

**M. SC. (MEDICAL BIOTECHNOLOGY) SEM-II (CHOICE  
BASED CREDIT SYSTEM) : SUMMER - 2018**

**SUBJECT : IMMUNOLOGY**

Day : **Friday**  
Date : **06/04/2018**

**S-2018-1165**

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

**N.B.:**

- 1) **Q.No.1** and **Q.No.5** are **COMPULSORY**. Out of remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.

**SECTION – I**

- Q.1** Attempt the following: [10]
- a) Expand the following terms: ELISA, RIA, HAT, MALT.
  - b) Fill in the blanks: \_\_\_\_\_ antibodies are transferred across epithelial cells by \_\_\_\_\_.
  - c) Explain the classes and subclasses of T-cells.
  - d) Explain the Lag phase in primary immune response.
  - e) What are Haptens and adjuvants?
- Q.2** a) With the help of a suitable diagram explain the structure of IgG molecule. [05]
- b) Explain the role of natural killer cells in immune response to tumor. [05]
- Q.3** a) Describe the molecules involved in APC – T cell interaction. [05]
- b) Describe the classical pathway of complement activation. [05]
- Q.4** Describe in detail the technique for the production of monoclonal antibodies. [10]

**SECTION – II**

- Q.5** Differentiate between the following: [10]
- a) CD8 and CD4 cells.
  - b) Thymus dependent and thymus independent antigens.
  - c) Hypersensitivity and autoimmunity.
  - d) Innate and adaptive immune response.
  - e) Negative and positive selection of thymocytes.
- Q.6** a) What are the requirements for a substance to be antigenic? [05]
- b) What is ADCC? Describe mechanism of cytotoxicity of ADCC. [05]
- Q.7** a) Write a short note on: Myasthenia gravis [05]
- b) Describe the role of biotin – avidin in amplification of ELISA. [05]
- Q.8** Describe hypersensitivity reactions giving one example of each type. [10]

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