

February 2011

[KY 758]

Sub. Code : 4252

FIRST B. PHARM. DEGREE EXAMINATION.

(Regulations 2009) Candidates Admitted from 2009-2010

Paper II — PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 564252

Time : Three hours

Maximum : 80 marks

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

1. (a) Define aromatic electrophilic substitution reactions. Discuss the reaction and mechanism of nitration sulphonation, and friedel-craft reaction, sulphonation, and friedel-craft reaction. (15)
(b) Describe clemmensen reduction with suitable example (5)
2. (a) Define elimination reaction. Discuss the mechanism of E1 and E2 reaction with suitable example. (10)
(b) Write any four general methods of preparation of alkyl halides. (10)
3. (a) Discuss Bayer's strain theory with suitable examples. (10)
(b) Explain the facts supporting kekule structure of Benzene. (10)

II. Write short notes: Answer any **SIX** questions. **(6 x 5 = 30)**

1. Write short note on peroxide effect.
2. Explain nucleophilic substitution reaction with example.
3. Write the preparation and synthetic utility of diazonium salts.
4. Outline the general methods of preparation of alkynes.
5. Discuss the basicity of amines.
6. Write note on Inductive effect.
7. Write note on free radical reaction.
8. Write any two method of preparation of alcohol.

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

1. Tollens reagent.
2. Define hyper – conjugation.
3. Explain conjugated dienes.
4. Explain resonance effect.
5. Lucas test.
6. Give the structure for 5-Bromo-4-methyl-hex-3-en-2-one.
7. Give the IUPAC name for $\text{HO}-\text{CH}_2-\text{CH}_2-\text{COOH}$.

August 2011

[KZ 4252]

Sub. Code : 4252

FIRST B.PHARM. EXAMINATION

Paper II – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 564252

Time : Three hours

Maximum: 100 Marks

Answer ALL questions.

I. LONG ESSAYS

(2 x 20 = 40)

1. Give the preparation and reactions of Alkenes.
2. Explain the mechanism involved in Nucleophilic aromatic substitution reaction.

II. SHORT NOTES

(8 x 5 = 40)

1. Explain the Bayers strain theory.
2. Write the preparation of alkyl halides.
3. Write short notes on Markownikoff's rule.
4. What is diel's alder reaction?
5. Explain the Huckel's rule.
6. Give a note on carbocations.
7. How to differentiate primary, secondary and tertiary alcohols.
8. Write the preparation and the synthetic utility of Grignard reagent.

III. SHORT ANSWERS

(10 x 2 = 20)

1. Define dipole moment and resonance.
2. Give the medicinal uses of (a) Methyl salicylate (b) acetanilide.
3. Write any two addition reaction of conjugated dienes.
4. What are nucleophiles and electrophiles?
5. What is energy of activation?
6. Write the ozonolysis reaction.
7. Write the two steps of SN_1 mechanism.
8. What is sand Meyer Reaction?
9. What are epoxides?
10. How to prepare diazonium salts?

February 2012

[LA 4252]

Sub. Code: 4252

FIRST B.PHARM. EXAMINATION

Paper II – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 564252

Time: Three Hours

Maximum: 100 marks

Answer ALL questions

I. Elaborate on:

(2 x 20 = 40)

1. (a) Give the structure nomenclature, preparation and reaction of Cycloalkanes.(10)
(b) Add a note on addition reactions of conjugated dienes. (5)
(c) Explain the formation of bonding, anti-bonding orbitals. (5)
2. (a) What is kekule structure of benzene and write their resonance structure of Benzene. (7)
(b) Explain the SN_2 reaction with the help of a suitable example. (8)
(c) Outline the test for purity, preparation and medicinal uses of saccharin. (5)

II. Write notes on:

(8 x 5 = 40)

1. What is the diazonium reaction? Explain the general reaction?
2. Write the synthesis and properties of phenanthrene.
3. Explain keto-enol tautomerism with examples.
4. Write the preparation, test for purity and medicinal uses of benzoic acid.
5. Explain the Bayer's strain theory and its limitations.
6. Give the nomenclature and reactions of alkynes.
7. Explain the markovnikov's rule including the mechanism and with an example.
8. What are Grignard reagent and explain with one example?

III. Short Answers

(10 x 2 = 20)

1. Define intermolecular bonding.
2. Write the structure and uses of citric acid.
3. How will you test the purity of vanillin?
4. Define hyper conjugation.
5. What is energy of activation?
6. Explain the following reactions
(a) Sandmeyer reaction (b) Gattermann reaction.
7. What is Diels?
8. What are alkyl halides?
9. Write the preparation of malonic ester.
10. Explain bond fission.

(LC 4252)

FEBRUARY 2013

Sub. Code: 4252

FIRST YEAR B.PHARM. EXAM

Paper II – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 564252

**Time: Three Hours
(180 Min)**

Maximum: 100 marks

I. Elaborate on:

(2 x 20 = 40 marks)

1. Define the terms 'Hybridization'. Explain various types of hybridization in carbon compounds with examples?
2. What are polynuclear aromatic hydrocarbons? Write the synthesis and properties of Diphenyl ethane, Phenanthrene and Naphthalene?

II. Write notes on:

(8 x 5 = 40 marks)

1. Explain Williamson ether Synthesis and Riemer-Tiemann reaction?
2. Explain the preparation of Glycerol?
3. Discuss Cannizzaro and crossed Cannizzaro reaction?
4. Write any two methods of preparation of carboxylic acid with its mechanism?
5. Explain Bayer's strain theory?
6. Give preparation, assay, use of Dimercaprol and Hexamine?
7. Give synthetic utility of diazonium salts?
8. Explain mechanism of Halogenation of alkanes. Discuss selectivity of halogens in this reaction?

III. Short Answers

(10 x 2 = 20 marks)

1. Diels-Alder reaction?
2. Dipole moment?
3. Aromaticity of benzene?
4. Energy of activation?
5. Medicinal use of Mephensein and Benzyl benzoate?
6. Aniline with potassium permanganate -----→?
7. Hoffmann degradation of amines?
8. How will distinguish 1, 2 and 3 alcohol?
9. Tautomerism?
10. Explain Why Alkynes are more reactive than alkenes?

(LD 4252)

AUGUST 2013

Sub Code: 4252

FIRST YEAR B.PHARM. EXAM

Paper II – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code: 564252

Time: Three hours

Maximum: 100 marks

I. Elaborate on:

(2X20=40)

1. (a) Illustrate the important steps in Haworth's synthesis of naphthalene.
(b) Describe about electrophilic and nucleophilic aromatic substitution reactions
2. (a) Write the general methods for the preparation of amines and carboxylic acids.
(b) Enumerate the methods for the preparation and synthetic utility of diazonium salts

II. Write Notes on:

(8 x 5 =40)

1. Write short notes on dipole moment
2. Describe the methods of preparation of alkenes
3. Explain about Markownikoff's rule
4. Write the methods of preparation of alcohol
5. Write the preparation and medicinal uses of vanillin
6. What are carbenes? Give examples and explain about stability
7. Write about aromatic character of benzene
8. Write short notes on mesomeric effect

III. Short Answers:

(10 x 2 =20)

1. Types of tautomerism
2. Cycloalkanes
3. Lactic acid
4. Energy of activation
5. Ozonolysis
6. Diels-Alder reaction
7. Methyl salicylate
8. Conjugated dienes
9. Sodium lauryl sulphate
10. Alpha-Beta-Unsaturated Carbonyl Compounds

(LE 4252)

FEBRUARY 2014

Sub Code: 4252

FIRST YEAR B.PHARM. EXAM

Paper II – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code: 564252

Time: Three hours

Maximum: 100 marks

I. Elaborate on:

(2X20=40)

1. a. Write down the general methods of preparation of alkyl and aryl halides
b. Explain the methods of preparation and synthetic utility of aceto-acetic ester.
2. a. Write in detail about resonance effect and intramolecular forces in organic compounds.
b. Explain in detail about ozonolysis and Baeyer's strain theory.

II. Write Notes on:

(8 x 5 =40)

1. Describe the Methods of preparation of alkane
2. Describe the Mechanism of Diel's-Alder Reaction
3. Give the preparation and medicinal uses of amphetamine
4. What are Grignard reagent and give synthetic utility
5. Explain about Williamson ether synthesis and Reimer–Tiemann reaction
6. Explain about Markownikoff's rule with example
7. Discuss the Basicity of amines
8. Discuss about nucleophilic aromatic substitution reaction with examples

III. Short Answers on:

(10 x 2 =20)

1. Dicyclohexane
2. Carbenes
3. Ketones
4. Anthracene
5. Hyperconjugation
6. Wave equations
7. Diphenyl methane
8. Citric acid
9. Iodoform
10. Inductive effect

(LF 4252)

AUGUST 2014

Sub Code: 4252

**FIRST YEAR B.PHARM. EXAM
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY**

Q.P. Code: 564252

Time: Three hours

Maximum: 100 marks

Answer All Questions

I. Essay:

(2X20=40)

1. Describe the mechanism of electrophilic aromatic substitution with reference to nitration, sulphonation, Friedel-Craft's alkylation and halogenations in benzene.
2. Explain the mechanism, reactivity and orientation of E2 reaction.

II. Short Notes:

(8X5=40)

1. Describe Bayer's strain theory.
2. Mention the methods of preparation and reactions of Aldehydes.
3. Write about the types and stability of Dienes.
4. Give the preparation and properties of Diphenyl ethane.
5. Mention the preparation, test for purity and medicinal uses of Methyl salicylate and Glycol.
6. Describe sp³ hybridisation with suitable example.
7. Define and mention the types of electrophiles and nucleophiles with suitable examples.
8. Write the preparation and synthetic utility of malonic ester.

III. Short Answers:

(10X2=20)

1. Define Covalent bond.
2. Write about Saytzeff's rule.
3. Brief about Williamson ether synthesis.
4. Give the structural formula of Phenol and Aniline.
5. Define 'Resonance'.
6. Write the order of stability of different types of Carbanions.
7. Give the structural formula and IUPAC name of Acetone.
8. Mention the generation of free radicals.
9. Write the name and structural formula of any two Aprotic solvents.
10. Brief about oxidation of secondary alcohols.

(LG 4252)

FEBRUARY 2015

Sub Code: 4252

**B.PHARM. EXAMINATION
FIRST YEAR
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY
Q.P. Code: 564252**

Time: Three hours

Maximum: 100 marks

I. Essays: (2 x 20 = 40)

1. Describe the mechanism, kinetics, stereochemistry and relative reactivity of alkyl halides in bimolecular nucleophilic aliphatic substitution reaction (SN2).
2. Describe the generation, relative stability, fate and applications of Carbocations.

II. Short notes: (8 x 5 = 40)

1. Describe the addition reaction in conjugated dienes
2. Mention the methods of preparation and reactions of Alcohols
3. Explain the mechanism of halogenations of alkanes
4. Give the preparation and properties of Naphthalene
5. Mention the preparation, test for purity and medicinal uses of Gammexane and Chloroform.
6. Describe inter-molecular forces.
7. Explain the influence of substituents on basic property of aromatic amines.
8. Write the preparation and synthetic utility of Grignard reagent.

III. Short answers: (10 x 2 = 20)

1. Define tautomerism
2. Write about Markownikoff's rule
3. Brief about Huckel's rule
4. Give the structural formula of triphenyl methane and Ether
5. Define 'Electrophile'
6. Write the order of stability of different types of Free radicals
7. Give the structural formula and IUPAC name of Acetic acid
8. Mention the types of bond fission
9. Write the name and structural formula of any two protic solvents
10. Brief about oxidation of aldehydes

B.PHARM. DEGREE EXAMINATION

FIRST YEAR

PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code: 564252

Time : Three Hours

Maximum : 100 marks

Answer ALL questions

I. Essay:

(2 x 20 = 40)

1. Preparation and reactions of alkenes.
2. Explain the mechanism, reactivity and orientation of E1 & E2 reaction.

II. Short notes :

(8 x 5 = 40)

1. Describe Coulson and Moffitt's modification.
2. Mention the methods of preparation and reactions of Ketones.
3. Give the preparation, properties of Diphenyl methane.
4. Write the preparation, tests for purity and medicinal uses of Dicophane and Gammaxene.
5. Explain the Aromaticity character of Benzene.
6. Write the preparation and synthetic utility of Aceto -Acetic ester.
7. Write the preparation and properties of Anthracene.
8. Explain the mechanism of Diel's - Alder reaction.

III. Short answers:

(10 x 2 = 20)

1. Define Dipole moment.
2. Write about Huckel's rule.
3. Define Mesomeric effect.
4. Give the structural formula of Beat-naphthol and Cyclohexane.
5. Give the test for purity of Amphetamine.
6. Brief about oxidation of primary alcohols.
7. Define Tautomerism.
8. Write any one preparation of Benzene.
9. Write the stability of carbocations.
10. Enumerate the functional derivatives of carboxylic acid.

(LI 4252)

FEBRUARY 2016

Sub Code: 4252

**B.PHARM. EXAMINATION
FIRST YEAR
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY**

Q.P. Code: 564252

Time: Three hours

Maximum: 100 Marks

I. Essays: **(2 x 20 = 40)**

1. Explain the mechanism, reactivity and orientation of SN2 and SN1 reaction.
2. Write the preparation and synthetic utility of (a) Malonic ester (b) Grignard reagent (c) Acetoacetic ester.

II. Short notes: **(8 x 5 = 40)**

1. Describe Markownikoff's rule & peroxide effect.
2. Mention the methods of preparation and reactions of Carboxylic acids.
3. Write the preparation, tests for purity of Citric acid.
4. Give the preparation and properties of Triphenyl methane.
5. Describe Huckel's rule.
6. Explain Electromeric effect.
7. Write the preparation and synthetic utility of Diazonium salts.
8. Describe Hyper Conjugation.

III. Short answers: **(10 x 2 = 20)**

1. Define Resonance.
2. Write about Peroxide effect.
3. Give the Structural formula of Acetanilide and Urethane.
4. Mention the generation of Carbenes.
5. Write the properties of Poly Aromatic compounds.
6. Write the structure and Uses of Glycol.
7. Brief about Oxidation of Tertiary alcohols.
8. Mention the types of Bond.
9. Brief about Polarity of bond.
10. Mention the Medicinal uses of Iodoform and Lactic acid.

(LJ 4252)

AUGUST 2016

Sub Code: 4252

**B.PHARM. EXAMINATION
FIRST YEAR
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY
Q.P. Code: 564252**

Time: Three hours

Maximum: 100 Marks

I. Elaborate on : (2 x 20 = 40)

1. Explain the Kekule's structure, aromaticity and resonance structures of benzene including Huckel's rule and stability.
2. Explain the mechanism, reactivity and orientation of E1 and E2 reaction.

II. Short notes on : (8 x 5 = 40)

1. Describe the mechanism of addition reaction of conjugated dienes.
2. Write the preparation and properties of phenanthrene.
3. Mention the preparation, test for purity and medicinal uses of lactic acid and mephesisin.
4. Give the nomenclature and preparation of Cycloalkanes.
5. Describe Williamson synthesis.
6. Describe the properties of Alpha (α) unsaturated carbonyl compounds.
7. Write the preparation and synthetic utility of Grignard reagent.
8. Describe the methods of preparation of alcohols.

III. Short answers on : (10 x 2 = 20)

1. Define Conjugation.
2. Write about Mesomeric effect.
3. Give the structural formula of Urethane and Acetanilide.
4. Define Ozonolysis.
5. Brief about reduction of Carboxylic acids.
6. Give the structural formula and IUPAC name of Acetaldehyde.
7. Define Hybridization.
8. Define Intra-molecular forces.
9. Define Nucleophiles.
10. Mention the medicinal uses of Vanillin and Carbromal.

(LK 4252)

FEBRUARY 2017

Sub Code: 4252

**B.PHARM. EXAMINATION
FIRST YEAR
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY**

Q.P. Code: 564252

Time: Three hours

Maximum: 100 Marks

I. Elaborate on: (2 x 20 = 40)

1. a) Write the various reactions of Carboxylic acids.
b) Classify alcohols with suitable examples. Explain the nomenclature, method of preparation and chemical reactions of alcohols.
2. Explain the following reactions with examples:
a) Nucleophilic aliphatic substitution reaction.
b) Elimination reactions. c) Free radical reactions.

II. Write notes on: (8 x 5 = 40)

1. Write the methods of preparation of Amines.
2. Markownikoff's rule and peroxide effect.
3. Haworth synthesis of Naphthalene.
4. Give the preparation and medicinal uses of Saccharin.
5. Explain the mechanism of Electrophilic aromatic substitution reaction.
6. Write about the properties of Alpha and Beta unsaturated carbonyl compounds.
7. Explain Bayer's strain theory.
8. Give any four reactions of Anthracene.

III. Short answers on: (10 x 2 = 20)

1. Any two methods of preparation of alcohol.
2. Give the structure of Aniline and Methyl salicylate.
3. Write the method of preparation of Iodoform.
4. Explain the Peroxide effect.
5. Draw the structure of Diethyl ether and Isopropyl alcohol.
6. Method of preparation and uses of Sodium lauryl sulphate.
7. Preparation of Grignard reagent.
8. Medicinal uses of Dicophane and Vanillin.
9. Explain inductive effect.
10. Explain Polarity.

(LL 4252)

AUGUST 2017

Sub Code: 4252

**B.PHARM. DEGREE EXAMINATION
FIRST YEAR
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY**

Q.P. Code: 564252

Time: Three hours

Maximum: 100 Marks

I. Elaborate on: (2 x 20 = 40)

1. a) Write two methods of preparation and synthetic utility of Diazonium salts.
b) Describe the generation, stability and applications of
i) Carbanions ii) Carbenes iii) Free radicals.
2. a) Write the preparation and properties of (i) Diphenyl methane (ii) Anthracene.
b) Give the preparation and medicinal uses of (i) Dicophane (ii) Amphetamine.

II. Write notes on: (8 x 5 = 40)

1. Describe the methods of preparation and reactions of alkynes.
2. Describe about Cannizzaro and crossed Cannizzaro reaction.
3. Write the mechanism of reactions of benzene with examples.
4. Give the preparation and medicinal uses of Gammexene.
5. Write the preparation, tests for purity and medicinal uses of Benzoic acid.
6. Describe in detail about electrophiles and nucleophiles.
7. Write the preparation carboxylic acids.
8. Write short notes on Coulson and Moffitt's modification.

III. Short answers on: (10 x 2 = 20)

1. Define resonance effect.
2. What is dipole moment?
3. Any one preparation of Glycol.
4. Two reactions of Cycloalkanes.
5. What is Huckel's rule?
6. Give the structure and medicinal use of Carbromal.
7. Give the structural formula and IUPAC name of butyl methyl ketone.
8. What is Hinsberg reaction?
9. What are epoxides?
10. What is Saytzeff's rule?

(LM 4252)

FEBRUARY 2018

Sub Code: 4252

**B.PHARM. DEGREE EXAMINATION
FIRST YEAR
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY**

Q.P. Code: 564252

Time: Three hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. a) Define polynuclear hydrocarbons. Briefly explain the synthesis and chemical properties of naphthalene and diphenyl methane.
b) Write briefly about Aldol condensation.
2. a) Brief out in detail about SN1 and SN2 reactions.
b) Explain the mechanism of halogenations of alkanes.

II. Write notes on:

(8 x 5 = 40)

1. State with example Markownikoff's rule.
2. Write the preparation, test for purity and medicinal uses of sodium lauryl sulphate and iodoform.
3. Explain the preparation and synthetic utility of diazonium salt.
4. Write a detailed note on free radicals.
5. Explain various methods of synthesis and reactions of alkanes.
6. Write a note on keto-enol tautomerism with examples.
7. Describe briefly Diel's-Alder reaction with mechanism.
8. Differentiate primary, secondary and tertiary amines.

III. Short answers on:

(10 x 2 = 20)

1. Define hyper conjugation.
2. What is ozonolysis?
3. Huckel's rule of aromaticity.
4. Write the medicinal uses of phenindione and urethane.
5. Write the structure of acetic anhydride and propanal.
6. Write on clemmenson reduction.
7. Write about the types of bond fission.
8. Carbenes.
9. Write one method of synthesis of amines.
10. Oxidation of secondary alcohols.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

(LN 4252)

AUGUST 2018

Sub Code: 4252

**B.PHARM. DEGREE EXAMINATION
FIRST YEAR
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY**

Q.P. Code: 564252

Time: Three hours

Maximum: 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. a) Discuss the mechanism, thermodynamics and kinetics of reaction of methane with halogen.
b) Briefly enumerate the preparation and synthetic utility of acetoacetic ester.
2. Discuss the synthesis and chemical properties of cycloalkanes. Explain about Bayer Strain theory and Coulson and Moffitt's modification.

II. Write notes on: **(8 x 5 = 40)**

1. Write a detailed note on the Huckel's rule of aromaticity.
2. Explain the methods of synthesis of anthracene.
3. Write the preparation, test for purity and medicinal uses of amphetamine and acetanilide.
4. Explain briefly the generation and applications of carbocations.
5. Discuss briefly on functional derivatives of carboxylic acids.
6. Explain the free radical and electrophilic addition reactions of carbon carbon double bonds.
7. Write a note on basicity of amines.
8. Enumerate the hybridization pattern of alkanes.

III. Short answers on: **(10 x 2 = 20)**

1. Write a note on tautomerism.
2. Write about Peroxide effect.
3. Write any two chemical properties of Benzene.
4. Give the structural formula of lactic acid and glycol.
5. Write the structure of ethyl methyl ketone and ethylene oxide.
6. Write on Cannizzaro reaction.
7. Malonic ester synthesis.
8. Carbanions.
9. Write one method of synthesis of alkyl halides.
10. Oxidation of primary alcohols.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

(LO 4252)

FEBRUARY 2019

Sub Code: 4252

**B.PHARM. DEGREE EXAMINATION
FIRST YEAR
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY**

Q.P. Code: 564252

Time: Three hours

Maximum: 100 Marks

I. Elaborate on: (2 x 20 = 40)

1. a) Write any three methods of preparation and reactions of aldehydes and ethers.
b) Describe any one method of preparation and any five synthetic utility of Malonic ester.
2. a) Write in detail about tautomerism and inter-molecular forces in organic compounds.
b) Describe the Mechanism of Diel's-Alder reaction and Halogenations of alkanes.

II. Write notes on: (8 x 5 = 40)

1. Describe the methods of preparation and reactions of alkenes.
2. Describe the reaction mechanism of SN_2 with suitable examples.
3. Give the preparation, tests for purity and medicinal uses of Methyl Salicylate.
4. What are Grignard reagent and give the applications of Grignard reagent?
5. Give any four reactions of Naphthalene.
6. 1, 2 addition and 1, 4 addition.
7. Describe the preparation and uses of Iodoform and Citric acid.
8. Discuss about the effect of substituent on reactivity and orientation with Benzene.

III. Short answers on: (10 x 2 = 20)

1. Give three examples for α , β -Unsaturated carbonyl compounds.
2. What are Free radicals?
3. Draw the structure and uses of Vanillin.
4. Write about the types of bond fission.
5. Write about the stability of carbocations.
6. Give one example for nucleophilic aromatic substitution reaction.
7. Give any one method of preparation of Diphenyl ethane.
8. Give the structure and uses of Sodium Lauryl Sulphate.
9. Hoffmann degradation of amines.
10. Give the structural formula and IUPAC name of Acetone.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

(LP 4252)

AUGUST 2019

Sub Code: 4252

**B.PHARM. DEGREE EXAMINATION
FIRST YEAR
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY**

Q.P. Code: 564252

Time: Three hours

Maximum: 100 Marks

I. Elaborate on: (2 x 20 = 40)

1. a) Classify Alcohols with examples. Give the preparation and reactions of alcohols.
b) Explain the mechanism of Electrophilic addition reaction across a double bond.
2. a) Give the structure, nomenclature, preparation and reaction of Cycloalkanes.
b) Explain the mechanism, reactivity and orientation of E2 reaction.

II. Write notes on: (8 x 5 = 40)

1. What are Carbocations? Explain its application in organic synthesis.
2. Give the synthetic utility of Diazonium salts.
3. Write the properties of alpha beta unsaturated carbonyl compounds.
4. Write the preparation, test for purity, and medicinal uses of Vanillin and Mephenesin.
5. Explain Coulson and Moffitts modification.
6. Explain Markownikoff's rule and Peroxide effect.
7. Write the preparation and properties of Naphthalene.
8. Compare and Contrast SN1 and SN2 reaction.

III. Short answers on: (10 x 2 = 20)

1. Tautomerism.
2. Hoffmann degradation of amines.
3. Mesomeric effect.
4. Saytzeff's rule.
5. Structure and medicinal uses of Carbromal.
6. Ionic and non- ionic solutes.
7. Resonance structure of benzene.
8. Write the Ozonolysis reaction.
9. Structural formula and IUPAC name of Acetone.
10. $4n + 2$ rule.

THE TAMIL NADU Dr.M.G.R. MEDICAL UNIVERSITY

(LQ 4252)

FEBRUARY 2020

Sub Code: 4252

**B.PHARM. DEGREE EXAMINATION
FIRST YEAR
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY**

Q.P. Code: 564252

Time: Three hours

Maximum: 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. a) Describe the Kekule structure of Benzene. Write their resonance structure of Benzene.
b) Elaborate the mechanism, kinetic, stereochemistry of Aliphatic Nucleophilic substitution reactions SN1 & SN2.
2. a) Write the preparation of Alkyl halides.
b) Briefly enumerate the preparation and synthetic utility of Malonic ester.
c) Write the properties of Alpha Beta unsaturated carbonyl compounds.

II. Write notes on: **(8 x 5 = 40)**

1. Explain Baeyer's strain theory and its limitations.
2. Explain Markownikoffs rule.
3. Give any five reactions of Anthracene.
4. Give the preparation and medicinal uses of Saccharin.
5. Describe the methods of preparation of Alcohols.
6. Explain Diels-alder reaction.
7. Write the preparation and synthetic utility of Grignard reagent.
8. Describe the mechanism of addition reaction of Conjugated dienes.

III. Short answers on: **(10 x 2 = 20)**

1. Define Resonance and Conjugation.
2. Draw the structure of Diethyl ether and Isopropyl alcohol.
3. What are chelating agents with examples?
4. Oxidation of primary alcohols.
5. Write two methods of synthesis of alkenes.
6. Define and classify hybridization with examples.
7. Huckel's rule.
8. Enumerate the functional derivatives of carboxylic acid.
9. Epoxides.
10. Medicinal uses of Iodoform and Lactic acid.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[BPHARM 0921]

**SEPTEMBER 2021
(FEBRUARY 2021 EXAM SESSION)**

Sub. Code: 4252

**B. PHARMACY DEGREE EXAMINATION
FIRST YEAR – (NON-SEMESTER)
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY
*Q.P. Code: 564252***

Time: Three hours

Answer ALL questions

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Explain the Preparation and reactions of Alkenes.
2. What are Polynuclear Hydrocarbons? Write the synthesis and properties of (a) Napthalene (b) Anthracene.

II. Write notes on:

(8 x 5 = 40)

1. Give the Synthetic utility of Diazonium Salts.
2. Distinguish Primary, Secondary and Tertiary Amines.
3. Write the preparation and medicinal uses of (a) Saccharin (b) Amphetamine.
4. What are Carbenes? Give examples and explain about stability.
5. Describe Coulson and Moffitt's Modification.
6. Write the preparation and properties of Anthracene.
7. Explain Mechanism of Halogenations of Alkanes. Discuss the selectivity of halogens in this reaction.
8. Write short notes on Mesomeric effect.

III. Short answers on:

(10 x 2 = 20)

1. Write the structure and medicinal use of Methyl Salicylate.
2. Define Tautomerism.
3. Brief about Polarity of bond.
4. Give the structural formula of urethane and Acetanilide.
5. Define Nucleophiles.
6. Write the method of preparation of Iodoform.
7. Two reactions of Cycloalkanes.
8. Define Covalent bond.
9. Write a note on Cannizzaro reaction.
10. Define inductive effect.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[BPHARM 0921]

**SEPTEMBER 2021
(FEBRUARY 2021 EXAM SESSION)**

Sub. Code: 4252

**B. PHARMACY DEGREE EXAMINATION
FIRST YEAR – (NON-SEMESTER)
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY
*Q.P. Code: 564252***

Time: Three hours

Answer ALL questions

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Explain the Preparation and reactions of Alkenes.
2. What are Polynuclear Hydrocarbons? Write the synthesis and properties of (a) Napthalene (b) Anthracene.

II. Write notes on:

(8 x 5 = 40)

1. Give the Synthetic utility of Diazonium Salts.
2. Distinguish Primary, Secondary and Tertiary Amines.
3. Write the preparation and medicinal uses of (a) Saccharin (b) Amphetamine.
4. What are Carbenes? Give examples and explain about stability.
5. Describe Coulson and Moffitt's Modification.
6. Write the preparation and properties of Anthracene.
7. Explain Mechanism of Halogenations of Alkanes. Discuss the selectivity of halogens in this reaction.
8. Write short notes on Mesomeric effect.

III. Short answers on:

(10 x 2 = 20)

1. Write the structure and medicinal use of Methyl Salicylate.
2. Define Tautomerism.
3. Brief about Polarity of bond.
4. Give the structural formula of urethane and Acetanilide.
5. Define Nucleophiles.
6. Write the method of preparation of Iodoform.
7. Two reactions of Cycloalkanes.
8. Define Covalent bond.
9. Write a note on Cannizzaro reaction.
10. Define inductive effect.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[BPHARM 0122]

**JANUARY 2022
(AUGUST 2021 EXAM SESSION)**

Sub. Code: 4252

B.PHARMACY DEGREE COURSE (NON-SEMESTER EXAMINATIONS)

FIRST YEAR (Regulation 2009-2010)

PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code: 564252

Time: Three hours

Answer ALL questions

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. a) Write down the general methods of preparation of Alkyl and Aryl halides.
b) Explain the methods of preparation and synthetic utility of Malonic ester.
2. Describe the mechanism, kinetics, stereochemistry and relative reactivity of alkyl halides in SN1, SN2 reactions.

II. Write notes on:

(8 x 5 = 40)

1. Write the methods of preparation of Amines.
2. Write a detailed note on FREE radicals.
3. Explain the preparation and synthetic utility of Diazonium salt.
4. Write the methods of preparation of Alkanes.
5. Describe Williamson synthesis.
6. Mention the methods of preparation and reactions of Ketone.
7. Write the preparation and synthetic utility of Grignard reagent.
8. Give the preparation and medicinal uses of amphetamine.

III. Short answers on:

(10 x 2 = 20)

1. Methyl salicylate.
2. Hoffmann degradation of amines.
3. Explain bond fission.
4. Aromaticity of Benzene.
5. Citric acid.
6. Anthracene.
7. Give the structure of phenol and aniline.
8. Brief about oxidation of Aldehyde.
9. Carbanion.
10. Oxidation of primary alcohol.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[BPHARM 0522]

**MAY 2022
(FEBRUARY 2022 EXAM SESSION)**

Sub. Code: 4252

**B. PHARMACY DEGREE EXAMINATION
FIRST YEAR – (NON-SEMESTER)
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY
Q.P. Code: 564252**

Time: Three hours

Answer ALL questions

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Explain the Nucleophilic aromatic substitution reaction of Benzene.
2. Describe the mechanism, reaction and orientation of E₂ reactions.

II. Write notes on:

(8 x 5 = 40)

1. Write the methods of preparation of Amines.
2. Differentiate Primary, Secondary and Tertiary Alcohols.
3. Explain the preparation, stability, fate and applications of Free radicals.
4. Write the methods of preparation of Alkanes.
5. Describe Huckels rule.
6. Mention the methods of preparation and reactions of Ketone.
7. Write the preparation and synthetic utility of Grignard reagent.
8. Explain Bayer's strain theory and its limitation.

III. Short answers on:

(10 x 2 = 20)

1. Define Covalent bond.
2. Hoffmann degradation of amines.
3. Explain Conjugation.
4. What is Inductive effect?
5. Citric acid.
6. Anthracene.
7. Define Resonance effect.
8. Define Electrophile.
9. Carbanion.
10. What is Hinsberg test?

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[BPHARM 1022]

**OCTOBER 2022
(AUGUST 2022 EXAM SESSION)**

Sub. Code: 4252

B.PHARMACY DEGREE COURSE (NON-SEMESTER EXAMINATIONS)

FIRST YEAR (Regulation 2009-2010)

PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code: 564252

Time: Three hours

Answer ALL questions

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. What are amines? How are they classified? Discuss the general methods of preparations and properties of Aliphatic amines.
2. a) Classify Alcohols with examples. Give the preparation and reactions of alcohols.
b) Explain the mechanism of Electrophilic addition reaction across a double bond.

II. Write notes on:

(8 x 5 = 40)

1. Explain the facts supporting Kekulé structure of Benzene.
2. Explain Markownikoff's rule and peroxide effect.
3. Outline the general methods of preparation of alkynes.
4. Write note on Inductive effect.
5. What are carbenes? Give examples and explain about stability.
6. Explain mechanism of Halogenation of alkanes. Discuss selectivity of halogens in this reaction.
7. Write short notes on mesomeric effect.
8. Mention the methods of preparation and reactions of aldehydes.

III. Short answers on:

(10 x 2 = 20)

1. Oxidation of secondary alcohols.
2. Define polynuclear hydrocarbons.
3. What is dipole moment?
4. Explain Polarity.
5. Define Hybridization.
6. What is Diels-Alder reaction?
7. What is hyperconjugation?
8. Define Tautomerism.
9. 4n + 2 rule.
10. Define boiling point and melting point.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[B.PHARM 0323]

**MARCH 2023
(FEBRUARY 2023 EXAM SESSION)**

Sub. Code: 4252

B.PHARMACY DEGREE COURSE (NON-SEMESTER EXAMINATIONS)

FIRST YEAR (Regulation 2009-2010)

PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code: 564252

Time: Three hours

Answer ALL questions

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Describe the mechanism and stereochemistry of alkyl halides in nucleophilic aliphatic substitution reaction (SN1 & SN2).
2. Explain the Kekulé's structure, aromaticity and resonance structures of benzene including Huckel's rule and stability.

II. Write notes on:

(8 x 5 = 40)

1. Write any two methods of preparation of carboxylic acid with its mechanism.
2. Write about the properties of Alpha and Beta unsaturated carbonyl compounds.
3. Describe in detail about electrophiles and nucleophiles.
4. Write short notes on Coulson and Moffitt's modification.
5. Explain the mechanism of halogenations of alkanes.
6. Describe the Preparation and synthetic utility of aceto-acetic ester.
7. Describe the methods of preparation of Alcohols.
8. Give the nomenclature and preparation of Cycloalkanes.

III. Short answers on:

(10 x 2 = 20)

1. Give the IUPAC name for $\text{Cl}-\text{CH}_2-\text{CH}_2-\text{Cl}$.
2. Give the structure for 5-Chloro-4-methyl-hex-3-en-2-one.
3. Write the ozonolysis reaction.
4. How will distinguish 1, 2 and 3 alcohol?
5. Write the preparation and medicinal uses of Glycol and Benzoic acid.
6. Write the preparation and medicinal uses of methyl salicylate and acetanilide.
7. Give the structure of diphenyl methane and diphenyl ethane.
8. Define intermolecular bonding.
9. Diel's alder reaction.
10. Define the term electrophilic aromatic substitution reaction.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[B.PHARM 0823]

AUGUST 2023

Sub. Code: 4252

B.PHARMACY DEGREE COURSE (NON-SEMESTER EXAMINATIONS)

FIRST YEAR (Regulation 2009-2010)

PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code: 564252

Time: Three hours

Answer ALL questions

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. What is hybridization? Explain sp^3 and sp^2 hybridization of carbon compounds with example.
2. Describe the mechanism, kinetics and stereochemistry of SN_2 reactions.

II. Write notes on:

(8 x 5 = 40)

1. Describe Hyper conjugation.
2. Describe about Cannizzaro and crossed Cannizzaro reaction
3. Explain the addition reactions in conjugated dienes.
4. Mention the methods of preparation and reactions of Glycol.
5. Describe the basicity of amines and effect of substituents of basicity.
6. Explain the stability of carbocation.
7. Write any two electrophilic aromatic substitution reaction of Benzene with mechanism.
8. Describe the intermolecular forces with examples.

III. Short answers on:

(10 x 2 = 20)

1. What are epoxides?
2. Huckel's rule.
3. Define energy of activation.
4. What is inductive effect?
5. What is Sandmeyer reaction?
6. What is Ozonolysis?
7. Mention the types of bond fission.
8. What is diene?
9. Define dipole moment.
10. How to test the purity of vanillin?

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[B.PHARM 0524]

**MAY 2024
(FEBRUARY 2024 EXAM SESSION)**

Sub. Code: 4252

B.PHARMACY DEGREE COURSE (NON-SEMESTER EXAMINATIONS)

FIRST YEAR (Regulation 2009-2010)

PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code: 564252

Time: Three hours

Answer ALL questions

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. a) Briefly enumerate the preparation and synthetic utility of Acetoacetic ester.
b) Give the preparation and reactions of Aldehydes.
2. a) Explain the mechanism, reactivity and orientation of Elimination reactions (E1 & E2).
b) Explain the preparation and reactions of all three classes of Amines.

II. Write notes on:

(8 x 5 = 40)

1. Write the preparation of aryl halides.
2. Differentiate primary, secondary and tertiary alcohols.
3. Add a note on the basicity of amines.
4. Write the aromatic character of benzene.
5. Explain the mechanism in the halogenations of Alkanes.
6. Describe sp³ hybridization with examples.
7. Explain Bayers strain theory.
8. Write the preparation, test for purity and medicinal uses of Benzoic acid.

III. Short answers on:

(10 x 2 = 20)

1. Define Electrophiles and Nucleophiles.
2. Structural formula of Phenol and Aniline.
3. Energy of activation.
4. Define free radicals.
5. Polarity and types of bonds.
6. Define hyperconjugation.
7. Boiling point and Melting point.
8. Keto-enol tautomerism.
9. Wave equations.
10. Carbenes.
