

**M. Sc. (Biotechnology) Sem-II (2012 Course)(Choice Based Credit
System) : SUMMER - 2019
SUBJECT: IMMUNOLOGY**

Day: Friday
Date: 05/04/2019

Time: 02.00 PM TO 05.00 PM
Max. Marks: 60

S-2019-1411

N.B:

- 1) **Q. No.1 and Q. No.5 are COMPULSORY.**
- 2) Attempt **ANY TWO** questions from **Q. No.2, 3 and 4.**
- 3) Attempt **ANY TWO** questions from **Q. No.6, 7, 8.**
- 4) Answer to both the sections should be written in **SAME** answer book.

SECTION-I

- Q.1** Answer the following in brief: (10)
- a) Define Hematopoiesis.
 - b) Name and state the function of any two secondary lymphoid organs.
 - c) Differentiate between primary and secondary immune response.
 - d) List two properties of myeloma cells used in production of B-cell hybridomas.
 - e) State the role of histamine in inflammation.
 - f) Expand the terms ITAMS and MHC.
- Q.2** Answer the following questions: (10)
- a) How do the three pathways of complement activation differ in the substances that can initiate complement activation?
 - b) Describe the antimicrobial and cytotoxic activities of macrophages that can destroy phagocytosed micro-organisms.
- Q.3** Answer the following questions: (10)
- a) Describe the steps involved in B cell maturation.
 - b) Justify: MHC locus is polygenic and polymorphic.
- Q.4** Write short notes on **ANY TWO** of the following: (10)
- a) Cytotoxic T Lymphocytes
 - b) Radioimmune assay
 - c) Applications of monoclonal antibodies

SECTION-II

- Q.5** Answer in brief (**ANY FIVE**) : (10)
- a) Central tolerance
 - b) Hypersensitivity
 - c) Immuno suppression
 - d) Cytokines
 - e) Natural Killer cells
 - f) Xenografts
- Q.6** Answer in brief: (10)
- a) Describe the mechanisms involved in first and second set of allograft rejection.
 - b) Explain the pathophysiology of Rheumatoid Arthritis.
- Q.7** Write short notes on: (10)
- a) Live attenuated vaccines.
 - b) Immunotherapeutic strategies for treatment of cancer
- Q.8** Describe the three phases by which the immune system can recognize and target tumor cells (10)

OR

How hypersensitivity reactions are classified? Explain Type I hypersensitivity reaction giving a suitable clinical examples.

* * * * *