

SEAT No. _____

No. of Printed Pages : 02

[574A-24]

Sardar Patel University
M. Sc. (III Semester) Examination
Friday, 3rd November, 2017
2.00 p. m. to 5.00 p. m.
Biotechnology
PS03CBIT02 – Immunology

Total marks: 70

- Q.1 Select the right/most appropriate answer for the following: (08 marks)
- A. The ROS are generated in the phagocytic cells by the enzyme complex
- a. NADPH reductase
 - b. NADPH oxidase
 - c. NADPH hydrolase
 - d. NADP dehydrogenase
- B. The antigens present in blood are presented to B cells in
- a. Lymph nodes
 - b. Thymus
 - c. Spleen
 - d. MALT
- C. Anti-isotypic antibodies will be produced against human antibody if injected as antigen in
- a. Another human being
 - b. A Horse
 - c. A twin
 - d. All of the above
- D. A non peptide lipid antigen will be presented on antigen presenting cells by
- a. MHC class I molecule
 - b. MHC class II molecule
 - c. non classical Class I CD1 molecule
 - d. None of these
- E. When cytokine acts on the nearby cell the action is called
- a. Autocrine
 - b. Endocrine
 - c. Synergistic
 - d. Paracrine
- F. Signal sequence for Ig gene segment recombination is having:
- a. A conserved nonamer and heptamer
 - b. Either 12 or 23 base pairs as spacer between conserved region
 - c. Both a and b
 - d. None of the above
- G. Who was awarded Nobel prize for the work on anaphylaxis?
- a. Charles Richet
 - b. Jules Bordet
 - c. Susumu Tonegawa
 - d. Peter Doherty
- H. Enzyme TdT generated during Ig gene rearrangement is responsible for
- a. Junctional flexibility
 - b. N region nucleotide
 - c. P region nucleotide
 - d. T region nucleotide

- Q.2 Answer/attempt **any seven** from the following: (14 marks)
- Explain passive acquired immunity.
 - Explain allelic exclusion during Ig gene rearrangement.
 - Explain central tolerance.
 - What is SCID? Discuss specific defects leading to SCID.
 - Explain EAE.
 - What are superantigens? Explain their action and role.
 - Draw and label TCR complex.
 - Explain tuberculin reaction.
 - What are chemokines?
- Q.3 A. Discuss signs of inflammation and steps involved in generation of inflammation at the site of infection. (06 marks)
- B. Discuss role of various membrane receptors and soluble proteins in innate immune system. (06 marks)
- OR**
- B. Discuss formation of C5 convertase enzyme complex through different pathways of complement activation. (06 marks)
- Q.4 A. Discuss the mechanisms for generation of diversity in antibody variable regions. (06 marks)
- B. Give an account of different types of ELISA. (06 marks)
- OR**
- B. Discuss biological activities and effector functions of different Ig molecules. (06 marks)
- Q.5 A. What is self MHC restriction? Explain experiments which revealed self MHC restriction of T_H and T_C cells. (06 marks)
- B. Explain killing of target cells by T_C cells. (06 marks)
- OR**
- B. Discuss cytosolic pathway for antigen processing and presentation of antigenic peptides. (06 marks)
- Q.6 A. Discuss Type II hypersensitivity reaction. (06 marks)
- B. Giving two examples discuss organ specific autoimmune diseases with the mechanism and the clinical symptoms. (06 marks)
- OR**
- B. Write on mechanism involved in allograft rejection and role of immunosuppressive drugs. (06 marks)

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