

**CHUKA**



**UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**FOURTH YEAR EXAMINATION FOR THE AWARD OF DEGREE OF  
BACHELOR OF SCIENCE IN BIOCHEMISTRY**

**BIOC 406: IMMUNOLOGY**

**STREAMS: BSC.BIOCHEMISTRY**

**TIME: 2 HOURS**

**DAY/DATE: WEDNESDAY 31/3/2021**

**8.30 AM –10.30 AM**

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**INSTRUCTIONS:**

- Answer Question One and any other Two Questions
- Do not write on the question paper

**QUESTION ONE (30 MARKS)**

- Many evolutionarily related proteins have conserved amino acid sequences. What consequences might this have in terms of the antigenicity of these proteins? [5 Marks]
- Herpes simplex virus infects sensory neurons and causes cold sores. Explain why a CTL response might be inappropriate for controlling such an infection. [5 Marks]
- By analogy with T cell development, infer what determines whether a B cell will die during development in the bone marrow. [5 Marks]
- Considering the type of immune responses generated in mucosal tissues, explain why and in what way oral administration of an antigen might deviate the immune response.[5 Marks]
- Explain factors that determine whether a particular igG will have a particular biological function. [5 Marks]
- Explain why passage of a virus in a non-human species is a rational way of developing a vaccine for use in humans. [5 Marks]

**QUESTION TWO (20 MARKS)**

- Describe the various forms of antigenic material that can be used in vaccine development. [10 Marks]
- Certain sites in the body are immunologically privileged. Describe the factors that contribute to this. [10 Marks]

**QUESTION THREE (20 MARKS)**

- a. Describe the various ways through which T cells mediate viral immunity. [10 Marks]
- b. Certain sites in the body are immunologically privileged. Describe the factors that contribute to this. [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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