



**TECHNICAL UNIVERSITY OF MOMBASA**

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

**UNIVERSITY EXAMINATION FOR:**

**BACHELOR OF SCIENCE IN MARINE RESOURCES**

**ACH.4118: ORGANIC CHEMISTRY**

**END OF SEMESTER EXAMINATION**

**SERIES: APRIL 2016**

**TIME: 2 HOURS**

**DATE: Pick Date May 2016**

**Instructions to Candidates**

You should have the following for this examination

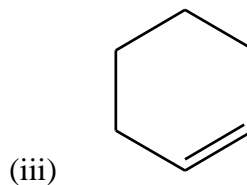
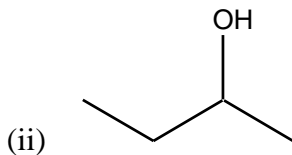
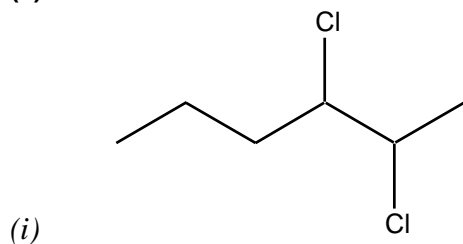
-Answer Booklet, examination pass and student ID

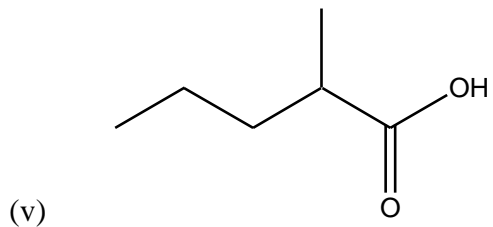
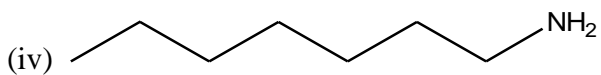
This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

**Question ONE**

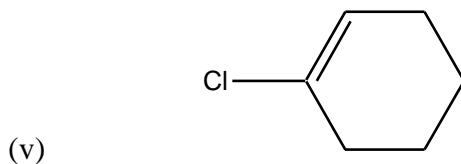
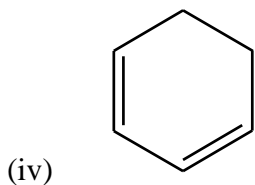
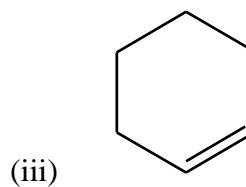
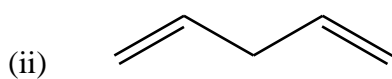
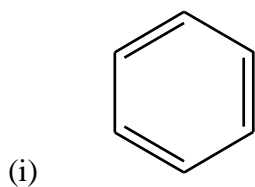
(a) Give IUPAC name to the following compounds





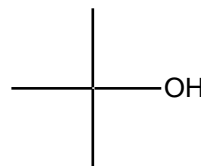
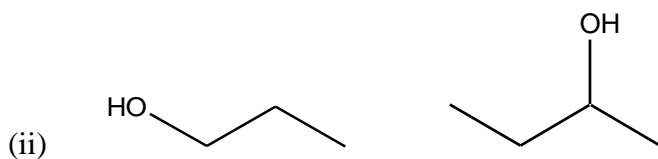
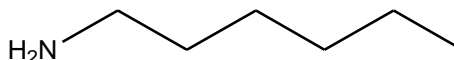
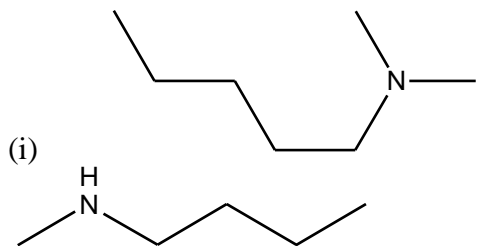
(10mks)

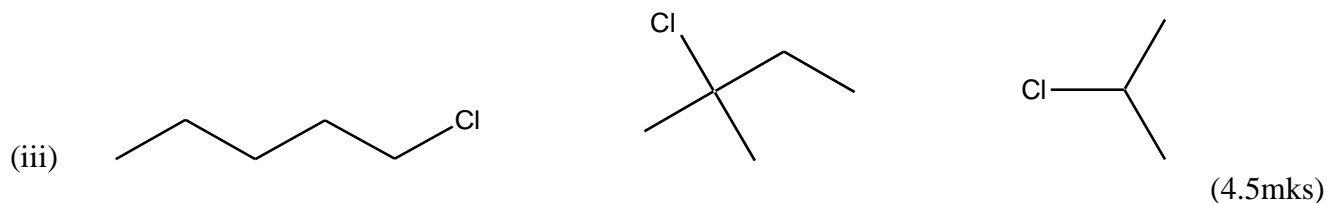
**(b)** Calculate the degree of unsaturation in the following compounds



(10mks)

**(c)** Classify the following compounds either as primary, secondary or tertiary amines, alcohols or alkyl halides or.



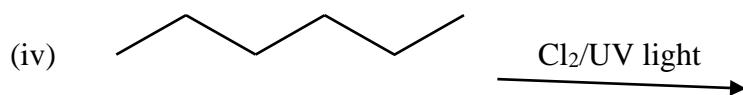
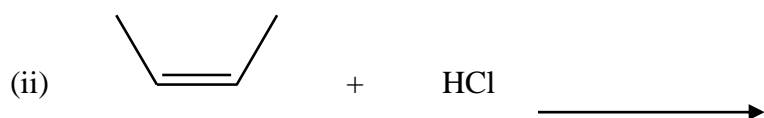
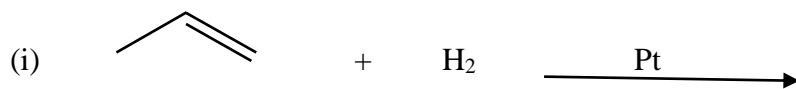


(d) Explain the following observations citing an example in each case

- (i) Propene will decolorized bromine water while propane will not (2mks)
- (ii) Alkanes are saturated hydrocarbons while alkenes are not (2mks)
- (iii) Alcohols are soluble in water while alkanes are insoluble in water (1.5mks)

### Question TWO

(a) Draw the major products in each of the reactions below



(b) Explain the following citing an example in each case

- (i) Thermal cracking (3mks)
- (ii) Catalytic cracking (3mks)
- (iii) Markovnikov's rule (3mks)

(iv) Hydration

(1mks)

### Question THREE

(a) Outline the

(i) Physical properties of alkanes

(10mks)

(ii) Physical properties of amines

(10mks)

### Question FOUR

(a) Outline TWO methods of preparation of the following

(i) Alcohols

(5mks)

(ii) Alkenes

(5mks)

(iii) Alkynes

(5mks)

(iv) Amines

(5mks)

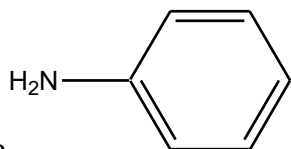
### Question FIVE

(a) State FIVE properties of benzene

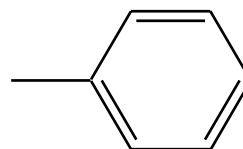
(5mks)

(b) Name the following compounds

(i) Aniline

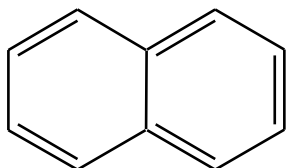


(ii)

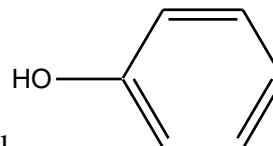


Toluene

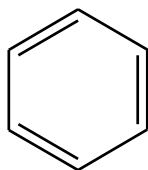
(iii) Naphthalene



(iv) Phenol



(v)



(10mks)

(c) State any FIVE applications of alkenes

(5mks)