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: APRIL2016

TIME:2HOURS

DATE: Pick DateMay2016

Instructions to Candidates

You should have the following for this examination

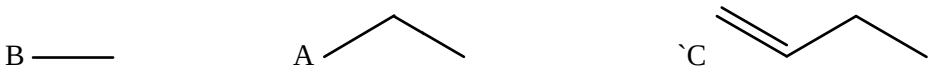
-Answer Booklet, examination pass and student ID

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

Do not write on the question paper.

Question ONE

(a) Below are compounds A, B and Compound B is ethane.



(i) Name A and C (2mks

(ii) If the formula of ethane is C_2H_6 give the formula of A and C. (2mks

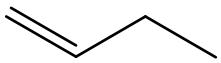
(iii) State the general formula of substances A and B (2mk

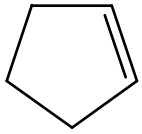
(iv) Compound C is an unsaturated hydrocarbon. Explain (2mks)

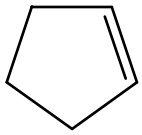
(v) When substance C is bubbled in bromine water, color change is seen. State color *changes from*-------

----------*to* --------- ---------- - (2mks)

(b) Predict the major organic product(s) of each of the following reactions.

(i)  H_2SO_4, H_2O (1mks)

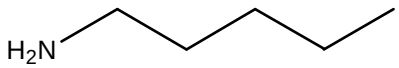
(ii)  H_2/Ni (1mks)

(iii)  Cl_2/ H_2O (1mks)

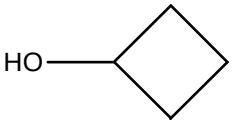
(iv) H_2/Lindlars (1mks)

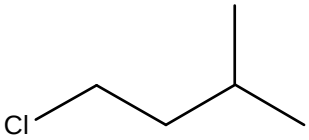
(v) Catalyst, Li, Liquid NH_3 (1mks)

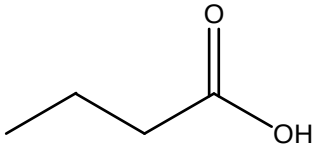
(c) Name the following organic compounds

(i) 

(ii) 

(iii) 

(iv) 

(v) 

(10 mks)

(d) On analysis, a compound with molar mass 120 g/mol was found to contain 12.0 g of carbon, 2.0 g of hydrogen and 16.0 g of oxygen. What is the molecular formula of the compound?

(5mks)

Question TWO

(a) Explain the following citing an example in each case.

(i) Markovnikoff"s rule (3mks)

(ii) Cracking (3mks)

(iii) Oxidation of alkanes (3mks)

(iv) Catalytic hydrogenation of alkenes (3mks)

(v) Free radical substitution of alkanes (8mks)

Question THREE

(a) Outline the mechanism for the

(i) Halogenation of 2-butyne to 2,2,3,3-tetrachlorobutane (10mks)

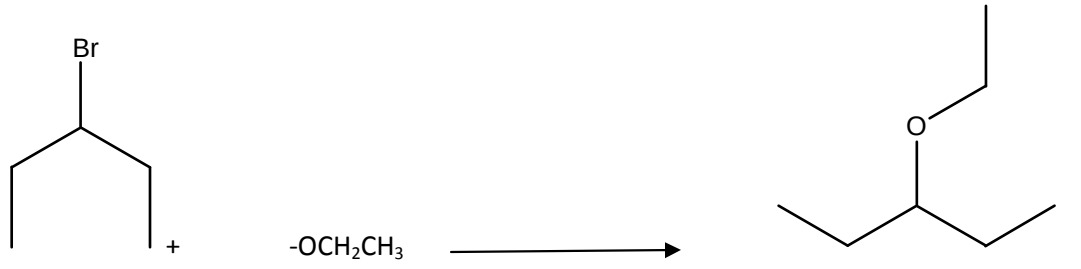
(ii) Hydration of 2-butyne to and subsequent tautomerization to a ketone (10mks)

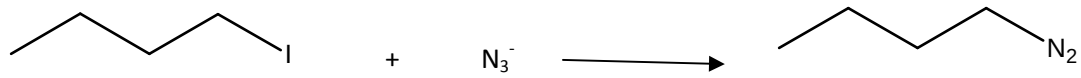
(i)

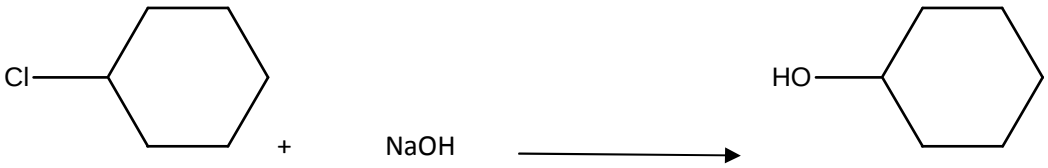
Question FOUR

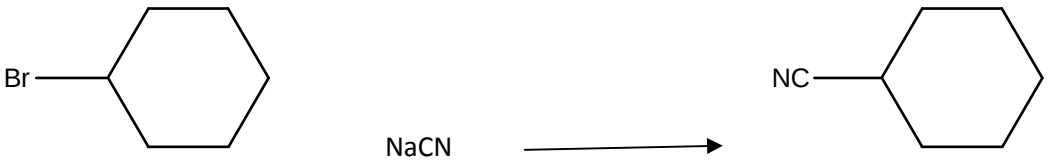
(a) Outline any FIVE physical properties of amines (10mks)

(b) Identify the nucleophile and the leaving group and draw the products of each reaction

(i) 

(ii) 

(iii) 

(iv) 

(10mks)

Question FIVE

State TWO applications of of each class of compounds below citing an example in each case

(i)	Amines	(4mks)
(ii)	Aromatic compounds	(4mks)
(iii)	Alkynes	(4mks)
(iv)	Alcohols	(4mks)
(v)	Carboxylic acids	(4mks)