

CHUKA



UNIVERSITY

## UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE

**BIOC 416: MEDICAL BIOCHEMISTRY 1**

**STREAMS:**

**TIME: 2 HOURS**

**DAY/DATE: MONDAY 20/09/2021**

**2.30 P.M – 4.30 P.M**

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### INSTRUCTIONS

- Answer question one and any other two questions

### QUESTION ONE (COMPULSORY) (30 MARKS)

- (a) Lead toxicity is targeted towards the memory and leaning processes of the brain and can be mediated through three processes. Outline these 3 processes. [3 marks]
- (b) Explain using chemical equations the step involved in lipid peroxidation. [5 marks]
- (c) Describe the 5 main ways by which proto -oncogenes can be converted to oncogenes. [5 marks]
- (d) (i) Explain the biological principle behind alcohol contraindication in patient taking antiprotozoal agent metronidazole. [2 marks]
- (ii) Explain the biochemical sequence of events leading to profound hypoglycaemia in an apparently healthy subject 36 hours after an alcoholic binge. [5 marks]
- (e) Highlight clinical symptoms of pellagram disease. [5 marks]
- (f) Explain the process of heavy metal induced carcinogenesis. [5 marks]

### QUESTION TWO (20 MARKS)

- (a) Describe the characteristics and roles of ideal tumor markers. [10 marks]
- (b) Discuss 5 biomarkers of ethanol abuse. [10 marks]

**QUESTION THREE (20 MARKS)**

- (a) Explain how proto -oncogenes, oncogenes and tumor suppressor genes modulate tumor formations. [10 marks]
- (b) Discuss the clinical significance of tumor markers. [10 marks]

**QUESTION FOUR ( 20 MARKS)**

- (a) Discuss different types of protein energy malnutrition (PEM) diseases. [10 marks]
- (b) Explain using a flow chart how the extrinsic and intrinsic coagulation pathways lead to the common pathway, and the coagulation factors involved in each. [10 marks]
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