



*(University of Choice)*

**MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS**

**MAIN EXAM**

**2021/2022 ACADEMIC YEAR**

**FIRST YEAR SECOND SEMESTER EXAMINATION**

**FOR THE DEGREE BACHELOR OF SCIENCE IN EPIDEMIOLOGY AND  
BIOSTATISTICS AND COMMUNITY HEALTH AND DEVELOPMENT**

**COURSE CODE: HEM 124 & HCD 126**

**COURSE TITLE: BIOCHEMISTRY**

**DATE: 22/04/2022**

**TIME: 8.00-10.00 AM**

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**INSTRUCTIONS TO CANDIDATES:**

**THIS PAPER CONSISTS OF TWO SECTIONS; SECTIONS A AND B. Answer all the questions in Section A and any Two in Section B**

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

Paper Consists of 2 Printed Pages. Please Turn Over.

**SECTION A: ATTEMPT ALL THE QUESTIONS IN THIS SESSION (40 MARKS)**

1. Define the following terms (4 marks)
  - a. Amphiphilic:
  - b. Polarity:
  - c. Biochemistry:
  - d. Saponifiable lipids:
2. What are the **FOUR** functions of the cell membrane (4 marks)
3. Using a structure of a monosaccharide note down the difference between an aldose and a ketone (4 marks)
4. Using 2 examples for each differentiate between Essential and Non-Essential Amino acids? (4 marks)
5. What are the properties of hydrophilic hormones receptors? (4 marks)
6. Draw a fatty acid with the following prefix 15 ( $\Delta^{6, 12}$ ), Trans Fatty Acid 14 ( $\Delta^{3, 10}$ )? (4 marks)
7. Using examples note down ways in which hormones can be classified based on chemical structure (4 marks)
8. List down some of the roles of nucleotides in cells (4 marks)
9. Name types of bond likely to be found in a tertiary structure of a protein? (4 marks)
10. Give **FOUR** physical properties of fatty acids (4 marks)

**SECTION B: ANSWER ANY OF THE TWO QUESTIONS IN THIS SESSION (30 MARKS)**

1. a) Discuss the processes of enzyme inhibition? (5 marks)  
b) Discuss ways in which enzymes are classified? (10 marks)
  
2. Discuss the **FIVE** classifications of amino acids based on polarity? (15 marks)
  
3. a) Name **FIVE** ways in which glycolysis is regulated (5 marks)  
b) What are the steps involved in glucose breakdown? (10 marks)

