

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATION

**RESIT/SUPPLEMENTARY / SPECIAL EXAMINATIONS EXAMINATION FOR THE
AWARD OF DEGREE IN BACHELOR OF SCIENCE (BIOCHEMISTRY)**

BIOC 416: MEDICAL BIOCHEMISTRY I

STREAMS: BIOC

TIME: 2 HOURS

DAY/DATE: MONDAY 3/5/2021

11.30 A.M - 1.30 P.M.

QUESTION ONE (30 Marks)

INSTRUCTIONS: Answer question *one* and *any other two* questions

Questions

1. Question one (Compulsory) (30 marks)

- a) Briefly discuss viral oncogenesis. (5 marks)
- b) State three characteristics and roles of ideal tumor markers (6 marks)
- c) Define hemostasis and explain four basic stages that occur following the loss of vascular integrity (4 marks)
- d) Explain the following biochemical features of ethanol abuse:
 - i. Disproportionate increase in serum GGT
 - ii. Hyperuricaemia
 - iii. Hyperlipidaemia (6 marks)
- e) Explain four neurotoxic injuries affecting the neuronal structure or function affected. (4 marks)
- f) (i) Explain the biochemical sequence of events leading to profound hypoglycaemia in an apparently healthy subject 36 hours after an alcoholic binge. (ii). How does the alcohol deterrent, antabuse (disulfiram), work? (5 marks)

Question Two (20 marks)

- a) Explain 5 biomarkers of ethanol abuse. (10 marks)
- b) There is a 3–4 fold variability in the rate of alcohol elimination by humans because of various genetic and environmental. Describe 5 factors modifying alcohol elimination rate. (10 marks)

Question Three (20 marks)

- a) Highlight 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) Describe the three mechanisms involved in hemostasis (10 marks)
 - b) Explain 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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