					(UEAN	
Name	e :	• • • • • • •		• • • • • • •	\$	
Roll No.:						
Invig	ilatoı	r's Si	gnature :		•••••	
CS/M.Sc. (GE)/SEM-3/MSGEN (MBT)-305-B/2010-11						
2010-11						
IMMUNOTECHNOLOGY						
Time Allotted : $1\frac{1}{2}$ 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.	1. Choose the correct alternatives for any <i>five</i> of the following : $5 \times 1 = 5$					
	i)	T-cell epitope will encounter all except				
		a)	MHC	b)	Antibody	
		c)	TCR	d)	APC.	
	ii) Superantigen activates					
		a)	B-cell	b)	T-cell	
		c)	APC	d)	NK-cell.	
	iii) Antibodies that impart neonatal immunity are					
		a)	IgG	b)	IgM	
		c)	IgD	d)	IgA.	
4080)1				[Turn over	

CS/M.Sc. (GE)/SEM-3/MSGEN (MBT)-305-B/2010-110 iv) The number of immunoglobulin domains in the heavy chain is

a) 2

b) 4

c) 6

d) 8.

v) Variable regions of light chains will not have

a) V gene segment

b) D gene segment

c) J gene segment

d) C gene segment.

vi) During somatic hypermutations antibody undergoes

a) Mutation in entire heavy and light chain genes

b) Mutation in *V* region of light chain genes

c) Increase in affinity towards antigens

d) Change in antigen specificity.

vii) Non-MHC gene is located within the MHC code for

a) TNF

b) components of the complements

c) proteosomal subunits

d) β_2 -microglobulins.

GROUP - B

(Short Answer Type Questions)

Answer any three of the following.

 $3 \times 5 = 15$

- 2. Various mechanisms have been proposed to account for the decrease in the numbers of CD4 T cells in HIV-infected individuals. What seems to be the most likely reason for depletion of CD4 T cells ?
- 3. Where are the CDR regions located on an antibody molecule and what are their functions?

40801 2

- 4. Describe four distinct roles played by Fc receptors. In what ways is signal transduction from Fc receptors similar to signal transduction form the *B*-cell receptor?
- 5. Give three examples of non-professional APCs. When are these cells most likely to function in antigen presentation?
- 6. What happens when proliferation of activated TH cells occurs in the cytoplasm from the resting inactive form TH cells?

GROUP - C

(Long Answer Type Questions)

Answer any *one* of the following. $1 \times 15 = 15$

- 7. Describe the unique mechanisms each of the following pathogens has for escaping the immune response: 5 + 5 + 5
 - a) African trypanosomes
 - b) Plasmodium species
 - c) Influenza virus.
- 8. What are the advantages and disadvantages of using attenuated organisms as vaccines? Explain the phenomenon of herd immunity. How does this phenomenon relate to the appearance of certain epidemics? Explain the relationship between the incubation period of a pathogen and the approach needed to achieve effective active immunization. 5+3+2+5