

**BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI**  
**IMMUNOLOGY: BIO F342**  
**II SEMESTER: 2017-18**  
**MID TERM EXAMINATION**

**Max Marks: (25 CB + 20 OB)**  
**Time: 45 min**

**Date: 5/03/18**

**PART A**

**Note: Answer Part A and Part B in separate Answer Sheets. Submit Part A before collecting Part B.**

**CLOSED BOOK**

- Q1. Is Fever beneficial for the host? Justify your answer. (3)
- Q2. What are the various types of stem cells. Briefly explain with help of example. (4)
- Q3. Enumerate any 4 functions of spleen. (4)
- Q4. What are the receptors involved in target recognition by natural killer cells? How do they act? (4)
- Q5. Differentiate between an Antigen and super antigen. (4)
- Q6. List 6 immunologically active components present in mother's milk and mention their function. (3)
- Q7. Draw a schematic diagram of a typical IgG molecule. Label the following parts (3)
- (i) Heavy chain
  - (ii) Light Chain
  - (iii) Interchain disulphide bonds
  - (iv) Intrachain disulphide bonds
  - (v) Hinge
  - (vi) Fab
  - (vii) Fc
  - (viii) Domains

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**PART A**

**OPEN BOOK**

Note: Only hard copy of books/class notes are allowed.

Q1. T cells are said to be MHC restricted. What does this statement mean? (4)

Q2. Which of the given molecules will be least antigenic.

(i) Protease (ii) Nuclease (iii) Glycoprotein (iv) Lipids. Justify your answer. (2)

Q3. You are an energetic Immunology student who has isolated a protein X, which you believe is a new isotype of immunoglobulin. What structural features must protein X possess to be classified as an Immunoglobulin. (4)

Q4. Which is likely to be more immunogenic: Native BSA or heat treated BSA. Justify your answer. (4)

Q5. Suppose you isolate a mutant antibody that lacks light chains. What functions of antibody will be affected? What new properties may it acquire. (4)

Q6. Considering only combinatorial joining how many different antibody molecules could be generated from germ line DNA containing 500  $V_L$  and 4J gene segments and 300  $V_H$ , 15  $D_H$  and 4  $J_H$  segments. (2)