



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY
SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF BACHELOR
OF SCIENCE IN BIOLOGICAL SCIENCES
SECOND YEAR FIRST SEMESTER 2018/2019 ACADEMIC YEAR
MAIN CAMPUS - REGULAR

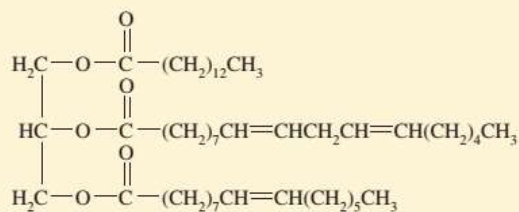
COURSE CODE: SBI 3215
COURSE TITLE: BIOCHEMISTRY 1
EXAM VENUE: STREAM: (BSC)
DATE: EXAM SESSION:
TIME: 2 HOURS

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. Draw the structures of the following amino acids; Glycine, phenylalanine and aspartic acid (3 marks)
2. Draw and label DNA nucleotide structure in terms of sugar (deoxyribose), base (adenine) and phosphate. Indicate the position of glycoside and ester bonds (3 Marks)
3. Write projection formulas for (a) an L-aldotriose, (b) a D-ketotetrose, and (c) a D-aldopentose. (3Marks)
4. Write the structure of tripeptide Ala-Ser-Gly and give its full name. (3 Marks)
5. Name the fatty acids used in the following triacylglycerol, and indicate which one could be classified as an ω -6 fatty acid: (3Marks)



(3Marks)

6. Define the term **anomer** and explain the difference between α and β **anomers**. (3 Marks)
7. Draw the structures of D-galactose, L-glucose and D-fructose monosaccharide derivatives (3 Marks)
8. Describe the first three stages of light reactions (3 Marks)
9. Describe the Synthesis of Triacylglycerols (3 Marks)
10. Using a well labeled diagram, describe the ionization state of amino acids as a function of pH (3 Marks)

SECTION B ESSAY QUESTIONS (40 MARKS).

11. Describe the TCA Cycle. (20 Marks)
12. Using appropriate structures, describe the various ways in which amino acids are classified. (20 Marks)
13. Describe the glycolysis pathway (20 Marks)
14. Discuss lipid metabolism under the following sub-topics. Identify the enzymes involved.
 - a) Digestion (15 marks)
 - b) Absorption (5 Marks)