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

(LN 2016) SEPTEMBER 2018 **Sub. Code: 2016**

B.PHARM. DEGREE EXAMINATION
PCI REGULATION – SEMESTER II
FIRST YEAR
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY – I

Q.P. Code: 562016

Time: Three hours **Maximum: 75 Marks**

I. Elaborate on: Answer any TWO questions. **(2 x 10 = 20)**

1. Define Elimination reaction. Discuss the mechanism of E_1 and E_2 reactions.
2. Explain the free radical addition reaction of conjugated dienes with examples.
3. Describe the mechanism, kinetics and stereochemistry of SN_2 reaction.

II. Write notes on: Answer any SEVEN questions. **(7 x 5 = 35)**

1. Explain the acidity of carboxylic acids.
2. Stability and rearrangement of carbocations.
3. Mechanism and examples of aldol condensation.
4. Explain the effect of substituents on basicity of amines.
5. Explain Diels Alder reaction with examples.
6. How to differentiate primary, secondary and tertiary alcohols?
7. SN_1 versus SN_2 reactions.
8. Benzoin condensation.
9. Explain about Markownikoff's rule.

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

1. Define SP_3 hybridization.
2. Define optical isomerism with one example.
3. Give the structure of 2-Pentanol and isopropyl alcohol.
4. Define nucleophilles and electrophilles.
5. Structure and use of formaldehyde and paraldehyde.
6. Define conjugated dienes with examples.
7. What is tautomerism?
8. Any two qualitative test for aldehyde.
9. Structure and uses of methyl salicylate.
10. Define electromeric effect.

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

(LO 2016) MARCH 2019 **Sub. Code: 2016**

B.PHARM. DEGREE EXAMINATION
PCI Regulation – SEMESTER II
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY – I

Q.P. Code: 562016

Time: Three hours **Maximum: 75 Marks**

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. Discuss SN_1 and SN_2 reactions with special reference to mechanism reactivity and stereochemistry.
2. What are alkyl halides? How will you prepare alkyl halides and aryl alkyl halides?
3. Explain the phenomenon of SP4 & SP3 trigonal hybridization with suitable example.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. What is Diazonium reaction? Explain the general reaction.
2. Explain the Markonnikoffs rule and peroxide effect.
3. What is Diel's Alder reaction? Explain with examples.
4. Write the method of preparation of ether by williamson's synthesis.
5. How chloroform is prepared industrially? Write the properties, analytical test and uses of Chloroform.
6. Explain the formation of bonding, antibonding and nonbonding orbitals.
7. Give any three methods of preparation and three reactions of Amines.
8. Explain the photohalogenation and thermal halogenations of alkanes.
9. Explain any three methods of preparation of alcohols.

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

1. Define and classify Carboxylic acids and Esters.
2. Define Ozonolysis with examples.
3. Wolf Kishner reduction.
4. What is hypercongucation?
5. Give the IUPAC name of $HO\text{-}CH_2\text{-}CH_2\text{-}COOH$
6. How is glycol synthesized?
7. Explain resonance effect.
8. Give the structure and use of amphetamine.
9. Write the structure and uses of cinnamaldehyde.
10. Write the structure and use of Benzyl Benzoate.

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

(LP 2016) SEPTEMBER 2019 **Sub. Code: 2016**

B.PHARM. DEGREE EXAMINATION
PCI Regulation – SEMESTER II
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY – I

Q.P. Code: 562016

Time: Three hours **Maximum: 75 Marks**

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. Explain the mechanism, reactivity and kinetics of SN_I reaction.
2. Explain Perkin condensation with mechanism and examples.
3. Explain the mechanism of free radical addition reaction of alkenes with examples.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Explain the basicity of amines.
2. Halogenation of alkanes.
3. Ozonolysis.
4. Explain Saytzeffs rule with examples.
5. Explain the mechanism of cannizaro reaction with examples.
6. E_1 versus E_2.
7. Describe in detail about electrophilles and nucleophilles with examples.
8. Differentiate between primary, secondary, tertiary amines.
9. Explain about hybridization. Describe the molecular orbital structure of ethane.

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

1. Define and classify alcohols.
2. Define hydrogen bonding with one example.
3. Structure and use of ethylene diamine.
4. 1, 4 addition of conjugated dienes.
5. Why aniline is less basic than ammonia?
6. Structure and use of vanillin and propylene glycol.
7. Qualitative test for amides.
8. IUPAC name of HO – CH2-CH2-CH2 – COOH.
9. Medicinal uses and structure of Lactic acid and amphetamine.
10. General test to identify acetone and benzyl alcohol.

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

(LQ 2016) MARCH 2020 **Sub. Code: 2016**

B.PHARM. DEGREE EXAMINATION
PCI Regulation – SEMESTER II
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY – I

Q.P. Code: 562016

Time: Three hours **Maximum: 75 Marks**

I. Elaborate on: Answer any TWO questions. **(2 x 10 = 20)**

1. Discuss Sp2 hybridization in alkenes.
2. a) Give the method of preparation of Carboxylic acid.
   b) Acidity of carboxylic acid.
3. a) How will you distinguish primary, secondary and tertiary amines?
   b) Discuss the basicity of amines.

II. Write notes on: Answer any SEVEN questions. **(7 x 5 = 35)**

1. How are aldehydes prepared? Give their important reactions.
2. Give the method of preparation on allyl halide.
3. Give some important reactions of alcohols.
4. Write about the effect of substituent on acidity of carboxylic acid.
5. Write a note on benzoin condensation.
6. Explain SN^1 reaction.
7. Write about IUPAC rules for naming cycloalkanes.
8. Write a note on Peroxide effect.
9. Write about conjugated dienes.

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

1. Define ozonolysis.
2. How will you distinguish 1-butyne and 2 butyne?
3. Give the structure and uses of chloroform.
4. Write the structure and use of: a) Cetosteryl alcohol b) Glycerol.
5. Define Cannizzaro reaction.
6. Give the structure and use of: a) Hexamine b) Vanillin.
7. Define inductive effect.
8. What happens when methane is treated with Iodine in presence of an oxidizing agent HIO_3?
9. Write the structure of the following: a) 1-methyl pentene b) 2-ethyl butane.
10. Define Isomerism.

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

[BPHARM 0321] MARCH 2021 Sub. Code: 2016

(SEPTEMBER 2020 EXAM SESSION)

B. PHARMACY DEGREE EXAMINATION

PCI Regulation SEMESTER – II

PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY I

Q.P. Code : 562016

Time: Three hours **Maximum: 75 Marks**

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. Discuss the mechanism of E1 and E2 reactions of alkyl halides.
2. Explain in detail classification of organic compounds with common and IUPAC system of nomenclature of organic compounds.
3. Write short notes on:
   a) Give the method of preparation of alcohol.
   b) How to distinguish primary, secondary, tertiary alcohols.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Write a note on Sp^2 hybridization in alkenes.
2. Write a note on ozonolysis.
3. Discuss the reaction of salts of carboxylic acid.
4. Write in detail about structural isomerism with examples.
5. Explain Saytzeff's rule.
6. Write about cannizzaro reaction.
7. Explain Perkin's condensation.
8. What are amines and give the classification of it with examples.
9. What is Markownikoff's rule of addition.

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

1. What do you mean by Tautomerism.
2. Name the following alkyl gp CH_3-CH_2-CH_2-$(CH_3)_2CH$.
3. Write the structural formula of,
   a) 2-propenal
   b) 2,2,4-trimethylpentene
4. Write the medicinal uses of
   a) Benzoyl alcohol
   b) Ethanolamine.
5. Write the structure and use of
   a) Amphetamine
   b) Propylene glycol
6. What is Hinsberg reagent?
7. What is Inductive effect?
8. What is allylic rearrangement.
9. Give the structure and use of Iodoform.
10. Define isomerism.

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

[BPHARM 0122] JANUARY 2022 Sub. Code: 2016
(MARCH 2021 EXAM SESSION)

B.PHARMACY DEGREE COURSE (SEMESTER EXAMINATIONS)
PCI Regulation 2017 – SEMESTER II
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY I
Q.P. Code : 562016

Time: Three hours **Maximum: 75 Marks**

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. Write about SN^1 and SN^2 reactions of alkyl halides.
2. Explain Diel's aldes reaction and free radical addition reaction of conjugated diene.
3. What is Isomerism? Classify them with suitable examples.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Write about allylic rearrangement.
2. What is Markownikoff's rule of addition.
3. Write a note on ozonolysis.
4. What are alcohols? Discuss various types of alcohols.
5. Discuss acidity of carboxylic acid.
6. Write about aldol condensation.
7. Explain why carbonyl carbon undergo nucleophilic addition.
8. Give the qualitative test for alcohols.
9. Write about Cannizzaro reaction.

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

1. Define hybridization.
2. give the structure and use of
   a) Dichloromethane
   b) Amphetamine
3. Define Saytzeff's rule.
4. Define Isomerism.
5. Give the structure and use of
   a) Chloral hydrate
   b) Acetone
6. What is Inductive effect?
7. Define hydrolysis and condensation with example.
8. Give the IUPAC name for
   a) $CH_3OCH_2CH_3$
   b) $CH_3CH_2CH(CH_3)CN$
9. Write the structured formula for the following
   a) 2-propanone
   b) Chloro-2-methylpropane
10. Write the structure and use of
    a) Methylsalicylate
    b) Benzylbenzoate

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

[BPHARM 0522] MAY 2022 Sub. Code: 2016

(SEPTEMBER 2021 EXAM SESSION)

B. PHARMACY DEGREE EXAMINATION

PCI Regulation SEMESTER - II

PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY I

Q.P. Code : 562016

Time: Three hours **Maximum: 75 Marks**

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. What are alcohols? Classify them. Outline the nomenclature, method of preparation and chemical reactions of alcohols.
2. Outline the synthesis and mechanism of
   a) Aldol condensation
   b) Cannizzaro reaction
   c) Benzoin condensation
   d) Perkin condensation
3. a) Describe any two methods to differentiate 1˚, 2˚ and 3˚ amines.
   b) Give the reactions of carboxylic acids.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Discuss the general methods of preparations and properties of aliphatic amines.
2. Factors affecting SN^1 and SN^2 reactions.
3. Discuss free radical and electrophilic addition reactions of conjugated dienes.
4. Explain the mechanism by which alkyl halides undergo elimination reaction with suitable examples.
5. Discuss the mechanism of bimolecular nucleophillic substitution reaction.
6. What are carboxylic acids? Draw the resonating structures of carboxylate ion.
7. Discuss factors affecting E^1 and E^2 reactiions.
8. Write any three qualitative tests of carboxylic acid.
9. How will you distinguish between aldehydes and ketones.

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

1. Draw the structure and uses of Benzyl benzoate, Succinic acid.
2. Draw the structure and uses of Ethanolamine, Ethylenediamine.
3. Draw the structure and uses of Acetyl salicylic acid, Lactic acid.
4. Draw the structure and uses of Hexamine, Cinnamaldehyde.
5. Discuss the two simplest aliphatic Carboxylic acid with their IUPAC names.
6. Why ammonia is basic in nature.
7. State anti-Markownikov rule.
8. What is the full form of IUPAC.
9. Explain why tertiary amine is more basic than the other two amines?
10. Define elimination reaction.

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

[BPHARM 1022] OCTOBER 2022 Sub. Code: 2016
(MARCH 2022 EXAM SESSION)

B.PHARMACY DEGREE COURSE (SEMESTER EXAMINATIONS)
PCI Regulation 2017 – SEMESTER II
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY I
Q.P. Code : 562016

Time: Three hours **Maximum: 75 Marks**

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. Explain the Electrophilic addition reactions of Alkenes with its reaction mechanism.
2. Summarize the mechanism, kinetics, stereochemistry and relative reactivity of SN2 reactions of Alkyl halides.
3. Describe the Preparation, Free radical addition reactions and Stability of Conjugated dienes with examples.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Summarize the general methods of preparation of Amines.
2. Explain the reaction mechanism involved in Aldol condensation and Crossed Aldol condensation.
3. Illustrate various qualitative tests to distinguish Aldehydes and Ketone with reactions.
4. Describe the general rules of IUPAC system of nomenclature of organic compounds.
5. Define Inductive effect and explain its effect on acidity of aliphatic carboxylic acid.
6. Explain Saytzeff's rule with examples.
7. Describe the General methods of preparation of Alcohol.
8. Illustrate any five chemical reactions of Alkanes.
9. Outline the qualitative tests of primary, secondary and tertiary Amines.

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

1. Define Structural isomerism with an example.
2. What is anti-Markownikoff's rule?
3. State any two chemical reactions of Amines.
4. Sketch the structure of propylene glycol and Glycerol with its uses.
5. List out the qualitative tests of Esters.
6. What is the use of Citric acid and tartaric acid? Give its chemical structure.
7. Mention the structure and uses of ethanolamine and Amphetamine.
8. Define Hybridisation.
9. Recall the structure and uses of Tetrachloroethylene and Dichloromethane.
10. Define Electromeric effect with an example.

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

[B.PHARM 0323] MARCH 2023 Sub. Code: 2016
(SEPTEMBER 2022 EXAM SESSION)

B.PHARMACY DEGREE COURSE (SEMESTER EXAMINATIONS)
PCI Regulation 2017 – SEMESTER II
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY I

Q.P. Code: 562016

Time: Three hours **Maximum: 75 Marks**

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. Define Elimination reaction. Discuss the E_1 and E_2 reaction mechanism with suitable examples.
2. Explain the general methods of preparation and chemical reactions of Amines.
3. Classify alcohols. Explain the nomenclature and method of preparation of Alcohols.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Explain Anti-Markownikoff's orientation mechanism with example.
2. Describe the reaction mechanism of Perkin condensation and mention its applications.
3. Summarize about the SP^3 hybridization in Alkanes.
4. Explain the Diels-alder reaction with its reaction mechanism.
5. Discuss the effect of Substituents on acidity of carboxylic acid.
6. Outline the general methods of Preparation of Ketones.
7. Illustrate the Cannizzaro reaction and crossed Cannizzaro reaction with mechanism.
8. Describe about SN1 versus SN2 reactions.
9. Classify Organic compounds based on its functional group.

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

1. Define Markownikoff's rule.
2. Write any two methods of preparation of Aldehyde.
3. Sketch the structure and uses of oxalic acid and Hexamine.
4. Mention the structural formula, IUPAC name and uses of Lactic acid.
5. How will you differentiate Aldehyde from Ketone?
6. Recall the structure and medicinal uses of Methyl salicylate and Propylene glycol.
7. What are Dienes? Give examples.
8. State Lucas test.
9. Sketch the structure of Dimethyl phthalate and Ethylenediamine.
10. What is Aldol condensation?

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

[B.PHARM 0823] AUGUST 2023 Sub. Code: 2016
(MARCH 2023 EXAM SESSION)

B.PHARMACY DEGREE COURSE (SEMESTER EXAMINATIONS)
PCI Regulation 2017 – SEMESTER II
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY I

Q.P. Code: 562016

Time: Three hours **Maximum: 75 Marks**

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. Discuss about the reaction mechanism of;
   a. Cannizzaro reaction and Crossed Cannizzaro reaction.
   b. Benzoin condensation.
2. Describe general methods of preparation and any five chemical reactions of Alkene.
3. Explain the basicity and the effect of substituents on the basicity of Amines.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Summarize the general chemical reactions of Alkanes.
2. Define and classify Structural isomerism with examples.
3. Illustrate various methods to distinguish 1°, 2° and 3° alcohols with reactions.
4. Explain the reaction mechanism involved in SN_1 reactions of Alkyl halides.
5. Describe the Addition reactions in Conjugated dienes.
6. Explain the E1versus E2 reactions.
7. Outline the Diazotisation reaction and Hinsberg reactions of Amines.
8. Discuss the qualitative tests for Carboxylic acids.
9. Explain various types of Hybridisation in hydrocarbons.

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

1. Sketch the structure of 4- chloro-hex-3-en-2-one and 3-Bromo butane.
2. Define Saytzeff's rule.
3. Sketch the structure and mention the uses of Benzyl benzoate and Iodoform.
4. Recall the structure and uses of oxalic acid and Cinnamaldehyde.
5. Define Inductive effect with an example.
6. List out the electron withdrawing and electron releasing groups.
7. Define nucleophillic addition reaction. Sketch the reaction of hydrogen cyanide with aldehyde.
8. Sketch the structure and mention the uses of Dimethyl phthalate and Succininc acid.
9. Mention the qualitative tests of Amides.
10. What is functional isomerism? Give examples.

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

[B.PHARM 1223] DECEMBER 2023 Sub. Code: 2016
(SEPTEMBER 2023 EXAM SESSION)

B.PHARMACY DEGREE COURSE (SEMESTER EXAMINATIONS)
PCI Regulation 2017 – SEMESTER II
PAPER II – PHARMACEUTICAL ORGANIC CHEMISTRY I

Q.P. Code: 562016

Time: Three hours **Maximum: 75 Marks**

I. Elaborate on: Answer any TWO questions. (2 x 10 = 20)

1. Give the methods of preparation and reactions of Alkanes.
2. Discuss the IUPAC system of nomenclature of organic compounds.
3. Write the Preparation and reaction of Aldehyde and Ketone.

II. Write notes on: Answer any SEVEN questions. (7 x 5 = 35)

1. Explain the free radical addition reaction of alkenes.
2. Explain SN_2 reaction.
3. Aldol Condensation.
4. Describe the factors affecting E_1 and E_2 reactions.
5. Give any four important reaction carboxylic acids.
6. Markownikoffs Orientations.
7. Diels Alder Reactions.
8. Write the structure and uses of Benzoyl alcohol, Hexamine, vanillin and Benzoic acid.
9. Basicity of Amine.

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

1. Define Tautomerism.
2. Classification of Condensation.
3. Corey house synthesis.
4. Classification of Dienes.
5. Qualitative test for Alcohols.
6. Types of Carbon atoms.
7. Write the Structural formula of 3, 3-Dimethylpentane.
8. Structure and uses of acetyl salicyclic acid.
9. Define Isomerism.
10. Types of Hybridization.

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