STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2008 – 2009)

SUBJECT CODE: BI/PC/IM14

M. Sc. DEGREE EXAMINATION, NOVEMBER 2008
BIOINFORMATICS
FIRST SEMESTER

COURSE : CORE
PAPER : IMMUNOLOGY
TIME : 2 ½ HOURS **MAX. MARKS: 75**

SECTION – A

ANSWER ALL QUESTIONS: **(15X1=15)**

1. **Distinguish between** **(1 x 3 = 3)**
   a) Adjuvants and Haptens
   b) Monocyte and Macrophage
   c) Paracrine and Autocrine action
2. **For each cell type indicated select the appropriate description** **(4 x ½ =2)**
   a) Dendritic Cell
   b) Neutrophil
   c) Mast cells
   d) Natural Killer cells
   i) First cells to arrive at the site of inflammation
   ii) White Blood cells that migrate to the tissue to play an important role in allergies.
   iii) Antigen Presenting Cell
   iv) Display cytotoxic activity to tumor cells
3. **Indicate whether each of the statements is TRUE/FALSE. If False explain** **(4 x ½ =2)**
   a) All antigens are immunogens
   b) IgG functions more effectively in agglutination than IgM
   c) The Variable region of Heavy Chain (V_H) is twice as long as that of Light Chain (V_L)
   d) IgA is the most abundant Isotype in the serum
4. **Define:** Antibody Dependent Cell mediated Cytotoxicity (2 marks)
5. **Indicate to which type of Hypersensitivity Reaction apply to the following.** **(4 x ½ =2)**
   a) Occurs as a result of mismatched blood transfusion
   b) Reaction mediated by immune complexes
   c) Tuberculin Reaction
   d) Sudden death due to vascular collapse shortly after injection /ingestion of antigen.

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6. **Fill in the blanks with appropriate terms** **(4 x ½ =2)**
   a) Activation of T_H Cells results in the secretion of _____ & expression of its receptors.
   b) _____ generate a secondary immune response.
   c) _____ & _____ are cytokines secreted by lymphocytes monocytes.

7. **Choose the Correct Answer** **(4 x ½ =2)**
   a) The change in the isotype of the antibody produced by the B-Cell is called
      i) Class swithching ii) Negative Selection
      iii) Positive Selection iv) Extravasation
   b) In man MHC is a collection of genes on
      i) Chromosome – 6 ii) Chromosome – 7
      iii) Chromosome – 8 iv) Chromosome – 9
   c) The developing T-cells are known as
      i) Thymocytes ii) Drepanocytes
      iii) Spherocytes iv) Hepatocytes
   d) The cytokine which increases during a viral infection is
      I) IFN ii) TNF iii) IL-10 iv) IL-12

SECTION – B

ANSWER ANY THREE QUESTIONS. EACH ANSWER SHOULD NOT EXCEED 500 WORDS. (3 X 10 = 30)

8. Describe Antigen Processing and Presentation.
9. With neat labeled diagrams describe the primary lymphoid organs.
10. What are the characteristics of an inflammatory response & explain how it contributes to an effective innate immune response.
11. Outline the basic method for obtaining monoclonal antibodies and highlight their clinical uses.
12. Give an account of Antigen – antibody reaction.
13. Classify Cytokines and give an account of their properties.

SECTION – C

ANSWER ANY TWO QUESTIONS. EACH ANSWER SHOULD NOT EXCEED 1000 WORDS. (2 X 15 = 30)

14. Give an account of Complement System.
15. Describe the structure of Immunoglobulins & a note on their biological functions.
16. Give an account of B-Cell activation and antibody production
17. Explain the mechanism of Cell Mediated Immunity.

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