Balaji College of Pharmacy Ananthapuramu

Approved by PCI, New Delhi & Affiliated to JNTU Anantapur

Rudrampeta Bypass, Sanapa Road, Ananthapuramu, Andhra Pradesh -515002

Academic Year: 2024-2025

Class: I-II

Program: B.Pharmacy

Name of the Course: **Pharmaceutical Organic Chemistry I**

COURSE FILE CONTENTS

Balaji College of Pharmacy, Ananthapuramu

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Rudrampeta Bypass, Sanapa Road, Ananthapuramu, Andhra Pradesh -515002

VISION

To be recognized as an Institute of excellence, imparting quality pharmacy and healthcare education, producing competent professionals with research orientation and entrepreneurial attitude, capable of meeting the demands of the Industry and serving the Society.

MISSION

M1: To provide a conducive environment for student centric teaching - learning process to achieve academic excellence.

M2: To foster among students the attitude of research, innovation and entrepreneurship.

M3: To establish effective Industry – Institute interaction with the Pharmaceutical and Healthcare sectors.

M4: To inculcate ethical and moral values among students to make them responsible to meet the needs of the society

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PROGRAM: B.Pharmacy

PROGRAM EDUCATIONAL OBJECTIVES (PEO)

Fundamental Knowledge:

- To produce pharmacy graduates with strong fundamental concepts and high technical competence in pharmaceutical sciences and technology, who shall be able to use these tools in pharmaceutical industry and/or institutes where ever necessary for success.
- To provide students with a strong and well-defined concept in the various fields of pharmaceutical sciences viz., Pharmaceutics, Pharmaceutical chemistry, Pharmacology and Pharmacognosy according to the requirement of pharmaceutical industries, community and Hospital Pharmacy and also to develop a sense of teamwork and awareness amongst students towards the importance of interdisciplinary approach for developing competence in solving complex problems in the area of Pharmaceutical Sciences.

Practice and Care:

- To promote the development of trained human resource in Pharmaceutical Sciences for dissemination of quality education with highly professional and ethical attitude, strong communication skills, effective skills to work in a team with a multidisciplinary approach.
- To generate potential knowledge pools with interpersonal and collaborative skills to identify, assess and formulate problems and execute the solution in closely related pharmaceutical industries.
- To train the students to contribute towards health care system and counseling for prophylaxis and prevention of diseases.

Lifelong Learning and Innovation:

- To encourage the students to participate in life-long learning process for a highly productive career and to relate the concepts of Pharmaceutical Sciences towards serving the cause of the society.

- Developing innovative ideas and approaches to enhance quality and overcome professional barriers.
- Engaging in creative thinking to envision better ways of achievingprofessional goals.

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PROGRAM: B. Pharmacy

PROGRAM OUTCOMES (POs)

1. **Pharmacy Knowledge:** Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices.
2. **Planning Abilities:** Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.
3. **Problem analysis:** Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.
4. **Modern tool usage:** Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.
5. **Leadership skills:** Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfillment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and well-being.
6. **Professional Identity:** Understand, analyze and communicate the value of their professional roles in society (e.g., health care professionals, promoters of health, educators, managers, employers, employees).
7. **Pharmaceutical Ethics:** Honor personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.
8. **Communication:** Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.

9. **The Pharmacist and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice.
10. **Environment and sustainability:** Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
11. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU

ACADEMIC CALENDAR 2024-25

B.Pharm I Year I & II Semesters

(for 2024 admitted batch)

Description	From To	No. of weeks/days
Induction Program (Zero semester)	**12.12.2024 to 24.12.2024**	**(02 weeks)**
I Semester		
Commencement of Class work	**26.12.2024**	-
Instruction Period for the Semester	26.12.2024 to 16.04.2025	(16 weeks)
Examinations:		
I Mid-term Examinations	05.02.2025 to 07.02.2025	(03 Days)
II Mid-term Examinations	14.04.2025 to 16.04.2025	(03 Days)
End laboratory Examinations:	17.04.2025 to 23.04.2025	(01 week)
End Theory Examinations:	25.04.2025 to 08.05.2025	(02 weeks)
Summer Vacation	09.05.2025 to 31.05.2025	(03 weeks)
Commencement of Class Work for I Year B.Pharm II semester	**02.06.2025 (Monday)**	
Declaration of results for I-I	**03.06.2025**	

II Semester		
Commencement of Class work	**02.06.2025**	-
Ist spell of Instruction Period for the Semester	02.06.2025 to 20.09.2025	(16 weeks)
Examinations		
I Mid-term Examinations	14.07.2025 to 16.07.2025	(03 Days)
II Mid-term Examinations	18.09.2025 to 20.09.2025	(03 Days)
End laboratory Examinations:	22.09.2025 to 27.09.2025	(01 week)
End Theory Examinations:	29.09.2025 to 11.10.2025	(02 weeks)
Commencement of Class Work for II Year B.Pharm I semester	**13.10.2025 (Monday)**	
Declaration of results for I-II	**30.10.2025**	

Note:

- The Mid-term Examinations should be conducted and completed as per the schedule given.
- For slippage of 90 instruction days in 16 weeks due to any unavoidable reasons, compensation can be made by conducting class work on second Saturdays, Sundays and other holidays, except on National Holidays and important festivals.

Date : 16-12- 2024

DIRECTOR OF EVALUATION

Balaji College of Pharmacy, Ananthapuramu

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(23BP202T) PHARMACEUTICAL ORGANIC CHEMISTRY–I 45 Hours

Scope: This subject deals with classification and nomenclature of simple organic compounds, structural isomerism, intermediates forming in reactions, important physical properties, reactions and methods of preparation of these compounds. The syllabus also emphasizes mechanisms and orientation of reactions.

Objectives: Upon completion of the course the student shall be able to

• Write the structure, name and the type of isomerism of the organic compound.

• Write the reaction, name the reaction and orientation of reactions.

• Account for reactivity/stability of compounds,

• Identify/confirm the identification of organic compounds.

Course Content: General methods of preparation and reactions of compounds superscripted with asterisk (*) to be explained.

To emphasize on definition, types, classification, principles/mechanisms, applications, examples and differences

UNIT I

Classification, nomenclature and isomerism Classification of Organic Compounds Common and IUPAC systems of nomenclature of organic compounds (upto10 Carbons open chain and Cyclic compounds)

Alkanes*, Alkenes*, Alkynes and Conjugated dienes* SP3 hybridization in alkanes, Halogenation of alkanes, uses of paraffins. Stabilities of alkenes, SP2 hybridization in alkenes

Heterocyclic compounds: Nomenclature and classification Synthesis, reactions and medicinal uses of following compounds/derivatives Pyrrole, Furan, and Thiophene. Relative aromaticity and reactivity of Pyrrole, Furan and Thiophene

UNIT II

E1 and E2 reactions – kinetics, order of reactivity of alkyl halides, rearrangement of carbocations, Saytzeffs orientation and evidence. E1 verses E2 reactions, Factors affecting E1 and E2 reactions. Ozonolysis, electrophilic addition reactions of alkenes, Markownikoff's orientation, free radical addition reactions of alkenes, Anti Markownikoff's orientation.

Alkyl halides* SN1 and SN2 reactions - kinetics, order of reactivity of alkyl halides, stereochemistry and rearrangement of carbocations. SN1 versus SN2 reactions, Factors affecting SN1 and SN2 reactions. Structure and uses of ethylchloride, Chloroform, trichloroethylene, tetrachloroethylene, dichloromethane, tetra chloromethane and iodoform.

Conjugated system: Stability of conjugated dienes, Diel-Alder, electrophilic addition, free radical addition reactions of conjugated dienes, allylic rearrangement

UNIT III

Alcohols*- Qualitative tests, Structure and uses of Ethyl alcohol, Methyl alcohol, chlorobutanol, Cetosteryl alcohol, Benzyl alcohol, Glycerol, Propylene glycol

Carbonyl compounds* (Aldehydes and ketones) Nucleophilic addition, Electromeric effect, aldol condensation, Crossed Aldol condensation, Cannizzaro reaction, Crossed Cannizzaro reaction, Benzoin condensation, Perkin condensation, qualitative tests, Structure and uses of Formaldehyde, Paraldehyde, Acetone, Chloral hydrate, Hexamine, Benzaldehyde, Vanilin, Cinnamaldehyde.

UNIT IV

Carboxylic acids* Structure and Uses of Acetic acid, Lactic acid, Tartaric acid, Citric acid, Succinic acid. Oxalic acid, Salicylic acid, Benzoic acid, Benzyl benzoate, Dimethyl phthalate, Methyl salicylate and Acetyl salicylic acid

Aromatic Acids* –Acidity, effect of substituents on acidity and important reactions of benzoic acid.

Phenols* - Acidity of phenols, effect of substituents on acidity, qualitative tests, Structure and uses of phenol, cresols, resorcinol, naphthols

Aliphatic amines* - Basicity, effect of substituent on Basicity. Qualitative test, Structure and uses of Ethanolamine, Ethylenediamine, Amphetamine

Aromatic Amines* - Basicity of amines, effect of substituents on basicity, and synthetic uses of aryl diazonium salts

UNIT V 10 Hours

Stereo isomerism Optical isomerism – Optical activity, enantiomerism, diastereoisomerism, meso compounds Elements of symmetry, chiral and achiral molecules, DL system of nomenclature of optical isomers, sequence rules, RS system of nomenclature of optical isomers Reactions of chiral molecules, Racemic modification and resolution of racemic mixture. Asymmetric synthesis: partial

and absolute

Geometrical isomerism Nomenclature of geometrical isomers (Cis / Trans, E/Z, Syn /Anti systems) Methods of determination of configuration of geometrical isomers. Conformational isomerism in Ethane, n-Butane and Cyclohexane. Stereo isomerism in biphenyl compounds (Atropisomerism) and conditions for optical activity. Stereospecific and stereoselective reactions

Recommended Books (Latest Editions)

1. Organic Chemistry by Morrison and Boyd
2. Organic Chemistry by I.L. Finar, Volume-I
3. Textbook of Organic Chemistry by B.S. Bahl & Arun Bahl.
4. Organic Chemistry by P.L. Soni
5. Practical Organic Chemistry by Mann and Saunders.
6. Vogel's textbook of Practical Organic Chemistry
7. Advanced Practical organic chemistry by N.K. Vishnoi.
8. Introduction to Organic Laboratory techniques by Pavia, Lampman and Kriz.
9. Reaction and reaction mechanism by Ahluwaliah/Chatwal.

Reference Books:

1. J. McMurry, Brooks/Cole, Organic Chemistry, 6th Ed. 2004
2. T.W.G. Solomons, C.B. Fryhle, Organic Chemistry, John Wiley and Sons Inc., 10th Ed. 2009
3. L.G. Wade Jr, Organic Chemistry, Pearson Education India, 2008
4. E.L. Eliel, Stereochemistry of Carbon compounds, Mcgraw-Hill, 1962

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(23BP202P) PHARMACEUTICAL ORGANIC CHEMISTRY – I LAB

1. Systematic qualitative analysis of unknown organic compounds like

a. Preliminary test: Color, odour, aliphatic/aromatic compounds, saturation and unsaturation, etc.

b. Detection of elementslike Nitrogen, Sulphur and Halogen by Lassaigne's test

c. Solubility test

d. Functional group test like Phenols, Amides/ Urea, Carbohydrates, Amines, Carboxylic acids, Aldehydes and Ketones, Alcohols, Esters, Aromatic and Halogenated Hydrocarbons, Nitro compounds and Anilides.

e. Melting point/Boiling point of organic compounds

f. Identification of the unknown compound from the literature using melting point/ boiling point.

g. Preparation of the derivatives and confirmation of the unknown compound by melting point/ boiling point.

h. Minimum 5 unknown organic compounds to be analysed systematically. 2. Preparation of suitable solid derivatives from organic compounds

3. Construction of molecular models

Recommended Books: (Latest Edition)

1. Practical Organic Chemistry by Mann and Saunders.

2. Vogel's textbook of Practical Organic Chemistry

3. Advanced Practical organic chemistry by N.K. Vishnoi.

4. Introduction to Organic Laboratory techniques by Pavia, Lampman and Kriz

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LESSON PLAN

Academic Year: 2024-2025 Class: I Sem: II
Program: B. Pharmacy Duration of the year: 2024 - 2025

Name of the Course: **Pharmaceutical Organic ChemistryI**

Prescribed Hours: **Theory:** 3 + 1 Hrs./Week

Scheduled Date: 02/06/2025 to 11/10/2025

Recommended Books (Latest Editions)

1. Organic Chemistry by Morrison and Boyd
2. Organic Chemistry by I.L. Finar, Volume-I
3. Textbook of Organic Chemistry by B.S. Bahl & Arun Bahl.
4. Organic Chemistry by P.L. Soni
5. Practical Organic Chemistry by Mann and Saunders.
6. Vogel's textbook of Practical Organic Chemistry
7. Advanced Practical organic chemistry by N.K. Vishnoi.
8. Introduction to Organic Laboratory techniques by Pavia, Lampman and Kriz.
9. Reaction and reaction mechanism by Ahluwaliah/Chatwal.

Reference Books:

1. J. McMurry, Brooks/Cole, Organic Chemistry, 6th Ed. 2004
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3. L.G. Wade Jr, Organic Chemistry, Pearson Education India, 2008
4. E.L. Eliel, Stereochemistry of Carbon compounds, Mcgraw-Hill, 1962

S.No	Chapter name	Topic	No. of hours	Name of the faculty
1.	Alkanes*, Alkenes*, Alkynes and Conjugated dienes* Heterocyclic compounds	Classification, nomenclature and isomerism Classification of Organic Compounds Common and IUPAC systems of nomenclature of organic compounds (upto10 Carbons open chain and Cyclic compounds) SP3 hybridization in alkanes, Halogenation of alkanes, uses of paraffins. Stabilities of alkenes, SP2 hybridization in alkenes Nomenclature and classification Synthesis, reactions and medicinal uses of following compounds/derivatives Pyrrole, Furan, and Thiophene Relative aromaticity and reactivity of Pyrrole, Furan and Thiophene	10	B.N.Prathibha
2.	E1 and E2 reactions Alkyl halides*	kinetics, order of reactivity of alkyl halides, rearrangement of carbocations, Saytzeffs orientation and evidence. E1 verses E2 reactions, Factors affecting E1 and E2 reactions. Ozonolysis, electrophilic addition reactions of alkenes, Markownikoff's orientation, free radical addition reactions of alkenes, Anti Markownikoff's orientation. SN1 and SN2 reactions - kinetics, order of reactivity of alkyl halides, stereochemistry and rearrangement of carbocations. SN1 versus SN2	10	B.N.Prathibha

	Conjugated system	reactions, Factors affecting SN1 and SN2 reactions. Structure and uses of ethylchloride, Chloroform, trichloroethylene, tetrachloroethylene, dichloromethane, tetra chloromethane and iodoform. Stability of conjugated dienes, Diel-Alder, electrophilic addition, free radical addition reactions of conjugated dienes, allylic rearrangement		
3.	Alcohols* Carbonyl compounds* (Aldehydes and ketones)	Qualitative tests, Structure and uses of Ethyl alcohol, Methyl alcohol, chlorobutanol, Cetosteryl alcohol, Benzyl alcohol, Glycerol, Propylene glycol Nucleophilic addition, Electromeric effect, aldol condensation, Crossed Aldol condensation, Cannizzaro reaction, Crossed Cannizzaro reaction, Benzoin condensation, Perkin condensation, qualitative tests, Structure and uses of Formaldehyde, Paraldehyde, Acetone, Chloral hydrate, Hexamine, Benzaldehyde, Vanilin, Cinnamaldehyde.	7	B.N.Prathibha

4.	Carboxylic acids* Aromatic Acids* Phenols* Aliphatic amines* Aromatic Amines*	Structure and Uses of Acetic acid, Lactic acid, Tartaric acid, Citric acid, Succinic acid. Oxalic acid, Salicylic acid, Benzoic acid, Benzyl benzoate, Dimethyl phthalate, Methyl salicylate and Acetyl salicylic acid Acidity, effect of substituents on acidity and important reactions of benzoic acid. Acidity of phenols, effect of substituents on acidity, qualitative tests, Structure and uses of phenol, cresols, resorcinol, naphthols Basicity, effect of substituent on Basicity. Qualitative test, Structure and uses of Ethanolamine, Ethylenediamine, Amphetamine Basicity of amines, effect of substituents on basicity, and synthetic uses of aryl diazonium salts	8	B.N.Prathibha
5.	Stereo isomerism Geometrical isomerism	Optical isomerism Optical activity, enantiomerism, diastereoisomerism, meso compounds Elements of symmetry, chiral and achiral molecules DL system of nomenclature of optical isomers, sequence rules, RS system of nomenclature of optical isomers Reactions of chiral molecules Racemic modification and resolution of racemic mixture. Asymmetric synthesis: partial and absolute Nomenclature of geometrical isomers (Cis Trans, EZ, Syn Anti systems) Methods of determination of configuration of geometrical isomers. Conformational isomerism in Ethane, n-Butane	10	B.N.Prathibha

		and Cyclohexane. Stereo isomerism in biphenyl compounds (Atropisomerism) and conditions for optical activity. Stereospecific and stereoselective reactions		

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COURSE OUTCOMES

Academic Year: 2024– 2025 Class: I SEM: II

Program: B. Pharmacy Duration of the year: 2024- 2025

Name of the Course: **Pharmaceutical Organic Chemistry I**

Prescribed Hours: **Theory**: 3 + 1 Hrs./Week

Scheduled Date: 02/06/2025 to 11/10/2025

Course Outcomes

CO NO.	Course Outcome
CO202.1	To understand the basic principles of pharmaceutical organic chemistry, generalize the classification, nomenclature, structure and the type of isomerism of the organic compound. Acquire the knowledge and understanding of heterocyclic compounds.
CO202.2	Know the methods of preparation of various functional groups. To know important physical properties, reactions and mechanisms underlying.
CO202.3	Understand the important named reactions. summarise the uses and other applications of organic compounds.
CO202.4	Understand the reactivity/stability of compounds and intermediates formed in reactions.
CO202.5	Understand the basic terminologies in stereochemistry and organic reactions.

CO-PO MAPPING

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CO-PO MATRIX

Course: Pharmaceutical Organic Chemistry-I(Theory); Code: BP202T

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
C202.1	3	-	2	-	-	2	-	2	-	-	2
C202.2	3	-	2	-	-	2	-	2	-	-	2
C202.3	3	1	2	-	-	2	-	3	-	-	2
C202.4	3	-	3	1	-	1	-	2	-	-	2
C202.5	3	-	2	-	-	1	-	2	-	-	2
Average	3	1	2.2	1	-	1.6	-	2.2	-	-	2

Overall average = 1.85

High: 3 Medium: 2 Low: 1

Gaps identified from CO – PO Mapping

1. Concepts On novel drugs

Plan of action/corrective measure taken to overcome the gap

1. Additional Class/Seminar

Revised CO – PO Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
C202.1	3	-	2	-	-	2	-	2	-	-	2
C202.2	3	-	2	-	-	2	-	2	-	-	2
C202.3	3	1	2	-	-	2	-	3	-	-	2
C202.4	3	-	3	1	-	1	-	2	-	-	2
C202.5	3	-	2	-	-	1	-	2	-	-	2
Average	3	1	2.2	1	-	1.6	-	2.2	-	-	2

Course: Pharmaceutical Organic Chemistry-ITheory); Code: BP202T
Overall average = 1.85

CO -PO MATRIX JUSTIFICATION

Mapped Pos -PO 1,2,3,4,6,8,11

PO-1 ; Pharmacy Knowledge: Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices.

PO-2 : Planning Abilities: Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.

PO-3 ;Problem analysis: Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.

PO-4 ; Modern tool usage: Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.

PO-6 ; Professional Identity: Understand, analyze and communicate the value of their professional roles in society (e.g., health care professionals, promoters of health, educators, managers, employers, employees).

PO-8 ; Communication: Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.

PO-11 Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis

CB202.1 To understand the basic principles of pharmaceutical organic chemistry, generalize the classification, nomenclature, structure and the type of isomerism of the organic compound. Acquire the knowledge and understanding of heterocyclic compounds.

PO1: Strongly contributes to knowledge of basic science as it requires understanding chemical structure, classification & nomenclature.
PO3: Supports problem solving based on structural correctness and nomenclature.
PO6: Useful for understanding core pharmaceutical chemistry concepts.
PO8: Helps in professional communication of structural/formula-based data.
PO11:Significantly develops lifelong learning through continuous updates in organic chemistry.

CB202.2 Know the methods of preparation of various functional groups. To know important physical properties, reactions and mechanisms underlying.

PO1: Deeply linked to chemical science fundamentals such as bonding & structure.
PO3: Supports problem-solving involving prediction of molecular stability and reactions.
PO6: Understanding molecular structure relevant to drug behavior.
PO8: Helps in documentation and presentation of chemical characteristics.
PO11: Builds fundamental knowledge required for advanced organic chemistry learning.

CB202.3 Understand the important named reactions. summarise the uses and other applications of organic compounds.

PO1: Strongly supports core chemistry knowledge including functional groups & reactivity.	
PO2: Helps in understanding drug formulation involving functional group interactions.	
PO3: Medium contribution in problem-solving related to synthesis & reactions.	
PO6: Linked to basic pharmaceutical science concepts.	

PO8: Enables proper documentation and technical presentation of organic reactions.
PO11: Relevant to lifelong learning in medicinal chemistry & industrial chemistry.

CB202.4 Understand the reactivity/stability of compounds and intermediates formed in reactions.

PO1: Strongly supports understanding of reaction pathways important in medicinal chemistry.
PO3:Linked to problem-solving for predicting reaction outcomes.
PO4: Supports analyzing experimental data in reaction studies.
PO6:Contributes to pharmaceutical science base through mechanism understanding.
PO8: Helps in scientific reporting and documentation of reaction mechanisms.
PO11:Linked to lifelong learning as reaction mechanism knowledge is foundational.

CB202.5 Understand the basic terminologies in stereochemistry and organic reactions.

PO1:Deeply connected to chemical reaction principles.
PO3: Supports reaction prediction and problem solving.
PO6:Link to core pharmaceutical sciences.
PO8: Useful for writing reaction schemes and lab reports.
PO11: Strengthens conceptual clarity for lifelong learning.

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COURSE OUTCOMES

Academic Year: 2024– 2025 Class: I SEM: II

Program: B. Pharmacy Duration of the year: 2024- 2025

Name of the Course: **Pharmaceutical Organic Chemistry I Lab**

Prescribed Hours: **Theory**: 3 + 1 Hrs./Week

Scheduled Date: 02/06/2025 to 11/10/2025

Course Outcomes

CO NO.	Course Outcome
CO202.1	Assessment of safety measures in organic chemistry laboratory and various laboratory techniques.
CO202.2	Evaluation of steps involved in identification of unknown organic compound.
CO202.3	To prepare suitable solid derivatives from organic compounds.
CO202.4	To prepare stereo models containing various functional groups.
CO202.5	Represent models and its arrangement.

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Academic Year: 2024– 2025 Class: I SEM: II

Program: B. Pharmacy Duration of the year: 2024 - 2025

Name of the Course: **Pharmaceutical Organic Chemistry I**

Prescribed Hours: **Theory**: 3 + 1 Hrs./Week

Scheduled Date: 02/06/2025 to 11/10/2025

ASSIGNMENTS

ASSIGNMENT TOPIC	Course Outcome	BTL
Assignment-1		
Isomerism, Synthesis, reactions and medicinal uses of following compounds/derivatives Pyrrole, Furan, and Thiophene	CO202.1	Understanding
E1 and E2 reactions with mechanisms,Sn1 and Sn2 reactions with mechanisms	CO202.2	Understanding Analyzing
Assignment-2		
Named reactions	CO202.3	Understanding Applying
Optical activity, enantiomerism, diastereoisomerism, meso compounds	CO202.5	Understanding & Applying

Format of the assignment:

1. Minimum & Maximum number of pages.
2. It shall be written draft copy.
3. Name and signature of the student.
4. Assignment can be a combined seminar presentation at the end of the semester.
5. Time allocated for seminar may be 8+2 Min.

BALAJI COLLEGE OF PHARMACY, ANANTHAPURAM
B. PHARMACY I YEAR II SEM (R23)
I MID EXAMINATION JULY 2025 AY (2024-25)
SUB: PHARMACEUTICAL ORGANIC CHEMISTRY-1(23BP202T)

Time:120min **Max Marks:25M**

I. ANSWER ALL QUESTIONS (5x2=10m)	MARKS	*CO-A*	BTL
A. Define cis and trans isomerism with example.	02	CB202.1	Remembering
B. Write the structures of 2-methyl pentane & 4-methyl-1-pentene.	02	CB202.1	Remembering
C. Classify heterocyclic compounds.	02	CB202.2	Analysing
D. Define ozonolysis with example.	02	CB202.2	Remembering
E. Define Saytzeffs rule.	02	CB202.2	Remembering
II. ANSWER THREE QUESTIONS (3x10=30m)			
1.Write any four methods of preparation and chemical reactions of alkanes. OR 2.Write in detail about the Paal-Knore synthesis of pyrrole.	10	CB202.1 CB202.1	Remembering Remembering
3. Write the electrophilic substitution reactions of pyrrole. OR 4. Discuss in detail about the unimolecular nucleophilic substitution reaction with its mechanism, kinetics, stereochemistry.	10	CB202.2 CB202.2	Evaluating Creating
5.Explain in detail about the Markovnikov's rule. OR 6. Describe in detail about the stereochemistry and factors affecting S_N2 nucleophilic substitution reaction.	10	CB202.2 CB202.2	Evaluating Evaluating

Course Outcome analysis:

CO	Total CO Marks	%CO
CO202.1	24M	34.28%
CO202.2	46M	65.71%
CO202.3	0M	0%
CO202.4	0M	0%
CO202.5	0M	0%
TOTAL	70M	100%

Blooms taxonomy analysis for educational objectives:

Taxonomy	Taxonomy Marks	% Taxonomy
Remember	28M	40%
Understand	0M	0%
Apply	0M	0%
Analyze	2M	2.85%
Evaluate	30M	42.85%
Create	10M	14.2%
TOTAL	70M	100%

BALAJI COLLEGE OF PHARMACY, ANANTHAPURAM
B. PHARMACY I YEAR II SEM (R23)
IIMID EXAMINATION AUG2025 AY (2024-25)
SUB: PHARMACEUTICAL ORGANIC CHEMISTRY-1(23BP202T)
Time:120min **Max Marks:25M**

I. ANSWER ALL QUESTIONS (5x2=10m)	MARKS	CO-A	BTL
A. Write any two qualitative tests for aldehydes and ketones.	02	CB202.3	Remembering
B. Write the structure and uses of acetone and chloralhydrate.	02	CB202.3	Remembering
C. Give the structure of any two carboxylic acids.	02	CB202.4	Remembering
D. Write two qualitative tests of amines.	02	CB202.4	Remembering
E. Define the following with examples i. Meso compounds ii. Enantiomers	02	CB202.5	Remembering
II. ANSWER THREE QUESTIONS (3x10=30m)			
1. a. Write any three MOP of alcohols. b. Write any two qualitative tests for alcohols and write the structure and uses of glycerol, ethyl alcohol, propylene glycol. OR 2. a. What is aldol condensation. Explain its mechanism. b. Describe the reaction mechanism of benzoin condensation.	10 10	CB202.3 CB202.3	Understanding
3. Explain the acidity of carboxylic acids and effect of substituents on acidity of carboxylic acids. OR 4. Explain the basicity of aromatic amines and effect of substituent on basicity of amines.	10 10	CB202.4 CB202.4	Understanding
5.a. Define stereoisomerism. Explain the sequence rule for DL system of nomenclature of optical isomers. b. What is racemic modification. Discuss the method of resolution of racemic modification. OR 6.a. Define geometric isomers and explain the method of determination of configuration of geometrical isomers. b. Discuss conformation isomers of butane.	10 10	CB202.5 CB202.5	Understanding

Course Outcome analysis:

CO	Total CO Marks	%CO
CO202.1	0M	0%
CO202.2	0M	0%
CO202.3	24M	34.28%
CO202.4	24M	34.28%
CO202.5	22M	31.42%
TOTAL	70M	100%

Blooms taxonomy analysis for educational objectives:

Taxonomy	Taxonomy Marks	% Taxonomy
Remember	10M	14.28%
Understand	60M	85.71%
Apply	0M	0%
Analyze	0M	0%
Evaluate	0M	0%
Create	0M	0%
TOTAL	50M	100%

Balaji College of Pharmacy, Ananthapuramu

Approved by PCI, New Delhi & Affiliated to JNTU Anantapur

Rudrampeta Bypass, Sanapa Road, Ananthapuramu, Andhra Pradesh -515002

UNIT WISE IMPORTANT QUESTIONS

Academic Year: 2024– 2025 Class: I SEM: II

Program: B. Pharmacy

Name of the Course: **Pharmaceutical organic ChemistryI**

Prescribed Hours: **Theory**: 3 + 1 Hrs./Week

Scheduled Date: 02/06/2025 to 11/10/2025

QUESTIONS

Unit-1

10 MARKS QUESTIONS

1. (a)Give any three methods of preparation of alkanes. (b) Explain mechanism of Halogenation of alkanes.
2. What are heterocyclic compounds? Give their systematic nomenclature and classification
3. Give the methods of synthesis and chemical reactions of Furan and Thiophen
4. Give the methods of synthesis and chemical reactions of Furan and Pyrrole
5. Explain the stereochemistry of biphenyls and conditions required for optical activity.
6. What are heterocyclic compounds? Give their classification and systematic nomenclature With examples
7. Define and classify heterocyclic compounds with examples and explain aromaticity and Reactivity of Furan, Pyrrole and Thiophene.

5 MARKS QUESTIONS

1. What is hybridization? Write a note on SP3 hybridization in alkanes.
2. Give the IUPAC name of (a) Acetones (b) Acetic acid (c) Neopentane (d) Formaldehyde e) Isobutane
3. Give any four methods of preparation of alkenes.
4. Give the structure of (a) 2-chloro pentane (b) Hexenal (c) tertiary-butyl chloride) (d) opentyl bromide e) 3-chloro hex-1-yne
5. Write the general rules for IUPAC nomenclature of alkanes
6. What are alkyl halides? Discuss any three general methods of preparation for Alky! Halides
7. What is Isomerism? Discuss Structural isomerism with examples
8. What is hybridization? Write a note on SP2 hybridization in alkenes,
9. Define hybridization? Explain SP3 hybridization in ethane.
10. Give the structure of (a) 2,2-dimethyl propane (b) 3-chloro pentane-2-one (c) 1,3-butadiene (d) Ethyl methy ketone e)2-bromo-3-methyl hexane
11. Enlist the different types of hybridization in carbon compounds and explain any one type.
12. Write a note on Free radical substitution reaction of alkanes.
13. Give the IUPAC name of (a) Formamide (b) Ethyl acetoacetate (c), Diethyl ether (d) Methanol e) acetaldehyde
14. Write the synthesis and chemical reactions of Pyrrole
15. Explain the relative aromaticity and reactivity of Thiophen in contrast to Furan and Pyrrole
16. Write a note on basicity and reactivity of Pyrrole
17. Explain the relative aromaticity and reactivity of Furan in contrast to Thiophene and Pyrrole
18. Write a note on aromaticity and reactivity of Thiophene
19. Discuss the systematic nomenclature of heterocyclic compounds
20. Explain the systematic classification of heterocyclic compounds with example
21. Compare the basicity of Pyrrole with Pyridine
22. Write methods of synthesis and reactions of Furan
23. Explain Paal-Knorr Synthesis of Pyrrole
24. Give any three methods of synthesis of Thiophene
25. Discuss Paal-Knorr Synthesis of Pyrrole.

2 marks

1. Define Chain isomerism with example
2. Write the structure and IUPAC name of a) Formic ackd b) Neopentane
3. Define metarmerism with example
4. Write the structure of a) 1,3- butadiene b) 2,4,6-tribromo aniline
5. Explain the stability of alkene with example
6. Define functional isomerism with example.
7. Write the structure of a) 2-broma 3-methyl hexane b) Methanol,
8. What is keto-enol tautomerism? Give example.
9. Write the structure and IUPAC name of: a) tert-Butyl chloride b) Formamide.
10. Write the structures of (a) 2 2-Dimethyl propane (b) 3-Chloro pentanone.
11. Enlist the different types of structural isomerism
12. What are fused heterocyclic compounds? Give examples
13. Write the structure and uses of Furan
14. Write the resonance structures of Pyrrole
15. Write the structure and medicinal uses of Thiophene derivative
16. Write the resonance structures of Furan
17. Write the structure and medicinal uses of Pyrrole derivative
18. Write the resonance structures of Thiophene
19. Write the structure and medicinal uses of Furan derivative
20. What are Hetero atoms? Name the compounds containing hetero atom
21. Write the structure of five membered heterocyclic compounds containing single heteroatom
22. Write the structure and medicinal uses of drug containing Furan nucleus

UNIT 2

10 MARKS QUESTIONS

1.What are elimination reactions? Discuss the kinetics, mechanism, orientation and reactivity of E2 reaction.

2. Explain kinetics, mechanism, stereochemistry and reactivity of SN2 reaction.
3. Define elimination reaction. Discuss the Kinetics and mechanism of E1 and E2 Reaction with suitable example.
4. (a) Explain the factors affecting SN, & SN, reactions. (b) Enlight the concept of Rearrangement of carbocation with suitable examples
5. Explain kinetics, mechanism, stereochemistry and reactivity of SN, reaction.

6. What are elimination reactions? Discuss the kinetics, mechanism, orientation And reactivity of E, reaction.
7. What are addition reactions? Explain the mechanism of electrophilic and free Radical addition reactions of alkenes with the suitable example.
8. Discuss the mechanism, stereochemistry and kinetics involved in bimolecular Nucleophilic substitution reaction by selecting an appropriate example.
9. Discuss the mechanism, stereochemistry and kinetics involved in unimolecular Nucleophilic substitution reaction by selecting an appropriate example
10. A) Define and classify carbocation. Add a note on stability of carbocation. B) Differentiate between SN, & SN, reactions.

5 MARKS QUESTIONS

1.Discuss the mechanism and stereochemistry of SN2 reaction.
2.What are alkyl halides? Discuss any three general methods of preparation for Alky! Halides
3.Discuss the mechanism and stereochemistry of SN1 reaction.
4.Give any four chemical reactions of alkyl halides.
5.Define and classify carbocations. Write a note on stability of them.
6.Give the mechanism involved in the electrophilic addition reactions of conjugated dienes.
7.Write the kinetics and mechanism of E1 reaction
8.Write a note on Free radical substitution reaction of alkanes.
9.Write the mechanism of 1,2 and 1.4 addition reactions of conjugated dienes
10.Discuss any four general methods of preparation of alkyl halides

11.Explain the orientation and mechanism of E2 reaction.
12.Enlight the concept of Rearrangement reaction of carbonation with suitable example.
13.What are alkyl halides? Give any three chemical reactions of alkyl halides.

2 MARKS QUESTIONS

1.Write about Saytzreffs rule
2.Write a note on allylic rearrangement.
3.Write a note on ozonolysis with examples
4.Give the structure and use of Trichloroethylene and Dichloromethane
5.Write the structure and uses of acetone and chloralhydrate
6.Write a note on allylic rearrangement.
7.Give an example of Diel's alder reaction
8.Enlist evidences for E1 reaction
9.Give an example of Diel's alder reaction
10.Give the structure and use of Chlorobutanol and Glycerol
11.Give one example for rearrangement of carbocation

UNIT 3

10 MARKS QUESTIONS

1.Explain the reaction and mechanism of Perkin condensation and Aldol Condensation
2.Explain the mechanism of Benzoin condensation and Cannizzaro reaction.
3.Explain the mechanism of Benzoin condensation and crossed Cannizzaro Reaction
4.Describe the reaction mechanism of Perkin and Benzoin condensation.
5.Give any four general methods of preparations and four chemical reactions for Carbonyl compounds
6.Explain the mechanism of Perkin condensation and crossed aldol Condensation.

5 MARKS QUESTIONS

1.What is Aldol condensation? Explain ita mechanism
2.Explain the reaction and mechanism of Benzoin Bcondenreactio
3.What are carbonyl compounds? Give any three general reactions of ketones
4.Explain the reaction mechanism involved in crossed aldol condensation
5.Explain the reaction and mechanism of Perkin condensatihalide
6.What are carbonyl compounds? Describe any two methods of preparation for aldhydes and ketones
7.How do you distinguish primary, secondary and tiary alcohols by chemical test
8.Explain the reaction and mechanism of Cannizzaro reaction
9.Discuss any four general methods of preparation of alcohols
10.Explain the reaction and mechanism of Cannizzaro reaction
11.Give any four qualitative tests for alcohol
12.Explain the mechanism of Aldol condensation
13.What are alcohols? Give any three general methods of preparation of alcohols.
14. Explain the reaction and mechanism of Cannizzaro reaction
15. Explain the reaction and mechanism of Aldoi condensation
16. Explain the mechanism of Benzoin condensation

2 MARKS QUESTIONS

1.Define electromeric effect with an example.
2.How do you differentiate aldhydes and ketones by chemical test
3.Write the structure and uses of benzaldehyde and paraldehyde
4.Write any one qualitative test for vaniliin and acetone
5.Write the structure and uses of cinnamaldehyde and paraldehyde
6.Write any one qualitative test for cinnamaldehyde and paraldehyde

UNIT 4

5 MARKS QUESTIONS

1. Why carboxylic adds are acidic in nature? Wilte the effect of Electron Withdrawing groups on acidity.
2.Explain the effect of substituents on acidity of carboxylic acids.
3.What are aliphatic amines? Explain any three chemical reactions of aliphatic amines.
4.Explain the basicity of aliphatic amines. Describe the effect of substituents on Basicity
5.Carboxylic acids are acidic in nature, Why? Chloro acetic acid is more acid Than acetic acid. Give reason.
6.Define and classify carbocations. Write a note on stability of them.
7.What are alphatic amines? Discuss any three general method of preparation for aliphatic amines.
8.Explain lonisation of carboxylic acid and write the structure of carboxylate Anion.
9.What are carboxylic acids? Discuss any three general method of preparation of carboxylic acids.
10.Discuss any four chemical reactions of carboxylic acids.
11.Discuss any four general method of preparation for aliphatic amines.

2 MARKS QUESTIONS

1.Write any two qualitative tests for carboxylic acids
2.Write the structure and uses of acetic acid and lactic acid
3.Write the structure and uses of oxalc acid and tartaric acid
4.Write a method for the conversion of carboxylic acid to acid halide.
5.Write any two qualitative test for amines
6.Write any two qualitative tests for amides
7.Write the structure and uses of tartaric acid and citric acid
8.Write the structure and uses of succinic acid and oxalic acid
9.Why trichloro acetic acid is more acidic then acetic acid
10.Write the structure and uses of salicylic acid and benzoic acid
11.Write any two qualitative test for amines

UNIT 5

10 MARKS QUESTIONS

1.What is Racemic modification? Discus the method of resolution of racemic modification.
2.What are symmetric and asymmetric molecule? Explain asymmetric synthesis.
3.Write the rule in nomenclature of optical isomer by R S and D L configuration?
4.Define configuration. Explain the sequence rule for R S system of nomenclature of optical isomers
5.A. explain the elements of sysmmetry.
B. what are relative and absolute configurations and explain the rules in determining R and S configuration
6.Define geometric isomers and explain the method of nomenclature of geometric isomers.

7.Discuss the methods used to determine the configuration of geometrical isomers.
8.Explain the stereochemistry of Biphenyl and conditions required for optical activity.
9.Discuss aromaticity and chemical reactivity of Furan, Thiophene and Pyrrole
10.Give various methods of determination of configuration of geometrical isormers
11.Explain the stereochemistry of Biphenyl compounds and criteria for a molecule to exhibit Optical activity

5 MARKS QUESTIONS

1.Define the terms with suitable example a) Diastereoisomers b) Meso compounds c) Enantiomers.
2.Write a note on elements of symmetry with example.
3.Write a note of R and S system of configuration.
4.Write the reactions of chiral molecule in which bonds to the chiral centre are broken.
5.Explain the reaction of chiral molecule in which bonds to the chiral centre are not broken and generation of second chiral centre.
6.Write the possible stereoisomers of 2,3-dichlorobutane and identify the different types of isomers.
7.Mention the method used for the resolutions of racemic mixture and explain any two.
8.Explain ant two reactions of chiral molecule.
9.Distinguish between configuration and conformation with example.
10.Write a note on asymmetric synthesis.
11.Explain enantionmers and diasteromers with suitable example.
12.Define chiral and achiral molecules with example. Write any two reactions of chiral molecules
13.Define geometric isomers and explain the method of nomenclature of geometric isomers.
14.Discuss the methods used to determine the configuration of geometrical isomers.
15.Explain the stereochemistry of Biphenyl and conditions required for optical activity.
16.Discuss aromaticity and chemical reactivity of Furan, Thiophene and Pyrrole
17.Give various methods of determination of configuration of geometrical isormers
18.Explain the stereochemistry of Biphenyl compounds and criteria for a molecule to exhibit Optical activity

2 MARKS QUESTIONS

1.Define stereoisomerism with example.
2.What are chiral molecule? Give example.
3.Define centre of symmetry with example.
4.What are meso compounds? Give example.
5.Define diastereoisomerism with example.
6.Define plane of symmetry with example.
7.Define enantiomers with example.
8.Define alternative axis of symmetry with example.
9.Define meso compound with example.
10.Define racemisation and racemic modification.
11.Define asymmetric carbon atom and give the formula to calculate isomeric forms.
12.Define geometric isomers and explain the method of nomenclature of geometric isomers.
13.Discuss the methods used to determine the configuration of geometrical isomers.

14.Explain the stereochemistry of Biphenyl and conditions required for optical activity.
15.Discuss aromaticity and chemical reactivity of Furan, Thiophene and Pyrrole
16.Give various methods of determination of configuration of geometrical isomers
17.Explain the stereochemistry of Biphenyl compounds and criteria for a molecule to exhibit Optical activity

Code: 23BP202T

R23

B.Pharm I Year II Semester (R23) Regular & Supplementary Examinations September/October 2025

PHARMACEUTICAL ORGANIC CHEMISTRY - I

(B.Pharmacy)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a)	Enumerate the uses of paraffins.	2M
(b)	Outline the synthesis of furan.	2M
(c)	State Markownikoff's rule with example.	2M
(d)	Write the structure and medicinal uses of tetrachoroethylene and iodoform.	2M
(e)	Write any two qualitative tests for chlorbutol.	2M
(f)	Write the structure and medicinal uses for vanillin and hexamine.	2M
(g)	Write any one reaction for benzoic acid.	2M
(h)	Write any two qualitative tests for Amphetamine.	2M
(i)	Define optical activity with suitable example.	2M
(j)	Define RS system of nomenclature of optical isomers.	2M

PART – B

(Answer all the questions: 05 X 10 = 50 Marks)

2		Write synthesis and reactions for Furan and Pyrrole.	10M
		OR	
3		Explain the method of preparation, reactions of conjugated dienes.	10M
4		Write the kinetics and mechanism for E1 and E2 reactions.	10M
		OR	
5		Discuss in detail the stability of conjugated dienes. Add a note on SN1 versus SN2 reaction.	10M
6		Write the reaction and mechanism for Aldol and crossed Aldol condensation reaction.	10M
		OR	
7		Explain any three qualitative tests each for chloral hydrate, cinnamaldehyde and benzaldehyde.	10M
8	(a)	Discuss in detail the basicity of amines.	5M
	(b)	Write a note on effect of substituents on basicity.	5M
		OR	
9		Explain the acidity of aromatic acids and explain the effect of substituents on acidity of aromatic acids.	10M
10	(a)	Discuss in detail racemic modification.	5M
	(b)	Write a note on resolution of racemic mixture.	5M
		OR	
11		Explain the methods of determination of configuration of geometrical isomers.	10M

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BALAJI COLLEGE OF PHARMACY, ANANTHAPURAMU, ANDHRA PRADESH.

B.PHARMACY I YEAR II SEMESTER (R23) INTERNAL ASSESSMENT SHEET - THEORY

Subject Name & Code : POC-I & 23BP202T

INTERNAL ASSESSMENT - THEORY

S. No.	Hall ticket Number	Name of the Student	I MID Marks (30Marks)	II MID Marks (30Marks)	80 % Weightage for better (x0.8) – **A**	20 % for other (x0.2) - **B**	FINAL MID SEMESTER MARKS **(A+B)**
1	24T11R0001	Billi Abhinay	**4**	15	12	1	13
2	24T11R0002	Shaik Afreen		18	14	0	14
3	24T11R0003	Mulla Afsa Sulthana	**0**	15	12	0	12
4	24T11R0004	Basapuram Aishwarya	**5**	16	13	1	14
5	24T11R0005	Kondajogula Akhila	**13**	16	13	3	15
6	24T11R0006	Harijana Akshaya	**20**		0	4	4
7	24T11R0007	Pullalarevu Akshaya	**8**	19	15	2	17
8	24T11R0008	Rayachoti Amulya	**9**	20	16	2	18
9	24T11R0009	Subbara Angeswar Kumar			0	0	0
10	24T11R0010	Moghal Apsha	**9**	16	13	2	15
11	24T11R0011	Pilliboina Archana	**9**	14	11	2	13
12	24T11R0012	Shaik Ayesha Thaseen	**5**	14	11	1	12
13	24T11R0013	Parnapalli Bharath	**6**		0	1	1
14	24T11R0014	Bharika Chandu	**4**	13	10	1	11
15	24T11R0015	Pasulayappa Gari Danavendra	**5**	16	13	1	14
16	24T11R0016	Neelam Daniyelu	**6**	18	14	1	16
17	24T11R0017	T Deekshitha			0	0	0
18	24T11R0018	Yalamakuru Deepika Prasanna	**7**	15	12	1	13
19	24T11R0019	Vaggam Balaji Divya	**11**	16	13	2	15
20	24T11R0020	Bandla Divyasree	**5**	15	12	1	13
21	24T11R0021	D C Fardeen	**3**	12	10	1	10
22	24T11R0022	Batti Fouziya Shabnam	**27**	27	22	5	27
23	24T11R0023	Gandluri Ganesh	**5**	16	13	1	14
24	24T11R0024	Mandala Gayathri	**5**	19	15	1	16
25	24T11R0025	Yelama Gayathri	**4**	17	14	1	14
26	24T11R0026	Mattam Gouri	**6**	18	14	1	16
27	24T11R0027	Jagadish Gari Govardhan	**6**	16	13	1	14
28	24T11R0028	Velpula Govardhan Yadav	**6**	14	11	1	12
29	24T11R0029	Parikidona Hareesh Naidu	**4**	8	6	1	7

30	24T11R0030	Nimmakayala Harsha Vardhan Sai	**9**	16	13	2	15
31	24T11R0031	Nallamanna Sanjeevarayappa Gari Harshitha	**16**	22	18	3	21
32	24T11R0032	Shaik Hena Rahima	**5**	15	12	1	13
33	24T11R0033	Alakunta Jagan	**4**	11	9	1	10
34	24T11R0034	Ediga Jayasimha	**10**	20	16	2	18
35	24T11R0035	Arikeri Jhansi	**10**	20	16	2	18
36	24T11R0036	K Jyothsna			0	0	0
37	24T11R0037	Kapadam Kalpana	**6**	11	9	1	10
38	24T11R0038	Honnur Karishma Mehek	**5**	15	12	1	13
39	24T11R0039	Shaik Karishma	**6**	13	10	1	12
40	24T11R0040	Dungavath Karthik Naik	**5**	9	7	1	8
41	24T11R0041	Kasandula Kavya	**13**	18	14	3	17
42	24T11R0042	Guduru Kavya Sree	**5**	16	13	1	14
43	24T11R0043	Madiga Krupa Kumari	**6**	17	14	1	15
44	24T11R0044	Velpula Lalitha	**7**	16	13	1	14
45	24T11R0045	Koyaladinne Lokeswari	**7**	16	13	1	14
46	24T11R0046	Kalla Manasa	**6**	15	12	1	13
47	24T11R0047	Gallamory Manikumari	**5**	10	8	1	9
48	24T11R0048	Kondakamarla Mohammad Affan	**4**	8	6	1	7
49	24T11R0049	P N Mudraju	**5**	13	10	1	11
50	24T11R0050	M Muskan Banu	**8**	15	12	2	14
51	24T11R0051	Cheruvu Mythri	**5**	15	12	1	13
52	24T11R0052	G V Nagabhushana	**4**		0	1	1
53	24T11R0053	Mandala Nagalakshmi	**5**	22	18	1	19
54	24T11R0054	Neelampalli Nagatejaswini	**4**	16	13	1	14
55	24T11R0055	Mude Nagendra Naik			0	0	0
56	24T11R0056	Boya Nanda Kishore	**5**	17	14	1	15
57	24T11R0057	Jerripothula Nandini	**5**	17	14	1	15
58	24T11R0058	Therukati Neeha Sulthana	**4**	10	8	1	9
59	24T11R0059	Pileru Shaik Noorain	**6**	15	12	1	13
60	24T11R0060	Kandukuru Poornesh	**5**	11	9	1	10
61	24T11R0061	E Pradeep Gowd	**4**	9	7	1	8
62	24T11R0062	N Pranav Kumar Reddy	**4**	12	10	1	10
63	24T11R0063	Bandaru Purandhar Bhavani Prasad	**6**	16	13	1	14
64	24T11R0064	O Raghavendra	**4**	12	10	1	10
65	24T11R0065	Mandala Rahul	**11**	14	11	2	13
66	24T11R0066	Kamsali Rajesh	**4**	5	4	1	5

67	24T11R0067	Palthya Rajitha	**4**	15	12	1	13
68	24T11R0068	Madakasira Rakesh	**7**	14	11	1	13
69	24T11R0069	Koneti Rakshitha	**4**	14	11	1	12
70	24T11R0070	Aakula Shaik Ruheena	**10**	21	17	2	19
71	24T11R0071	Dudekula Ruksana	**6**	18	14	1	16
72	24T11R0072	Mahaldar Rukshana Begum	**8**	15	12	2	14
73	24T11R0073	Shaik Sadiq	**16**	16	13	3	16
74	24T11R0074	Shaik Sadiya	**7**	20	16	1	17
75	24T11R0075	Pulaiguri Saigowtham	**4**	7	6	1	6
76	24T11R0076	Uramekala Sai Kumar	**4**	11	9	1	10
77	24T11R0077	Rayachoti Sai Priya		21	17	0	17
78	24T11R0078	Matta Sailaja	**24**	26	21	5	26
79	24T11R0079	Madiga Saipadmini	**11**	15	12	2	14
80	24T11R0080	Katam Sandeep			0	0	0
81	24T11R0081	Shaik Saniya Banu	**9**	20	16	2	18
82	24T11R0082	Dudekula Shameem	**8**	22	18	2	19
83	24T11R0083	Kodala Sharuk Khan		5	4	0	4
84	24T11R0084	Obulappa Gari Shivaraj	**8**	11	9	2	10
85	24T11R0085	Rathinapi Sindhu	**7**	17	14	1	15
86	24T11R0086	Obulareddypalli Sirivennela	**11**	15	12	2	14
87	24T11R0087	Sugali Sony	**8**	17	14	2	15
88	24T11R0088	Bayaji Gari Spandana	**22**	14	18	3	21
89	24T11R0089	Sanna Mandaiah Gari Sravani	**7**	15	12	1	13
90	24T11R0090	Kenchala Srilatha	**16**	17	14	3	17
91	24T11R0091	Madhugonde Sruthi	**11**	17	14	2	16
92	24T11R0092	Shivalingappa Gari Suchitra	**8**	11	9	2	10
93	24T11R0093	Vadla Supraja Rani	**5**	11	9	1	10
94	24T11R0094	Mandha Tharun	**16**	18	14	3	18
95	24T11R0095	Harijana Thippamma	**12**	19	15	2	18
96	24T11R0096	Sake Thulasi	**10**	16	13	2	15
97	24T11R0097	K Usha	**26**	20	21	4	25
98	24T11R0098	Chakali Usha Rani	**21**	21	17	4	21
99	24T11R0099	Gudipi Vanaja	**14**	17	14	3	16
100	24T11R00A0	Kurakula Varshini	**7**	19	15	1	17
101	24T11R00A1	Gangappa Gari Veena	**9**	16	13	2	15
102	24T11R00A2	T N Vidya	**20**	23	18	4	22
103	24T11R00A3	Golla Yamini	**9**	17	14	2	15
104	24T11R00A4	Shaik Yasmin	**8**	13	10	2	12
105	24T11R00A5	Yakhubji Zoya Afreen	**9**	19	15	2	17

BALAJI COLLEGE OF PHARMACY, ANANTHAPURAMU, ANDHRA PRADESH.

B.PHARMACY I YEAR II SEMESTER (R23) INTERNAL ASSESSMENT SHEET - PRACTICAL

Subject Name & Code :

INTERNAL ASSESSMENT - PRACTICAL

S. No.	Hall ticket Number	Name of the Student	I MID Marks (30Marks)	II MID Marks (30Marks)	80 % Weightage for better (x0.8) – **A**	20 % for other (x0.2) - **B**	FINAL MID SEMESTER MARKS **(A+B)**
1	24T11R0001	Billi Abhinay	**8**			6.4	7
2	24T11R0002	Shaik Afreen		22	17.6		18
3	24T11R0003	Mulla Afsa Sulthana	**22**	24	19.2	4.4	24
4	24T11R0004	Basapuram Aishwarya	**22**	21	17.6	4.2	22
5	24T11R0005	Kondajogula Akhila	**21**	20	16.8	4	20.8
6	24T11R0006	Harijana Akshaya	**25**	27	21.6	5	27
7	24T11R0007	Pullalarevu Akshaya	**21**	21	16.8	4.2	21
8	24T11R0008	Rayachoti Amulya	**19**	23	18.4	3.8	22
9	24T11R0009	Subbara Angeswar Kumar					
10	24T11R0010	Moghal Apsha	**24**	26	20.8	4.8	26
11	24T11R0011	Pilliboina Archana	**23**	20	18.4	4	22
12	24T11R0012	Shaik Ayesha Thaseen	**22**	26	20.8	4	25
13	24T11R0013	Parnapalli Bharath	**22**	15	17.6	3	21
14	24T11R0014	Bharika Chandu	**19**	21	16.8	3.8	20
15	24T11R0015	Pasulayappa Gari Danavendra	**19**	20	16	3.8	20
16	24T11R0016	Neelam Daniyelu	**20**	19	16	3.8	20
17	24T11R0017	T Deekshitha					
18	24T11R0018	Yalamakuru Deepika Prasanna	**20**	19	16	3.8	20
19	24T11R0019	Vaggam Balaji Divya	**23**		18.4		18.4
20	24T11R0020	Bandla Divyasree		20	16		16
21	24T11R0021	D C Fardeen					
22	24T11R0022	Batti Fouziya Shabnam	**26**	24	20.8	4.8	26
23	24T11R0023	Gandluri Ganesh	**15**	23	18.4	3	21
24	24T11R0024	Mandala Gayathri	**22**	26	20.8	4.4	25
25	24T11R0025	Yelama Gayathri	**21**	24	19.2	4.2	23
26	24T11R0026	Mattam Gouri	**22**	19	17.6	3.8	21
27	24T11R0027	Jagadish Gari Govardhan	**20**	19	16	3.8	20
28	24T11R0028	Velpula Govardhan Yadav	**13**	18	14.4	2.6	17

29	24T11R0029	Parikidona Hareesh Naidu	**14**	18	14.4	2.8	17
30	24T11R0030	Nimmakayala Harsha Vardhan Sai	**20**	25	20	4	24
31	24T11R0031	Nallamanna Sanjeevarayappa Gari Harshitha	**22**	22	17.6	4.4	22
32	24T11R0032	Shaik Hena Rahima	**21**	23	18.4	4.2	23
33	24T11R0033	Alakunta Jagan	**4**	19	15.2	0.8	16
34	24T11R0034	Ediga Jayasimha	**17**	24	19.2	3.4	23
35	24T11R0035	Arikeri Jhansi	**21**	24	19.2	4.2	23
36	24T11R0036	K Jyothsna					
37	24T11R0037	Kapadam Kalpana	**16**	21	16.8	3.2	20
38	24T11R0038	Honnur Karishma Mehek	**19**		15.2		15
39	24T11R0039	Shaik Karishma	**21**	20	16.8	4	21
40	24T11R0040	Dungavath Karthik Naik	**3**	19	15.2	0.6	16
41	24T11R0041	Kasandula Kavya	**24**	27	21.6	4.8	26
42	24T11R0042	Guduru Kavya Sree	**20**	18	16	3.6	20
43	24T11R0043	Madiga Krupa Kumari	**20**	21	16.8	4	21
44	24T11R0044	Velpula Lalitha	**21**	26	20.8	4.2	25
45	24T11R0045	Koyaladinne Lokeswari	**20**	22	17.6	4	22
46	24T11R0046	Kalla Manasa	**20**	23	18.4	4	22
47	24T11R0047	Gallamory Manikumari	**18**	19	15.2	3.6	19
48	24T11R0048	Kondakamarla Mohammad Affan	**19**	18	15.2	3.6	19
49	24T11R0049	P N Mudraju	**21**	18	16.8	3.6	20
50	24T11R0050	M Muskan Banu	**21**	21	16.8	4.2	21
51	24T11R0051	Cheruvu Mythri	**20**	20	16	4	20
52	24T11R0052	G V Nagabhushana	**13**		10.4		10
53	24T11R0053	Mandala Nagalakshmi	**17**	22	17.6	3.4	21
54	24T11R0054	Neelampalli Nagatejaswini	**15**		12		12
55	24T11R0055	Mude Nagendra Naik					
56	24T11R0056	Boya Nanda Kishore	**20**	23	18.4	4	22
57	24T11R0057	Jerripothula Nandini	**20**	24	19.2	4	23
58	24T11R0058	Therukati Neeha Sulthana	**20**	21	16.8	4	21
59	24T11R0059	Pileru Shaik Noorain	**20**	25	20	4	24
60	24T11R0060	Kandukuru Poornesh	**20**	19	16	3.8	20
61	24T11R0061	E Pradeep Gowd	**9**	20	16	1.8	18
62	24T11R0062	N Pranav Kumar Reddy	**6**	18	14.4	1.2	16
63	24T11R0063	Bandaru Purandhar Bhavani Prasad	**16**	21	16.8	3.2	20
64	24T11R0064	O Raghavendra	**11**	19	15.2	2.2	17
65	24T11R0065	Mandala Rahul	**17**	18	14.4	3.4	18

66	24T11R0066	Kamsali Rajesh	**6**	17	13.6	1.2	15
67	24T11R0067	Palthya Rajitha	**15**	20	16	3	19
68	24T11R0068	Madakasira Rakesh	**18**	19	15.2	3.6	19
69	24T11R0069	Koneti Rakshitha	**20**	22	17.6	4	22
70	24T11R0070	Aakula Shaik Ruheena	**26**	26	20.8	5.2	26
71	24T11R0071	Dudekula Ruksana	**26**	19	20.8	3.8	25
72	24T11R0072	Mahaldar Rukshana Begum	**23**		18.4		18.4
73	24T11R0073	Shaik Sadiq	**21**	20	16.8	4	21
74	24T11R0074	Shaik Sadiya	**25**	26	20.8	5	26
75	24T11R0076	Uramekala Sai Kumar	**20**	19	16	3.8	20
76	24T11R0077	Rayachoti Sai Priya		25	20		20
77	24T11R0075	Pulaiguri Saigowtham	**3**	18	14.4	0.6	15
78	24T11R0078	Matta Sailaja	**26**	24	20.8	4.8	26
79	24T11R0079	Madiga Saipadmini	**24**	20	19.2	4	23
80	24T11R0080	Katam Sandeep					
81	24T11R0081	Shaik Saniya Banu	**20**	23	18.4	4	22
82	24T11R0082	Dudekula Shameem	**11**	21	16.8	3.2	20
83	24T11R0083	Kodala Sharuk Khan	**2**	15	12	0.4	12
84	24T11R0084	Obulappa Gari Shivaraj	**17**	22	17.6	3.4	21
85	24T11R0085	Rathinapi Sindhu	**18**	24	19.2	3.6	23
86	24T11R0086	Obulareddypalli Sirivennela	**20**	20	16	4	20
87	24T11R0087	Sugali Sony	**18**	21	16.8	3.6	20
88	24T11R0088	Bayaji Gari Spandana	**21**	22	17.6	4.2	22
89	24T11R0089	Sanna Mandaiah Gari Sravani	**19**	18	15.2	3.6	19
90	24T11R0090	Kenchala Srilatha	**19**	23	18.4	3.8	22
91	24T11R0091	Madhugonde Sruthi	**18**	24	19.2	3.6	23
92	24T11R0092	Shivalingappa Gari Suchitra	**19**	20	16	3.8	20
93	24T11R0093	Vadla Supraja Rani	**19**	20	16	3.8	20
94	24T11R0094	Mandha Tharun	**18**	23	18.4	3.6	22
95	24T11R0095	Harijana Thippamma	**23**	22	18.4	4.4	23
96	24T11R0096	Sake Thulasi	**24**	22	19.2	4.4	24
97	24T11R0097	K Usha	**22**	27	21.6	4.4	26
98	24T11R0098	Chakali Usha Rani	**22**	26	20.8	4.4	25
99	24T11R0099	Gudipi Vanaja	**20**	23	18.4	4	22
100	24T11R00A0	Kurakula Varshini	**18**	21	16.8	3.6	20
101	24T11R00A1	Gangappa Gari Veena	**20**	19	16	3.8	20
102	24T11R00A2	T N Vidya	**19**	22	17.6	3.8	21
103	24T11R00A3	Golla Yamini	**19**	21	16.8	3.8	21
104	24T11R00A4	Shaik Yasmin	**18**	20	16	3.6	20
105	24T11R00A5	Yakhubji Zoya Afreen	**19**	18	15.2	1.6	17