Shahjalal University of Science & Technology, Sylhet

Department of Biochemistry and Molecular Biology

3rd Year 2nd Semester B. Sc. (Hons) Final Examination, 2013

Course No. : **BMB -329** Course Title: **Basic Immunology**

Credit: **3.0** Total Marks: **70** Time: **3** Hours

Instructions:

- *Number in the right side indicates the marks of the question.*
- *Marks for each question are same.*
- ***Answer any two (2) questions from each Part (A and B).***

PART A

1.	a.	Innate and adaptive immunity act in cooperative and interdependent ways to protect the host. Discuss the collaboration of these two forms of immunity.	5
	b.	Adaptive immunity has evolved in vertebrates but they have also retained innate immunity. What would be the disadvantages of having only an adaptive immune system? Comment on how possession of both types of immunity enhances protection against infection.	2+3=5
	c.	Describe the major events in the inflammatory responses.	5
	d.	Describe chemotaxis in brief?	2.5
2.	a.	**Explain the following statements-**	
		i. The skin and the mucosal surfaces provide protective barriers against infection.	5
		ii. Antigen selection of lymphocytes causes clonal expansion.	5
	b.	List the primary lymphoid organs and discuss their functions in immune responses.	5
	c.	Describe the oxygen dependent killing components of Neutrophil.	2.5
3.	a.	Locate CDR regions on Antibody molecule and describe their functions.	2+2.5=4.5
	b.	Draw a schematic diagram of a typical IgG molecule and label each of the following parts: H chains, L chains, interchain disulfide bonds, intrachain disulfide bonds, hinge, Fab, Fc, and all the domains. Indicate which domains are involved in antigen binding?	6
	c.	Opsonization is promoted by antibody, explain?	2
	d.	Define antibody affinity and antibody avidity?	2
	e.	What is Antigen Presenting Cell? Discuss the role of Antigen Presenting Cell?	1+2= 3

Part B

4.	a.	What is antigen? Discuss the difference between immunogenicity and antigenicity?	3.5
	b.	What is epitope? Discuss the properties of B cell and T cell epitopes.	1+3+3=7
	c.	What is hapten? How can you produce antibody against hapten?	1+2=3
	d.	Describe hypersensitivity and autoimmunity?	2+ 2=4
5.	a.	Give an overview of complement activation pathway.	8
	b.	Discuss regulation of complement system.	5
	c.	Describe biological importance of the complement system.	4.5
6.	a.	Write the principle of ELISA? Discuss sandwitch ELISA?	5
	b.	RIA is one of the most sensitive technique for detecting antigen or antibody, describe the procedure and justify the statement.	6
	c.	Discuss the principle of vaccination.	3
	d.	Mention cells involved in phagocytosis? Describe Phagocytosis?	1+2.5=3.5