



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY

SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE
IN BIOLOGICAL SCIENCES**

2ND YEAR 1ST SEMESTER 2017/2018 ACADEMIC YEAR

MAIN CAMPUS - REGULAR

COURSE CODE: SBI 3216
COURSE TITLE: BIOCHEMISTRY 1
EXAM VENUE: STREAM: (BSC. BIO)
DATE: EXAM SESSION:
TIME: 2 HOURS

Instructions:

- 1. Answer ALL questions in Section A and Any two questions in Section B**
 - 2. Candidates are advised not to write on question paper**
 - 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**
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SECTION A: SHORT ANSWER QUESTIONS(30 MARKS)

1. Define the term anomer and explain the difference between α and β *anomers*. (3 Marks)
2. Identify and draw the structures of three common types of monosaccharide derivatives. (3 Marks)
3. Draw the structure of Alanyltyrosylglycine and identify the position of the peptide linkage. (3 Marks)
4. Describe the first three stages of light reactions. (3 Marks)
5. Draw the structure of a nucleotide having nitrogenous base thymine. Indicate the position of glycoside and ester bonds. (3 Marks)
6. Draw the structure of a Triacylglyceride and describe how its formed. (3 Marks)
7. Write projection formulas for (a) an L-aldotriose, (b) a D-ketotetrose, and (c) a D-aldopentose. (3 Marks)
8. Using a well labeled diagram, describe the ionization state of amino acids as a function of pH. (3 Marks)
9. Describe the process of glucoregulation identifying the main enzymes involved. (3 Marks)
10. Identify the three parts of Calvin cycle. (3 Marks)

SECTION B: ESSAY QUESTIONS (40 MARKS).

11. Discuss the classification and structure of amino acids (20 Marks)
12. Describe the glycolysis pathway (20 Marks)
13. Describe the Tricarboxylic Acid Cycle and outline its importance (20 Marks)
14. Discuss lipid metabolism under the following sub-topics. Identify the enzymes involved.
 - a) Digestion (15 marks)
 - b) Absorption (5 Marks)