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SARDAR PATEL UNIVERSITY
BACHELOR OF SCIENCE (B.SC.)
VTH SEMESTER CBCS (NC) EXAMINATION MAY 2016
FRIDAY, 13TH MAY 2016
10:30 AM TO 01:30 PM
SUBJECT: BIOTECHNOLOGY
COURSE: US05CBIT04
(Immunology)

TOTAL MARKS: 70

Figures to the right indicate marks:

Q1. Multiple Choice questions: All questions are compulsory. (1 x 10 = 10)

i.) Which of the following interactions/bonds are involved in an antigen- antibody binding?

- A) Hydrogen bond B) Hydrophobic interactions C) Covalent bond D) Both A & B

ii) The term "RID" stands for:

- A) Radio Immunodiffusion B) Radial Immunodiffusion
C) Rational Immunodiffusion D) Relative Immunodiffusion

iii) Naive B lymphocytes coming out of Bone marrow are:

- A) Antigen Specific B) differentiated C) in Go Stage D) both A and C

iv) CD-28 would interact with:

- A) CD4 B) CD 45 C) B-7 D) B-220

v) Major histocompatibility complex in human beings is known as :

- A) H-2 complex B) HLA complex C) Ig complex D) ABO complex

vi) Type-I Hypersensitivity is mediated by :

- A) Complement B) IgE C) T_{DTH} Cells (D) IgA

vii) The term vaccination was coined by :

- (A) Edward Jenner (B) Louis Pasteur (C) Elic Metchnikoff (D) Robert Koch

viii) The size of the antigenic peptide bound to MHC Class- I molecules is :

- A) 13-18 AA B) 9 AA C) 18-21 AA D) Not fixed

ix) When the grafted tissue is derived from same individual; it is called:

- A) Autograft B) Allograft C) Xenograft D) Speciograft

x) The genetic material of AIDS virus is:

- (A) Single strand DNA (B) Double strand DNA
(C) Single strand RNA (D) Double strand RNA

(P.T.O.)

Q.2. Short Answer type questions: (Attempt Any ten)

2 x 10 = 20 Marks

- I. Mention various features of antigen antibody reactions.
- II. Define prozone effect and Antibody avidity.
- III. What are co-stimulatory signals? Why are these signals important?
- IV. Mention various applications of cytokines.
- V. What is the significance of NK Cells?
- VI. Define complement and mention its functions.
- VII. Mention three preventive measure of AIDS
- VIII. Define primary immunodeficiency with one example.
- IX. Enumerate various functions of MHC molecules.
- X. Define transplantation and Graft rejection.
- XI. Briefly explain Type-I hypersensitivity.
- XII. Give a comparative account of active and passive immunization.

Q.3.A) Explain Sandwich ELISA with labeled diagram. (05)

Q.3.B) Write a short note on Immunoelectrophoresis. (05)

OR

Q.3.A) Explain CFT with principle, protocol and diagram. (05)

Q.3.B) Give a comparative account of Agglutination and Precipitation reactions. (05)

Q.4.A) Write a short note on Killing mechanisms of NK cells. (05)

Q.4.B) Enumerate various functions and applications of cytokines. (05)

OR

Q.4) With the help of labeled diagrams explain the development, activation and differentiation of B- lymphocytes in detail. (10)

Q.5.A) Give a brief comparative account of classical and alternative pathway. (05)

Q.5.B) Define immunodeficiency and its types with example in brief. (05)

OR

Q.5.A) Explain Classical complement pathway with relevant flow diagram. (05)

Q.5.B) Write a short note on Lectin Pathway of complement activation. (05)

Q.6.A) Mention probable mechanisms for generation of autoimmunity. (05)

Q.6.B) Define vaccines. Mention their types and importance. (05)

OR

Q.6.A) Explain structure of MHC-I molecules with diagram. (05)

Q.6.B) Write a short note on Graft rejection. (05)

*****ALL THE BEST*****

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