

A-6

SARDAR PATEL UNIVERSITY  
M.Sc (INTEGRATED) BIOTECHNOLOGY (GBT)- IX SEMESTER  
FINAL EXAMINATION, October-2016.

**PS09CIGGB4: Immunotechnology**

Date 24<sup>th</sup> October, 2016

TIME: 10:00 am to 1.00pm

Max. Marks:70

**Q.1 Attempt all the questions****1x8=8**

- (i) The coexpression of  $\mu$  and  $\delta$  heavy chains on pre-B cell is due to the absence of
- |                      |                     |
|----------------------|---------------------|
| a. Signal sequence   | c. Switch region    |
| b. Promoter sequence | d. all of the above |
- (ii) Immunoglobulin gene rearrangement occurs in a sequential order, ..... chain rearranges first.
- |   |  |
|---|--|
| a. Constant region of Heavy chain       | c. Variable region of heavy chain        |
| b. Variable region $\kappa$ light chain | d. Variable region $\lambda$ light chain |
- (iii) Which of the following does not participate in the formation of antigen-antibody complexes?
- |                         |                               |
|-------------------------|-------------------------------|
| a. Covalent bonds       | c. Hydrogen bonds             |
| b. Van der Waals forces | d. Electrostatic interactions |
- (iv) The antigen-antibody affinity can be studied by
- |                     |                              |
|---------------------|------------------------------|
| a. ELISA            | c. Surface plasmon resonance |
| b. Western blotting | d. all the three             |
- (v) Arthus reaction is observed in the following hypersensitivity reaction
- |             |            |
|-------------|------------|
| a. Type I   | c. Type II |
| b. Type III | d. Type IV |
- (vi) Auto-antibodies to acetylcholine receptor is formed in
- |                           |                      |
|---------------------------|----------------------|
| a. Goodpasture's syndrome | c. Grave's Disease   |
| b. Rheumatoid Arthritis   | d. Myasthenia gravis |
- (vii) The following *is not* an example of drug used for specific suppression of immune system
- |                  |               |
|------------------|---------------|
| a. Cyclosporin A | b. FK506      |
| b. Rapamycin     | d. Prednisone |
- (viii) The following is not an example of Tumor specific antigen
- |           |             |
|-----------|-------------|
| a. HPV L1 | c. HBsAg    |
| b. CEA    | d. SV40 Tag |

**Q.2 Attempt any seven questions****2x7=14**

- (i) What is humanized antibody?
- (ii) What is allelic exclusion?
- (iii) What is precipitation curve?

- (iv) Describe patch test.
- (v) Give concept of adjuvant with examples.
- (vi) Give types of autoimmune diseases and provide symptoms of Grave's disease.
- (vii) Why is mice considered best experimental animal?
- (viii) Mention the immunological reactions involved in graft rejection.
- (ix) What are immune modulators? Give types of immune modulators.

<b>Q.3</b>	A	Explain the role of followings during Immunoglobulin gene rearrangement (i) RAG 1/2 (ii) TdT (iii) NHEJ proteins	<b>06</b>
	B	Explain principle and process of hybridoma technology.	<b>06</b>
<b>OR</b>			
	B	What is Chimeric antibody? Describe the method for production of Chimeric antibody.	<b>06</b>
<b>Q.4</b>	A	Describe recombinant and DNA vaccines in detail.	<b>06</b>
	B	Explain immunofluorescence and Elispot techniques of immunodiagnosis	<b>06</b>
<b>OR</b>			
	B	Explain the following immunohistochemistry tools (i) Immunoelectron microscopy (ii) Avidin-Biotin method	<b>06</b>
<b>Q.5</b>	A	What are the Pharmacologically active mediators? Give their classification and explain any two.	<b>06</b>
	B	Define tolerance. Explain the mechanism of central and peripheral tolerance.	<b>06</b>
<b>OR</b>			
	B	Define primary immunodeficiency. Explain Severe Combined Immunodeficiency.	<b>06</b>
<b>Q.6</b>	A	Explain "allograft rejection displays memory and specificity".	<b>06</b>
	B	Discuss immune response to bacterial infection. How bacteria are able to evade host immune system?	<b>06</b>
<b>OR</b>			
	B	Describe different techniques of HLA typing.	<b>06</b>

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