

21

SEAT No. \_\_\_\_\_

No. of Printed Pages | 02

SARDAR PATEL UNIVERSITY  
BACHELOR OF SCIENCE (B.SC.)  
V<sup>TH</sup> SEMESTER EXAMINATION APRIL 2019  
WEDNESDAY, 10<sup>TH</sup> (APRIL) 2019  
10:00 AM TO 1:00 PM  
SUBJECT: BIOTECHNOLOGY  
COURSE: US05CBIT04  
(Immunology)  
10/04/2019, Wednesday

TOTAL MARKS: 70

Figures to the right indicate marks:

Q1. Multiple Choice questions:

(1 x 10 = 10)

i) Antigen Antibody interactions are important because of:

- A) Specificity      B) Sensitivity      C) Ambiguity      D) Both A and B

ii) Generation of different classes of antibodies having same antigenic specificity is called:

- A) Allelic exclusion      B) Antibody Avidity  
C) Class Switching      D) Affinity Maturation

iii) Complement proteins are mostly synthesized by:

- A) TH cells      B) Hepatocytes      C) APC's      D)  $\alpha$ - cells

iv) The C5 convertase of Alternative complement pathway is:

- A) C4b2a      B) C2b4a      C) C3bBb3b      D) C1a2b

v) HIV specifically attacks which of these cells?

- (A) CD8<sup>+</sup> Tc cells      (B) APC      (C) CD4<sup>+</sup> T<sub>H</sub> cells      (D) CTL'S

vi) Type -I Hypersensitivity is mediated by :

- A) IgG      B) IgA      C) IgD      D) IgE

vii) 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

viii) When the grafted tissue is derived from individual of another species; it is called:

- (A) Autograft      (B) Allograft      (C) Xenograft      (D) Specio graft

ix) CD 28 receptor on TH cell will interact with receptor:

- A) MHC-II molecule      B) IL-2R      C) B-7      D) CD 40L

x) Which of these cytokine plays a significant role in killing the cancerous cells specifically:

- A) IL-1      B) IFN      C) TNF      D) GM-CSF

①

(P.T.O)

**Q2. Short Answer type questions (Attempt any TEN)**

**(10 x 2 = 20 marks)**

- I.) Mention four differences between agglutination and precipitation reaction.
- II.) Define ELISA and write its Principle.
- III.) Define Immunodiffusion. Mention its types/variants.
- IV.) What is the significance of the cytokines in the immune system.
- V.) Mention the functions of NK cells in the immune system.
- VI.) Define MHC restriction.
- VII.) Give a flow chart of Alternative complement pathway.
- VIII.) Define Immunosuppression and mention two immunosuppressive drugs.
- IX.) Name the causative organism of AIDS and its modes of spread.
- X.) Define Vaccination. Enumerate its advantages.
- XI.) What is localized autoimmune disorder? Mention two examples.
- XII.) Give a comparative account of Primary & Secondary Immunodeficiency.

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

Q.3.B) Write a short note on Complement Fixation Test (05)

**OR**

Q.3.A) Explain Immunodiffusion with principle and diagram. (05)

Q.3.B) Give a comparative account of RIA and ELISA (05)

Q.4.A) Explain B -cell activation with labelled diagram. (05)

Q.4.B) Write a short note on types and functions of cytokines. (05)

**OR**

Q.4.A) Briefly explain T cell development (maturation) with diagram. (05)

Q.4.B) Explain the mechanism of action of CTL (killing the target cell) (05)

Q.5.A) Define immunodeficiency. Explain SCID in detail. (05)

Q.5.A) Explain Lectin pathway in brief with a flow chart. (05)

**OR**

Q.5) Explain complement system and its activation pathways with proper flow charts and generation of MAC in detail (10)

Q.6.A) Write a short note on hypersensitivity and its types. (05)

Q.6.B) Define Transplantation. Explain Graft rejection in detail. (05)

**OR**

Q.6.A) Explain MHC Class-II molecule with labelled diagram. (05)

Q.6.B) Write a short note on Autoimmunity and its mechanism of generation. (05)

— ② —