

KAMARAJ COLLEGE (Autonomous)

Accredited with A+ Grade by NAAC

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

THOOTHUKUDI – 628 003

(6 Pages)

Reg. No:

Question Code No : 25001605

Sub Code : 24PMMB31

PG Degree - End Semester Examinations, November 2025

Third Semester

M.Sc. MICROBIOLOGY

Immunology

(For those who joined in July 2024 onwards)

Time : 3 Hours

Maximum : 75 Marks

PART – A (10 × 1 = 10 Marks)

Answer ALL Questions

Choose the correct answer:

1. Which of the following cells are primarily responsible for humoral immunity?
(a) T-helper cells (b) Cytotoxic T-cells
(c) B-lymphocytes (d) Natural Killer (NK) cells
2. Which of the following best differentiates between active and passive immunity?

- (a) Passive immunity produces memory cells, active does not
 - (b) Active immunity is short-term, passive is long-lasting
 - (c) Active immunity requires antigen exposure; passive involves transfer of antibodies
 - (d) Passive immunity involves vaccination
3. Which immunoglobulin is primarily responsible for mucosal immunity?
- (a) IgG
 - (b) IgA
 - (c) IgE
 - (d) IgM
4. Which pathway of complement activation does not require antibody involvement?
- (a) Classical pathway
 - (b) Alternate pathway
 - (c) Lectin pathway
 - (d) All require antibodies
5. Which type of hypersensitivity is associated with IgE and allergic reactions?
- (a) Type I
 - (b) Type II
 - (c) Type III
 - (d) Type IV
6. A patient with recurrent infections, low immunoglobulin levels and no B cells is likely suffering from:
- (a) AIDS
 - (b) SCID

- (c) Rheumatoid arthritis (d) Type I diabetes
7. Which immunodiagnostic method uses enzyme-labeled antibodies to detect antigen-antibody reactions?
- (a) ELISA (b) Immunoelectrophoresis
(c) Ouchterlony double (d) RIA
diffusion
8. In which method does antigen migrate through gel and form a rocket-shaped precipitin line?
- (a) ODD
(b) SRID
(c) Rocket Immunoelectrophoresis
(d) Counter current electrophoresis
9. Which MHC class presents antigens to CD8+ T cells?
- (a) MHC Class I (b) MHC Class II
(c) MHC Class III (d) All of the above
10. Which statement correctly describes the significance of HLA typing in transplantation?
- (a) HLA typing is used only for liver transplants
(b) Matching HLA types reduces the risk of graft rejection
(c) HLA typing is irrelevant in immunosuppressed patients
(d) Only Class III genes are used in HLA typing

PART - B (5 X 5 = 25 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 250 words.

11. (a) List out the features associated with antigenicity and immunogenicity on the basis of antigen specificity.

(OR)

- (b) Explain the Antigen processing and presentation to T-lymphocytes.

12. (a) Illustrate the types of Immunoglobulins and its types.

(OR)

- (b) Describe the Theories of antibody production and analyse the class switching and generation of antibody diversity.

13. (a) Define Clinical immunology. Brief about Hypersensitivity.

(OR)

- (b) Define Autoimmunity and add a note on autoimmune diseases.

14. (a) Demonstrate Immunelectrophoresis - Rocket and Counter current electrophoresis.

(OR)

- (b) Define Agglutination and add a note on Hemagglutination and Hemagglutination inhibition.

15. (a) Explain the Structure of MHC molecules and its significance.

(OR)

(b) Illustrate the Genetics of HLA Systems, add a note on Antigens and HLA typing.

PART - C (5 X 8 = 40 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 600 words.

16. (a) Summarise the Introduction to biology of the immune system cells and organs of Immune System.

(OR)

(b) Demonstrate T and B lymphocytes – Origin, development and differentiation.

17. (a) Differentiate the monoclonal and polyclonal antibodies with suitable example.

(OR)

(b) Elaborate the Complement system mode of activation- Classical, Alternate and Lectin pathways and biological functions.

18. (a) Explain the immediate & delayed type hypersensitivity and its mechanisms.

(OR)

(b) Define Immunodeficiency. Analyse the primary immunodeficiency and secondary immunodeficiencies.

19. (a) Define Diagnostic Immunology and add a note on Precipitation reaction with suitable example.

(OR)

(b) Illustrate and explain the major Immuno diffusion methods, referencing with specific techniques such as SRID, ODD.

20. (a) Illustrate the Transplantation immunology and add note on Tumor immunology.

(OR)

(b) Compare and contrast Immunological tolerance and Immuno suppression, dealing the mechanisms and physiological contexts of each.