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**W1-2-60-1-6**

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2019/2020**

**FIRST YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMMUNITY HEALTH**

**SCH 2108: ORGANIC CHEMISTRY**

**DATE: APRIL, 2020 TIME: 2 HOURS**

INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

**QUESTION ONE: 48 MARKS**

a. Draw the structure of the following organic compounds. (4 marks)

 i. 2- chlorobenzene

 ii. 2-Iodohexane

 iii. Nitobenzoic acid

 iv. Methy/pentane

b. Give the name of the following compounds. (4 marks)

 i.

 ii. 

 iii. 

 iv. 

c. Give the following mechanisms for the following compounds:-

 i.

 ii.

d. Explain the difference in boiling points of the following compounds. (8 marks)

 i. Butanoic acid

 ii. Butanal

 iii. Butane

 iv. Butanol

e. i. Describe how one can differentiate between the following compounds

 chemically. Give two chemical tests. (6 marks)

 1.

 2.

 ii. Define the term functional group. (2 marks)

f. Draw structures to show the functional groups in the following compounds. (8 marks)

 i. Amines

 ii. Esssters

 iii. Ethers

 iv. Alkanols

 v. Alkyhalides

 vi. Akanal

 vii. Alkynes

 viii. Akanes

 ix. Alkanoic acids

**QUESTION TWO: 22 MARKS**

a. Define the term hybridization in hydrocarbons. (2 marks)

b. Using examples illustrate the following hybridization.

 i. SP

 ii. SP2

 iii. SP3

c. Using an example define stereoisomers. (6 marks)

**QUESTION THREE: 22 MARKS**

a. Benzene can be converted into amine by the two step synthens shown below.

The mechanism of Reachin 1 involves attack by an electrophile. Give the reagents used to produce the electrophile needed in reactin 1. Write an equation showing the formation of this electrophile. Outline a mechanism for the reaction of the electrophile with benzene. (12 marks)

b. State six physical properties. Of alkanes. (6 marks)

c. State four characteristics fo the homologous series. (4 marks)