



DB-003-001519

Seat No. _____

B. Sc. (Sem. V) Examination

March – 2022

Biotechnology : Paper - 503

(Old Course)

Faculty Code : 003

Subject Code : 001519

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

SECTION - I

20 MARKS

- 1 Who coined the word vaccine?
- 2 Who coined the word phagocytosis?
- 3 What is the full form of HIV?
- 4 Which cell arrives first to site of inflammation?
- 5 What is full form of RIA?
- 6 Give two examples of agglutination reaction.
- 7 Grafts between identical twins is known as _____.
- 8 Name immunoglobulin molecule with pentameric structure
- 9 Hypersensitivity reaction type I is also known as _____.
- 10 Give an example of Primary immunodeficiency disease.
- 11 _____ is molecule which provide antiviral state to host.
- 12 _____ the immunoglobulin which crosses placenta.
- 13 _____ is site where maturation of T cell occurs.
- 14 Full form of MHC.
- 15 "H" and "N" in H1N1 stands for _____ and _____.
- 16 _____ molecules can be detected by using Western blots technique.
- 17 Name three professional antigen presenting cell.
- 18 Full form of TNF.
- 19 Function of CD3 in TCR CD3 complex.
- 20 Define Immunity.

SECTION - II

- 1 (A) Write any **three** out of six : 6
- (1) List the four attributes of adaptive immunity.
 - (2) Enlist type of interaction involved in antigen antibody reaction.
 - (3) How nude mice is important to study immunity?
 - (4) What are important characteristics that distinguish a primary and a secondary immune reaction?
 - (5) How does agglutination differ from precipitation?
 - (6) Which are molecules present in the leucocytes as antimicrobial or anticytotoxic components ?
- (B) Write any **three** out of six : 9
- (1) What are Haematopoietic stem cells? Show how different blood cells are formed during haematopoiesis process.
 - (2) Draw well labelled diagram of Thymus and write its function.
 - (3) What are the advantages and applications of Immunofluorescence?
 - (4) Discuss in brief about factor influencing immunogenicity.
 - (5) Write a note on western blotting
 - (6) What is adjuvant? What are the properties and applications of adjuvant?
- (C) Write any **two** out of five : 10
- (1) What is lymphocytes? Discuss the role of T cell in adaptive immunity.
 - (2) Write in detail about structure and function of Antibody?
 - (3) What do you understand by Secondary Lymphoid Organs (SLO)? Discuss any one SLO in detail.
 - (4) What is ELISA? Write in detail about different types and applications of ELISA.
 - (5) What is hybridoma technology? Write in detail about production and applications of monoclonal antibodies.

- 2 (A) Write any **three** out of six : 6
- (1) What is RA? Enlist symptoms associated with RA.
 - (2) Draw diagram of HIV virus.
 - (3) Draw the structure of TCR-CD3.
 - (4) Write in brief about functions of Cytokines.
 - (5) Compare antigen recognition by B and T lymphocytes.
 - (6) What are the challenges associated with development of vaccine against HIV?
- (B) Write any **three** out of six : 9
- (1) List structural and functional difference between class I and class II MHC molecules.
 - (2) What is cytotoxic T lymphocytes? Discuss how effector CTLs are generated from CTL precursor.
 - (3) What is SCID? What are biological bases leading to SCID?
 - (4) What is graft rejection? Write in detail about how graft rejection can be prevented?
 - (5) Discuss the role of NSAID as anti-inflammatory drugs.
 - (6) Write a note on Graves' disease.
- (C) Write any **two** out of five : 10
- (1) What is hypersensitivity? Explain in detail about class I hypersensitivity reaction.
 - (2) What is Complement? Discuss in detail about the classical pathway.
 - (3) What is antigen processing? Discuss in detail about cytosolic pathway of antigen processing and presentation.
 - (4) What is inflammation? Show in detail about how Neutrophil extravasation occurs in inflammation.
 - (5) Define vaccine. Explain advantage of using active immunization over passive immunization. Discuss applications of vaccine in the field of medicine.