



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/M.Sc.(GE)/SEM-3/MSGEN(ABT)-305B/2009-10**

**2009**

**IMMUNO-TECHNOLOGY**

Time Allotted : 2 Hours

Full Marks : 35

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

**GROUP – A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any *five* of the following :

5 × 1 = 5

i) Which of the following classes of MHC proteins is (are)  
produced only by antigen presenting cells ?

- |              |                      |
|--------------|----------------------|
| a) Class I   | b) Class II          |
| c) Class III | d) Class II and III. |

ii) Which of the following is the minor antigen in MHC  
class I allele ?

- |          |            |
|----------|------------|
| a) HLA A | b) HLA B   |
| c) HLA C | d) HLA E . |



- iii) Antigenic ability for induction of immune response does not depend on
- a) ability to enter the adrenal
  - b) degree of aggregation
  - c) dose
  - d) size.
- iv) Clonal selection
- a) begins with inflammation
  - b) occurs for all leukocytes
  - c) occurs in response to self-antigens
  - d) results in innate immunity.
- v) Who realized that the immune system could go awry and instead of reacting against foreign antigens, could focus its attack on self-antigens. He termed this condition "horror autotoxicus" ?
- a) Pasteur
  - b) Paul Ehrlich
  - c) Edward Jenner
  - d) Flemming.
- vi) The AIDS virus
- a) is a DNA virus
  - b) has a high affinity for CD8 bearing T cells
  - c) may become dormant in cells
  - d) is also known as HTLV.



vii) To elicit the best antibodies to mouse MHC I, you should inject it into

- a) the mouse you isolated it from
- b) a mouse of the same genetic background ( strain )
- c) a mouse of a different strain
- d) a rat.

**GROUP – B**

**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

- 2. Discuss on the mechanism of cooperation between cell mediated and humoral immune system.
- 3. List the primary and secondary lymphoid organs and summarize their functions in the immune response.
- 4. Write a note on the receptors of adaptive and innate immunity.
- 5. What are the methods of attenuating organisms for vaccine ?  
Write on the advantage.  $2 + 3$
- 6. What are the different ways of generation of antibody diversity ?



**GROUP – C**

**( Long Answer Type Questions )**

Answer any *one* of the following.

1 × 15 = 15

7. a) What effect does thymectomy have on a neonatal mouse and on an adult mouse ? Explain why these effects differ.
- b) Define inflammation and what type of chemical reactions occur during inflammation. 2 + 2 + 3 + 2 + 6
8. a) Explain the difference between antibody affinity and antibody avidity. Which of these properties of an antibody does better reflect its ability to contribute to the humoral immune response to invading bacteria ?
- b) What mechanisms generate the three hypervariable regions ( complementarity-determining regions ) of immunoglobulin heavy and light chains ? Why is the third hypervariable region ( CDR3 ) more variable than the other two ( CDR1 and CDR2 ) ?
- c) Name and explain the clinical consequences of one auto-immune disorder due to the cross-reactive antibody. 3 + 3 + 4 + 5
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