

SEAT No. _____

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Sardar Patel University
M. Sc. (II Semester) Examination
Wednesday, 30th December, 2020
10.00 a.m. to 12.00 p.m.
Biotechnology
PS02CBIT23 – Fundamentals of Immunology

Total marks: 70

Q.1 A. Select the right/most appropriate answer for the following:

(08 marks)

- A. MHC class II molecule is normally not expressed by
a. B cells
b. Dendritic cells
c. Macrophages
d. Epithelial cells
- B. Formation of Ag-Ab complex does not involve
a. Hydrogen bonds
b. Covalent bonds
c. Ionic interactions
d. Hydrophobic interactions
- C. _____ rich repeats are found in TLR External domain.
a. Lysine
b. Leucine
c. Proline
d. Isoleucine
- D. Which one from the following is anaphylotoxin?
a. C4a
b. C5b67
c. C3i
d. MAC
- E. Light chains and heavy chains are joined by
a. Hydrogen bond
b. Di-sulphide bond
c. Ionic bond
d. Both a and c
- F. B cell epitopes are
a. Surface located
b. Having hydrophilic amino acids
c. Non sequential
d. All of the above
- G. When a cytokine show different action on different target cells it is called
a. Redundancy
b. Cascade effect
c. Pleotrophism
d. Synergy
- H. Enzyme TdT
a. Creates coding joints
b. Adds N nucleotides in light chain
c. Adds P nucleotides
d. Adds N nucleotides in heavy chain

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(P.T.O.)

Q.1 B. Answer the following (one mark each) (16 marks)

1. Which cells are professional antigen presenting cells?
2. What is a C-reactive protein?
3. Who proved self MHC restriction of CD8⁺ T cells?
4. Which cytokine is produced first by CD4⁺ T cells upon activation?
5. Where is TAP located?
6. Region between two CDRs in Ig gene is called _____.
7. _____ type of cytokines bind to GPCR receptors.
8. Two inbred mice identical at all gene loci are called _____.
9. The cytoplasmic foreign antigen is processed in to peptides by _____.
10. Which immunoglobulin molecule is most efficient agglutinating agent?
11. Antibody tagged with enzyme in ELISA is called _____.
12. Antigen-antibody interactions are irreversible (True / False).
13. What is an opsonin?
14. Which complement components form MAC on cell surface?
15. _____ helps in entry of neutrophils in lymphnodes.
16. Who received Nobel Prize for role of phagocytosis in innate immune system?

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

- a) Explain the structure of MHC class II molecule.
- b) What are different types of precipitation reactions?
- c) Explain ADCC?
- d) What are PAMPs?
- e) What is paracrine action of cytokines?
- f) Where somatic hyper mutation takes place in Ig genes?
- g) Explain the role of eosinophils.
- h) What is the role of IgE?
- i) What is RIA and its application?

Q.3 A. Explain structure and function of thymus. (08 marks)

OR

B. Discuss how inflammation response is generated against pathogen. (08 marks)

Q.4 B. Discuss mechanism and steps involved in VDJ joining. (08 marks)

OR

B. Explain structure and role of IgM. (08 marks)

Q.5 B. Discuss experiment explaining self MHC restriction of T_H cells. (08 marks)

OR

B. Discuss cytokine associated diseases. (08 marks)

Q.6 B. Write on immunity to viruses. (08 marks)

OR

B. Explain Fas-FasL mediated cell lysis. (08 marks)

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