

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

FOURTH YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN BIOMEDICAL SCIENCE AND TECHNOLOGY

BMET 417: IMMUNOLOGY AND IMMUNOCHEMISTRY

STREAMS: BSC (BIOMED)

TIME: 2 HOURS

DAY/DATE: MONDAY 02/12/2019

11.30 A.M. – 1.30 P.M.

INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- a. Explain why warm-blooded animals require particularly complex immune defenses. (4 marks)
- b. Many evolutionarily related proteins have conserved amino acid sequences. What consequences might this have in terms of the antigenicity of these proteins? (4 marks)
- c. Explain the principal changes that occur in tissue during an acute inflammatory response (4 marks)
- d. Explain factors that determine whether a particular IgG subclass will have a particular biological function. (6 marks)
- e. Explain what determines whether an immune response is acute or chronic. (6 marks)
- f. Explain why passage of a virus in a non-human species is a rational way of developing a vaccine for use in humans. (6 marks)

QUESTION TWO (20 MARKS)

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- a. Describe the application of enzyme-linked immunispot (ELISPOT) in assaying for antibody production. (10 marks)
- b. Describe the application of flow cytometry in lymphocyte subset enumeration for an immunodeficiency disease. (10 marks)

QUESTION THREE (20 MARKS)

- a. Describe the various ways through which T cells mediate viral immunity. (10 marks)
- b. Describe the strategies adopted by viruses to avoid recognition by host immune defenses. (10 marks)

QUESTION FOUR (20 MARKS)

- a. Describe how cancers elicit protective immunity in the primary and syngeneic host. (10 marks)
 - b. Describe how minor antigens can be targets of rejection even when the donor and recipient are identical. (10 marks)
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