CHUKA  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION, BACHELOR OF SCIENCE IN AGRICULTURE, BACHELOR OF SCIENCE IN FOOD SCIENCE AND TECHNOLOGY, BACHELOR OF SCIENCE IN ANIMAL SCIENCE, BACHELOR OF SCIENCE IN HORTICULTURE AND BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCES, BACHELOR OF SCIENCES IN ANIMAL PRODUCTS

BIOC 200: INTRODUCTORY BIOCHEMISTRY

STREAMS: BSc. AGED (Y2S2), BSc. AGRIC (Y2S2), BSc FOST (Y2S2), BSc. HORT (YSS2), BSc. ANSC (Y2S2) and ENSC (Y2S2) **TIME: 2 HOURS**

DAY/DATE: TUESDAY 18/4/2023 **11.30 A.M. – 1.30 P.M.**

INSTRUCTIONS:

Answer all the questions in Section A and any TWO questions in Section B
Do not write anything on the question paper.

SECTION A (30 marks) ANSWER ALL QUESTIONS

QUESTION ONE (COMPULSORY) 30 MARKS

a) Explain how to designate carbohydrates as D or L- forms in Fischer projection using any two specific examples. (4 marks)

b) Giving specific sources, explain the functions of vitamin B5 and its associated deficiencies. (5 marks)

c) Explain classifications of amino acids based on the composition of their side chain. (4 marks)

d) Define rancidity and outline preventive measures of rancidity. (4 marks)

e) Using illustrations, explain the lock and key hypothesis of enzyme-substrate interaction. (5 marks)

f) Using any specific examples, explain what are essential amino acids. (4 marks)

g) Differentiate between enantiomers and epimers giving examples. (4 marks)

SECTION B (40 MARKS); ANSWER TWO QUESTIONS

QUESTION TWO (20 MARKS)

a) Discuss the steps involved in Krebs cycle using relevant illustrations. (10 marks)

b) Discuss enzyme inhabition mechanism and its application in agriculture. (10 marks)

QUESTION THREE (20 MARKS)

a) Using illustrations, discuss the glyoxylate cycle. (10 marks)

b) Using illustrations, describe the payoff stage in the glycolytic pathway. (10 marks)

QUESTION FOUR (20 MARKS)

a) Using illustrations, discuss beta-oxidation of fatty acids and its importance. (10 marks)

b) Discuss steps involved in amino acids catabolism. (5 marks)

c) Explain the CO_2 assimilation in Calvin cycle and its significance in plants. (5 marks)

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