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**CHUKA**



**UNIVERSITY**

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**UNIVERSITY EXAMINATIONS.**

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

**BMED 453: SPECIAL TOPICS IN BIOMEDICAL SCIENCE AND TECHNOLOGY**

**STREAMS: BS.c (BMED) Y4S2**

**TIME: 2 HOURS**

**DAY/DATE: WEDNESDAY 10/04/2019**

**11.30 A.M - 1.30 P.M.**

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**INSTRUCTIONS:**

- Answer Question ONE and any other TWO Questions
- Do not write anything on the question paper

**QUESTION ONE**

- (a) Explain the utility of Immunoscintigraphy in the diagnostics; [5 Marks]  
(i) Cancer diagnostics  
(ii) Myocardial infraction
- (b) Discuss the use of monoclonal antibodies as drug and prodrug delivery tools. [6 Marks]
- (c) Briefly discuss the current Kenyan first-line ART guidelines for HIV management. [8 Marks]
- (d) Explain the production of recombinant live vaccinia vaccine expressing hepatitis B major surface antigen. [5 Marks]
- (e) Discuss the modification of first-and second-generation countercheck Antisense oligonucleotides (AON s) and their characteristics as tools for gene silencing. [6 Marks]

**QUESTION TWO**

- (a) Discuss the production of recombinant human growth hormones. (hGH). [10 Marks]
- (b) Explain the emerging ethical issues in genetic engineering and transgenics. [10 Marks]

**QUESTION THREE**

- (a) Discuss the application of Raman spectroscopy in disease diagnostics. [10 Marks]

(b) Set a question on emerging infectious diseases.

[10 Marks]

[10 Marks]

**QUESTION FOUR**

Explain the factors contributing to ARV treatment failures in HIV patients under the following subheadings. [20 Marks]

- (a) Host and viral factors.
- (b) Drug resistance

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