

Roll Number \_\_\_\_\_ (Total Number of Questions 13) (Total number of Printed Pages 01)

Programme	B. Pharmacy
Semester	2 <sup>nd</sup>
Subject	Pharmaceutical Organic Chemistry-I
Subject Code	BP202T
Paper ID	74968
Time	3Hours
Maximum Marks	75

**Instructions to Candidates:** No supplementary/continuation sheet will be issued to the candidates. Answer the questions precisely.

\*Section A consists of Ten parts of 2 marks each (Objective Type); Attempt **ALL**.

\*\*Section B consists of Three questions carrying 10 marks each (Long Answer); attempt any **TWO**.

\*\*\*Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.

**Section A (10 X 2 = 20)**

1. Give very short answers to the followings (2 marks each):

i.	Define Inductive effect?
ii.	Explain effect of substituent on acidity and basicity?
iii.	What is Electromeric effect?
iv.	Explain $sp^3$ hybridization of alkanes?
v.	What is full form of IUPAC?
vi.	Give any two qualitative tests for alcohol.
vii.	Compare stability of alkene and conjugated dienes.
viii.	Write structure and uses of vanillin.
ix.	How will you differentiate 1°, 2°, 3° amines?
x.	Write structure and medicinal uses of Cinnamaldehyde.

**Section B (2 X 10 = 20)**

2.	Explain Aldol condensation and cross aldol condensation with mechanism.
3.	Explain E1 and E2 reactions with mechanism. Also explain factors affecting E1 and E2 reactions.
4.	Explain SN1 and SN2 reactions with mechanism and factors.

**Section C (7 X 5 = 35)**

5.	Give a detail note on isomerism with examples.
6.	Discuss about markownikoff's and anti markownikoff's rule.
7.	Write a detail note on qualitative tests for carbonyl compounds.
8.	Explain halogenation of alkanes with mechanism?
9.	Explain method of preparation and synthesis of aliphatic amines.
10.	Differentiate electrophilic and nucleophilic reactions with examples.
11.	Discuss Ozonolysis and Allylic rearrangement.
12.	Describe free radical reaction of conjugated dienes.
13.	Explain mechanism of Cannizzaro reaction.

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22/6/22

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\*\*\* Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any SEVEN.

**Section A****(10 X 2 = 20)**

1. Give very short answers to the followings (2 marks each):

i.	What is the Full form of IUPAC?
ii.	Define Saytzeffs orientation in elimination reaction.
iii.	Write a note on Inductive effect.
iv.	Explain stability of conjugated dienes.
v.	Give the structure and uses of 5-Bromo-4-methyl-hex-3-en-2-one.
vi.	Write one method for the preparation of alcohol.
vii.	Write any two qualitative tests for amines.
viii.	Write the structure and uses of Chloral hydrate.
ix.	Write the structure and IUPAC name of a) tert- Butyl chloride b) Formamide.
x.	Enlist evidences for E1 reaction.

**Section B****(2 X 10 = 20)**

2.	Give the reaction and mechanism of elimination reaction with suitable examples.
3.	Discuss the reaction mechanism of Perkin condensation and Aldol condensation.
4.	Explain kinetics, mechanism, stereochemistry and reactivity of SN1 reaction.

**Section C****(7 X 5 = 35)**

5.	Define hybridization. Write a note on SP <sup>3</sup> hybridization in alkanes.
6.	What is Isomerism? Discuss structural isomerism with examples.
7.	Explain the reaction and mechanism of Cannizzaro reaction.
8.	Give any four qualitative tests for alcohol.
9.	Explain the basicity of aliphatic amines with special emphasis on effect of substituent on their basicity.
10.	Differentiate between SN1 and SN2 reactions of alkyl halides.
11.	Define and classify carbocations. Write a note on stability of carbocations.
12.	Give the structure of following:- a) 2-chloropentane      b) Hexenal      c) tertiary-butyl chloride d) o-pentyl bromide      e) 3-chloro hex-1-yne.
13.	Write the uses and chemical structure of Vaniline and Cinnamaldehyde.

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180723

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\*\*\* Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any SEVEN.

**Section- A (10X2=20)**

1.	Give very short answers to the followings:
i.	What is Metamerism?
ii.	What is the $sp^2$ hybridization in alkenes?
iii.	State Saytzeff's rule.
iv.	Write the structure and uses of glycerol.
v.	Why aldehydes are more reactive than ketones?
vi.	Write Hell-Volhard-Zelinsky reaction.
vii.	Give qualitative testes for carboxylic acids.
viii.	Write structure and uses of amphetamine.
ix.	Write short note on Diel's -Alder reaction.
x.	Write structure and uses of chloral hydrate.

**Section- B (2X10=20)**

2.	Discuss the mechanism of $SN^1$ and $SN^2$ reactions of alkyl halides.
3.	Explain the mechanism of (a) Cannizzaro reaction (b) Perkin condensation
4.	Explain isomerism in organic compound with suitable examples.

**Section- C (7X5=35)**

5.	Explain classification of organic compounds.
6.	Discuss about acidity of carboxylic acids and effects of substituents on it.
7.	Explain the Markownikoff's rule with suitable examples.
8.	What factors influences the basic strength of aliphatic amine? Explain.
9.	Discuss the order of reactivity of alkyl halides in elimination reaction.
10.	Discuss the qualitative tests for alcohols.
11.	How will you distinguish 1°, 2° and 3° amine by Hinsberg's method?
12.	Write down the mechanism of halogenation of alkanes.
13.	Write the difference between $E_1$ and $E_2$ reactions.

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**Section- A**

(10 X 2 = 20)

1.	Give very short answers to the followings:
i.	Write the IUPAC name of citric acid.
ii.	Differentiate between sigma and pie bond.
iii.	Write the structure and uses of propylene glycol and Amphetamine.
iv.	Which type of SN reaction is bimolecular and why?
v.	Write a method for the conversion of carboxylic acid to acid halide.
vi.	Write any two qualitative tests for esters.
vii.	Discuss the effect of electron withdrawing group on the basicity of amines.
viii.	Complete the following reaction: $\text{CH}_3\text{CH}_2\text{Br} \xrightarrow{\text{Base}} ?$
ix.	Give an example of Diel-Alder reaction.
x.	Define functional isomerism with the help of suitable example.

**Section- B**

(2 X 10 = 20)

2.	Write any three methods for the synthesis and four chemical reactions of Carboxylic acid.
3.	Write the mechanism of Benzoin condensation and Cannizzaro reaction.
4.	Discuss the following:- a) Stability of conjugated dienes. b) Discuss the applications and reactions Ozonolysis with suitable examples.

**Section- C**

(7 X 5 = 35)

5.	Discuss the different rules of IUPAC system of nomenclature.
6.	What are addition reactions? Explain free radical addition reactions of alkenes.
7.	Write a note on the qualitative tests of alcohol along with the suitable reactions involved.
8.	Differentiate between SN1 and SN2 reactions with the help of suitable examples.
9.	What are carbonyl compounds? Give any three general reactions of ketones.
10.	How will you differentiate between primary, secondary and tertiary amines qualitatively?
11.	Write any two chemical reactions shown by the carboxylic group along with the reaction mechanism of Fisher esterification.
12.	Explain the reaction mechanism of crossed aldol condensation.
13.	Explain the Anti Markownikoff's rule with the help of suitable example.

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211123  
(Evening)

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\*\*\* Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any SEVEN.

**Section A**

(10 X 2 = 20)

1.	Give very short answers to the followings:
i.	Give R and S notation in optically active compound.
ii.	Write Ozonolysis reaction.
iii.	Write the use of Paraffins.
iv.	Define Saytzeff's rule.
v.	Write Diel-Alder Reaction.
vi.	Structure and uses of Cetosteryl alcohol.
vii.	What happens when Ethyl chloride is treated with aqueous KOH?
viii.	Write the structure and uses of Chloral hydrate
ix.	Give the IUPAC name and structure of Amphetamine.
x.	Give test for identification of amides and esters.

**Section B**

(2 X 10 = 20)

2.	Give a detailed account of SN1 and SN2 reactions of alkyl halides.
3.	Discuss the following reactions: (a) Bezoin condensation (b) Cannizzaro and crossed Cannizzaro reaction
4.	(a) Differentiate between E1 and E2 reactions. (b) Explain Anti-Markownikoff's rule with suitable examples.

**Section C**

(7 X 5 = 35)

5.	Explain mechanism of Aldol condensation reaction.
6.	Give a comprehensive account of classification of organic compounds.
7.	How will you differentiate between 1°, 2° and 3° alcohols qualitatively?
8.	Discuss about the basicity of aliphatic amines and effect of substituents on it.
9.	Give structure and uses of Hexamine and Vanilin.
10.	Differentiate between enantiomers and diastereomers.
11.	Describe the allylic rearrangement reaction.
12.	Define Hybridisaion. Write about the geometry of alkanes and alkenes.
13.	Give the qualitativave tests, structure and uses of Formaldehyde and paraldehyde.

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(Meaning)

240524

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\*\*\*Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any SEVEN.

**Section- A (10 X 2 = 20)**

1.	Give a very short answers to the followings:
i.	Give the classification of organic compounds.
ii.	What is the Wurtz reaction? Give an example.
iii.	Write the structure and uses of glycerol..
iv.	Explain why carboxylic acids exhibit acidic character.
v.	Describe Saytzeff's orientation in elimination reactions.
vi.	Write the structure and uses of hexamine and chloral hydrate.
vii.	Give a qualitative test for chlorobutanol.
viii.	Define tautomerism.
ix.	Write the structure of amphetamine.
x.	Describe the Hell-Volhard-Zelinsky reaction.

**Section- B (2 X 10 = 20)**

2.	Discuss the mechanism of SN1 and SN2 reactions of alkyl halides.
3.	Explain the mechanism by which alkyl halides undergo elimination reactions with suitable examples.
4.	a) Explain the mechanism of the Cannizzaro and crossed Cannizzaro reactions. b) Explain Markownikoff's rule with a suitable example.

**Section- C (7 X 5 = 35)**

5.	Explain isomerism in organic compounds with suitable examples.
6.	How will you differentiate between primary (1°), secondary (2°), and tertiary (3°) amines qualitatively?
7.	Write the differences between E1 and E2 reactions.
8.	Discuss the acidity of carboxylic acids and the effects of substituents on it.
9.	Discuss: a) Ozonolysis b) Allylic rearrangement
10.	Explain the mechanism of Perkin condensation with suitable examples.
11.	Discuss the qualitative tests for esters.
12.	Write a short note on: a) Diels-Alder reaction b) Anti-Markownikoff's rule
13.	Discuss the order of reactivity of alkyl halides in elimination reactions.

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(Morning)  
211124

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\*\*Section B consists of Three questions carrying 10 marks each (Long Answer); attempt any **TWO**.

\*\*\* Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.

**Section- A (10X2=20)**

1.	Give very short answers to the followings:
i.	Write structure and uses of propylene glycol and amphetamine.
ii.	Define inductive effect and electromeric effect
iii.	Explain stability of conjugated dienes.
iv.	Give full form of IUPAC.
v.	Write a note on Diel's-Alder reaction.
vi.	Give test for identification of amides and ester.
vii.	What happens when ethyl bromide is treated with aqueous KOH?
viii.	Write structure and uses of chloral hydrate.
ix.	Why aldehydes are more reactive than ketones?
x.	Give structure and uses of cetosteryl alcohol and acetyl salicylic acid.

**Section- B (2X10=20)**

2.	Explain SN1 and SN2 reactions of alkyl halides.
3.	Write the mechanism of aldol condensation and benzoin condensation.
4.	Discuss the reactions mechanism and the factors affecting E1 & E2 reactions.

**Section- C (7X5=35)**

5.	How will you distinguish 1°, 2° and 3° amine by Hinsberg's method?
6.	Explain the Markownikoff's rule with suitable examples.
7.	Briefly write about hexamine and vanillin.
8.	Explain the effect of substituents on the acidity of carboxylic acids.
9.	Give a comprehensive account on classification of organic compounds.
10.	Discuss the qualitative test for alcohols.
11.	Differentiate between enantiomers and diastereomers.
12.	Give structure and uses of iodoform and dichloromethane.
13.	Define isomerism. Explain structural isomerism with examples.

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(Morning)  
060625

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**\*Section- A** consists of **ten questions**, each carrying **2 marks** (Very Short Answer Type); **Attempt all.**

**\*\*Section- B** consists of **three questions**, each carrying **10 marks** (Long Answer Type); **Attempt any two.**

**\*\*\*Section- C** consists of **nine questions**, each carrying **5 marks** (Short Answer Type); **Attempt any seven.**

**Section- A (10X2=20)**

1.	Give very short answers to the followings:
i.	What is the full form of IUPAC?
ii.	Define the inductive effect.
iii.	Give any two qualitative tests for alcohols.
iv.	Enlist the evidences for the E1 reaction.
v.	Explain the sp <sup>3</sup> hybridization of alkanes.
vi.	Write the structure and uses of vanillin.
vii.	Write the structure and uses of chloral hydrate.
viii.	Define Saytzeff's orientation in an elimination reaction.
ix.	What is basicity?
x.	Explain the SN1 reaction with an example.

**Section- B (2X10=20)**

2.	Give the reaction and mechanism of the elimination reaction with suitable examples.
3.	Explain SN1 and SN2 reactions with their mechanisms and influencing factors.
4.	Discuss the reaction mechanisms of Perkin condensation and Aldol condensation.

**Section- C (7X5=35)**

5.	Define hybridization. Write a note on sp <sup>3</sup> hybridization in methane.
6.	What is isomerism? Discuss structural isomerism with examples.
7.	Explain the reaction and mechanism of the Cannizzaro reaction.
8.	Give any four qualitative tests for esters.
9.	Discuss Markovnikov's and anti-Markovnikov's rules.
10.	Explain the method of preparation and synthesis of aliphatic amines.
11.	Discuss ozonolysis and allylic rearrangement.
12.	Describe the free radical reaction of conjugated dienes.
13.	Write a detailed note on qualitative tests for carbonyl compounds.

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**Section- A (10X2=20)**

1.	Give very short answers to the followings:
i.	Write the structure and uses of chloral hydrate.
ii.	What is meant by metamerism?
iii.	Give the qualitative tests for carboxylic acids.
iv.	What is sp <sup>2</sup> hybridization in alkenes?
v.	Write the structure and uses of amphetamine.
vi.	Why are aldehydes more reactive than ketones?
vii.	Write a short note on the Diels-Alder reaction.
viii.	What is the Hell-Volhard-Zelinsky reaction?
ix.	State Saytzeff's rule.
x.	Write the structure and uses of glycerol.

**Section- B (2X10=20)**

2.	Explain the different types of isomerism in organic compounds with examples
3.	Explain how SN1 and SN2 reactions occur in alkyl halides.
4.	Describe the reaction mechanisms of: (a) Cannizzaro reaction (b) Perkin condensation

**Section- C (7X5=35)**

5.	Present the mechanism of halogenation of alkanes.
6.	Summarize the acidity of carboxylic acids and the effect of substituents on their acidic strength.
7.	Mention the qualitative tests used for identifying alcohols.
8.	Point out the differences between E1 and E2 reactions.
9.	State Markownikoff's rule with suitable examples.
10.	Outline the classification of organic compounds.
11.	Indicate how primary, secondary, and tertiary amines are differentiated by Hinsberg's method.
12.	List the factors that govern the basic strength of aliphatic amines.
13.	State the reactivity order of alkyl halides in elimination reactions.

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