



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)  
MAIN CAMPUS**

**2021/2022 ACADEMIC YEAR  
FIRST YEAR SECOND SEMESTER EXAMINATIONS  
FOR THE DEGREE  
OF  
BACHELOR OF SCIENCE (CHEMISTRY) & BACHELOR OF  
EDUCATION SCIENCE**

**COURSE CODE: SCH 131**

**COURSE TITLE: ORGANIC II CHEMISTRY**

**DATE: TUESDAY 26<sup>TH</sup> APRIL, 2022      TIME: 8.00 AM- 10.00 AM**

---

INSTRUCTIONS TO CANDIDATES

Total Marks: 70

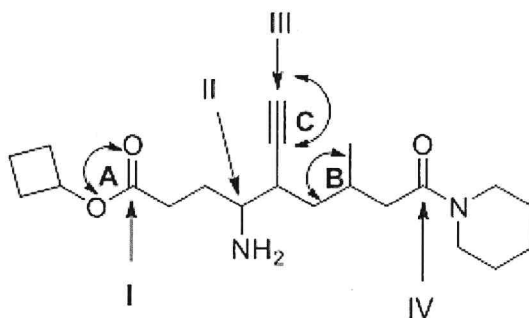
Answer all the Questions

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over.

Q1. Answer the following questions based on the skeletal structure give below:



a) Identify and name the functional groups for the carbons labelled I - IV.

b) What is the hybridizations of each of the carbons labelled I - IV.

c) Give the bond angles labeled A – C.

[11 Marks]

d) Draw using s and p orbital's, hybridized structures for a) methane b) ethene. [5mks]

ii) For each of the above identify the type of hybridization on each carbon and give the sum of the sigma and the pie bond observed. [4mks]

iii) Name and draw the type of geometry in each hybridization above [4mks]

Q2. Answer the following

Draw a Lewis structure for each of the following compounds, assign formal charges where applicable. Show your steps. [4 Marks]

a) HNNH

b) HNO<sub>3</sub>

Q3 Answer the following

I. Classify the following reactions as addition, elimination, substitution or rearrangement. [4Marks]