

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

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

BIOC 221: BASIC METABOLISM II

STREAMS: BSC BIOCHEMISTRY

TIME: 2 HOURS

DAY/DATE: TUESDAY 18/4/2023

2.30 P.M. – 4.30 P.M.

INSTRUCTIONS:

- Answer question ONE and any other Two questions
-

QUESTION ONE (30 MARKS)

- a) Outline three major sources of fatty acids in the cells. (3 marks)
- b) Highlight five features of the genetic code. (5 marks)
- c) Using examples, explain the difference between glucogenic and ketogenic amino acids. (4 marks)
- d) Explain how nitrogen that accrues in the degradation of amino acids in muscle tissue is transported to the liver. (6 marks)
- e) Explain how long chain fatty acids are transported to the mitochondria for β – oxidation. (4 marks)
- f) Describe the process of ketogenesis and ketolysis. (8 marks)

QUESTION TWO (20 MARKS)

- a) Describe the reactions in the urea cycle. (10 marks)
- b) Discuss the de novo synthesis of pyrimidine nucleotides. (10 marks)

QUESTION THREE (20 MARKS)

- a) Explain the cause, pathogenesis, diagnosis and management of phenylketonuria. (10 marks)
- b) Describe the degradation of purine nucleotides in the body. (10 marks)

QUESTION FOUR (20 MARKS)

- a) Describe degradation of aromatic amino acids in the body. (10 marks)
- b) Describe transcriptional regulation of cholesterol biosynthesis in eukaryotes. (10 marks)

.....