

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2022
(Fourth Semester)

Branch – BIOTECHNOLOGY

IMMUNOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

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

- 1 Naturally acquired active immunity would be most likely acquired through which of the following processes?
(i) Vaccination (ii) drinking colostrum
(iii) natural birth
(iv) infection with disease causing organism followed by recovery.
- 2 Active immunity is due to
(i) Suppressor T - cells (ii) killer T - cells
(iii) Memory cells (iv) Helper T - cells
- 3 Which of the following immunoglobulin is the most abundant immunoglobulin in newborns?
(i) IgA (ii) IgM
(iii) IgG (iv) IgD
- 4 Which is the immunoglobulin that first reaches the site of infection?
(i) IgM (ii) IgG
(iii) IgA (iv) IgE
- 5 Activation of native T lymphocytes is best achieved by which antigen presenting cells?
(i) Macrophages (ii) Neutrophils
(iii) Mast cells (iv) Dendritic cells
- 6 CD4 T cells are generally restricted by
(i) CD -1 (ii) MHC class -I
(iii) MHC Class - II (iv) β 2 microglobulin
- 7 The inability to distinguish between self- cells and non- self-cells may lead to
(i) hypersensitivity (ii) auto-immune diseases
(iii) immunodeficiency (iv) tolerance
- 8 A tissue graft between two people who are not genetically identical is termed a:
(i) Allograft (ii) Heterograft
(iii) Xenograft (iv) Autograft
- 9 Counter – immunoelectrophoresis is used for the detection of
(i) Meningococcal antigen (ii) Hepatitis B surface antigen
(iii) Alpha - fetoprotein (iv) All of these
- 10 Precipitation reaction is relatively less sensitive for the detection of
(i) antigens (ii) antigens- antibody complexes
(iii) antibodies (iv) complement

Cont...

SECTION - B (25 Marks)

Answer ALL questions

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

- 11 a Explain briefly about the role of dendritic cells in eliciting an immune response.
OR
b Expound the features and importance of haptens and adjuvants.
- 12 a Describe briefly about the development, differentiation and maturation of B cells.
OR
b Outline the signal pathways involved in antigen activation of native B cells.
- 13 a Describe the importance of MHCs in genetic predisposition of diseases.
OR
b State the general structure and functions of cytokines.
- 14 a Explain in detail about type IV Hypersensitivity reaction and its treatment.
OR
b Narrate the bacterial immune evasion of host defense mechanisms.
- 15 a Differentiate the process of agglutination from that of precipitation.
OR
b Outline the principle involved in widal test used in the diagnosis of typhoid.

SECTION -C (40 Marks)

Answer ALL questions

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

- 16 a Discuss in detail about the structure and the role of spleen in immune system with a neat diagram.
OR
b Highlight the factors that influence immunogenicity of an antigen.
- 17 a Summarise the structure and functions of IgE.
OR
b Outline the structure and role of TCR in immune system.
- 18 a Elucidate the structure and functions of class II MHC molecules and their role in immune response.
OR
b Summarise the endocytic pathway involved in the processing of exogenous antigens.
- 19 a Discuss in detail about the production and applications of monoclonal antibodies.
OR
b Summarise about the clinical implications and treatment measures of organ specific autoimmune diseases.
- 20 a Outline the principle and applications of western blotting.
OR
b Discuss in detail about the principle and applications of ELISA.

Z-Z-Z

END