SEAT No._____ No. of Printed Pages : 2

[89]

SARDAR PATEL UNIVERSITY

BACHELOR OF SCIENCE (B.SC.)

B. Sc 5th SEMESTER EXAMINATION 2020-2021

TUESDAY, 29th DECEMBER 2020

2:00 TO 4:00 pm

SUBJECT: BIOTECHNOLOGY

COURSE: US05CBIT04

(Immunology)

DURATION 2 HRS. TOTAL MARKS: 70

---

**Figures to the right indicate marks:**

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

**i) Antigen Antibody interactions are important because of:**

A) Specificity B) Sensitivity C) Non-ambiguity D) All of the Above

**ii) Precipitin curve is a plot/graph between:**

A) Conc. of Ag Vs Conc. of Ab B) Amount of precipitate Vs Conc. of Ag

C) Amount of precipitate Vs. Conc of Ab D) Conc. Of Antibody Vs agarose concentration

**iii) Naive lymphocytes coming out of primary lymphoid organs are;**

A) Immuno-competent B) Antigen Specific C) in Go Stage D) All of these

**iv) Altered self-cells are killed by:**

A) B Cells B) NK Cells C) CTL's D) Both B & C

**v) Which cytokine can specifically kill tumor cells?**

A) IFN B) TNT C) TNF D) Oncogen

**vi) Generation of different classes of antibodies having same antigenic specificity is called**

A) Allelic exclusion B) Antibody Avidity

C) Class Switching D) Affinity Maturation

**vii) Autohydrolysis of C3 is the first step in which of the complement pathway:**

A) Classical B) Alternative C) Lectin D) Both A & B

**viii) The genetic material of AIDS virus is:**

(A) Single strand DNA (B) Double strand DNA

(C) Single strand RNA (D) Double strand RNA

**ix) In MHC Class-I molecule the size of bound antigenic peptide is:**

(A) 13-16 AA (B) 8-10 AA (C) 5-7 AA (D) Variable

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

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

(P.T.O)

**Q2. Fill in the blanks: Each question in this part is compulsory and carries 1 mark each. (08 Marks)**

1. The antibody class having maximum half-life is ___.
2. The variant of ELISA best suited for detection of HIV is _____.
3. Substance possessing antigenicity but not immunogenicity is called _____.
4. "MHC Class-II Molecules are present on B-Cells". _____. (True or False)
5. The C3 convertase of classical pathway is _____.
6. "SCID belongs to which type of secondary immunodeficiency". (True/False)
7. When the grafted tissue is derived from the same individual, it is called _____.
8. The immunity provided by vaccination is artificially acquired _____ immunity.

**Q3. Short Answer type questions (Attempt any TEN) (10 x 2 = 20 marks)**

i) What are the main differences between agglutination and precipitation reaction.
ii) Define prozone effect and Antibody avidity.
iii) Define immunodiffussion and enumerate its types
iv) Enumerate various functions of cytokines.
v) What are the functions of Cytotoxic T Lymphocytes?
vi) Define Class Switching and mention its importance.
vii) Enumerate various functions of Complement proteins.
viii) Mention two differences between primary and secondary immunodeficiency.
ix) Enumerate various measures to prevent AIDS
x) Define Graft rejection and Immunosuppression.
xi) Define MHC molecules. Mention their functions.
xii) What is localized autoimmune disorder? Mention two examples.

**Q4. Long answer type Questions: Attempt any four. Each question carry eight marks. (4Q x 8M = 32 Marks)**

1. Explain Indirect and Sandwich ELISA with labelled diagrams.
2. Write an elaborative note on precipitation reaction and their types.
3. Explain B- cell activation and differentiation with relevant diagrams.
4. Explain the mechanism of action of CTL (killing the target cell) with diagram.
5. Explain Classical complement pathway with flow chart in detail.
6. Write an elaborative note on immunodeficiency, its types and example.
7. Write a detailed note on autoimmunity and its mechanisms of generation.
8. Explain MHC molecules with types, structure and functions, in detail.

———— X ————