Academic Year 2024 – 2025

Class: III-II

Program: B. Pharm

NameoftheCourse:**PHARMACOGNOSY AND PHYTOCHEMISTRY II**

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VISION

Achievingacademicexcellencebyprovidinggloballyacceptabletechnicaleducationbyforecastingtechnologythroughinnovativeresearchanddevelopment,industryinstitutetheinteractionandempowered manpower.

MISSION

To induce higher planes of learning by imparting technical education with internationalstandards, appliedresearch,creativeabilityandvalue-basedinstruction.

File No.SCHE-JNTA/910/2024-JNTUA-EHE73

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU

ACADEMIC CALENDAR 2024-25

B.Pharm II Year I & II Semesters

(for 2023 admitted batch)

Description	From To	No. of weeks/days
I Semester		
Commencement of Class work	**23.09.2024**	-
Instruction Period for the Semester	23.09.2024 to 25.01.2025	(18 weeks)
Examinations:		
I Mid-term Examinations	21.11.2024 to 23.11.2024	(03 Days)
II Mid-term Examinations	23.01.2025 to 25.01.2025	(03 Days)
End laboratory Examinations:	27.01.2025 to 01.02.2025	(01 week)
End Theory Examinations:	03.02.2025 to 15.02.2025	(02 weeks)
Commencement of Class Work for II Year B.Pharm II semester	**17.02.2025 (Monday)**	
Declaration of results for II-I	**10.03.2025**	

II Semester		
Commencement of Class work	**17.02.2025**	-
Ist spell of Instruction Period for the Semester	17.02.2025 to 03.05.2025	(11 weeks)
Community Service Project (CSP)	05.05.2025 to 05.07.2025	(02 Months)
IInd spell of Instruction Period for the Semester	07.07.2025 to 09.08.2025	(05 weeks)
Examinations:		
I Mid-term Examinations	15.04.2025 to 17.04.2025	(03 Days)
II Mid-term Examinations	11.08.2025 to 13.08.2025	(03 Days)
End laboratory Examinations:	18.08.2025 to 23.08.2025	(01 week)
End Theory Examinations:	25.08.2025 to 06.09.2025	(02 weeks)
Commencement of Class Work for III Year B.Pharm I semester	**08.09.2025 (Monday)**	
Declaration of results for II-II	**29.09.2025**	

Note:

- The Mid-term Examinations should be conducted and completed as per the schedule given.
- For slippage of 100 instruction days in 17 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.

Digitally Signed by Eddula Keshava Reddy
Date: 27-06-2024 13:11:25
Reason: Approved

Date: 27.06.2024

DIRECTOR OF EVALUATION

PROGRAM:B.Pharmacy

PROGRAMEDUCATIONALOBJECTIVES(PEO)

FundamentalKnowledge:

- To produce pharmacy graduates with strong fundamental concepts and high technical competence in pharmaceutical sciences and technology, who shall beable 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.

PracticeandCare:

- 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.

LifelongLearningandInnovation:

- 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.
- Developinginnovativeideasandapproachestoenhancequalityandovercomeprofessionalbarriers.
- Engagingincreativethinkingtoenvisionbetterwaysofachievingprofessionalgoals.

PROGRAM:B. Pharmacy

PROGRAMOUTCOMES(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.

BP 504 T.PHARMACOGNOSY AND PHYTOCHEMISTRY II (Theory)Theory: 3 + 1 Hrs./Week

1. Objectives of the subject:

Upon completion of the course, the student shall be able

1. to know the techniques in the cultivation and production of crude drugs
2. to know the crude drugs, their uses and chemical nature
3. know the evaluation techniques for the herbal drugs
4. to carry out the microscopic and morphological evaluation of crude drugs

Text Books (Theory):

1. Textbook of Pharmacognosy by Trease& Evans.
2. Textbook of Pharmacognosy by Tyler, Brady & Robber.
3. Pharmacognosy by Kokate, Purohit and Gokhale
4. Essential of Pharmacognosy by Dr.S.H.Ansari
5. Pharmacognosy&Phytochemistry by V.D.Rangari
6. Pharmacopoeal standards for Ayurvedic Formulation (Council of Research in Indian Medicine & Homeopathy)
7. Mukherjee, P.W. Quality Control of Herbal Drugs: An Approach to Evaluation of Botanicals. Business Horizons Publishers, New Delhi, India, 2002.

2.Detailedsyllabusandlecturewiseschedule:

UNIT-I

Metabolic pathways in higher plants and their determination

a) Brief study of basic metabolic pathways and formation of different secondary metabolitesthrough these pathways- Shikimic acid pathway, Acetate pathways and Amino acid pathway.

b) Study of utilization of radioactive isotopes in the investigation of Biogenetic studies.

UNIT-II

General introduction, composition, chemistry & chemical classes, biosources, therapeutic uses and commercial applications of following secondary metabolites:

Alkaloids: Vinca, Rauwolfia, Belladonna, Opium,

Phenylpropanoids and Flavonoids: Lignans, Tea, Ruta

Steroids, Cardiac Glycosides &Triterpenoids: Liquorice, Dioscorea, Digitalis

Volatile oils: Mentha, Clove, Cinnamon, Fennel, Coriander,

Tannins: Catechu, Pterocarpus

Resins: Benzoin, Guggul, Ginger, Asafoetida, Myrrh, Colophony

Glycosides: Senna, Aloes, Bitter Almond

Iridoids, Other terpenoids&Naphthaquinones: Gentian, Artemisia, taxus, carotenoids

UNIT-III

Isolation, Identification and Analysis of Phytoconstituents

a) Terpenoids: Menthol, Citral, Artemisin

b) Glycosides: Glycyrhetinic acid &Rutin

c) Alkaloids: Atropine,Quinine,Reserpine,Caffeine

d) Resins: Podophyllotoxin, Curcumin

UNIT- IV

ndustrial production, estimation and utilization of the following phytoconstituents: Forskolin, Sennoside, Artemisinin, Diosgenin, Digoxin, Atropine, Podophyllotoxin, Caffeine,
Taxol, Vincristine and Vinblastine

UNIT-V

Basics of Phytochemistry

Modern methods of extraction, application of latest techniques like Spectroscopy, chromatography and electrophoresis in the isolation, purification and identification of crude
drugs.

BP508 P. PHARMACOGNOSY AND PHYTOCHEMISTRY I (Practical) 4 Hours/Week

1. Morphology, histology and powder characteristics & extraction & detection of: Cinchona, Cinnamon, Senna, Clove, Ephedra, Fennel and Coriander
2. Exercise involving isolation & detection of active principles
a. Caffeine - from tea dust.
b. Diosgenin from Dioscorea
c. Atropine from Belladonna
d. Sennosides from Senna
3. Separation of sugars by Paper chromatography
4. TLC of herbal extract
5. Distillation of volatile oils and detection of phytoconstitutents by TLC
6. Analysis of crude drugs by chemical tests: **(**i) Asafoetida (ii) Benzoin (iii) Colophony (iv) Aloes (v) Myrrh

LESSONPLAN

AcademicYear:2024–2025Class:IIISem: II

Program: B. Pharmacy Duration of the year: 2022 - 2023

NameoftheCourse:**PHARMACOGNOSY AND PHYTOCHEMISTRY II**

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

Scheduled Date: 29/07/2024 to 23/11/2024

ReferenceBooks:

1. Textbook of Pharmacognosy by Trease& Evans.
2. Textbook of Pharmacognosy by Tyler, Brady & Robber.
3. Pharmacognosy by Kokate, Purohit and Gokhale
4. Essential of Pharmacognosy by Dr.S.H.Ansari
5. Pharmacognosy&Phytochemistry by V.D.Rangari
6. Pharmacopoeal standards for Ayurvedic Formulation (Council of Research in Indian Medicine & Homeopathy)
7. Mukherjee, P.W. Quality Control of Herbal Drugs: An Approach to Evaluation of Botanicals. Business Horizons Publishers, New Delhi, India, 2002.
8. Herbal drug Technology. By SS Agrawal and M Paridhavi
9. Indian Medicinal Plants A compendium of 500 species Vol 1, 11, 111, 1V & V By Arya vaidyssala , Universities Press

S.No	Chapter name	Topic	No. of hours	Name of thefaculty
1.	UNIT-I	**Metabolic pathways in higher plants and their determination** a) Brief study of basic metabolic pathways and formation of different secondary metabolites through these pathways- Shikimic acid pathway, Acetate pathways and Amino acid pathway. b) Study of utilization of radioactive isotopes in the investigation of Biogenetic studies.	**07**	Dr. D. Venkatanarayana
2.	UNIT-II	General introduction, composition, chemistry & chemical classes, biosources, therapeutic uses and commercial applications of following secondary metabolites: **Alkaloids:** Vinca, Rauwolfia, Belladonna, Opium, **Phenylpropanoids and Flavonoids:** Lignans, Tea, Ruta **Steroids, Cardiac Glycosides &Triterpenoids**: Liquorice, Dioscorea, Digitalis **Volatile oils**: Mentha, Clove, Cinnamon, Fennel, Coriander, **Tannins:** Catechu, Pterocarpus **Resins:** Benzoin, Guggul, Ginger, Asafoetida, Myrrh, Colophony **Glycosides:** Senna, Aloes, Bitter Almond **Iridoids, Other terpenoids&Naphthaquinones:** Gentian, Artemisia, taxus, carotenoids	**14**	Dr. D. Venkatanarayana
3.	UNIT-III	Isolation, Identification and Analysis of Phytoconstituents a) Terpenoids: Menthol, Citral, Artemisin b) Glycosides: Glycyrhetinic acid &Rutin c) Alkaloids: Atropine,Quinine,Reserpine,Caffeine d) Resins: Podophyllotoxin, Curcumin	**06**	Dr. D. Venkatanarayana
4	UNIT-IV	Industrial production, estimation and utilization of the following phytoconstituents: Forskolin, Sennoside, Artemisinin, Diosgenin, Digoxin, Atropine, Podophyllotoxin, Caffeine, Taxol, Vincristine and Vinblastine	**10**	Dr. D. Venkatanarayana

5	**UNIT-V**	**Basics of Phytochemistry** Modern methods of extraction, application of latest techniques like Spectroscopy, chromatography and electrophoresis in the isolation, purification and identification of crude drugs.	**08**	Dr. D. Venkatanarayana

COURSE OUTCOMES

AcademicYear:2024–2025 Class:III SEM: I
Program: B. Pharmacy Duration of the year: 2024-2025
Name of the Course: **PHARMACOGNOSY AND PHYTOCHEMISTRY II**

PrescribedHours:**Theory**: 3 + 1Hrs. /Week
ScheduledDate:29/07/2024 to 23/11/2024

Course Outcomes

CO NO.	Course Outcome
C3.5.1	Basic biosynthetic pathways and its brief involved in the metabolism of production of secondary metabolites.
C3.5.2	The sources and phytochemistry, composition, therapeutic and commericial utilization of secondaery metabolites present in various crude drugs.
C3.5.3	Isolation techniques, identification and analysisof selected phyto constituents.
C3.5.4	Industrial production ,estimation,andutilisation of useful phytoconstituents.
C3.5.5	Modern extraction methods, characterization and identification of herbal drugs through spectroscopy.

CO– POMAPPING

AcademicYear:2024–2025 Class:III SEM: I
Program: B. Pharmacy Duration of the year: 2022–2023
Name of the Course: **PHARMACOGNOSY AND PHYTOCHEMISTRY II**

PrescribedHours:**Theory**: 3 + 1Hrs./Week

ScheduledDate:29/07/2024 to 23/11/2024

COURSE OUTCOMES

Atthe endof thecourse thestudent isable to:

CO NO.	Course Outcome
C3.5.1	Basic biosynthetic pathways and its brief involved in the metabolism of production of secondary metabolites.
C3.5.2	The sources and phytochemistry, composition, therapeutic and commericial utilization of secondaery metabolites present in various crude drugs.
C3.5.3	Isolation techniques, identification and analysisof selected phyto constituents.
C3.5.4	Industrial production ,estimation,andutilisation of useful phytoconstituents.
C3.5.5	Modern extraction methods, characterization and identification of herbal drugs through spectroscopy.

COURSE OUTCOMES

AcademicYear:2024–2025 Class:III SEM: I

Program: B. Pharmacy Duration of the year : 2022 - 2023

Name of the Course: **PHARMACOGNOSY AND PHYTOCHEMISTRY II (Practical)**

PrescribedHours:**Practical**: 4Hrs./Week

ScheduledDate: 29/07/2024 to 23/11/2024

Course Outcomes

CO NO.	Course Outcome
C3.5.1	Macroscopy and microscopy diagnostic characters of secondary metabolites
C3.5.2	Exraction , isolation, identification and analysis of selected phytoconstituents
C3.5.3	Detection of phytoconstituents by chromatographic technique
C3.5.4	Isolation and commercial utilization of volatile oil
C3.5.5	Chemical analysis of unorganized drugs as oer regulatory guidelines.

CO– POMAPPING

AcademicYear:2024–2025 Class:III SEM: I

Program: B. Pharmacy Duration of the year:2022–2023

Name of the Course: **PHARMACOGNOSY AND PHYTOCHEMISTRY II (Practical)**

PrescribedHours:**Practical**: 4Hrs./Week

ScheduledDate: 29/07/2024 to 23/11/2024

COURSE OUTCOMES

Atthe endof thecourse thestudent isable to:

CO NO.	Course Outcome
C3.5.1	Macroscopy and microscopy diagnostic characters of secondary metabolites
C3.5.2	Exraction , isolation, identification and analysis of selected phytoconstituents
C3.5.3	Detection of phytoconstituents by chromatographic technique
C3.5.4	Isolation and commercial utilization of volatile oil
C3.5.5	Chemical analysis of unorganized drugs as oer regulatory guidelines.

CO– POMatrix

POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
COs											
C3.5.1											
C3.5.2											
C3.5.3											
C3.5.4											
C3.5.5											
Avg											

High:3 Medium:2 Low:1

Gaps identified from CO – POMapping

1.

2.

Planofaction/correctivemeasuretakentoovercomethegap

1.AdditionalClass/Seminar

RevisedCO– POMatrix

POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
COs											
C3.5.1											
C3.5.2											
C3.5.3											
C3.5.4											
C3.5.5											
Avg											

AcademicYear:2024–2025 Class:III SEM: I

Program: B. Pharmacy Duration of the year: 2023 - 2024

Name of the Course: **PHARMACOGNOSY AND PHYTOCHEMISTRY II**

PrescribedHours:**Theory**: 3 + 1Hrs./Week

ScheduledDate:29/07/2024 to 23/11/2024

ASSIGNMENTS

ASSIGNMENTTOPIC	Course Outcome	BTL
Assignment1		
Basic metabolic pathways	**C3.5.1**	Remembering
Volatile oils: Mentha, Clove, Cinnamon, Fennel, Coriander,	**C3.5.2**	Applying
Assignment2		
Isolation, Identification and Analysis of four Phytoconstituents	**C3.5.3**	Analyzing
Industrial production, estimation and utilization of four Phytoconstituents	**C3.5.4**	Understanding
Assignment3		
Modern methods of extraction,	**C3.5.5**	Understanding

Formatoftheassignment:

1. Minimum& Maximumnumberofpages.
2. Itshallbewrittendraftcopy.
3. Nameandsignatureofthestudent.
4. Assignmentcanbeacombined seminar presentationattheend of thesemester.
5. Time allocatedforseminarmaybe8+2Min.

CodeNo:BP405Roll.No:

IIIYearIsemB.PharmI Mid Examinations, **SEP–2024**

PHARMACOGNOSY AND PHYTOCHEMISTRY II

Time:01:30HrsMax.Marks: 30

S.NO	ANSWER ALL QUESTIONS	MARKS	COURSE OUTCOME	BLOOMS LEVEL
1	Write the chemical structure of cardinoloids and bufadenolides?	02	C3.6.2	Remembering
2	Definition and types of tannins?	02	C3.6.2	Remembering
3	Explain the Van urk"s test and Vitalimorin test?	02	C3.6.3	Remembering
4	Illustrate the isolation of menthol?	02	C3.6.3	Remembering
5	Discuss industrial production of taxol?	02	C3.6.4	Remembering
	ANSWER ANY ONE QUESTION			
6	Give the bio source, C.C. and uses of Opium, Ginger,Digitalis and Aloe?	10	C3.6.2	Understanding
7	Explain the industrial production, estimation and Uses of Forskolin and Atropine?	10	C3.6.4	Creating
	ANSWER ANY TWO QUESTIONS			
8	Give the bio source, Chemical constituents and uses of Ptrocarpus and Clove?	05	C3.6.2	Understanding
9	D Explain the Isolation, Identification and analysis of Reserpine?	05	C3.6.3	Understanding
10	Explain the industrial production, estimation and Utilisation of Caffeine?	05	C3.6.4	Evaluating

CourseOutcomeanalysis:

CO	TotalCOMarks	%CO
C3.6.1	19M	42.22%
C3.6.2	19M	42.22%
C3.6.3	07M	15.56%
C3.6.4	0M	0%
C3.6.5	0M	0%
TOTAL	45M	100%

Bloomstaxonomyanalysisforeducationalobjectives:

Taxonomy	TaxonomyMarks	%Taxonomy
Remember	10M	22.22%
Understand	20M	44.45%
Apply	0M	0%
Analyze	0M	0%
Evaluate	05M	0%
Create	10M	11.11%
TOTAL	45M	100%

CodeNo:BP603Roll.No:

BalajiCollegeofPharmacy, Ananthapuramu.

IIIYear II semB.PharmII Mid Examinations, **July–2022**

Pharmacognosy&phytochemistry-II

Time:01:30HrsMax.Marks: 30

S.NO	ANSWER ALL QUESTIONS	MARKS	COURSE OUTCOME	BLOOMS LEVEL
1	Define secondary plant metabolite with suitable examples	2M	CB504.1	Remember
2	List the applications of Tracer technique	2M	CB504.1	Analyze
3	Explain mechanism of extraction	2M	CB504.5	Understand
4	Defineautoradiography&scintillation counter	2M	CB504.1	Remember
5	Compare between preparative and analytical Chromatography	2M	CB504.5	Understand
	ANSWER ANY ONE QUESTION			
6	Explain Shikimic acid pathway	10M	CB504.1	Understand
7	List the applications of Chromatography techniques	10M	CB504.5	Analyze
	ANSWER ANY TWO QUESTIONS			
8	Explain the various steps in Tracer technology	5M	CB504.1	Evaluate
9	What is Microwave assisted extraction	5M	CB504.5	Remember
10	List the applications of electrophoresis	5M	CB504.5	Analyze

CourseOutcomeanalysis:

CO	TotalCOMarks	%CO
C3.5.1	19M	42.22%
C3.5.2	0M	0%
C3.5.3	0M	0%
C3.5.4	17M	37.77%
C3.5.5	9M	0.2%
TOTAL	45M	100%

Bloomstaxonomyanalysisforeducationalobjectives:

Taxonomy	TaxonomyMarks	%Taxonomy
Remember	2M	37.77%
Understand	21M	46.66%
Apply	0M	0%
Analyze	02M	0.044%
Evaluate	05M	11.11%
Create	0M	0%
TOTAL	45M	100%

UNITWISEIMPORTANTQUESTIONS

AcademicYear:2024–2025 Class: III SEM: I
Program: B. Pharmacy

Name of the Course: **Pharmacognosy&phytochemistry-II**

PrescribedHours: **Theory**: 3 + 1Hrs./Week

ScheduledDate:17/09/2022 to 11/01/2023

QUESTIONS

CHAPTER 1

10 marks

1. Explain different methods for elucidation of biosynthetic pathways

5 marks

1. Write a note on Shikimic acid pathway and its significance
2. Write a note on radio isotopes and their applications in biogenetic studies
3. Explain the steps involved in acetate pathway
4. Explain Tracer technology and its significance in biogenetic studies
5. Mention different methods for biogenetic investigations and explain tracer technology
6. Explain Grafting and Mutant strain methods of biogenetic studies
7. Write a note on radio isotopes and their applications in biogenetic studies
8. Describe Autoradiography and competitive feeding
9. Write a note on tracer technique and its significances.

2 marks

1. Define secondary plant metabolite with suitable examples
2. Give the significance of acetate pathway
3. Write a note on autoradiography
4. Write a note on Amino Acid Pathway
5. Autoradiography
6. Liquid scintillation counter
7. Competitive feeding experiments
8. Define radioisotopes and give their uses in biogenetic studies

CHAPTER 2

10 marks

1. What are cardiac glycosides? Give the Pharmacognosy of Digitalis in detail
2. Write Pharmacognosy of Liquorice
3. Write the Pharmacognostical study of Senna
4. Write the biological source, morphology, microscopy , chemical constituents, uses , adulterants and substitutes of Rauwolfia
5. Write the biological source, morphology, microscopy , chemical constituents, uses , adulterants and substitutes of Belladonna
6. Write Pharmacognosy of Liquorice
7. Write Pharmacognosy of Cinnamon
8. Pharmacognosy of Dioscorea.

5 Marks

1. Give the biological source, Chemical constituents and uses of any two volatile oil drugs
2. Give the biological source, Chemical tests and uses Benzoin
3. Describe the microscopy of Clove with a neat labeled diagram
4. Give the biological source, Chemical constituents and uses of any two alkaloid drugs
5. Describe the Pharmacognosy of Guggul
6. Describe macroscopy and microscopy of Licorice
7. Give macroscopy and microscopy fennel
8. Give macroscopy and microscopy fennel
9. Give the biological source, Chemical constituents and uses of Cinnamonand Opium
10. Give biosources, chemical constituents and uses of Coriander and Belladonna
11. Give the biological source, chemical constituents and uses of Clove and Coriander
12. Give the Pharmacognosy of Vinca
13. Explain biosources, chemical constituents of Liquorice and Vinca
14. Describe microscopic method of fennel with neat labeled diagram
15. Give biosources and chemical constituents of Gentian and Ruta
16. Adulterants of Senna and Digitalis
17. Give biosources, chemical constituents and uses of Coriander and Belladonna
18. Give the chemical constituents and therapeutic uses of Mentha and Fennel
19. Give the identification tests for Benzoin and Colophony.
20. Explain with a neat labeled microscopic diagram of Clove
21. Explain microscopy of Ginger with neat labeled diagram
22. Give biological source and active constituents of Podophyllum and Vinca
23. Explain with a neat labeled microscopic diagram of Fennel
24. Differentiate between Pale Catechu and Black Catechu
25. Give biological source and active constituents of Opium and Belladonna
26. Give biosources, chemical constituents and uses of Coriander and Belladonna
27. Give the chemical constituents and therapeutic uses of Mentha and Fennel
28. Give botanical source and chemical constituents of Aloes and Tea
29. Give chemical test for Benzoin and Colophony
30. Give the biological source and Chemical constituents of Cinnamon and Gentian
31. Explain microscopy of Ginger with neat labeled diagram
32. Write a note on Carotenoids

2 Marks

1. Give botanical source and Chemical Constituent of Tea
2. Write botanical source and uses of Digitalis
3. Write Vitalimorin test
4. Explain Combinedumbelliferone test.
5. Write the botanical source and chemical nature of Taxus
6. Write a note on umbelliferous fruits
7. Write botanical source and chemical constituents of Senna
8. Name two unorganized drugs with their botanical source and uses
9. Give the source and uses of eugenol containing crude drug
10. Explain modified brontrager's test
11. Write a short notes on Pterocarpus
12. Write botanical source and uses of any one drug belonging to the family Liliaceae.
13. Write the chemical structure of Caffeine and Reserpine
14. Give the chemical structure Quinine and Caffeine
15. Write botanical source and chemical constituents of Gentian
16. Classification and uses of Carotenoids
17. Name any two resinous drugs and give their uses
18. Write a note on taxol
19. Give the adulterants of Clove bud
20. Botanical source and chemical constituents of Ruta
21. Explain Murexide test
22. Identification test for Aloes
23. Write a note on lignans
24. Write the chemical tests for pale catechu
25. Chemical tests for Myrrh
26. Write the chemical structures of Eugenol and Quinine
27. Write biological sources and uses of Vincristine and Taxol.
28. Write biosource and Chemical constituents of Fennel
29. Write identification test for Sennoside
30. Write chemical structures of Diosgenin and Eugenol
31. Write chemical tests of Benzoin
32. Give adulterants and uses of Clove
33. Define chromatography and its principles
34. Give chemical constituents and uses of Opium.
35. Give chemical constituents and uses for Liquorice
36. Write chemical constituent and uses of Mentha
37. Write the chemical tests for Reserpine
38. Give the identification test for Atropine.
39. Describe biological sources and Uses of Coleus
40. Write chemical structures of Caffeine and Eugenol
41. Give chemical constituents and uses of Aloes
42. Give chemical constituents and uses for Tea
43. Write adulterants of Clove
44. Write chemical test for Digitalis.
45. Define Resins with examples
46. Give the chemical structure of Reserpine and Quinine
47. Write chemical constituents and uses of Taxus

48. Classification and uses of Carotenoids
49. Write the chemical tests for pale catechu
50. Write a note on Balsams
51. Explain Keller Killani Test
52. Give biological source of Mentha and Rauwolfia
53. Define Tannins and Carotenoids
54. Give biological sources and Uses of Coleus

CHAPTER 3

10 marks

1. Discuss the industrial production and estimation of Forskolin and Diosgenin
2. Explain industrial method of production and estimation of Vincristine and Atropine.
3. Describe industrial production and estimation of Diosgenin and sennoside.
4. Explain industrial production and estimation of Sennosides and vinblastine
5. Describe the Industrial production and estimation of Caffeine and Digoxin
6. Explain industrial method of production and estimation of Sennoside and Caffeine
7. Describe in detail about industrial production, estimation and uses of Diosgenin

5 marks

1. Write the isolation and estimation of Glycyrhetenic acid
2. Explain the method of isolation and estimation of Curcumin
3. Describe the method of isolation and identification of Atropine
4. Write the isolation and identification of Quinine
5. Describe the isolation and identification of Rutin
6. Write the isolation and identification of Curcumin.
7. Describe the isolation and identification of Citral
8. Describe different methods of extraction and identification of Glycyrrhizin
9. Write industrial production and methods of estimation of vincristine
10. Write the method of isolation and estimation of Curcumin
11. Write isolation and analysis of Glycyrrhizin
12. Write methods of estimation of Artemisinin and Quinine
13. Write identification test and estimation of Digoxin
14. Explain in detail method of isolation and identification of Rutin

CHAPTER 4

10 Marks

1. Describe the Industrial production and estimation of Caffeine and Digoxin
2. Explain industrial production and estimation of Atropine and Diosgenin
3. Describe industrial production and estimation of Diosgenin and sennoside
4. Explain industrial production and estimation of Sennosides and vinblastine.

5 marks

1. Explain the industrial production and uses of Artemisinin
2. Describe the estimation of vincristine and caffeine
3. Discuss the industrial production and uses of Vincristine
4. Explain the industrial production of digoxin
5. Discuss the industrial production and estimation of forskolin
6. Explain the industrial production and estimation of Digoxin
7. Industrial production and utilization of Atropine
8. Discuss the industrial production and estimation of forskolin
9. Discuss the industrial production and identification of Sennosides.
10. Write the method of production and identification for Atropine
11. biological source and active constituents of Podophyllum and Vinca

2 marks

1. Give the source and uses of Citral
2. Write Source and uses of Podophyllotoxin
3. Utilization of Vinca alkaloids

CHAPTER 5

10 marks

1. Enumerate the various modern methods of extraction and explain in detail about SFE
2. Explain in detail about Super critical fluid extraction and solid phase extraction
3. What is Microwave assisted extraction; describe its process, applications, advantages and disadvantages.
4. Describe the Solid phase extraction
5. Explain in detail about Super critical fluid extraction

5 Marks

Write a note on column chromatography

1. Describe microwave assisted extraction
2. Write applications of GC and TLC
3. Applications of GC and HPLC
4. Describe HPTLC with its advantages and applications
5. Explain the role of column chromatography in isolation and purification of phytoconstituents
6. Describe HPTLC with its advantages and applications
7. Give the applications of HPTLC and GC.

2 Marks

1. Write the applications of Microwave assisted extraction
2. Write the applications of HPTLC
3. Write the applications of HPLC and HPTLC
4. Give applications of electrophoresis
5. Write applications of Super critical fluid extraction

6. Applications of Microwave assisted extraction
7. Define Electrophoresis and give its applications
8. Define Chromatography and Electrophoresis
9. Give application of gas chromatography
10. Write a note on UV and visible spectroscopy
11. Write a Note on Spectroscopy

Code: BP504T **R19**

B.Pharm III Year I Semester (R19) Regular & Supplementary Examinations December 2024

PHARMACOGNOSY AND PHYTOCHEMISTRY- II

(B.Pharmacy)

Time: 3 hours Max. Marks: 75

PART – A

(Compulsory Question)

*****

1		Answer the following: (10 X 02 = 20 Marks)	
	(a)	Write the significance of amino acid pathway.	2M
	(b)	Differentiate between primary and secondary metabolites with examples.	2M
	(c)	Write biological source and uses of rauwolfia.	2M
	(d)	Write in brief about tannins.	2M
	(e)	Discuss physico-chemical properties of resins.	2M
	(f)	Write identification test of atropine and Caffeine.	2M
	(g)	Write the utilization of vinca alkaloid.	2M
	(h)	Write the utilization of digoxin.	2M
	(i)	Write the applications of HPTLC.	2M
	(j)	Write applications of Super critical fluid extraction.	2M

PART – B

(Answer any two questions: 02 X 10 = 20 Marks)

2	(a)	Describe shikimic acid pathway and its significance.	5M
	(b)	Explain Tracer technology and its significance in biogenetic studies.	5M
3	(a)	Write the method of isolation and identification of quinine.	5M
	(b)	Write about the industrial production, estimation & utilization of sennoside.	5M
4	(a)	What are cardiac glycosides? Give the source, chemical constituents and uses of digitalis.	5M
	(b)	Define chromatography and discuss various chromatographic techniques used for isolation of phytoconstituents.	5M

PART – C

(Answer any seven questions: 07 X 05 = 35 Marks)

5	(a)	Explain the steps involved in acetate pathway.	2M
	(b)	Describe autoradiography and competitive feeding.	3M
6	(a)	Write the biological sources and uses of dioscorea and liquorice.	2M
	(b)	Write the biological sources and chemical constituents of Opium.	3M
7	(a)	Write the biological source and chemical constituents of fennel.	3M
	(b)	Write a note on podophyllotoxin.	2M
8	(a)	Write a note on Benzoin.	2M
	(b)	Write biological source, chemical constituent and uses of Clove.	3M

Contd. in Page 2

Code: BP504T

R19

9	(a)	Write the method of isolation and identification of menthol.	2M
	(b)	Write the method of isolation and identification of caffeine.	3M
10	(a)	Explain the industrial production and uses of artemisinin.	3M
	(b)	Discuss the industrial production and uses of forskolin.	2M
11	(a)	Discuss industrial production, estimation and utilization of podophyllotoxin.	3M
	(b)	Write the utilization and estimation of atropine and taxol.	2M
12	(a)	Describe microwave assisted extraction.	2M
	(b)	Explain the role of column chromatography in isolation and purification of phytoconstituents.	3M
13	(a)	Write a note on electrophoresis.	3M
	(b)	Write a note on spectroscopy.	2M

*****

BALAJI COLLEGE OF PHARMACY, ANANTAPURAMU

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Rudrampeta Bypass, Sanapa Road, Anantapuramu, Andhraprades-515002

BALAJI COLLEGE OF PHARMACY :: ANANTAPUR

B.PHARMACY – III-YEAR-I-SEM (VII SEM) - AY: 2024–2025(R19)

MID EXAMINATIONS AVERAGE MARKS AWARD LIST

Name of the Sub:**Pharmacognosy&phytochemistry-II**Sub. Code:BP504T(Theory) Lab code:BP 508 P

Sl No.	H.T.No	Name Of The Student	MID-I		MID-II		Avg (15M)	Continuous Mode (10 M)	Tota (25M)
			FOR 30 M	FOR 15 M	FOR 30 M	FOR 15 M			
1.	22T11R0001	Abhi Ravi Gari	18	9	16	8	8.5	8.5	17
2.	22T11R0002	Aditya Dasa	26	13	26	13	13	8	21
3.	22T11R0003	AfreenTaj K S	28	14	28	14	14	9	23
4.	22T11R0004	Ajay Kumar Chakali							
5.	22T11R0005	Aliya Tabassum L S	26	13	28	14	13.5	9.5	23
6.	22T11R0006	AnithaKunchapu	28	14	28	14	14	9	23
7.	22T11R0007	AnithaNarappala	24	12	25	12.5	12	9	21
8.	22T11R0008	AnjulathaKondagogula							
9.	22T11R0009	Anuradha P H	25	12.5	25	12.5	12.5	8.5	21
10.	22T11R0010	Arjun Uppara	21	10.5	24	12	11	9	20
11.	22T11R0011	ArshiyaBanu C	27	13.5	28	14	14	9	23
12.	22T11R0012	AtiyaKhanam Mohammad	28	14	28	14	14	9	23
13.	22T11R0013	AvinashSajjanagandla	25	12.5	24	12	12	8	20
14.	22T11R0014	BhavanaKodathala	26	13	25	12.5	13	8	21
15.	22T11R0015	BhavyaSpandanaPulla	28	14	28	14	14	10	24
16.	22T11R0016	BhavyaSreeChinnapareddygari	27	13.5	28	14	14	9	23
17.	22T11R0017	BheemeswariKondapuram	27	13.5	28	14	14	9	23
18.	22T11R0018	BhumikaChakali	27	13.5	26	13	13	9	22
19.	22T11R0019	ChandanaBandeeppagari	27	13.5	27	13.5	13.5	8.5	22

20.	22T11R0020	DeepikaVarikuti	28	14	28	14	14	9	23
21.	22T11R0021	DhanushaProdduturu	28	14	28	14	14	9	23
22.	22T11R0022	Dinesh Kumar Manchala	28	14	28	14	14	9	23
23.	22T11R0023	DivyaBayamutaka	28	14	28	14	14	9	23
24.	22T11R0024	DivyaSreeCharugundla	27	13.5	27	13.5	13.5	8.5	22
25.	22T11R0025	FaseehaShaik	28	14	28	14	14	9	23
26.	22T11R0026	GnapikaPendem	28	14	27	13.5	14	9	23
27.	22T11R0027	GowriMuguda	25	12.5	24	12	12	9	21
28.	22T11R0028	HarathiValipi	27	13.5	27	13.5	13.5	8.5	22
29.	22T11R0029	Hemanth Kumar Indla	12	6	11	5.5	6	9	15
30.	22T11R0030	Jagan Mohan NaikBhukya	27	13.5	27	13.5	13.5	7.5	21
31.	22T11R0031	JahnaviBestha							
32.	22T11R0032	Jaswanth Reddy Reddyvari							
33.	22T11R0033	JayalakshmiShivannaGari	27	13.5	26	13	13	9	22
34.	22T11R0034	JyothsnaMoola	27	13.5	28	14	14	9	28
35.	22T11R0035	KalpanaPuttha	27	13.5	27	13.5	13.5	8.5	22
36.	22T11R0036	KranthiYeggidi	26	13	28	14	13.5	8.5	22
37.	22T11R0037	Krishna Veni G	27	13.5	27	13.5	13.5	8.5	22
38.	22T11R0038	KulsumPatan	27	13.5				8	
39.	22T11R0039	Lakshmi Korrapati	28	14	27	13.5	14	9	23
40.	22T11R0040	Lakshmipriya Belle	27	13.5	26	13	13	8	21
41.	22T11R0041	LalithaDigivindlaChakala	27	13.5	27	13.5	13.5	8.5	22
42.	22T11R0042	LikhithaAlugunti	28	14	28	14	14	9	23
43.	22T11R0043	MadhuPikkili							
44.	22T11R0044	MahammadShakeerGosaripalli	28	14	27	13.5	14	9	23

45.	22T11R0045	Mahesh Khamithkar	28	14	28	14	14	10	24
46.	22T11R0046	Manoj Kumar Avvari	27	13.5	25	12.5	13	8	21
47.	22T11R0047	MeghamalaVentrukulappaGari	28	14	28	14	14	9	23
48.	22T11R0048	MeghanaJangam	25	12.5	26	1	1	8	21
49.	22T11R0049	Mohammed Kaif N	23	11.5	25	12.5	12	8	20
50.	22T11R0050	MounikaChinnaGowni	26	13	26	13	13	8	21
51.	22T11R0051	MounikaGoddumuri	28	14	27	13.5	14	8	22
52.	22T11R0052	MuskanSilar	26	13	28	14	13.5	8.5	22
53.	22T11R0053	NagarjunaThummasi	25	12.5	25	12.5	12.5	8.5	21
54.	22T11R0054	NageswariBayappagari	27	13.5	26	13	13	9	22
55.	22T11R0055	NandiniEdiga	27	13.5	27	13.5	13.5	8	22
56.	22T11R0056	Nandini Sake	25	12.5				9	
57.	22T11R0057	NavaneethaSunkara	28	14	28	14	14	9	23
58.	22T11R0058	NavanithaPonthati	28	14	27	13.5	14	9	23
59.	22T11R0059	Naveen RajuChakali	20	10	23	11.5	11	8	19
60.	22T11R0060	NavyaMuktham	26	1	26	13	13	8	21
61.	22T11R0061	NavyaNandiniMatam	25	12.5	25	12.5	12.5	8.5	21
62.	22T11R0062	NikhilaThalari	17	8.5	21	10.5	9.5	8.5	18
63.	22T11R0063	PallaviBeldon	28	14	28	14	14	9	23
64.	22T11R0064	PallaviJasthi	27	13.5	26	1	13	8	21
65.	22T11R0065	PallaviNagadani	28	14	28	14	14	9	23
66.	22T11R0066	Peddi Reddy Guda	22	11	22	11	11	9	20
67.	22T11R0067	PrasanthiKathe	25	12.5	23	11.5	13	8	21
68.	22T11R0068	PravallikaNeeruganti	27	3.5	8	14	14	9	23
69.	22T11R0069	Priyanka I	21	10.5	22	11	11	9	20

70.	22T11R0070	Reena Vade Muthana	27	13.5	27	13.5	13.5	9.5	23
71.	22T11R0071	RozinaTabassumDilkush	19	9.5				8	
72.	22T11R0072	RukminiParuchuri	27	13.5	28	14	14	8	22
73.	22T11R0073	RupaamruthaRallacheni	27	13.5	27	13.5	13.5	8.5	22
74.	22T11R0074	SabihaThaslim Haji Achula							
75.	22T11R0075	SadikhaShaik	27	13.5	27	13.5	13.5	8.5	22
76.	22T11R0076	SahithaNeeruganti	25	12.5	25	12.5	12.5	8.5	21
77.	22T11R0077	SaiMounikaChinthamanu	27	13.5	27	13.5	13.5	8.5	22
78.	22T11R0078	SaiMukthiMalyavantham	26	13	27	13.5	13	8	21
79.	22T11R0079	SamanthakamaniVelpula	21	10.5	22	11	11	8	20
80.	22T11R0080	SamarasimhaValmiki	25	12.5	23	11.5	12	8	20
81.	22T11R0081	SangeethaDasari	28	14	28	14	14	9	23
82.	22T11R0082	Saniya RuhiShaik	26	13	28	14	13.5	8.5	22
83.	22T11R0083	Shahin Begum T M	26	13	27	13.5	13	8	21
84.	22T11R0084	ShahiraAlisher	28	14	27	13.5	14	8	22
85.	22T11R0085	ShamiullaShaik	27	13.5	27	13.5	13.5	8.5	22
86.	22T11R0086	Shilpa K A	25	12.5	24	12	12	9	21
87.	22T11R0087	ShirishaBilla	27	13.5	28	14	14	8	22
88.	22T11R0088	Shiva SaiBoggula	22	11	25	12.5	12	8	20
89.	22T11R0089	SiddeshYanjarappaGari	26	13	25	12.5	13	8	21
90.	22T11R0090	SimhadriNallolla	25	12.5	23	11.5	12	8	20
91.	22T11R0091	SireeshaKamsala	26	13	26	13	13	8	21
92.	22T11R0092	SnehalathaTalari	28	14	28	14	14	9	23
93.	22T11R0093	SoundaryaRajappagari	27	13.5	26	13	13	9	22
94.	22T11R0094	SravaniSiriyapu Reddy	27	13.5	27	13.5	13.5	8.5	22

95.	22T11R0095	Sri Lakshmi Kurupati	28	14	27	13.5	14	9	23
96.	22T11R0096	SuchitraSagabala							
97.	22T11R0097	SumalathaYerasi	26	13	25	12.5	13	8	21
98.	22T11R0098	SuneethaKappala	28	14	28	14	14	9	23
99.	22T11R0099	SwethaNeelam	28	14	28	14	14	9	23
0.	22T11R00A0	Tanuj Kumar Naik H							
.	22T11R00A1	TanujaBusetty	27	13.5	27	13.5	13.5	8.5	22
2.	22T11R00A2	TejasriChalla	28	14	28	14	14	9	23
3.	22T11R00A3	Tejaswini T	28	14	27	13.5	14	10	24
4.	22T11R00A4	Uma Maheswara Siva ManikantaSanga	14	7	15	7.5	8	7	15
5.	22T11R00A5	VasanthiBandi	19	9.5	20	10	10	8	18
6.	22T11R00A6	VasundaraVadde	26	13	27	13.5	13.5	8.5	22
7.	22T11R00A7	VenkatNikheythReddiChinthapula	22	11	22	11	11	9	20
8.	22T11R00A8	VishalaJenne	28	14	28	14	14	10	24
9.	22T11R00A9	Vishnuvardhan Reddy Lingala	25	12.5	26	13	13	9	22
0.	22T11R00B0	Yogananda N	23	11.5	23	11.5	11.5	8.5	20
.	23T15R0001	A.Anjali	28	14	28	14	14	9	23
2.	219N1R0071	T.Haritha	28	14	28	14	14	10	24
3.	21KM1R0015	T.Manikumar			17	8.5		7.5	

Signature of Facultyco-coordinator Signature of HoDSignature of Principal