



TECHNICAL UNIVERSITY OF MOMBASA
FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MEDICAL SCIENCES

AML 2209: IMMUNOLOGY II

END OF SEMESTER EXAMINATION

SERIES: AUGUST 2019

TIME: 2 HOURS

DATE: Pick Date Aug 2019

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **TWO** Section(s). Attempt **ALL** questions.

Circle the correct answer in section A.

Section A

Q1. Immediate hypersensitivity reactions are manifested in the following ways except?

- a) Hashimoto's thyroiditis
- b) Skin allergies
- c) Asthma
- d) Systemic anaphylaxis

Q2. Which of the following cleaves C4 in the classical pathway of complement activation?

- a) C1q
- b) C1s
- c) C1r
- d) C1t

Q3. The late steps of complement activation ultimately lead to which of the following events?

- a) Formation of the C3 convertase
- b) Formation of the C5 convertase
- c) Formation of the C5bC6C7 complex
- d) Formation of the membrane attack complex

Q4. Which of the following pathways is initiated by binding of ficolins to the microbial surface?

- a) Classical pathway
- b) Alternative pathway
- c) Indigenous pathway
- d) MBL pathway

Q5. The process by which B cells change to secrete different antibodies is called?

- a) Affinity maturation
- b) Maturation of B cells
- c) Isotype switching
- d) Antibody secretion

Q6. Extracellular bacteria may cause pathogenesis by which of the following process?

- a) Induction of inflammation
- b) Activation of T cells
- c) Activation of B cells
- d) Activation of the complement pathway

Q7. Which of the following innate immune mechanism leads to lysis of extracellular bacteria?

- a) Phagocytosis
- b) Complement activation
- c) Activation of inflammation
- d) Activation of natural killer cells

Q8. The following may contribute to septic shock except?

- a) TNF
- b) IFN- γ
- c) IL-12
- d) IL-7

Q9. Immunity to intracellular bacteria may be mediated by which of the following?

- a) Cells
- b) Antibodies
- c) Inflammation

d) Complement activation

Q10. The adaptive immunity to intracellular bacteria is majorly mediated by which of the following?

- a) Antibodies
- b) Complement activation
- c) Macrophage activation by T cell signals
- d) B cell activation

Q11. *Legionella pneumophila* escapes host immunity by which of the following mechanisms?

- a) Inactivation of reactive oxygen species
- b) Inactivation of reactive nitrogen species
- c) Antigen shedding
- d) Inhibition of phagolysosome formation

Q12. Fungal infections are also called _____?

- a) Atopies
- b) Mycoses
- c) Infectious mononucleosis
- d) Amoebiasis

Q13. Which of the following is reason why antifungal immunity is less well understood?

- a) Not many researchers care about fungal infections
- b) It is not economically feasible to study fungal infections
- c) Most fungal infections occur in immuno-compromised individuals
- d) Fungal infections are too few

Q14. Candida infections are prevented from spread into tissues by which of the following mechanism?

- a) Cell mediated immunity
- b) Antibody mediated immunity
- c) Activation of inflammation
- d) Activation of complement

Q15. Elimination of viruses that reside within cells is mediated by which of the following cell types?

- a) Th cells
- b) Follicular B cells
- c) Marginal zone B cells
- d) CTLs

Q16. Which of the following cause tissue injury in non-cytopathic viral infections?

- a) CTLs
- b) Antibodies
- c) Th cells

d) Neutrophils

Q17. Which of the following accounts for greater morbidity and mortality than any other class of infectious organism?

- a) Viral infections
- b) Parasitic infections
- c) Diarrheal infections
- d) Fungal infections

Q18. Which of the following is the principal defense mechanism against protozoan infections?

- a) B cell activation
- b) Neutrophils activation
- c) Macrophage activation
- d) Eosinophil activation

Q19. Acquired resistance to complement and CTLs is a mechanism of immune evasion by which of the following parasites?

- a) Entamoeba
- b) Schistosomes
- c) Plasmodium
- d) Trypanosomes

Q20. Which of the following is a donor?

- a) The graft taken to someone who needs it
- b) One to whom a graft goes
- c) One that performs grafting
- d) One from whom a graft comes

Q21. Which of the following are molecules recognized as foreign on allografts?

- a) Alloantigens
- b) Alloreactivins
- c) Xenoantigens
- d) Autografts

Q22. Which of the following molecules are responsible for strong rejection reactions?

- a) TCR molecules
- b) BCR molecules
- c) MHC molecules
- d) Antibody molecules

Q23. Which one of the following is the most important goal in preventing transplantation rejection?

- a) Development of general immunosuppressive drugs
- b) Donation of transplants

- c) Obtaining transplants from animals
- d) Induction of donor specific tolerance

Q24. The following are forms of acute vascular rejection in xenogeneic transplantation except?

- a) Delayed xenogeneic rejection
- b) Intravascular rejection
- c) Accelerated acute rejection
- d) Acute vascular rejection

Q25. Graft versus host rejection may be caused by which of the following?

- a) Grafted mature T cells reacting to the host antigens
- b) Host mature T cells reacting to the graft antigens
- c) Grafted mature B cells reacting to the host antigens
- d) Host antibodies reacting to graft antigens

Q26. Preformed antibodies may be as a result of the following previous events except?

- a) Pregnancies
- b) Transfusions
- c) Donation
- d) Transplantation

Q27. The difference between RIA and ELISA techniques is _____?

- a) The spellings used
- b) The labels used
- c) The buffers used
- d) The sensitivity obtained

Q28. Antigens that induce tolerance are called _____?

- a) Allergens
- b) Antigens
- c) Alloantigens
- d) Tolerogens

Q29. Under normal circumstances, the interaction between a lymphocyte and an antigen can lead to the following except?

- a) Proliferation and differentiation
- b) Anergy
- c) Deletion
- d) Change in antigen specificity

Q30. Which of the following are thymus dependent antigens?

- a) Polysaccharides

- b) Lipids
- c) Proteins
- d) Monosaccharides

Q31. Which of the following drugs are used to block T cell activation?

- a) Methotrexate
- b) Cyclosporine**
- c) B7 co-stimulators
- d) Plasmapheresis

Q32. Acquired immunodeficiencies may develop as a consequence of the following except?

- a) Malnutrition
- b) Germline DNA malformations
- c) Treatment with immunosuppressive drugs
- d) Disseminated cancers

Q33. X-linked agammaglobulinemia is caused by which of the following?

- a) Defects in T lymphocyte development
- b) Defects in NK cell maturation
- c) Defects in macrophage activation
- d) Defects in B lymphocytes development

Q34. Which of the following is a major aim in therapeutic approaches for congenital immunodeficiencies?

- a) Reduce malnutrition
- b) Reduce pain
- c) Suppress T cell growth
- d) Control infections

Q35. Theoretically, the therapy of choice for congenital disorders of lymphocytes is to replace the defective gene in which of the following cell types?

- a) Stem cells
- b) B lymphocytes
- c) T lymphocytes
- d) B and T lymphocytes

Q36. Tumors arise from which of the following?

- a) Autoimmunity
- b) Transplantation of bone marrow cells
- c) Uncontrolled proliferation and spread of transformed cells
- d) Stem cells

Q37. The immune system can be activated by external stimuli to effectively kill tumor cells and eradicate tumors. This statement implies that _____

- a) It is possible to die from cancer
- b) It is possible to get cancer by being attacked by the immune system
- c) It is possible to make vaccines against cancer
- d) The immune system can always eradicate tumors when activated

Q38. Which of the following statements describes hypersensitivity reactions?

- a) Uncontrolled growth and proliferation of clones of transformed cells
- b) Inadequately controlled or inappropriately targeted responses to host cells
- c) Immune responses caused by B cells
- d) Immune responses caused by T cells

Q39. Which of the following is associated with antibody mediated hypersensitivity reactions?

- a) IgE antibodies on mast cells
- b) IgM antibodies on extracellular matrix antigens
- c) IgG antibodies on circulating antigens
- d) IgM antibodies on circulating antigens

Q40. The complement system is activated through the following pathways except?

- a) The classical pathway
- b) The indigenous pathway
- c) The alternative pathway
- d) The lectin pathway

Section B

Q41. Describe the principle and technique of sandwich ELISA (20 marks)

Q42. Describe the classical complement activation pathway (20 marks)

Q43.

- a) Citing specific examples, describe four ways through which pathogenic microbes evade immune responses (10 marks)
- b) Explain the innate immune responses to viruses (10 marks)