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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)