

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
MSc DEGREE EXAMINATION MAY 2019
(Second/First Semester)

Branch - **BIOTECHNOLOGY**

IMMUNOTECHNOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 x 1 = 10)

- 1 Which of the following induces active immunity_____ .
 (i) Infection (ii) Placental transfer of antibodies
 (iii) Injection of antibodies (iv) Injection of gamma-globulins
- 2 Innate immunity is developed by _____ .
 (i) Mechanical barriers (ii) chemical barriers
 (iii) Both (i) & (ii) (iv) None of these
- 3 The major immunoglobulin present in the human serum is _____ .
 (i) IgG (ii) IgA
 (iii) IgE (iv) IgG
- 4 Antigens are recognised by _____ .
 (i) T cell (ii) B cell
 (iii) TH cell (iv) Antigen presenting cell
- 5 CD4 T cells are generally restricted by
 (i) CD-I (ii) MHC class-I
 (iii) MHC class-II (iv) p2 microglobulin
- 6 Activation of naive T lymphocytes is best achieved by which antigen presenting cells?
 (i) Macrophages (ii) Neutrophils
 (iii) Mast cells (iv) Dendritic cells
- 7 Cytokines are
 (i) Viruses (ii) Carcinogens
 (iii) Hormone like Polypeptides (iv) Bacteria
- 8 Which of the following statements about allograft rejection are true?
 (i) In the absence of immuno suppression, the time and intensity of rejection of transplants between unrelated donors and recipients is highly variable,
 (ii) Allograft rejection may be mediated by antibodies or by cells
 (iii) Allograft rejection is thought to be caused by Th2 cells
 (iv) Acute cellular rejection is the major cause for loss of clinical organ transplants
- 9 The first vaccine was developed by
 (i) Louis Pasteur (ii) Edward Jenner
 (iii) Carl Landsteiner (iv) Joseph Meister
- 10 The process of weakening a pathogen is called
 (i) vaccination (ii) attenuation
 (iii) immunization (iv) virulence reduction

Cont...

SECTION - B (25 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 5 = 25)

- 11 a Discuss briefly on acquired immune response.
OR
b Illustrate immuogenicity and structure of antigen.
- 12 a State the molecular genetics of immunoglobulins.
OR
b Explain the structure and function of dendritic cell with a neat sketch.
- 13 a Sketch the structure of MHC and describe its genome organization.
OR
b Evaluate the types and development of T cells.
- 14 a Produce the list and describe briefly about the autoimmune disorders with respect to B cell immunodeficiency.
OR
b Discuss briefly on the regulation of complement proteins.
- 15 a State the new approaches to vaccine development using CAR-T cells.
OR
b Illustrate the production of monoclonal antibody production.

SECTION -C (40 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 8 = 40)

- 16 a Elucidate toll like receptors and its signaling.
OR
b Explain the cell associated pattern recognition receptors in detail.
- 17 a Elucidate the synthesis, assembly and expression of immunoglobulin molecules.
OR
b Enumerate B lymphocyte production and its biology.
- 18 a Construct the pathways for antigen processing and presentation.
OR
b Write a detailed note on the types, development and selection of T cells.
- 19 a Analyse the immunology of transplantation and the mechanism of graft rejection.
OR
b Justify the immuno surveillance mechanism against cancer.
- 20 a Elucidate the CRISPR technology and specify its applications in research.
OR
b Recommend the techniques for immunodetection of food and aquatic contaminants.