FEBRUARY - 2005

[KM 702] **Sub. Code : 4162**

FIRST YEAR B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours Maximum : 90 marks

Sec. A & B : Two hours and forty minutes Sec. A & B : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

SECTION A — ($2 \times 15 = 30$ marks)

Answer any TWO questions.

Each question carries 15 marks.

Essay Questions :

1. What are elimination reactions? Explain the mechanisms of E_2 and E_1 reactions with suitable examples. Give evidences for E_2 and E_1 mechanisms.

2. Explain the structure of benzene.

3. What are carboxylic acids? Give its classification with examples. Write the general methods of preparation and reactions of carboxylic acids.

4. Explain the theory of carbonium ions. Write the mechanism involved in the electrophilic addition of hydrogen bromide to propylene and 1, 3–butadiene.

SECTION B — (8 × 5 = 40 marks)

Answer any EIGHT questions.

Short notes :

5. Give the mechanism of chlorination of methane.

6. What is ozonolysis? Give its importance in the structural elucidation.

7. Write any four methods of preparation of cycloalkanes.

8. What is Friedel Crafts alkylation? Give its mechanism and limitations.

9. Explain any three chemical methods to differentiate primary, secondary and tertiary alcohols.

10. Write the synthetic uses of acetoacetic ester.

11. Explain the mechanism of Hoffmann degradation of amides.

12. Write the mechanisms of aldol and crossed aldol condensation.

13. Write the preparation, assay and medicinal uses of aspirin.

14. Give the replacement reactions of diazonium salts.

15. Explain SP^3 hybridisation with a suitable example.

16. What is hydrogen bonding? Give its classification with an example. What are its effects on physical constants?

AUGUST - 2005

[KN 702] **Sub. Code : 4162**

FIRST YEAR B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours Maximum : 90 marks

Theory : Two hours and forty minutes Theory : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

I. Long Essay : (2 × 15 = 30)

Answer any TWO questions.

1. (a) What are nucleophiles? Explain why nucleophilic substitution is a typical reaction of alkyl halides. Discuss the kinetic and stereochemical evidence for the bimolecular reaction b_1 molecular.

(b) Write a note on peroxide effect.

(c) Explain the molecular orbital theory.

(6 + 4 + 5 = 15)

2. (a) What are free radicals? Explain the free radical mechanism of chlorination and pyrolysis of alkanes.

(b) Write briefly on any TWO of the following :

(i) Covalent bond

(ii) Polarity of bond

(iii) Acidity of phenols.

(c) Write the tests for purity, assay and medicinal uses of any TWO of the following compounds :

(i) Chloroform

(ii) Methyl salicylate

(iii) Acetanilide. (6 + 5 + 4 = 15)

3. (a) Write four general methods of preparation of amines.

(b) Write two general methods of preparation of Acetoacetic ester.

(c) Write the method of preparation, assay and medicinal uses of the any two compounds :

(i) Trichloroacetic acid

(ii) Vanillin

(iii) Aspirin. (6 + 4 + 5 = 15)

4. (a) Write any three methods of preparation and any three reactions of alcohols.

(b) Write a note on resonance.

(c) What is Diazotisation? Write two synthetic applications of diazonium salts. (6 + 4 + 5 = 15)

II. Short notes on : (8 × 5 = 40)

Answer any EIGHT questions.

1. (a) Electron donating groups are ortho and para directing groups. Why?

(b) Why aromatic amines and phenols give dye test positive? (3 + 2 = 5)

2. (a) What is keto–enol tautomerism? How it differs from resonance?

(b) Give the structure of the following compounds and name them as per IUPAC system : (3 + 2 = 5)

(i) Acetaldehyde

(ii) Formic Acid.

3. (a) What is a hydrogen bond? Give the names of two compounds capable of forming hydrogen bonds.

(b) State Markonikoff's rule with examples. (3 + 2 = 5)

4. Write the preparation, assay and medicinal uses of any one of the following compounds : $(2\frac{1}{2} + 2\frac{1}{2} = 5)$

(a) Glycerol

(b) Ethyl chloride.

5. How are the following conversions done? $(2\frac{1}{2} + 2\frac{1}{2} = 5)$

(a) Nitrobenzene to para nitroaniline

(b) Ethane to acetaldehyde.

6. Correct if necessary and explain the following :

(a) Alkynes are more reactive than alkene.

(b) Tertiary alcohols are easily converted to alkyl halides compared to secondary and primary alcohols.

(c) Diazotisation is carried out at high temperature.

7. Write the tests for purity and assay of the following compounds : $(2\frac{1}{2} + 2\frac{1}{2} = 5)$

(a) Ichthamol

(b) Liquid paraffin

8. What happens when

(a) Benzaldehyde is treated with conc. sodium hydroxide solution

(b) Glycerol is heated to high temperature

(c) Formaldehyde is treated with urea.

9. Write the tests of purity and medicinal uses of the following :

(a) Gamaxene

(b) Amphetamine. $(2\frac{1}{2} + 2\frac{1}{2} = 5)$

10. Write the methods of purification of organic compounds with specific examples.

11. Arrange the members of the following groups according to decreasing acid strength giving reasons.

(a) Benzoic acid

(b) Para benzoic acid

(c) Para nitro benzoic acid.

[KN 736] **Sub. Code : 4227**

FIRST YEAR B.Pharm. DEGREE EXAMINATION.

(Modified Regulations)

Paper II — PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours — Maximum : 90 marks

Theory : Two hours and forty minutes — Theory : 70 marks

M.C.Q. : Twenty minutes — M.C.Q. : 20 marks

I. Long Essay : (2 × 15 = 30)

Answer any TWO questions.

Each question carries 15 marks.

1. (a) Give an account of Bayer's strain theory. Why cycloalkanes having more than seven carbons are difficult to prepare, though there is no angular strains? What are the limitations of this theory? (9)

(b) Describe the following reactions :

(i) Diel's-Alder reaction

(ii) Cannizaro reaction. (6)

2. Mention any two general methods of synthesizing amines along with mechanism. How will you distinguish between primary, secondary and tertiary amines with the help of chemical tests?

3. What is SN^1 reaction? Discuss the mechanism of SN^1 reaction with the help of a suitable example. Give proof for the mechanism.

4. (a) What is resonance and hyper conjugation? Give one example each.

(b) Give two examples for each of the following :

(i) Electrophilic substitution reaction

(ii) Nucleophilic substitution reaction

(iii) Free radical substitution reaction

(iv) Nucleophilic addition reaction.

II. Short notes : (8 × 5 = 40)

Answer any EIGHT questions.

1. Explain the following terms with suitable examples :

(a) Dipole moment

(b) Energy of activation

(c) Covalent bond.

2. What are alcohols? How are they classified? Enumerate any two general methods for the preparation of alcohols with suitable examples.

3. How do you explain the aromatic character and basic nature of aniline?

4. Explain the method of preparation of medicinal uses of the following :

(a) Mephensin

(b) Benzyl benzoate

5. Explain the mechanism of synthesis of acetoacetic acid and outline a few examples of its synthetic uses.

6. Explain the Markovnikov's rule including the mechanism and with an example.

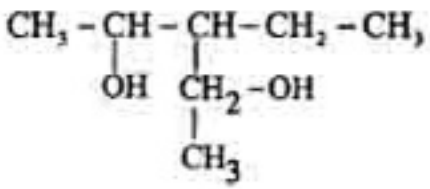
7. How will you effect the following conversions?

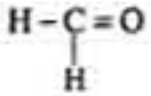
(a) Benzene to O-nitrobenzoic acid

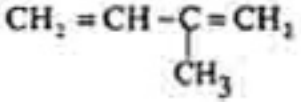
(b) Aniline to *p*-nitroaniline.

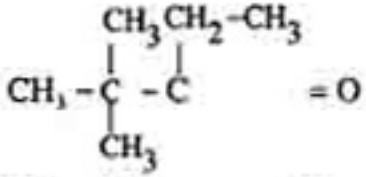
8. Explain the mechanism of Friedel crofts alkylation with suitable example.

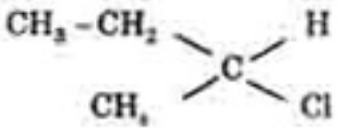
9. Write the IUPAC name for the following compounds

(a) 

(b) 

(c) 

(d) 

(e) 

10. Write any one method for the preparation and two reactions for the following :

(a) Phenanthrene

(b) Triphenyl methane.

11. Write any two synthetic methods and two reactions of Dienes.

12. Explain the method of preparation and medicinal uses of

(a) Amphetamine

(b) Hexamine.

FEBRUARY - 2006

[KO 702] **Sub. Code : 4162**

FIRST YEAR B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours **Maximum : 90 marks**

Theory : Two hours and forty minutes **Theory : 70 marks**

M.C.Q. : Twenty minutes **M.C.Q. : 20 marks**

I. Long Essay : **(2 × 15 = 30)**

Answer any TWO questions.

1. (a) Explain electrophilic substitution, where does it takes place? Give examples of such reactions including mechanism.

(b) What are conjugated dienes? Explain the formation of 1 : 4 addition products in dienes.

(c) Give the important reactions of alcohols. (6 + 5 + 4)

2. (a) Define aromatic character. Write a note on Huckels rule.

(b) Give any three methods of preparation and any three reactions of alicylic compounds.

(c) Write the tests for purity, assay and medicinal uses of the following TWO compounds.

(i) Saccharim

(ii) Chloramine

(iii) Chlorbutol. (5 + 6 + 4 = 15)

3. (a) Write a note on Hydrogen bonding.

(b) Discuss the mechanism of halogenation of methane.

(c) Write the method of preparation and assay of the following any TWO compounds.

(i) Glyceryl Trinitrate

(ii) Benzyl benzoate

(iii) Paraldehyde. (5 + 6 + 4 = 15)

4. (a) Give any three distinguishing reactions between aldehydes and ketones.

(b) Explain the acidity of carboxylic acids.

(c) Give any three methods of preparation and three reactions of Amines. (6 + 3 + 6 = 15)

FEBRUARY - 2006

II. Short notes : (8 × 5 = 40)

Answer any EIGHT questions.

1. (a) Give the mechanism of Diels alder Reaction.

(b) Explain the acidity of phenols. (3 + 2 = 5)

2. (a) Give the structure of the following compounds and name them as per IWPAC system.

(i) Acetone

(ii) Butyric acid

(b) How is glycerol synthesised? Give its pharmaceutical uses. (3 + 2 = 5)

3. Write the tests for purity and medicinal uses of the following

(a) Sodium Lauryl sulphate

(b) Chloral hydrate.

4. (a) Write the reaction and synthesis involving diazodium salts.

(b) How will you differentiate aliphatic amines from aromatic amines employing chemical tests? (3 + 2 = 5)

5. Outline the scheme for the following conversions. Write the structures, reagents and experimental conditions.

(a) Benzaldehyde to cinnamic acid

(b) Benzene to para bromo acetanilide

(c) Ethyl alcohol to Diethyl ether.

6. Write a note on Free radical chain reactions.

7. Write the methods of purification of organic compounds with specific examples.

8. Arrange the members of the following groups according to decreasing acid strength giving reasons.

(a) Benzoic acid

(b) Para amino benzoic acid

(c) Para nitro benzoic acid.

9. Write the test of purity, methods of preparation and medicinal uses of any TWO compounds.

(a) Sulfanilamide

(b) Tetrachloro ethylene

(c) Dicophane.

FEBRUARY - 2006

[KO 736] **Sub. Code : 4227**

FIRST YEAR B.Pharm. DEGREE EXAMINATION.

(Modified Regulations)

Paper II — PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours | Maximum : 90 marks

Theory : Two hours and forty minutes | Theory : 70 marks

M.C.Q. : Twenty minutes | M.C.Q. : 20 marks

I. Long Essay : (2 × 15 = 30)

Answer any TWO questions.

1. What are poly nucleus aromatic hydrocarbons compounds? Write the synthesis and properties of diphenyl ethane, phenanthrene and naphthalene.

2. What are alkyl halides? How will you prepare alkyl halides and aryl alkyl halides write their mechanism of reaction with examples?

3. What are alkanes, alkenes and alkynes? Give two examples and write their IUPAC name.

4. What are polar covalent bonds, dipole moment and bond dissociation energy?

II. Short notes : (8 × 5 = 40)

Answer any EIGHT questions.

1. Write the preparation and uses of mephenesin and benzoic acid.

2. Explain the following terms with suitable examples.
   (a) Resonance
   (b) Conjugation
   (c) Hyper conjugation

3. How will you explain the resonance structure of Benzene?

4. Write the synthesis and medicinal uses of Amphetamine and Gammaxene.

5. What are amines? How they are classified? Write any two general methods of preparations of amines with one examples.

6. What are grignard reagents and dizonium salts? Explain with one examples.

7. How will you test the purity of the following compounds?
   (a) Aspirin
   (b) Vanillin.

8. Write the structure and uses of the following compounds.
   (a) Hexamine
   (b) Salicylic acid
   (c) Glyceryl trinitrate
   (d) Citric acid
   (e) Sodium lauryl sulphate.

9. What are cyanohydrins? Write the properties of cynohydrine.

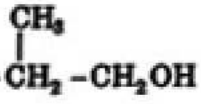
10. Explain the following terms :

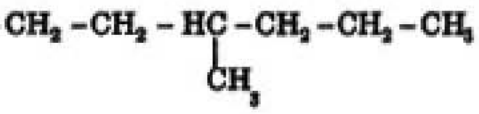
(a) Inductive effect

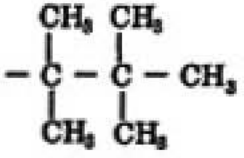
(b) Mesomeric effect

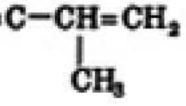
(c) Resonance effect.

11. Write the IUPAC name for the following compounds.

(a) 

(b) 

(c) 

(d) 

12. What are SN_1 and SN_2 reactions? And explain the mechanism of SN_2 reaction?

AUGUST - 2006

[KP 702] **Sub. Code : 4162**

First Year B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours | Maximum : 90 marks

Theory : Two hours and forty minutes | Theory : 70 marks

M.C.Q. : Twenty minutes | M.C.Q. : 20 marks

I. Essay on : (2 × 20 = 40)

Answer any TWO questions.

1. What is a grignard reagent? How is it prepared? Write one suitable example explain how we can prepare a primary alcohol, secondary alcohol, alkane and a carboxylic acid with a grignard reagent.

2. Explain what is aromatic character. State and explain Hukel's rule. With the help of a suitable explain what is resonance. Explain why conjugated idienes are more stable than compounds with isolated double bonds.

3. With the help of one suitable example explain Markovinikoff's rule and peroxide effect. Give mechanism in each case.

4. Explain SN^1 and SN^2 reactions with the help of one suitable example each. Give the detailed mechanism and evidence in each case.

II. Short notes : (6 × 5 = 30)

Answer any SIX questions.

1. Give the test for purity and assay of icthamnol.

2. Define carbonium ion. With the help of one example explain the stability of carbonium ions.

3. With one example, explain Friedel Craft's alkylation of Benzene.

4. Explain Bayer's strain theory. What are its limitations?

5. Give the preparation and medicinal uses of Dichloramine–T.

6. Give the preparation along with mechanism of lodoform.

7. With the help of one example explain E^1 reaction along with mechanism.

8. Give the preparation and uses of ethylchloride.

AUGUST - 2006

[KP 736] **Sub. Code : 4227**

FIRST YEAR B.Pharm DEGREE EXAMINATION.

(Modified Regulations)

Paper II — PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours Maximum : 90 marks

Theory : Two hours and forty minutes Theory : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

I. Long Essay : (2 × 20 = 40)

Answer any TWO

1. What are the various factors influence the rate of reaction? Give the mechanism of SN^2 reaction with the help of a suitable example. Explain the stereo chemistry of the reaction.

2. Define and classify the activating and deactivating groups. Discuss the theory of effect of the substituents on reactivity and orientation in electrophilic aromatic substitution reactions.

3. Discuss the preparation and synthetic utility of diazonium compounds

4. (a) Explain the mechanism of nitration of benzene.

(b) Explain Bayer's strain theory and its limitations

(c) Discuss the preparations of Grigard reagent and its use in the preparation of alkanes.

II. Short notes : (6 × 5 = 30)

Answer any SIX questions.

1. Write in detail on resonance theory of benzene

2. Write the reactions given by aldehydes

3. Haworth synthesis for the preparation of naphthalene

4. Give the general methods of preparation of alcohols.

5. Explain Markovnikov's rule and Peroxide effect.

6. Describe the Sandmeyer and Gattermann reactions.

7. What are the tests to distinguish between 1°,2° and 3° amines.

8. Give the general reactions of carboxylic acids.

FEBRUARY - 2007

[KQ 702] **Sub. Code : 4162**

First Year B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours Maximum : 90 marks

Theory : Two hours and forty minutes Theory : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

I. Essay on :

Answer any TWO questions.

(2 × 20 = 40)

1. Describe the general methods of preparation and reactions of carboxylic acids. Add a note on any three synthetic uses of Acetoacetic ester.

2. Explain why the addition of hydrogen bromide to propene in the presence of peroxide leads to predominant formation of 1-bromopropane, while in the absence of peroxide, 2-bromopropane is the major product?

3. Describe the preparation and uses of the following :

(a) Saccharin

(b) Glyceryl trinitrate

(c) Iodoform

(d) Amphetamine

4. What do you understand by E_1 and E_2 reactions? Discuss them with suitable examples taking the following into consideration :

(a) Mechanism

(b) Kinetics and

(c) Stereochemistry.

II. Short notes on :

Answer any SIX questions.

(6 × 5 = 30)

1. Give reasons for the following :

(a) 'Sigma' bond is stronger than 'Pi' bond.

(b) 'Ethyl alcohol' is soluble in water, while its isomer 'Dimethyl ether' is insoluble in water.

2. Write any five important methods for the preparation of Phenols.

3. What is 'hydrogen bonding'? Classify with suitable examples for each.

4. Describe 'oznolysis'. Describe the significance of this reaction in the structure elucidation of organic compounds.

5. Write assay method and uses of :

(a) Ethyl biscoumacetate

(b) Gamexene.

6. Define a 'Carbocation' Mention its types with examples. Add a note on the mechanism for Electrophilic substitution of Benzene.

7. Describe the merits and demerits of Bayer-Strain thoery.

8. Classify amines with examples. Write the method of preparation, assay and medicinal use of Sulphanilamide.

FEBRUARY - 2007

[KQ 736] **Sub. Code : 4227**

FIRST YEAR B.Pharm. DEGREE EXAMINATION.

(Modified Regulations)

Paper II — PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours **Maximum : 90 marks**

Theory : Two hours and forty minutes **Theory : 70 marks**

M.C.Q. : Twenty minutes **M.C.Q. : 20 marks**

I. Long Essay : **(2 × 20 = 40)**

Answer any TWO questions.

1. Write the preparations reactions and test for purity of Chloroform, Glycerol trinitrate and lactic acid.

2. Write the preparation reactions and IUPAC naming of cycloalkane and alcohol.

3. Give the general methods of preparation and reactions of alkanes?

4. What is Poly aromatic compounds? Write the synthesis and properties of napthalene triphenyl methane and phenanthrine?

II. Short notes : **(6 × 5 = 30)**

Answer any SIX questions.

1. What is Kekule structure of benzene and write their resonance structure of benzene.

2. Write the preparation and test for purity of Chloramine and Acetamilide.

3. What is Diels? Alder reaction explain with examples.

4. What is Diazomium reaction? Explain with general reaction.

5. What is meant by IUPAC nomenclature? Write the structure and Name them according to IUPAC

   (a) Formic acid

   (b) Acetaldehyde

   (c) Acetone

   (d) Acetylene

6. Give the general methods of preparation of carboxylic acid and Aldehydes.

7. Explain Dipole moment.

8. Write about Resonance effect.

August-2007

[KR 702] **Sub. Code : 4162**

(For candidates admitted upto 2003–04)

FIRST YEAR B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours Maximum : 90 marks

Theory : Two hours and forty minutes Theory : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer any TWO questions.

I. Long Essay : (2 × 15 = 30)

1. Explain S_N2 and S_N1 reactions with emphasis on

   (a) Mechanism

   (b) Nucleophile

   (c) Stereochemistry.

2. Explain the electrophilic addition mechanism involved in the following :

(a) Addition of Hydrogen bromide to propylene

(b) Addition of Hydrogen bromide to 1, 3 – butadiene.

3. Explain the synthetic utility of acetoacetic ester and diazonium salts.

4. Explain the following with mechanisms :

(a) Hoffmann degradation of amides

(b) Cannizzaro and crossed Cannizzaro reactions.

Answer any EIGHT questions.

II. Short notes : $(8 \times 5 = 40)$

1. What are carbocations? Explain the structure and stability of carbocations.

2. Write the reactions of aldehydes.

3. Explain the basicity of amines.

4. Write the mechanism of chlorination of methane and Kolbe's reaction.

5. Explain Bayer's strain theory.

6. Explain Keto-Enol tautomerism with examples.

7. What is Friedel–Craft's alkylation? Write its mechanism.

8. Write the method of preparation and uses of Chloramine–T and Aspirin.

9. Explain Tautomerism with example.

10. Write three reactions of Benzene.

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August-2007

[KR 736] **Sub. Code : 4227**

(For candidates admitted from 2004–05 onwards)

FIRST YEAR B.Pharm. DEGREE EXAMINATION.

(Modified Regulations)

Paper II — PHARMACEUTICAL ORGANIC CHEMISTRY

Time : Three hours — Maximum : 90 marks

Theory : Two hours and forty minutes — Theory : 70 marks

M.C.Q. : Twenty minutes — M.C.Q. : 20 marks

I. Long Essay :

Answer any TWO questions.

Each question carries 15 marks.

(2 × 15 = 30)

1. (a) Explain Diets-Alder reaction with suitable example and give the application of Diets-Alder reaction in organic synthesis. (9)

(b) Huckle rule of aromaticity. (6)

2. (a) Discuss the mechanism involved in nuclophilic aromatic substitution reaction with suitable example. (9)

(b) Explain the mechanism of Friedel crafts alkylation with suitable examples. (6)

3. (a) What is Benzyne? Write electrophilic and nucleophilic substitution reaction for benzyne. (9)

(b) Outline some methods of resolution of recemic mixture. (6)

4. (a) 1, 2–Cisdimethyl cyclohexane is more stable than transform. Explain with suitable confirmation. (6)

(b) Give the nomenclature, preparation and reactions of alkenes. (9)

II. Short notes : $(8 \times 5 = 40)$

Answer any EIGHT questions.

1. Explain the method of preparation and uses of the following :

(a) Iodoform

(b) Sodium Lauryl Sulphate.

2. What are molecular orbitals? Explain HOMO and LUMO with respect to 1, 3 butadiene.

3. How does alkyl halides differ from Aryl halides? Describe the general method of preparation of Alkyl halides.

4. Explain 1, 2 and 1, 4 addition of gregnard reagent.

5. Give the mechanism of Haloform reaction and cannizaro reaction.

6. Explain briefly hydrogen bonding.

7. Explain the acetic character of succinamide.

8. Outline the general method of synthesis of Amines.

9. Define Tartamerism with suitable example.

10. Give one synthesis of Phenanthrene and Diphenyl ethane.

11. Write note on Alpha-Beta unsaturated carbonyl compounds.

12. Mention any three methods of synthesizing alcohols and how they are classified.

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February-2008

[KS 702] **Sub. Code : 4162**

FIRST YEAR B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P.Code : 564162

Time : Three hours Maximum : 90 marks

Theory : Two hours and forty minutes Theory : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

I. Essay on : $(2 \times 15 = 30)$

Answer any TWO questions.

1. (a) Explain Diels-Alder reaction with suitable example and give the application of it in organic synthesis. (10)

(b) Outline the test for purity assay and medicinal uses of saccharin. (5)

2. (a) Discuss the mechanism involved in nucleophilic aromatic substitution reaction with suitable example. (10)

(b) Explain Bayer strain theory in salicyclic compounds. (5)

3. (a) Give the nomenclature, preparation and reactions of alkenes. (10)

(b) What are molecular orbitals? Explain HOMO and LUMO with respect to 1, 3 Butadiene. (5)

4. (a) How does alkyl halides differ from aryl halides? Describe the general method of preparation of alkyl halides. (10)

(b) Explain the test for purity and medicinal uses of chloroform. (5)

II. Short notes : $(8 \times 5 = 40)$

Answer any EIGHT questions.

5. (a) Write the synthesis and assay of benzyl benzoate.

(b) Why phenols are acidic? Give reasons.

(c) Describe the mechanism of free radical reaction with an example.

(d) Explain the sulphonation reaction of benzene.

(e) Discuss the concept of acidity and the effect of substituents on acidity.

(f) Write any three methods of preparing alcohols.

(g) Outline the properties and uses of urea.

(h) Explain the following reactions.

(i) Gattermann aldehyde synthesis.

(ii) Rosenmund reduction.

(i) What are anesthetic ethers? Explain the Williamson's synthesis of ethers.

(j) Explain the use of aceto acetic acid ester in the synthesis of ketones.

February-2008

[KS 736] **Sub. Code : 4227**

(For Candidates admitted from 2004–05 onwards)

FIRST YEAR B.Pharm. DEGREE EXAMINATION.

(Modified Regulations)

Paper II — PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 564227

Time : Three hours — Maximum : 90 marks

Theory : Two hours and forty minutes — Theory : 70 marks

M.C.Q. : Twenty minutes — M.C.Q. : 20 marks

I. Long Essay : $(2 \times 15 = 30)$

Answer any TWO questions.

Each question carries 15 marks.

1. (a) Explain the formation of bonding, antibonding and non bonding orbitals. (5)

(b) Explain the phenomenon of tetrahedral and trigonal hybridisation with suitable examples. (10)

2. (a) Give the nomenclature, preparation and reactions of cycloalkanes. (9)

(b) Add a note on addition reactions of conjugated dienes. (6)

3. (a) What is Markovnikoff's rule? Outline the mechanism that follows the markovnikoff's rule with suitable reaction/examples. (9)

(b) What is Ozonolysis? Write example to demonstrate the importance of ozonolysis in structure elucidation. (6)

4. (a) Explain the Unimolecular and Bimolecular mechanism and its stereochemistry of substitution reactions of alkyl halides. (10)

(b) Explain the photohalogenation and thermal halogenation of alkanes. (5)

II. Short notes : $(8 \times 5 = 40)$

Answer any EIGHT questions.

1. Explain the reactions given by all three classes of amines.

2. Explain the preparation, test for purity and pharmaceutical uses of mephenesin.

3. What are Grignard reagents? Explain the method of preparation of primary, secondary and tertiary alcohols from Grignard reagent with suitable examples.

4. What are carbocations? Explain its application in organic synthesis.

5. Explain the property of geometrical isomerism exhibited by alkenes.

6. Outline the preparation, test for purity and medicinal uses of amphetamine.

7. What are 1 and 2 napthols? Outline the method of preparation of them.

8. Explain the following reactions :

(a) Sandmeyer reaction.

(b) Gattermann reaction.

9. Explain the types of bond dissociation energy with suitable examples.

10. Explain the role of inductive effect and mesomeric effect in electron displacements of molecule.

August 2008

[KT 702] **Sub. Code : 4162**

FIRST YEAR B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper II — PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 564162

Time : Three hours Maximum : 90 marks

Answer any TWO questions.

I. Long Essay : (2 × 20 = 40)

1. (a) What is kekule structure of benzene and write their resonance structure of Benzene. (7)

(b) Write the synthesis and properties of napthalene and phenanthrene. (8)

(c) What is Diazonium reaction? Explain the general reactions. (5)

2. (a) What are alkyl halides? How will you prepare alkyl halides and aryl alkyl halides? (10)

(b) What are polar covalent bonds, Dipole moment and bond dissociation energy? Explain it. (10)

3. (a) What are the various factors influence the rate of reaction? (4)

(b) Give the mechanism of SN^2 reaction with the help of a suitable example. (8)

(c) Explain the stereo chemistry of the SN^2 reaction. (8)

II. Short notes : (8 × 5 = 40)

Answer any EIGHT questions.

1. Explain the Markovnikov's rule and peroxide effect.

2. What are the tests to distinguish between 1°, 2° and 3° amines?

3. Explain the Bayer's strain theory and its limitations.

4. Explain any three methods of preparation of alcohols.

5. What is Diel's Alder reaction? Explain with example.

6. Write the preparations, reactions and tests for purity of gamaxene and chloramine.

7. Write a note on carbonium ion theory.

8. Why amines are basic? Give reasons.

9. Write briefly on quaternary ammonium salts and their characteristic reactions.

10. Write the assay and medicinal uses of sulphanilamide and mustine hydrochloride.

III. Short answers : (5 × 2 = 10)

Answer any FIVE questions.

1. Define and classify carboxylic acids and esters.

2. What is meant by IUPAC nomenclature? Write the structure and name them according to IUPAC.

(a) Acetylene

(b) Chloroform

(c) Hexamine.

3. Mention the uses of Grignard reagent in the preparation of alkanes.

4. Give the test for purity and assay of I Cthammol.

5. Give reason for the sigma bond is stronger than "pi" bond.

6. Define ozonolysis with example.

7. Write two methods for the preparation of phenols.

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August 2008

[KT 736] **Sub. Code : 4227**

(For Candidates admitted from 2004–05 onwards)

FIRST YEAR B.Pharm. DEGREE EXAMINATION.

(Modified Regulations)

Paper II — PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 564227

Time : Three hours Maximum : 90 marks

I. Long Essay : (2 × 20 = 40)

Answer any TWO questions.

1. (a) Discuss SN_1 and SN_2 reaction with special reference to mechanism, reactivity and stereochemistry.

(b) What are the free radicals? Explain the reaction with suitable examples. (15 + 5 = 20)

2. (a) Describe the mechanism of diazotisation reaction and explain the uses of diazonium salts in the synthesis of organic compounds. Give examples.

(b) Explain Huckel rule taking suitable examples. (15 + 5 = 20)

3. (a) What are organ metallic compounds? How is methyl magnesium iodide prepared?

(b) Describe the synthesis, assay anduse of

(i) Dimercaprol

(ii) Iodoform

(iii) Paraldehyde.

(c) Discuss the structure and stability of carbonium ions. (5 + 10 + 5 = 20)

II. Short notes : (8 × 5 = 40)

Answer any EIGHT questions only.

1. Classify alcohols giving examples. Give three reactions of alcohols.

2. Explain the mechanism of electrophilic addition reaction across a double bond.

3. Explain why the boiling point of ethyl alcohol is higher then that of diethyl ether through they have the same molecular weight.

4. State and explain Bayer's strain theory.

5. Write a note on the stability of conjugated dienes.

6. Give any two general methods of preparation of alkenes with examples.

7. Describe the tests to distinguish between 1°, 2° and 3° amines.

8. Predict the product of the following reaction and given their structures.

(a) $CH_3CH_2OH \xrightarrow{Con\ H_2SO_4}$

(b) $CH_3CH=CH_2 + Hcl \longrightarrow$

(c) $CH_3COOC_2H_5 + NaOH \longrightarrow$

(d) $CH_3Cl + O\overset{\ominus}{H} \longrightarrow$

9. Write any four methods for the preparation of carboxylic acids.

10. Write the test for purity and assay of the following compounds. $(2\frac{1}{2} + 2\frac{1}{2} = 5)$

(a) Ichthamol.

(b) Liquid paraffin.

III. Short answers. $(5 \times 2 = 10)$

Answer any FIVE questions only.

1. Write a note on geometrical isomerism.

2. Compare the basicity amonia, methyle amine and aniline.

3. Wolf Kishner Reduction.

4. Give the test for purity and assay of Benzoic acid.

5. Give the utility of acetoacetic estes in organic synthesis.

6. What happens when (given examples)

(a) Ethylene reacts with alkaline $Kmno_4$.

(b) Acetaldecyde reacts with phenylhydrazine?

7. Explain why acetone is less reactive than formaldehyde towards a nucleophilic reagent.