Seat No.:---------- *Enrolment No.:----------*

UKA TARSADIA UNIVERSITY

Maliba Pharmacy College

B.Pharm 2nd Semester Internal Examination 2012

030020202- Organic Chemistry-I

Time: 1:30 to 4:30 p.m. Max. Marks: **70**

Date: 17/04/2012

Instructions:

- Question no. **1 is compulsory.**
- From Q.2 to Q.7 attempt any **four** questions.
- Make suitable assumption whenever necessary.
- Figures to the right indicate full marks.

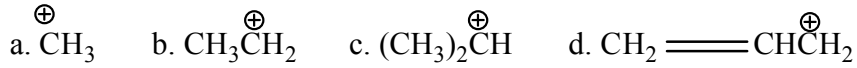
Q.1

A) Answer the following: **(ANY SIX)** 06

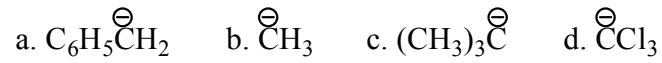
1) Define carbocation and give example.
2) Define free radical and give example.
3) Define carbenes and draw structure for singlet and triplet carbenes.
4) Define Inductive effect.
5) How will you convert enantiomer into diastereomer?
6) Cis isomers have high boiling point and low melting point than trans isomers. Why?
7) Write mechanism for resolution of racemic mixtures.
8) Some diastereomers are mesomers also. Why?

B) Explain the following: **(ANY FOUR)** 08

1) Differentiate between carbocation and carbanion
2) Which of the following carbonium ions will be most stable? Why?



3) Which of the following is least stable carbanion? Why?



4) Octane has melting point -56°c while 2,2,3,3-tetramethyl butane has 101°c? Why?
5) Why HCl and HI donot give anti markovnikov product in the presence of peroxides?
6) Define following:
   a. Pauli's exclusion principle
   b. Hund's rule

Q.2

A) Write methods for preparation of free radicals. 04

B) Give reactions for carbanion. 05

C) Explain structure, properties and stability issues of carbocation. 05

Q.3

A) Explain following: 04

a. n-octane turns red litmus to blue. Why?

b. Ethanol is soluble in water but ethane is not. Why?

B) Write methods of preparation of (**ANY TWO**): 05

a. Carbenes

b. Benzyne

c. Carbocation

C) Classify structural isomers giving example of each type. 05

Q.4

A) Define following by giving examples: 04

a. Racemic Modification

b. R-S Configuration

B) Define by giving examples: 05

a. Conformational Isomerism

b. E-Z Isomerism

C) Explain how mechanisms (e.g., SN1, SN2 and free radical, etc.,) affect reaction involving Chiral compounds. 05

Q.5

A) Explain difference between following: **(ANY TWO)** 04

a. Intermolecular forces and Intramolecular forces

b. Covalent bond and Ionic bond

c. SN1 and SN2

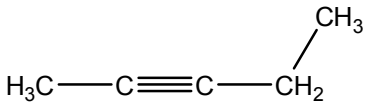
B) Explain molecular orbital theory in 1,3-butadiene molecule. 05

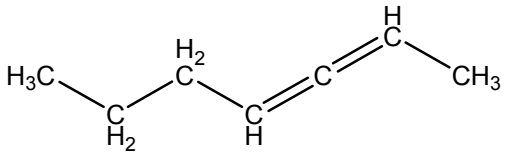
C) What is hybridisation? Write a brief note on sp^3 hybridisation in methane molecule. 05

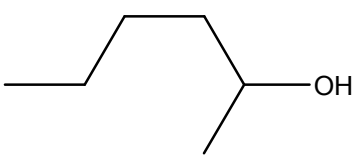
Q.6

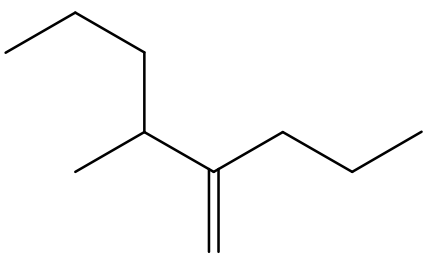
A) Explain mechanism for formation of benzyl chloride from toluene and chlorine by photo - chlorination. 05

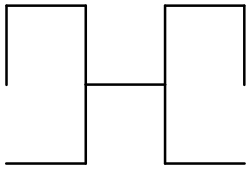
B) Give IUPAC name of following compound: 05

a. 

b. 

c. 

d. 

e. 

C) Explain following in brief:

a. Wurtz synthesis 03

b. Kolbe's synthesis 02

Q.7

A) Give orbit structure of following compound: **(ANY TWO)** 04

a. Ethane

b. Ethene

c. Ethyne

B) Complete the following reaction and explain with its mechanism: 05

Propene + HBr $\longrightarrow$

C) Complete the following reaction: 05

a. $CH_3\overset{\ominus}{C}OO\overset{\oplus}{N}a + H_2O \longrightarrow$

b. $CH_3CH_2CH_2Br + Li(CH_3)_2Cu \longrightarrow$

c. n-Hexane $\longrightarrow$ Benzene + $4H_2$

d. $CH_3CH{=}CH_2 +$ Hot $KMnO_4 \longrightarrow$

e. $CH_3CH{=}CH_2 +$ Cold $KMnO_4 \longrightarrow$