

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

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

BMET 316: METABOLISM OF LIPIDS & NITROGENOUS COMPOUNDS

STREAMS: BMET

TIME: 2 HOURS

DAY/DATE: THURSDAY 08/07/2021

11.30 A.M – 1.30 P.M

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) Intermediary metabolism (2 Marks)
 - (ii) Transamination reaction (2 Marks)
 - (iii) Oxidative deamination (2 Marks)
- (b) Discuss de novo synthesis of the pyrimidine nucleotides (7 marks)
- (c) Outline biosynthesis of chorismate from PEP and Erythrose-4 phosphate in bacteria and plants. (7 marks)
- (d) Distinguish between essential and non-essential amino acids and explain why tyrosine is a non-essential amino acid. (5 marks)
- (e) List and describe five disease conditions associated with defective amino acid metabolism. (5 marks)

QUESTION TWO: (20 Marks)

- (a) Discuss in details the degradation of aromatic amino acids in the body. (12marks)
- (b) Discuss the mobilization of triacylglycerol stored in adipose tissue for energy production. (8 marks)

QUESTION THREE: (20 Marks)

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

- (a) Ketolysis. (12 marks)
- (b) ω -oxidation of fatty acids (8 marks)

QUESTION FOUR: (20 Marks)

- (a) Discuss the synthesis of lysine in plants and bacteria. (10 marks)

- (b) Describe β -Oxidation of 18-carbon fatty acid, hence calculate Kilojoules of energy produced.

(10 marks)
