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W1-2-60-1-6

JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS 2018/2019

EXAMINATIONS FOR THE DEGREE OF MASTER OF SCIENCE IN MOLECULAR MEDICINE

MM 3100: PRINCIPLES OF IMMUNOLOGY

3 Hours

DATE: SEPTEMBER 2019 TIM

TIME: 2 HOURS

INSTRUCTIONS: ANSWER ANY 4 (FOUR) QUESTIONS (25 MARKS EACH)

1. a) Explain how the anatomical barriers act as the first line of defense against entry of pathogens in an organism (15 marks).
b) Compare and contrast the innate and adaptive immune system (10 marks).
2. a) Differentiate between the killing mechanism of Natural Killer cells and that of phagocytes in innate immune system (15 marks).
b) i) With reference to adaptive immune response, explain the immunological principle applied in immunization (4 Marks)
ii) While most vaccinations are administered to children, explain three situations where it may be necessary to vaccinate adults (6 Marks).
3. a) Describe the mechanisms for generation of diversity of T-cell receptors (10 marks)
b) Briefly explain the importance of complementary-determining regions (CDRs) in antibodies (5 marks)
c) Describe the mechanisms of the following in generating antibody diversity.
i) Junctional diversity (5 marks)
ii) Combinatorial diversity (5 marks)
4. a) Discuss the two functions of a mature B cell (15 marks)
b) Describe the mechanisms of Class switching (10 marks)
5. a) Describe the three activation pathways for the Complement System (15 marks)
b) Explain how complement activity is regulated (10 marks)
6. a) Describe the process of activation of T cells (10 marks)
b) Discuss the effector functions of T cells (15mks)

DR Rose Bosire