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(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS 2021/2022

ACADEMIC YEAR

SECOND YEAR FIRST TRIMESTER

MAIN EXAMINATION

**FOR BACHELOR OF SCIENCE IN
NURSING DEGREE**

COURSE CODE: NUR 216

COURSE TITLE: IMMUNOLOGY

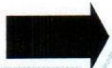
DATE: 20/12/2022

TIME: 9.00 – 12.00PM

INSTRUCTIONS TO CANDIDATES

Answer ALL Section one (1) MULTIPLE CHOICE QUESTIONS and ALL Section two (2) SHORT ANSWER QUESTIONS and any one (1) section THREE (3) LONG ANSWER QUESTION.

TIME: 3 Hours

This paper consists of 7 printed pages. Please Turn Over 
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SECTION A: MULTIPLE CHOICE QUESTIONS

50 Marks

INSTRUCTION: Answer ALL questions

1. The cells that are involved in the initial presentation of antigens to T lymphocytes are
 - A. Dendritic cells
 - B. Plasma cells
 - C. Neutrophil polymorphonuclear leukocytes
 - D. Basophils

2. Which of the following cells produce IgE
 - A. Mast cells
 - B. Eosinophils
 - C. Basophils
 - D. Plasma cells

3. A Helper T lymphocyte is known to recognize which of the following on an antigen presenting cell?
 - A. HLA class I antigen
 - B. HLA class II antigen
 - C. Whole antigen
 - D. Surface immunoglobulin

4. Which one of the following groups of cells is **NOT** phagocytic?
 - A. Macrophages
 - B. Neutrophils
 - C. Monocytes
 - D. Plasma cells

5. Type I hypersensitivity typically involves one of the following?
 - A. IgM
 - B. IgD
 - C. Macrophages
 - D. IgE

6. Opsonization is the process involved in which one of the following immune functions?
 - A. Peptides are engulfed by macrophages and digested
 - B. IgE antibody is produced
 - C. Foreign particles are coated with specific IgG and or complement C3 to enhance phagocytosis
 - D. Immune complexes are attached to erythrocytes for transport to the liver

7. Which of the following statements is true?
 - A. The thymus controls the peripheral tolerance of T cells
 - B. No self-reactive T cells can be found in healthy normal individuals
 - C. Naive T cells need more than one signal in order to become activated
 - D. B-cell tolerance is more important than T-cell tolerance in the prevention of autoimmunity

8. The first cells to arrive at the site of inflammation during inflammatory responses are:
 - A. Plasma cells
 - B. Neutrophils
 - C. Basophils
 - D. Macrophages

9. An organ transplant between genetically different members of the same species is known as?
 - A. Allograft
 - B. Syngraft

- C. Xenograft
 - D. Autograft
10. Hyperacute rejection is mediated by:
- A. T lymphocytes against the foreign antigen
 - B. Activation of complement
 - C. Preformed antibodies in the recipient against the foreign antigens
 - D. Deposition of immune complexes
11. The ABO blood group barrier is a good example of:
- A. Acute rejection
 - B. Graft versus host disease
 - C. Chronic rejection
 - D. Hyperacute rejection
12. The cells that kill virally infected cells in innate immune system are:
- A. Cytotoxic T cells
 - B. Natural Killer cells
 - C. Helper T cells
 - D. Mast cells
13. The humoral arm of innate immunity is:
- A. Antibody production
 - B. Plasma cells
 - C. Complement system
 - D. Natural Killer cells
14. Antigens are presented to T lymphocytes through:
- A. The endogenous pathway
 - B. The exogenous pathway
 - C. Late endosomes
 - D. CLIP region
15. The T-cell areas in the lymph node are known as:
- A. Cortical area
 - B. Medullary cords
 - C. Peri-arteriolar lymphoid sheath
 - D. Paracortical area
16. The T cells are localized in the _____ in spleen
- A. Peri-arteriolar Sheaths
 - B. Paracortical areas
 - C. Germinal center
 - D. Medullary cords
17. The _____ are regions where B cells undergo intense proliferation after encountering their specific antigen and cooperating T cells in the lymph node
- A. Follicles
 - B. Corona
 - C. Germinal centers
 - D. Domes
18. In the gut associated lymphoid tissues, antigens are collected by specialized epithelial cells called:
- A. Dendritic cells
 - B. Macrophages
 - C. Multi-fenestrated cells
 - D. Plasma cells
19. The B-cell are localized in the _____ in the lymph node:
- A. Corona

- B. Follicles
 - C. Germinal centers
 - D. Dome
20. The B-cell areas in the Spleen are known as:
- A. Dome
 - B. Germinal centers
 - C. Cortical areas
 - D. Corona
21. The mononuclear phagocyte system does not include:
- A Monocytes.
 - B Endothelial cells.
 - C Kupffer cells.
 - D Lymph node medullary macrophages.
22. Neutrophil defensins are:
- A Anti-toxins.
 - B Oxygen-dependent.
 - C Enzymes.
 - D Peptide antibiotics.
23. Complement component C3 is cleaved by:
- A C3b
 - B C3bBb
 - C Factor B
 - D Factor D
24. Acute inflammation characteristically involves:
- A Constriction of arterioles.
 - B Capillary endothelial cell enlargement.
 - C Influx of neutrophils.
 - D Influx of macrophages.
25. Natural killer (NK) cells do not:
- A Respond to interferon.
 - B Contain perforin.
 - C Contain tumor necrosis factor (TNF).
 - D Kill only by damaging the target cell outer membrane.
26. Eosinophils do not:
- A Stain with basic dyes.
 - B Contain a major basic protein.
 - C Contain peroxidase.
 - D Give a respiratory burst on activation.
27. Polymorphonuclear neutrophils attack bacteria:
- A Exclusively by oxygen-dependent mechanisms.
 - B Exclusively by oxygen-independent mechanisms.
 - C By phagocytosis.
 - D By secreting complement.
28. Several of the complement components are:
- A Glycolipids
 - B Enzymes
 - C Cytokines
 - D Hormones
29. Clonal selection occurs when antigen is encountered by:
- A Neutrophils
 - B Mast cells
 - C T-cells
 - D Basophils
30. A plasma cell secretes:
- A. Antibody of a single specificity related to that on the surface of the parent B-cell
 - B. Antibody of two antigen specificities
 - C. Many different types of antibody

- D. Lysozyme
31. Immunological unresponsiveness to self-antigens is called:
- A Tolerance
 - B Tolerogen
 - C Memory
 - D Acquired immunity
32. Edward Jenner vaccinated against smallpox using:
- A Killed smallpox virus
 - B A recombinant protein derived from smallpox
 - C An unrelated virus
 - D Cowpox
33. Protective antibodies against infectious agents are often:
- A Autoantibodies
 - B Neutralizing
 - C Toxoids
 - D Natural Killer
34. T cell surface receptors for antigen partly recognize:
- A Cytokines
 - B MHC
 - C ADCC
 - D Antibody
35. An immune response against grass pollen often involves:
- A Pathogen-associated molecular patterns
 - B Breakdown of self-tolerance
 - C A hypersensitivity reaction
 - D Reaction against MHC
36. Secondary antibody responses are better because:
- A They provide defense against unrelated antigens
 - B The antibody can be made by both T and B cells
 - C Complement-fixing antibodies are made
 - D They are stronger and faster
37. Which cell type produces antibodies?:
- A Macrophages
 - B T-lymphocytes
 - C NK
 - D Plasma cells
38. . Clonal selection occurs when a B-lymphocyte encounters:
- A Cytokines
 - B Antigen
 - C T-lymphocytes
 - D Complement
39. The secondary, but not the primary, immune response is based on:
- A Memory
 - B The bonus effect of multivalence
 - C Complement activation
 - D Mast cell degranulation
40. A graft between members of the same species is termed an:
- A. Isograft.
 - B. Autograft.
 - C. Xenograft.
 - D. Allograft.
41. Which of the following is **NOT** a function of antibody?
- A. Opsonization
 - B. Neutralization
 - C. Phagocytosis
 - D. Complement activation
42. Three of the statements below are true about the human immune system. Which one is not?
- A. It can be affected by chemical compounds

- B. It can train self to react to new threats
 - C. It can protect itself
 - D. It has no errors
43. Which one of the following diseases is considered completely eradicated world-wide?
- A Measles
 - B Smallpox
 - C Tuberculosis
 - D Cowpox
44. Below are possible causes of autoimmunity. Which one is not
- A. It can be due to sequestered antigens release
 - B. It can be due to malnutrition
 - C. It can be due to release of self-reactive clones of lymphocytes
 - D. It could be due to aberrant expression of genes
45. The cells that are involved in antibody production are
- E. Plasma cells
 - F. B cells
 - G. Neutrophil polymorphonuclear leukocytes
 - H. Basophils
46. Which of the following is the first layer of immune defenses
- A. Induced innate defenses
 - B. Adaptive immunity
 - C. Immediate innate defenses
 - D. Humoral immunity
47. The heavy chain to be assembled first during antibody responses are
- E. IgD
 - F. Macrophages
 - G. IgE
 - H. IgM
48. Innate immune responses depends mainly on:
- E. Granulocytes and Macrophages
 - F. B lymphocytes
 - G. T lymphocytes
 - H. Antibodies
49. The circulation of a two month old breast-fed baby will contain maternal:
- A IgA
 - B IgD
 - C IgE
 - D IgG
50. Specific immune response such as antibody production is known as
- A. Innate immune responses
 - B. Complement immune responses
 - C. Adaptive immune responses
 - D. Cell mediated immune responses

SECTION B: SHORT ANSWER QUESTIONS (SAQS) 30 Marks

1. Define the following terms [5 Marks]
 - a) Antigen
 - b) Antibody
 - c) Antigenicity (Immunogenicity)
 - d) Immune tolerance
2. Describe the substances encoded by the three classes of MHC genes [5 Marks]
3. Explain the functions of the complement system [5 Marks]
4. Identify the primary and secondary mediators of type I hypersensitivity [5 Marks]
5. Describe phagocyte recognition of pathogens in innate immunity [5 Marks]

6. Describe the four types of grafts
Marks]

[5

SECTION C: LONG ANSWER QUESTIONS (LAQS)
INSTRUCTION: Answer any ONE question

20 Marks

1. Compare and contrast humoral and cell mediated immunity
2. Describe the key highlights of tumor immunology

[20 Marks]

[20 Marks]