

[75, 76 & 91]

Sardar Patel University
M. Sc. (II Semester) Examination
Friday, 13th April, 2018
2.00 p.m. to 5.00 p.m.

PS02CMIC23/PS02CBIC23/PS02CBIT23 – Fundamentals of Immunology

Q.1 Select the right/most appropriate answer for the following: (08 marks)

- A. Action of INF γ and IL-4 together as cytokines on a B cell can be described as
- Pleiotrophy
 - Redundancy
 - Antagonism
 - Synergism
- B. TdT enzyme is
- Responsible for N nucleotide addition
 - Expressed in lymphoid organs
 - Not involved in light chain gene rearrangement
 - All of the above
- C. Application of tetanus toxoid for a patient with severe cuts and wounds is example of
- Passive immunization
 - Active immunization
 - Vaccination
 - Both b and c
- D. Which of the following gene segment is only contained in heavy chains and not in light chains?
- Joining (J)
 - Diversity (D)
 - Constant (C)
 - Variable (V)
- E. Kupffer cells are the macrophages found in
- Lungs
 - Brain
 - Bones
 - Liver
- F. Which of the following is not an initiator protein in complement activation?
- C1
 - MBL
 - Ficolins
 - Factor B
- G. Screening of blood borne antigens takes place in
- Spleen
 - Lymphnodes
 - MALT
 - Peyer's patches
- H. Eosinophil and IgE will help in killing of
- Bacterial pathogens
 - Parasites
 - Viruses
 - Fungi

C.P.T.O.)

Q.2 Answer/attempt **any seven** from the following: (14 marks)

- a) Explain ADCC.
- b) Describe characteristics of a B cell epitopes.
- c) What is neutralization of a bacterial toxin by immune system?
- d) What is CDR and framework region in V regions of Fab?
- e) What are super antigens? Explain their action and role.
- f) What is clonal selection?
- g) Why and how IgM is more efficient than IgG in immune defense?
- h) How presentation of non-peptide antigens takes place?
- i) What is meant by cross presentation of exogenous antigens?

Q.3 A. Enlist various organs of immune system. Describe the structure and function of thymus. (06 marks)

B. Describe generation of local inflammatory response. (06 marks)

OR

B. Discuss role of various PRRs of innate immunity. (06 marks)

Q.4 A. Describe generation of C3 and C5 convertases by different pathways of complement activation. (06 marks)

B. Describe the classical experiments that led to the elucidation of antibody structure. (06 marks)

OR

B. Describe organization of Ig genes and mechanism of VDJ recombination. (06 marks)

Q.5 A. Explain how virus infected cell will be processing and presenting virus specific antigenic peptides to T_C cells. (06 marks)

B. What is self MHC restriction? Describe experiments demonstrating self MHC restriction of T_C and T_H cells. (06 marks)

OR

B. Discuss various cytokine associated diseases. (06 marks)

Q.6 A. What is ELISA? Discuss different types of ELISA. (06 marks)

B. What are the ways for CTL to kill the target cells? Explain granzyme-perforin mediated pathway of cytotoxicity. (06 marks)

OR

B. Write a note on immunity to viral infections and mechanisms of immune system evasion by viruses. (06 marks)

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