

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

RESIT/SPECIAL EXAMINATION

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR 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 ANIMAL SCIENCE IN HORTICULTURE AND BACHELOR OF SCIENCE IN ENVIROMENTAL SCIENCES

BIOC 200: INTRODUCTORY BIOCHEMISTRY

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

DAY/DATE: MONDAY 28/08/2023

2.30 P.M – 4.30 P.M.

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**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) With two specific examples, explain how to designate carbohydrates as D or L- forms in Fischer projection [4 marks]

(b) Giving specific sources, explain the functions of vitamin B5 and its associated deficiency [5 marks]

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

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

(e) With illustration, explain the lock and key hypothesis of enzyme-substrate interaction [5 marks]

(f) With two specific examples, explain what are essential amino acids [4 marks]

(g) Differentiate between enantiomer and epimers giving examples [4 marks]

**SECTION B (40 MARKS): ANSWER TWO QUESTIONS**

**QUESTION TWO(20 MARKS)**

(a) With illustration, discuss the steps involved in Krebs cycle [10 marks]

(b) Discuss enzyme inhibition mechanism and its application in agriculture [6 marks]

**QUESTION THREE (20 MARKS)**

(a) With illustration, discuss the glyoxylate cycle [10 marks]

(b) Describe the glycolytic pathway [10 marks]

**QUESTION FOUR (20 MARKS)**

(a) Discuss beta-oxidation of fatty acids [10 marks]

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

(c) Explain the CO<sub>2</sub> assimilation in Calvin cycle and its significance in plants [5 marks]

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