

**February 2009**

**[KU 702]**

**Sub. Code: 4162**

**FIRST B.PHARM. DEGREE EXAMINATION**

**(Revised Regulations)**

**Candidates Admitted upto 2003-04**

**Paper II – PHARMACEUTICAL ORGANIC CHEMISTRY**

***Q.P. Code : 564162***

**Time : Three hours**

**Maximum : 90 marks**

**I. Essay Questions : Answer any TWO questions (2 x 20 = 40)**

1. a) Explain SN1 and SN2 reactions of alkyl halides and what are the factors influencing the mechanism. (7)  
b) Distinguish the features of the two SN1 and SN2 mechanism. (7)  
c) Write note about Elimination Vs substitution. (6)
2. a) Enumerate and discuss various methods available for the preparation of Alkenes. (10)  
b) Give the properties of alkenes. (10)
3. a) What are amines? How are they classified? Discuss the general methods of preparations and properties of Aliphatic amines. (15)  
b) Write five distinguishing tests between primary, secondary and tertiary amines. (5)

**II. Write Short Notes : Answer any EIGHT questions (8 x 5 = 40)**

1. Explain aldol condensation reaction of aldehyde and ketones.
2. Define diazotization: Write the method of preparation of Benzene diazonium chloride.
3. Write the method of preparation of ethers by Williamson's synthesis.
4. Give a brief account of large scale preparation of acetic acid.
5. Write any two methods of preparations of salicylic acid and its uses.
6. Write the preparation, properties and uses of Benzyl alcohol.
7. How chloroform is prepared industrially? Write the properties, analytical test and uses of chloroform.
8. Explain Friedel – Crafts reaction with mechanism and its limitations.
9. What is hyperconjugation? Explain it and the usefulness of this concept.
10. Explain Hydrogenbond and the properties related with it.

**III. Short Answers: Answer any FIVE questions**

**(5 x 2 = 10)**

1. Explain Bond fission.
2. Write the preparation of lactic acid from acetaldehyde.
3. Why aldehydes and ketones do not undergo nucleophilic substitution?.
4. Explain schiemann reaction: What is its utility?
5. Give IUPAC name of the following compounds.
  - a)  $\text{CH}_3 - \text{C} = \text{C} - \text{CH}_3$ ,
  - b)  $\text{CH}_2 = \text{CH} - \text{CH} = \text{CH}_2$
  - c)  $\text{CH}_3 - \underset{\substack{| \\ \text{BR}}}{\text{CH}} - \underset{\substack{| \\ \text{CL}}}{\text{CH}} - \text{CH}_2\text{OH}$ .
  - d)  $\text{H} - \text{CHO}$
6. Write structures of the following compounds: Whose IUPAC names are given under.
  - a) 1, 5 – hexadiene.
  - b) 4 – methyl – 2 - pentyne.
  - c) 1 - methyl – 2 – pentene - 1-01
  - d) 2 – Brome butanoyl chloride.
7. How will you convert primary alcohol into secondary alcohol? – Explain.

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**Time : Three hours**

**Maximum : 90 marks**

**I. Essay Questions : Answer any TWO questions (2 x 20 = 40)**

1. a) Explain the  $E_2$  mechanism along with evidences. (12)  
b) Write in detail about hydrogen bonding by giving examples. (8)
2. a) Explain the aromatic character of Benzene. (8)  
b) What are the electrophilic substitution reactions of benzene? (12)
3. a) Explain the mechanism of free radical substitution reactions with examples. (10)  
b) Write the general methods of preparation of alkyl halides and aryl halides. (10)

**II. Write Short Notes : Answer any EIGHT questions (8 x 5 = 40)**

1. What are the different types of alcohols? Explain how to distinguish between them.

2. Give the IUPAC names of the following
  - a) 
$$\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3\text{CH}_2 - \text{C} - \text{CHCH}_3 \\ | \quad | \\ \text{Cl} \quad \text{Cl} \end{array}$$
  - b) 
$$\begin{array}{c} \text{CH}_3 \quad \quad \text{CH}_3 \\ | \quad \quad | \\ \text{CH}_3\text{CH}_2\text{CHCH}_2\text{CH} - \text{CH} - \text{CH}_3 \\ | \\ \text{CH}_2\text{CH}_2\text{CH}_3 \end{array}$$
  - c)  $(\text{CH}_3)_2\text{CHCH}_2\text{CH}_2\text{CH}_3$
  - d) 
$$\begin{array}{c} \text{CH}_3\text{CH}_2\text{CHCH}_2\text{CHCH}_2\text{CH}_3 \\ | \quad \quad | \\ \text{CH}_3 \quad \quad \text{C}_2\text{H}_5 \end{array}$$
  - e)  $(\text{CH}_3)_2\text{CClCH}(\text{CH}_3)_2$

3. Explain markownikoff's rule and peroxide effect.
4. Give the preparation, test for purity and medicinal uses of the following:
  - a) Dicophane.
  - b) Aspirin.

5. Compare and contrast aldol condensation with cannizzaro reaction.
6. Give the structural formula of :
  - a) 2,2,3,3 – tetra methyl pentane.
  - b) 3 ethyl 2 methyl octane.
  - c) 1,2 dibromo 3 methyl pentane
  - d) 4 ethyl 2,4 dimethyl heptane.
  - e) 3 chloro 2 methyl butane.
7. Explain  $\text{SN}_2$  reactions with examples.
8. What are the different types of bonds? Explain with examples.
9. Write about the basicity of amines with reasons.
10. What are grignard reagents. Give the preparation and coupling reactions of grignard reagents.

**III. Short Answers:      Answer any FIVE questions      (5 x 2 = 10)**

1. What are the different types of tautomerism. Explain any one.
2. Explain the saytzeff rule with example.
3. What is Bayer's strain theory? Explain.
4. Write the Diels Alder reaction with example.
5. Write the synthetic utility of diazonium salts.
6. Write short notes on the following:
  - a) Inductive effect.
  - b) Dipole moment.
7. What are carbocations. Give any one mechanism involving carbocations.

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