

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

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

BMET 316: METABOLISM OF LIPIDS AND NITROGENOUS COMPOUNDS

STREAMS: BSC (BMET)

TIME: 2 HOURS

DAY/DATE: THURSDAY 11/04/2019

2.30 PM – 4.30 PM

INSTRUCTIONS:

- (i) Answer Question ONE and any TWO questions**
- (ii) Do not write on the question paper**

QUESTION ONE: (30 Marks)

- (a) Using specific examples, explain the meaning of the following;
 - (i) Apolipoprotein (2 Marks)
 - (ii) Anabolic reaction (2 Marks)
 - (iii) Oxidative deamination (2 Marks)
- (b) Discuss de novo synthesis of the Pyrimidine nucleotides (7 marks)
- (c) Using structural formulae, discuss biosynthesis of Phenylalanine from chorismate in bacteria and plants. (6 marks)
- (d) Distinguish between essential and non-essential amino acids and explain why tyrosine is a non-essential amino acid. (6 marks)
- (e) List and describe disease conditions associated with defective aromatic amino acid metabolism. (5 marks)

QUESTION TWO: (20 Marks)

- (a) Discuss in details, the degradation of histidine in the body. (10 marks)

- (b) Discuss the mobilization of triacylglycerol stored in adipose tissue for energy production. (10 marks)

QUESTION THREE: (20 Marks)

Using illustrative diagrams, describe the following processes of lipid metabolism:

- (a) Ketogenesis. (10 marks)
(b) α -oxidation of fatty acids (10 marks)

QUESTION FOUR: (20 Marks)

- (a) Describe anatomical and biochemical basis of atherosclerosis. (10 marks)
(b) Explain mode of action of drugs used to treat atherosclerosis. (5 Marks)
(c) Using an illustration, describe the special transport mechanism of long fatty acids into the mitochondrial matrix? (5 marks)
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