

**M. Sc. (Biotechnology) Sem-II / M. Sc. (Medical Biotechnology) Sem- II**  
**(CBCS 2018 Course) : SUMMER - 2019**  
**SUBJECT : IMMUNOLOGY**

Day : Saturday  
Date : 13/04/2019

**S-2019-1429**

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

**N. B. :**

- 1) **Q. No. 1 and Q. No. 5 are COMPULSORY.**
- 2) Attempt **ANY TWO** questions from **Q. No. 2, 3, and 4** from Section I and **Q. No. 6, 7 and 8** from Section II.
- 3) Figures to the right indicate **FULL** marks.
- 4) Answers to both the sections should be written in **SAME** answer books.

**SECTION – I**

- Q. 1** Answer **ANY FIVE** of the following: **(10)**
- a) State the role of histamine in inflammation
  - b) State two examples of passive immunity
  - c) Define antibody affinity and avidity
  - d) What is ADCC? Name two cells that conduct ADCC
  - e) State the factors that determine the immunogenicity of a molecule
  - f) What are cytokines? State their properties
- Q. 2** Attempt the following: **(10)**
- a) Describe in detail the difference in the structure and function of Class I and Class II MHC molecules
  - b) Describe the primary structure of a typical antibody molecule
- Q. 3** Attempt the following: **(10)**
- a) Describe in detail complement activation by lectin pathway
  - b) Describe in detail the stages of B cell development in bone marrow
- Q. 4** Write short notes on **ANY TWO** of the following: **(10)**
- a) ELISA
  - b) Thymus
  - c) Immunoprecipitation

**SECTION – II**

- Q. 5** Answer **ANY FIVE** of the following: **(10)**
- a) State two methods of HLA typing
  - b) Differentiate between central and peripheral tolerance
  - c) State two examples of Type II hypersensitivity
  - d) Give two examples of attenuated vaccines
  - e) Name two cytokines produced by activated macrophages
  - f) Differentiate between allograft and xenograft
- Q. 6** Write short notes on: **(10)**
- a) Mechanisms involved in graft rejection
  - b) Pathophysiology of any two systemic autoimmune diseases

**P. T. O.**

- Q. 7** Answer the following: **(10)**
- a) Explain Type I hypersensitivity with suitable examples
  - b) Explain the central role of  $T_H$  cells in the generation of humoral and cell mediated immunity

- Q. 8** Discuss the primary characteristics, advantages and disadvantages of different types of vaccines

**OR**

Discuss immune surveillance in cancer

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