of regulation of cell cycle.

(6+6=12)

7. a) How the transport of nutrients take place across the cell membrane ?

- Define signal transduction. Explain the mechanism of Ras-MAPK and P13K.

(6+6=12)

x-x-x