Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2016

Subject Name : Organic Chemistry-II

Subject Code : 4SC06CHC2 Branch: B.Sc.(Chemistry)

Semester : 6 Date : 09/05/2016 Time : 02:30 To 05:30 Marks : 70

Instructions:

(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Q-1 **Attempt the following questions:** **(14)**

a) Give the general formula of aldehydes and ketones and state the type of hybridization of carbonyl carbon atom. **1**

b) What are hydrocarbons? Give the classification of hydrocarbons on the basis of structure. **1**

c) Complete the following reaction: **1**

d) Which product is obtained by the oxidation of primary alcohols? State with example. **1**

e) What is cross Cannizaro reaction? **1**

f) Draw the structure of *p*-dinitrobenzene and *m*-nitrotoluene. **1**

g) Give IUPAC nomenclature of the following: **1**

h) Give the resonance structures of chlorobenzene **1**

i) Give any two reasons for low reactivity of aryl and vinyl halides towards nucleophilic substitution reactions. **1**

j) What is Reimer-Tiemann reaction? **1**

k) Give the structure and names of all possible isomeric dibromobenzenes. **1**

l) What is energy of activation? **1**

m) Complete the following reaction. **1**

n) Define inhibitors. **1**

Attempt any four questions from Q-2 to Q-8

Q-2		**Attempt all questions**	**(14)**
	a.	Give any 3 methods of prepartation of aryl halides.	**6**
	b.	Explain Aldol condensation with its mechanism.	**5**
	c.	Why aldehydes are generally more reactive than ketones in nucleophilic addition reactions?	**3**
Q-3		**Attempt all questions**	**(14)**
	a.	Explain the addition of cyanide to ketones and aldehydes.	**7**
	b.	Explain Cannizaro reaction with its mechanism.	**7**
Q-4		**Attempt all questions**	**(14)**
	a.	Explain Kekule structure of benzene. Also discuss the orbital picture of benzene.	**7**
	b.	What is Huckel's $(4n+2)\pi$ rule? Discuss naphthalene as polynuclear aromatic hydrocarbon.	**7**
Q-5		**Attempt all questions**	**(14)**
	a.	Explain elimination-addition mechanism for nucleophilic aromatic substitution via Benzyne.	**7**
	b.	Explain bimolecular displacement for nucleophilic aromatic substitution in aryl halides with mechanism.	**7**
Q-6		**Attempt all questions**	**(14)**
	a.	Give the preparation of aldehydes and ketones.	**7**
	b.	Explain reduction reactions of carbonyl group in ketones. Also give the formation of acetals.	**7**
Q-7		**Attempt all questions**	**(14)**
	a.	Give the reactions of methane. Explain chain reaction mechanism for chlorination of methane.	**6**
	b.	Explain the structure of methyl radical.	**4**
	c.	Give the source, structure and physical properties of methane.	**4**
Q-8		**Attempt all questions**	**(14)**
	a.	Explain Dumas method and Kjeldahl's method for quantitative analysis of nitrogen.	**6**
	b.	Discuss the stability of benzene ring. Give the chemical reactions of benzene.	**5**
	c.	Complete the following reactions:	**3**