



# QUAID-I-AZAM UNIVERSITY ISLAMABAD

B.Sc. Annual Examinations--2013  
(PART-I)

Roll No: \_\_\_\_\_

SUBJECT: **Chemistry**

PAPER: **C** (Organic Chemistry)

Time Allowed: **3 Hours**

July 3, 2013

Max Marks: **60**

## Section-I

**Note: Note: Attempt any FOUR questions from Section-I. All the questions carry equal marks.**

### Q. No.1

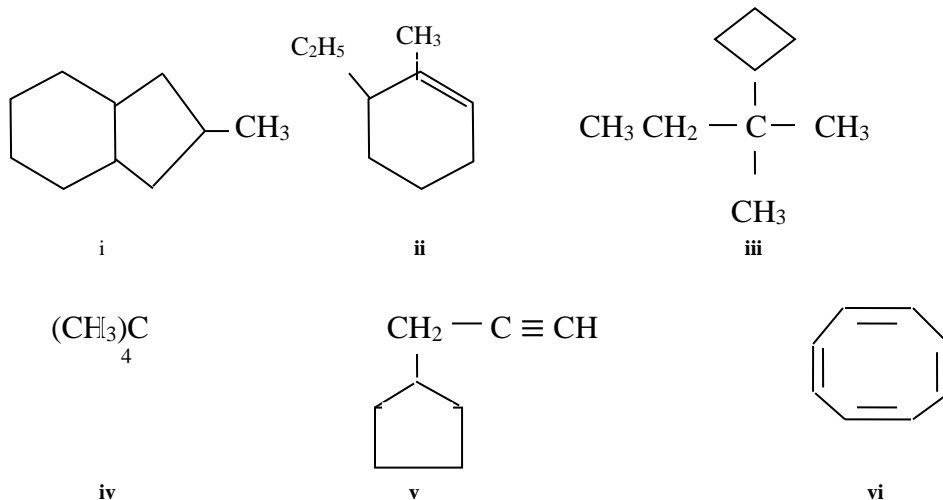
(a) Explain why? (2x3=6)

- Iodoacetic acid is about 50 times more acidic than Acetic acid.
- 2,6,N,N-Tetramethyl Aniline is a stronger base than N,N-Dimethyl Aniline.
- Is*-Butylene is more stable than 1-Butene.

(b) Explain the phenomenon of Ketoenol Tautomerism. What other systems show Tautomersim? (6)

### Q. No.2

(a) Write IUPAC names of the following compounds: (1x6=6)



(b) Draw structures of the following: (1x6=6)

- Acetophenone.
- Maleic Acid
- p- Nitro Acetanilide
- $\beta$ - Naphthol.
- Furan
- Lactic Acid.

### Q. No.3

(a) Describe the following: (3x2=6)

- The Wittig reaction.
- The Diels-Alder reaction.

(b) Explain Alkylation of the Terminal Alkynes. What problems are encountered when tertiary instead of primary Alkyl Halides? Support your answer with chemical reactions. (6)

### Q. No.4

(a) Write notes on: (3x2=6)

- Markonikoff's rule
- Peroxide effect

(b) What is halogenation of alkanes? Compare the reactivity of chlorine and bromine with *Is*-Butane. (6)

**Q. No.5**

- (a) Explain the extra stability of Cyclopentadienyl Anion and Cycloheptatrienyl cation (Tropylium cation). (6)
- (b) Describe the Friedel-Craft reaction. Explain the limitations of Alkylation reactions and the advantages of Acylation reactions. (6)

**Q. No.6**

- (a) What is Grignard's reagent? How is it prepared? Write the reactions of Ethyl Magnesium Bromide with
- Formaldehyde
  - Acetaldehyde
  - Acetone
  - Ethyl Formate (2+4=6)
- (b) Explain in detail the Elimination reactions in Alkyl Halides and the orientation of double bond in a substrate. (6)

**Section-II (Short Questions)**

**Q. No.7** Attempt any six parts. (2x6=12)

- The Wurtz reaction is not suitable for tertiary Alkyl Halides. Why?
- Why is 2-Butene more stable than 1-Butene?
- The solubility of o-Nitrophenol as compared to its para isomer. Explain the reason.
- Explain why is Phenol more acidic than Ethanol?
- Why Detergents are considered superior than Soap?
- What is the reason that Aniline is more reactive towards electrophilic substitution reactions than Nitrobenzene?
- Acetanilide is less reactive than Aniline. Why?
- Why is the Hydrolysis of Methyl chloride catalyzed by the addition of sodium iodide?
- $(\text{CH}_3)_3\text{CCH}_2\text{Br}$  is notoriously slow to both  $\text{S}_{\text{N}}1$  and  $\text{S}_{\text{N}}2$  reactions. Explain.
- Complete the following.
  - $\text{C}_2\text{H}_5\text{Br} + \text{Na} \longrightarrow$
  - $$\begin{array}{c} \text{CH}_2 - \text{C} = \text{CH}_2 \\ | \quad | \\ \text{CH}_2 - \text{CH}_2 \end{array} + \text{HBr} \longrightarrow$$