
CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

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

BIOC 200: BASIC BIOCHEMISTRY

STREAMS: BSC (AGED, FOST, HORT, ANSC, ENSC & AGRIC) HOURS

TIME: 2

DAY/DATE: TUESDAY 16/04/2019 P.M.

2.30 P.M. - 4.30

INSTRUCTIONS:

- **Answer question one and any other two questions**
- **Do not write on the question paper**

QUESTION ONE (30 MARKS)

- Explain how competitive and non-competitive inhibition are kinetically distinguishable. (5 marks)
- Illustrate peptide formation structurally. (3 marks)
- Demonstrate structural differences of the main purine bases. (4 marks)
- Illustrate structural differences between D-Ribose and D-Ribulose. (2 marks)
- Illustrate the formation of cyclic forms of D-fructose. (3 marks)
- What is the possible effect of hydrogen bonding in water? (4 marks)
- Explain how fatty acids are activated during β -oxidation. (4 marks)
- Illustrate the link reaction between glycolysis and the Krebs's cycle. (5 marks)

Marks)

QUESTION TWO (20 MARKS)

- a) Derive the Handerson-Hasselbalch Equation. (13 marks)
- b) Using structural illustrations outline amino acids with hydrophilic side groups. (7 marks)

QUESTION THREE (20 MARKS)

- a) Discuss classification and functions of lipids. (10 marks)
- b) Discuss levels of protein structure. (10 marks)

QUESTION FOUR (20 MARKS)

- a) Outline the conversion of glucose to pyruvate in the cytosol indicating all the enzymes and co-enzymes involved. (10 marks)
 - b) Discuss the light stage of photosynthesis, indicating major products of this process. (10 marks)
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