

Note: Answer to all questions (including multiple choice questions) should be written in the provided answer book only.

Number of Printed Pages = 2

(A-83)

SARDAR PATEL UNIVERSITY
M.Sc (III Semester) Examination (Under CBCS)
Wednesday, 22nd April, 2015
2:30 pm to 5:30 pm
Biochemistry
PS03CBIC02 – Immunology

TOTAL MARKS: 70

Q.1 Tick mark / select the correct answer for the following. (Both correct option against given question as well as the correct answer number needs to be written in provided answer book) (08 Marks)

- 1) Which of the following isotypes of antibodies is the largest?
 - a) IgM
 - b) IgG
 - c) IgA
 - d) IgE
- 2) Receptors that bind the constant regions of antibodies are known as:
 - a) B-cell receptors.
 - b) T-cell receptors.
 - c) toll-like receptors.
 - d) Fc receptors. cells
- 3) Where would you be LEAST likely to find significant levels of defensins?
 - a) The liver
 - b) The intestine
 - c) The lung
 - d) The skin
- 4) Which of the following gene segments is NOT found in the mouse Ig light chain loci?
 - a) V
 - b) C
 - c) J
 - d) D
- 5) Which of the following complement fixation pathways can be initiated by a soluble C3 convertase?
 - a) Alternative
 - b) Classical
 - c) Lectin
 - d) All of the above
- 6) Which of the following types of hypersensitivity reactions includes the transfusion reaction?
 - a) Type I hypersensitivity
 - b) Type II hypersensitivity
 - c) Type III hypersensitivity
 - d) Type IV hypersensitivity
- 7) Which of the following cell types would be LEAST likely to express MHC class II?
 - a) B cells
 - b) T cells
 - c) Dendritic cells
 - d) Thymic epithelial cells
- 8) Monoclonal antibodies can be produced by:
 - a) Immunoprecipitation technology
 - b) Transgenics technology
 - c) Shot gun cloning technology
 - d) Hybridoma technology

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- Q.2** Answer **any seven** from the following: **14**
- a) What is the significance of the presence of organ specific self peptides in the thymus
 - b) State two points of difference between primary immunodeficiency and secondary immunodeficiency?
 - c) Why does a TH1 cells and CTLs undergo programmed cell death by apoptosis after clearance of antigen?
 - d) State the basic difference between innate and adaptive immunity.
 - e) How do drugs acting at the level of cAMP prevent type - I hypersensitivity reaction?
 - f) What is the role of membrane attack complex (MAC) in complement system?
 - g) Draw the structure of MHC class-I molecule.
 - h) List the primary and secondary lymphoid organs.
 - i) Explain the difference between a monocyte and a macrophage?
- Q.3** (A) Explain the terms antigenicity and immunogenicity and describe any three properties of the immunogen that contribute to immunogenicity. **6**
- (B) What is inflammation? Explain the complex cascade of events involved in acute inflammatory response that combats early stages of infection. **6**
- OR**
- (B) Write a short note on cells and receptors of innate immunity. **6**
- Q.4** (A) Write in detail on the processing of exogenous antigens through endocytic pathway and peptide presentation on MHC molecules. **6**
- (B) State the principle of Enzyme-linked immunosorbent assay and explain in detail chemiluminescence and its advantages over conventional ELISA. **6**
- OR**
- (B) Describe the classical pathway of complement activation. **6**
- Q.5** (A) Discuss the cell adhesions molecules involved in leukocyte migration. **6**
- (B) Describe experimental evidence for negative selection of self-reactive B cells during maturation. **6**
- OR**
- (B) Describe the perforin/granzyme pathway leading to target cell apoptosis
- Q.6** (A) Describe the biochemical events leading to mast-cell activation and degranulation. **6**
- (B) Write a short note on auto immune diseases. **6**
- OR**
- (B) Explain steps involved in allograft rejection. **6**

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