

**M. SC. (BIOTECHNOLOGY) SEM-II (2012 COURSE)(CHOICE  
BASED CREDIT SYSTEM) : WINTER - 2017  
SUBJECT: IMMUNOLOGY**

**Day:** Friday  
**Date:** 03/11/2017

**W-2017-0970**

**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 the remaining attempt **ANY TWO** questions from each section.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in the **SEPARATE** answer book.
- 4) Neat diagrams must be drawn **WHEREVER** necessary

**SECTION-I**

**Q.1** Answer the following in brief (**ANY FIVE**): **(10)**

- a) Enlist the properties of a good immunogen.
- b) State the type of hypersensitivity reaction that
  - i) Is involved in defense against intercellular parasite.
  - ii) Can lead to symptoms of asthma
- c) Name two primary immunodeficiency diseases.
- d) Give two examples of live attenuated vaccines.
- e) Define tumor associated antigens.
- f) What is the role of maternal IgG?

**Q.2** Answer the following questions: **(10)**

- a) Describe the structure and function of secretory IgA antibody.
- b) Explain the secondary lymphoid organ involved in removal of blood born antigens.

**Q.3** Answer the following questions: **(10)**

- a) Describe the structure and function of MHC-II molecules.
- b) How does interaction between antigen presenting cells, T<sub>H</sub> cells and B cells result in B cell activation and proliferation?

**Q.4** Write short notes on (**ANY TWO**): **(10)**

- a) Use of biotin -avidin system in ELISA
- b) Complement
- c) Cell Trafficking

**P.T.O.**

**SECTION-II**

**Q.5** Define (ANY FIVE): **(10)**

- a) Secondary immunodeficiency
- b) Endogenous antigen
- c) Idiotype
- d) Artificial acquired immunity
- e) Toxoid
- f) Carcinogen

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

- a) Granuloma formation is characteristic of type IV hypersensitivity reaction.
- b) Immune system can be manipulated to attack tumors

**Q.7** Write short notes on: **(10)**

- a) Recombinant vaccines
- b) Micro cytotoxicity test

**Q.8** Enlist the general features of autoimmunity. Describe any two systemic autoimmune diseases. **(10)**

**OR**

Discuss the endocytic pathway for processing and presentation of exogenous antigens. Add a note on oxygen dependent and oxygen independent pathways of antimicrobial activity.

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