



# TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

UNIVERSITY EXAMINATION FOR:

BMLS

AML 4304 : IMMUNOPATHOLOGY

END OF SEMESTER EXAMINATION

**SERIES:** DECEMBER 2016

**TIME:** 2 HOURS

**DATE:** Pick Date Dec 2016

## 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.**

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Paper 2

Section A

Q1. Which of the following may sometimes be referred to as inflammatory diseases?

- a) Autoimmune diseases
- b) Hypersensitivity disorders
- c) Transplantation rejection reactions
- d) Graft versus host reactions
- e) Infectious diseases

Q2. Which of the following is also referred to as atopy?

- a) Epithelia in the outer regions of the body
- b) Delayed type hypersensitivity reactions
- c) Prophylactic responses
- d) T cell mediated cytotoxicity
- e) Immediate hypersensitivity reactions

Q3. Which of the following is the pathologic mechanism of type III hypersensitivity reactions?

- a) T cell mediated cytotoxicity
- b) IgM targeted to circulating antigens
- c) Allergic reactions
- d) IgG targeted to surface matrix antigens
- e) Mast cell derived mediators such as Vasoactive amines

Q4. Which of the following is an example of a cell or tissue specific antibody mediated disease?

- a) Autoimmune hemolytic anemia
- b) Systemic lupus erythematosus
- c) Polyarteritis nodosa
- d) Serum sickness
- e) Poststreptococcal glomerulonephritis

Q5. Which of the following immunoglobulins is responsible for sensitizing mast cells?

- a) IgG
- b) IgA
- c) IgE
- d) IgD
- e) IgM

Q6. The FcεRI has an affinity of about \_\_\_\_\_?

- a)  $1 \times 10^{-6}$
- b)  $1 \times 10^{-3}$
- c)  $1 \times 10^{-5}$
- d)  $1 \times 10^{-10}$
- e)  $1 \times 10^{-15}$

Q7. Which of the following cell types have proliferative ability of mature cells?

- a) Macrophages
- b) Eosinophils
- c) Basophils
- d) Natural killer cells
- e) Mast cells

Q8. Which of the following mediators is stored preformed in cytoplasmic granules of eosinophils?

- a) Prostaglandin D<sub>2</sub>
- b) Histamine
- c) Eosinophil peroxidase
- d) TNF
- e) IL-5

Q9. Which of the following is the fundamental property of the normal immune system?

- a) Reactions against microbes
- b) Tolerance to self antigens
- c) Reactions against cancers
- d) Reactions against transplants
- e) Induction of inflammation

Q10. Central tolerance may be induced in which of the following cell types?

- a) Immature B cells in peripheral organs
- b) Mature T cells in peripheral organs
- c) Immature T cells in peripheral organs
- d) Immature B cells in generative organs
- e) Mature T cells in generative organs

Q11. Which of the following determines the growth of malignant tumors?

- a) Type of tumor cells
- b) Type of tumor antigens
- c) Genetic makeup of the individual
- d) Differences in organisms growth rates
- e) Proliferative capacity of the tumor cells

Q12. Which of the following may be expressed in many types of cancers but not in normal somatic tissue?

- a) Products of mutated genes
- b) Altered glycoprotein antigens
- c) Testis antigens
- d) Abnormally expressed cellular proteins
- e) Tissue specific differentiation antigens

Q13. Which of the following cytokines kills tumors mainly by inducing thrombosis in tumor blood vessels?

- a) TNF
- b) IL-5
- c) IFN- $\alpha$
- d) IL-7
- e) IL-9

Q14. The principal tumor adaptive immunity is mediated by which of the following cell types?

- a) Macrophages
- b) Kupffer cells
- c) CD8+ T cells
- d) CD4+ T cells
- e) B cells

Q15. Which of the following is thought to underlie the emergence of tumors that escape immunosurveillance?

- a) Molecular mimicry
- b) Tumor escape
- c) Tumor cross linking
- d) Bystander activation
- e) Tumor editing

Q16. Which of the following is a passive immunotherapy strategy against tumors?

- a) Graft versus host reaction
- b) Adaptive cellular therapy
- c) Vaccines against tumors
- d) Chemotherapy
- e) Radiotherapy

Q17. Which of the following describes the process of moving an organ to a region of its normal anatomic location?

- a) Xenografting
- b) Allotropic grafting
- c) Heterotopic transplantation
- d) Homotopic transplantation
- e) Orthotopic grafting

Q18. which of the following describes a species?

- a) An organism with identical genes as another
- b) Organisms that can interbreed and produce viable offspring
- c) Organism that can interbreed and produce chimeras
- d) Organisms with the same genetic makeup
- e) Organisms that can interbreed but nor necessary produce offspring

Q19. Which of the following describes xenoreactivity?

- a) Immune responses to xenografts
- b) Reactions to allografts
- c) Reactions to lymphocytes that attack allografts
- d) Reactions to lymphocytes that attach xenografts
- e) NK cell responses to allografts

Q20. Recognition of transplanted cells as self or non-self is determined by which of the following genes?

- a) Random genes
- b) Mutated genes
- c) Polymorphic genes
- d) Environmental genes
- e) Syngeneic genes

Q21. Which of the following can be used to prevent acute rejection?

- a) Depletion of preformed antibodies before transplantation
- b) ABO blood typing
- c) Screening for preformed antibodies
- d) Intensifying immunosuppressive therapy
- e) Tissue typing

Q22. Which of the following inhibits T cell activation by blocking B7 co-stimulator binding to T cell CD28?

- a) Rapamycin
- b) Corticosteroids
- c) Mycophenolate mofetil
- d) FK506
- e) CTLA-4-Ig

Q23. The following are immunostimulatory cytokines except?

- a) IFN- $\gamma$
- b) TGF- $\beta$
- c) TNF- $\alpha$
- d) IL-2
- e) IL-6

Q24. Which of the following is most important for the survival of all individuals?

- a) Integrity of the immune system
- b) B cells
- c) T cells
- d) Macrophages
- e) Innate immunity

Q25. The following are congenital disorders of innate immunity except?

- a) Chediak higashi syndrome
- b) Toll-like receptor signaling defects
- c) Hashimoto's thyroiditis
- d) Chronic granulomatous disease
- e) Leukocyte adhesion deficiency type 2

Q26. Which of the following is a primary severe combined immunodeficiency?

- a) Wiskot-aldrich syndrome
- b) ICF syndrome
- c) AIDS
- d) X-linked hyper-IgM syndrome
- e) DiGeorge syndrome

Q27. Which of the following is a major mechanism that causes secondary immunodeficiencies?

- a) May be as a result of biologic complication of another disease
- b) Depletion of T cells as a result of mutations
- c) Destruction of specific enzyme processes
- d) May be as a result of a genetic disease
- e) May be as a result of exposure to radioactive material

Q28. Which of the following may result from inhibition of lymphocyte maturation and function caused by metabolic derangements?

- a) Human immunodeficiency virus
- b) Protein calorie malnutrition
- c) Cancer metastases
- d) Autoimmune disease
- e) Immunosuppression for transplants

Q29. Removal of the spleen may result in which of the following?

- a) Depletion of CD4+ T cells
- b) Decrease in bone marrow lymphocyte precursors
- c) Reduced lymphocyte activation
- d) Decreased phagocytosis of microbes
- e) Reduced site of leukocyte development

Q30. Which of the following molecules are required for attachment and entry of the HIV viral genome?

- a) CD4 and CXCR5
- b) CD4 and CXCR4
- c) CD4 and CCR4
- d) CD4 and CCR3
- e) CD8 and CXCR5

## Section B

Q31.

- a) Explain two mechanisms by which transplantation antigens are presented to T cells (5 marks)
- b) (i) Describe the graft versus host reaction (10 marks)  
(ii) Show how it could be useful (5 marks)

Q32

- a) Describe what happens in the immediate phase reaction of type I hypersensitivity reactions (10 marks)
- b) Explain why immunological tolerance is important (10 marks)