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M. Tech.

THIRD SEMESTER EXAMINATION, 2011-12

IMMUNOTECHNOLOGY

Time : **3 Hours**

Total Marks : **100**

- Note :** (i) Attempt any **FIVE** questions.
(ii) Marks are indicated against each question.

1. (a) Answer the following : **2 x 5 = 10**

- (i) The single best chance of a tissue graft being accepted in a human recipient is if it is :
- A. An isograft
 - B. An allograft given under the cover of potent immunosuppression.
 - C. A xenograft from a pig in which the gene for alpha-1, 3-galactosyltransferase has been 'knocked-out' and therefore the Gal epitope eliminated.
 - D. Given to a recipient that is treated with anti-CD3.
- (ii) Each of the following statements concerning a hybridoma cell is correct EXCEPT :
- A. The spleen cell component provides the ability to form antibody.
 - B. The myeloma cell component provides the ability to grow indefinitely.
 - C. The antibody produced by a hybridoma cell is IgM, because heavy-chain switching does not occur.
 - D. The antibody produced by a hybridoma cell is homogeneous; i.e. it is directed against a single epitope.

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- (iii) Which one of the following is the BEST method of reducing the effect of graft-versus-host disease in a bone marrow recipient?
- A. Matching the complement components of donor and recipient.
 - B. Administering alpha interferon
 - C. Removing mature T cells from the graft
 - D. Removing pre-B cells from the graft
- (iv) Graft and tumor rejection are mediated primarily by :
- A. Non-complement-fixing antibodies
 - B. Phagocytic cells
 - C. Helper T cells
 - D. Cytotoxic T cells
- (v) A patient with severe asthma suffers due to high level of histamines. The best treatment strategy suggested is :
- A. Monoclonal antibodies against IgE
 - B. Corticosteroidal drugs
 - C. Recombinant IL-4
 - D. All of the above.

(b) Give a brief account on :

2 x 5 = 10

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|---------------------|----------------------------------|
| (i) Chimeric toxins | (ii) X-linked agammaglobulinemia |
| (iii) Adjuvants | (iv) Xenograft |
| (v) Serotyping | |

2. (a) Give a detailed account on mechanism adopted by the HIV virus to infect CD4⁺T cells. **10**
- (b) Describe the immune evasion mechanism adopted by the virus to establish itself. **10**

