

KABARAK



UNIVERSITY

UNIVERSITY EXAMINATIONS

2008/2009 ACADEMIC YEAR

FOR THE CERTIFICATE OF PRE- UNIVERSITY CHEMISTRY

COURSE CODE: PCHEM 021

**COURSE TITLE: INTRODUCTION TO ORGANIC
CHEMISTRY**

STREAM: SEMESTER TWO

DAY: TUESDAY

TIME: 9.00 – 11.00 A.M.

DATE: 11/08/2009

INSTRUCTIONS:

Attempt all questions.

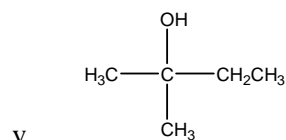
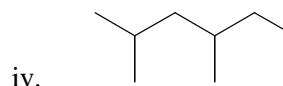
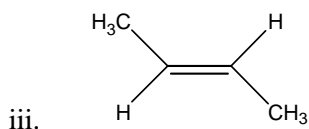
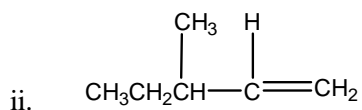
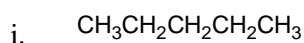
PLEASE TURN OVER

QUESTION ONE (20 MARKS)

- a) Define the following terms.
- Functional group
 - Hydrocarbons
 - Isomers
- (6marks)
- b) Differentiate between the following;
- Saturated hydrocarbons and unsaturated hydrocarbons
 - Cyclic and acyclic hydrocarbons
- (4marks)
- c) Enumerate three unique properties of carbon that enables it form a wide variety of compounds unlike other atoms.
- (2marks)
- d) Draw the possible isomers of C_6H_{14} .
- (8marks)

QUESTION TWO (20 MARKS)

- a) Assign the IUPAC names to the following structures.



- b) Give structures to the following IUPAC names of compounds.

- Propyne
- 2-methylpentane
- Trichloroethene
- 2-methyl-2-butene
- 1,3,5-hexatriene

(10marks)

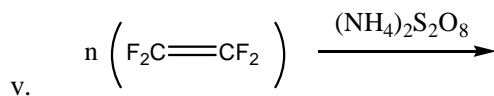
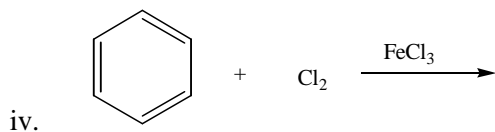
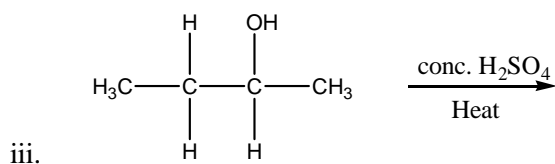
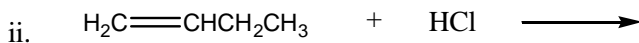
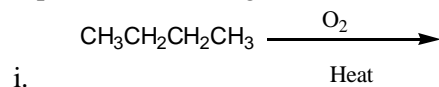
(10marks)

QUESTION THREE (15 MARKS)

- a) Explain the following observations
- Alcohols are more soluble in water than corresponding alkanes. (3marks)
 - The boiling points of branched alkanes are lower than those of corresponding straight chain alkanes. (2marks)
 - Alkenes are more reactive than alkanes. (2marks)
- b) Explain the nature of the C=C double bond. (4marks)
- c) Give the functional groups corresponding to the following groups of organic compounds.
- Ketones
 - Esters
 - Carboxylic acids
 - Ethers (4marks)

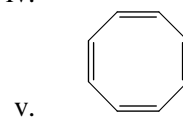
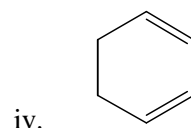
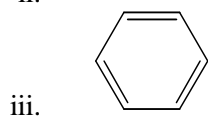
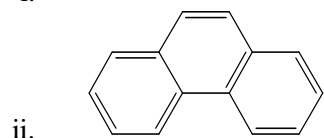
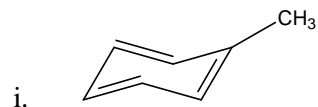
QUESTION FOUR (15MARKS)

- a) Complete the following reactions.



(10marks)

b) Identify which of the following compounds are aromatic and non-aromatic out of the following structures.



(5marks)