
ASSORTED IMMUNOLOGY REVISION OBJECTIVES AND SAQ'S MBCHB LEVEL 2

"WHERE GOD LEADS, HE PROVIDES. WHERE HE GUIDES, HIS GRACE IS SUFFICIENT; TRUST HIM!"

1. Define immunology
2. List the main cells involved in immune reactions and their primary functions
3. Define the complement system
4. Briefly describe the three arms of the complement system
5. Define what a cytokine is.
6. Describe the interaction between the components of the immune system using a practical microbe invasion e.g a bacteria.
7. Describe the innate and adaptive immune response under the following points;
 - a. 5 unique features
 - b. Main cells involved
8. Make brief notes on the types of acquired immunity.
9. Define opsonisation, the relevance in mounting up an immune response and the different examples of opsonins.
10. Define immunogenicity and antigenicity
11. Describe the essential features of an antigen
12. Describe the factors affecting immunogenicity.
13. List the biological functions of complement system.
14. Describe the different factors and regulatory proteins that contribute to regulation of the complement system.
15. Describe two disorders that arise as a result of failure to regulate the complement system.
16. Describe the function of the following sub-units of the complement system;
 - a. C3a
 - b. C4a
 - c. C5a
 - d. C3b
 - e. Membrane attack complex
17. What are the functions of B cells
18. Describe the difference between humoral and cell mediated immunity.
19. What is an antibody?
20. Briefly describe the chemical structure of an antibody
21. Classify the different types of antibodies and immunoglobulins.
22. List the biological properties of antibodies.
23. Define MHC and state its relevance in immunology
24. Describe the MHC class 1 antigen recognition and presentation pathway.
25. Describe the MHC class 2 antigen recognition and presentation pathway.

26. Describe MHC T-cell restriction.
27. Describe T-cell recognition of processed antigens
28. Describe the presentation of exogenous antigens by macrophages.
29. Describe the presentation of exogenous antigens by B-lymphocytes.
30. Describe the presentation of endogenous antigens by fibroblasts and other cells.
31. Describe the peptide-MHC interactions
32. Classify and name the different types of cytokines
33. Describe the mode of actions of two cytokines in immune response and regulation
34. Describe the clinical application of cytokines.
35. Describe the similarities and differences between cytokines and hormones
36. Define cross-priming and cite its importance in immunology
37. What is the function of CTLA4 and how does it relate to antigen presentation?
38. Differentiate acute and chronic inflammatory response under the following sub-headings;
 - a. Cells involved
 - b. Mediators
 - c. Lesions involved
 - d. Examples
39. Define an integrin and state its function
40. Define selectins and list the different types of selectins while stating their functions
41. Describe the interaction between selectins and integrins
42. Describe the acute inflammatory response
43. Define cellular adhesion molecules (CAMs) listing the different types and their functions.
44. List the defects in leukocytes that can affect acute inflammatory response.
45. Define cell mediated cytotoxicity (CMC)
46. List the different types of CMC and their functions
47. Briefly describe how the CMC functions are executed.
48. Briefly describe the role of HLAG in natural killer cell immune activities
49. Write short notes on apoptosis induced by natural killer cell T cytotoxic cells.
50. Briefly describe the following mechanisms of apoptosis initiated by natural killer cells and T cytotoxic cells.
 - a. Perforin-mediated lysis
 - b. Antibody-dependent cellular cytotoxicity (ADCC)
 - c. Fas mediated apoptosis
51. Define immune regulation
52. List the components of the immune system that regulate immune responses
53. Outline how the immune regulatory components bring up immune regulation
54. Briefly describe clinical scenarios that arise from failure of immune regulation
55. Define immune tolerance and the mechanisms that maintain immune tolerance
56. Describe the primary immune response to viruses using interferons
57. Describe how macrophages are able to recognize receptors on bacterial/microbial surfaces (PRR, PAMP and TLR receptors)
58. What are the activating factors of complement system?
59. Define vaccines
60. Write short notes on nephelometry and turbidometry

61. Write short notes on Heterofine anti-mouse antibodies (HAMA's effect)
62. List the antigens expressed by cancer cells
63. Describe the nature of immune response to;
 - a. Tumours
 - b. Bacteria
 - c. Viruses
 - d. parasites
64. How do cancers invade the immune system?
65. What are the approaches used In immunotherapy?
66. Which immunoglobulins activate the alternate complement/properdin pathway?
67. List the types of T cells and B cells highlighting on their functions in immune system.
68. List the differences between B cells and T cells
69. Differentiate using examples primary from secondary lymphoid organs
70. Explain the passive and active sub-divisions of;
 - a. Natural acquired immunity
 - b. Artificial acquired immunity
71. Which immunoglobulins are conveyed from mother to child through colostrum and through the placental route.
72. Describe T cell and B cell ontogenesis
73. Explain the three models of T cell lineage commitment
74. Differentiate between positive and negative selection and the results of each on lymphocyte development.
75. List the cell surface markers for identifying the following;
 - a. T helper cell
 - b. T cytotoxic cell
 - c. Natural killer cell
76. Describe the distribution of MHC class 1 and class 2
77. List the regions found in MHC class 1 and contrast the with the MHC class 2 regions.
78. List the properties of cytokines.
79. Define autoimmunity and give examples of autoimmune diseases.
80. Describe the different immunodiagnostic techniques used in immunology
81. Describe the mechanism of phagocytosis and phagocytic killing by a macrophage.
82. Describe MHC and the Immune Response to Transplanted Tissue
83. List the different mechanisms initiated by antibodies in neutralizing foreign microbes.
84. Define antigen cross-presentation and the antigen presenting cells involved.
85. Differentiate between type 1,2,3 and 4 hypersensitivity reactions under the following subheadings;
 - a. Initiation
 - b. Effector mechanism
 - c. Clinical manifestations
86. Describe the different immunological assay techniques
87. What are the features evident in immune invasion by tumour cells?
88. Define an epitope and its relevance in immune function
89. With regards to transplant immunology, define the following;

- a. Acute rejection
 - b. Chronic rejection
 - c. Graft vs host rejection
 - d. Hyper-acute rejection
 - e. Allograft
 - f. Autograft
 - g. Xenograft
90. Define clonal expansion and describe the mechanism that enables it in acquired immunity
 91. Define Bruton's agammaglobulinemia and describe the mechanism behind it.
 92. Discuss the immunology of inflammation
 93. Differentiate between primary and secondary immunodeficiencies.
 94. Differentiate between survival signal and maturation signal
 95. Which are the only immune cells with a CD3 cell surface marker?
 96. Define haptens and super-antigens and their function in immune response
 97. List the different genetic regions in B cells.
 98. List any 5 regulatory factors that keep check on B cell development
 99. List the different types of immunoglobulins and their functions
 100. Describe the mechanisms initiated by tumours in order to escape the immune system.

***SUCCESS IN YOUR EXAMS EVEN AS GOD FURTHERS YOU FORTH INTO THE GREAT DOCTORS
HE'S PRE-DESTINED YOU ALL TO BE! HE WILL SEE YOU THROUGH SUCCESSFULLY!***

