

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

SUMMER - 2019

SUBJECT : IMMUNOLOGY

Day : Wednesday

Date : 03/04/2019

S-2019-1503

Time : 10.00 AM TO 01.00 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.
- 3) Attempt **ANY TWO** questions from Q.No. 6, 7 and 8.
- 4) Figures to the right indicate **FULL** marks.
- 5) Answers to both the sections should be written in **SAME** answer book.

SECTION – I

- Q.1** Attempt **ANY FIVE** of the following: [10]
- a) Define adjuvants and give examples.
 - b) What is CTL? State its function.
 - c) Define epitope and paratope.
 - d) What are interferons? State its role in innate immunity.
 - e) Name any two secondary lymphoid organs and state their function.
 - f) State the functions of TCR – CD 3 complex.
- Q.2** Attempt the following: [10]
- a) Describe in detail lectin pathway of complement activation.
 - b) Describe in detail oxygen dependent and oxygen independent pathways of antigen presentation.
- Q.3** Attempt the following: [10]
- a) Describe the structure and function of IgG molecule.
 - b) Describe in detail factors influencing immunogenicity.
- Q.4** Write short notes on **ANY TWO** of the following: [10]
- a) Flow cytometry
 - b) Passive agglutination
 - c) ELISA

SECTION – II

- Q.5** Attempt **ANY FIVE** of the following: [10]
- a) Name any two cytokines produced by activated T_H1 cells.
 - b) Explain the role of booster dose in immunization.
 - c) State any two clinical examples of type II hypersensitivity.
 - d) Differentiate between MHC Class I and Class II molecules.
 - e) State any two proposed mechanisms of autoimmunity.
 - f) Enlist four types of grafts and give suitable examples.
- Q.6** Attempt the following: [10]
- a) State the central role of Interleukin – 2 in immune activation.
 - b) Describe in detail anaphylaxis.
- Q.7** Write short notes on: [10]
- a) Interferon (γ) gamma
 - b) Systemic autoimmune diseases
- Q.8** a) Enlist different types of vaccines. Explain in detail any two types with suitable examples. [10]
- OR**
- b) Discuss the mechanisms and components of immune system participating in graft rejection

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