

**M. Sc. (Medical Biotechnology) Sem-II (Choice Based Credit System) :**

**WINTER - 2018**

**SUBJECT: IMMUNOLOGY**

Day : : Monday  
Date : 22/10/2018

**W-2018-1294**

Time : 10.00 AM TO 01.00 PM  
Max. Marks : 60

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**N.B.**

- 1) Q.1 and Q.5 **COMPULSORY**.
  - 2) Attempt any **TWO** questions from Q.2, Q.3, Q.4 from section I and Q.6, Q.7 and Q.8 from section II
  - 3) Answers to the both the sections should be written in **SEPARATE** answer book.
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**SECTION – I**

- Q.1** Define (**ANY FIVE**) of the following: **(10)**
- a) Tolerance
  - b) Innate immunity
  - c) Hypersensitivity
  - d) Antibody affinity
  - e) Adjuvants
  - f) Tumor specific antigens
- Q.2** Answer the following: **(10)**
- a) Discuss in detail the processing and presentation of endogenous antigens
  - b) Discuss the terms pleiotropy, synergy, redundancy, antagonism and cascade induction as they apply to cytokine action
- Q.3** Answer the following: **(10)**
- a) Describe three ways in which the complement acts to protect the host during an infection
  - b) Justify: The MHC complex is polygenic and polymorphic
- Q.4** Write short notes on **ANY TWO**: **(10)**
- a) B cell receptor
  - b) ELISA
  - c) Inflammation

P.T.O.

**SECTION – II**

**Q.5** Answer the following (**ANY FIVE**): **(10)**

- a) Name two non-specific immune-suppressive drugs and their mode of action
- b) Name two cytokines produced by activated T<sub>H</sub>2 cells
- c) Name one primary and one secondary mediator of Type-I Hypersensitivity
- d) What is an immunologically privileged site?
- e) What is polyclonal antibody response?
- f) State the role of Peyer's Patches

**Q.6** Answer the following: **(10)**

- a) Justify: Transfusion reactions are a manifestation of Type-II Hypersensitivity reactions
- b) Discuss the mechanisms of allograft rejection

**Q.7** Answer the following: **(10)**

- a) Explain the pathophysiology of any two autoimmune diseases that target specific organs
- b) Briefly discuss immunotherapeutic strategies used in cancer

**Q.8** Describe the activation of cytotoxic T lymphocytes and the process of CTL mediated cytotoxicity **(10)**

**OR**

Describe the hybridoma technology for the production of monoclonal antibodies and briefly discuss the methods to humanize monoclonal antibodies

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