



**Balaji College of Pharmacy, Anantapuramu**

Approved by PCI, New Delhi & Affiliated to JNTU Anantapur

*Rudrampeta Bypass, Sanapa Road, Anantapuramu, Andhra Pradesh -515002*

Academic Year: 2024 – 2025

Class: I-I

Program: B.Pharmacy

Name of the Course: **REMEDIAL MATHEMATICS**

**COURSE FILE CONTENTS**

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**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.



**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU**

**ACADEMIC CALENDAR 2024-25**

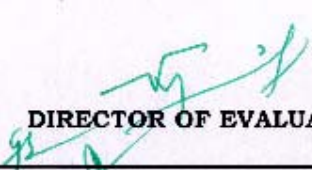
**B.Pharm I Year I & II Semesters**  
(for 2024 admitted batch)

| Description                                                  | From To                  | No. of weeks/days |
|--------------------------------------------------------------|--------------------------|-------------------|
| Induction Program (Zero semester)                            | 12.12.2024 to 24.12.2024 | (02 weeks)        |
| <b>I Semester</b>                                            |                          |                   |
| 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               |                   |
| <b>II Semester</b>                                           |                          |                   |
| Commencement of Class work                                   | 02.06.2025               | -                 |
| I <sup>st</sup> 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**

202041033849A



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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 wherever 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 achieving professional 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

## B. Pharmacy - I YEAR I SEMESTER

### BP106RMT.REMEDIAL MATHEMATICS(Theory)

30Hours

**Scope:** This is an introductory course in mathematics. This subject deals with the introduction to Partial fraction, Logarithm, matrices and Determinant, Analytical geometry, Calculus, differential equation and Laplace transform.

**Objectives:** Upon completion of the course the students shall be able to:-

1. Know the theory and their application in Pharmacy
2. Solve the different types of problems by applying theory
3. Appreciate the important application of mathematics in Pharmacy

### Course Content:

#### UNIT- I

06Hours

##### • Partial fraction

Introduction, Polynomial, Rational fractions, Proper and Improper fractions, Partial fraction, Resolving into Partial fraction, Application of Partial Fraction in Chemical Kinetics and Pharmacokinetics

##### • Logarithms

Introduction, Definition, Theorems/Properties of logarithms, Common logarithms, Characteristic and Mantissa, worked examples, application of logarithm to solve pharmaceutical problems.

##### • Function:

Real Valued function, Classification of real valued functions,

##### • Limits and continuity:

Introduction, Limit of a function, Definition of limit of a function ( $\epsilon$ - $\delta$  definition),  $\lim_{x \rightarrow a} \frac{x^n - a^n}{x - a} = na^{n-1}$ ,  $\lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta} = 1$ ,

$$x \rightarrow a \quad x - a$$

$$\theta \rightarrow 0 \quad \theta$$

#### UNIT-II

06Hours

##### • Matrices and Determinant:

Introduction matrices, Types of matrices, Operation on matrices, Transpose of a matrix, Matrix Multiplication, Determinants, Properties of determinants, Product of determinants, Minors and co-Factors, Adjoint or adjugate of a square matrix, Singular and non-singular matrices, Inverse of a matrix, Solution of system of linear equations using matrix method, Cramer's rule, Characteristic equation and roots of a square matrix, Cayley-Hamilton theorem, Application of Matrices in solving

## Pharmacokinetic equations



### UNIT- III

06Hours

- **Calculus**

**Differentiation:** Introductions, Derivative of a function, Derivative of a constant, Derivative of a product of a constant and a function, Derivative of the sum or difference of two functions,

Derivative of the product of two functions (product formula),  
Derivative of the quotient of two functions (Quotient formula)–

**Without Proof,** Derivative of  $x^n$  w.r. to  $x$ , where  $n$  is any rational number,  
Derivative of  $e^x$ , Derivative of  $\log_e x$ , Derivative of  $a^x$ , Derivative of trigonometric functions from first principles (**without**

**Proof**), Successive Differentiation, Conditions for a function to be a maximum or a minimum at a point. Applications

### UNIT- IV

06Hours

- **Analytical Geometry**

**Introduction:** Signs of the Coordinates, Distance formula,

**Straight Line:** Slope or gradient of a straight line, Conditions for parallelism and perpendicularity of two lines, Slope of a line joining two points, Slope-intercept form of a straight line

**Integration:**

Introduction, Definition, Standard formulae, Rules of integration, Method of substitution, Method of Partial fractions, Integration by parts, definite integrals, application

### UNIT-V

06Hours

- **Differential Equations** : Some basic definitions, Order and degree, Equations in separable form, Homogeneous equations, Linear Differential equations, Exact equations, **Application in solving Pharmacokinetic equations**
- **Laplace Transform:** Introduction, Definition, Properties of Laplace transform, Laplace Transform of elementary functions, Inverse Laplace transforms, Laplace transform of derivatives, Application to solve Linear differential equations, **Application in solving Chemical kinetics and Pharmacokinetics equations**

### Recommended Books (Latest Edition)

1. Differential Calculus by Shanthinarayan
2. Pharmaceutical Mathematics with application to Pharmacy by Panchaksharappa Gowda D.H.
3. Integral Calculus by Shanthinarayan
4. Higher Engineering Mathematics by Dr. B.S. Grewal



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**LESSON PLAN**

Academic Year: 2024–2025 Class: I Sem: I

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

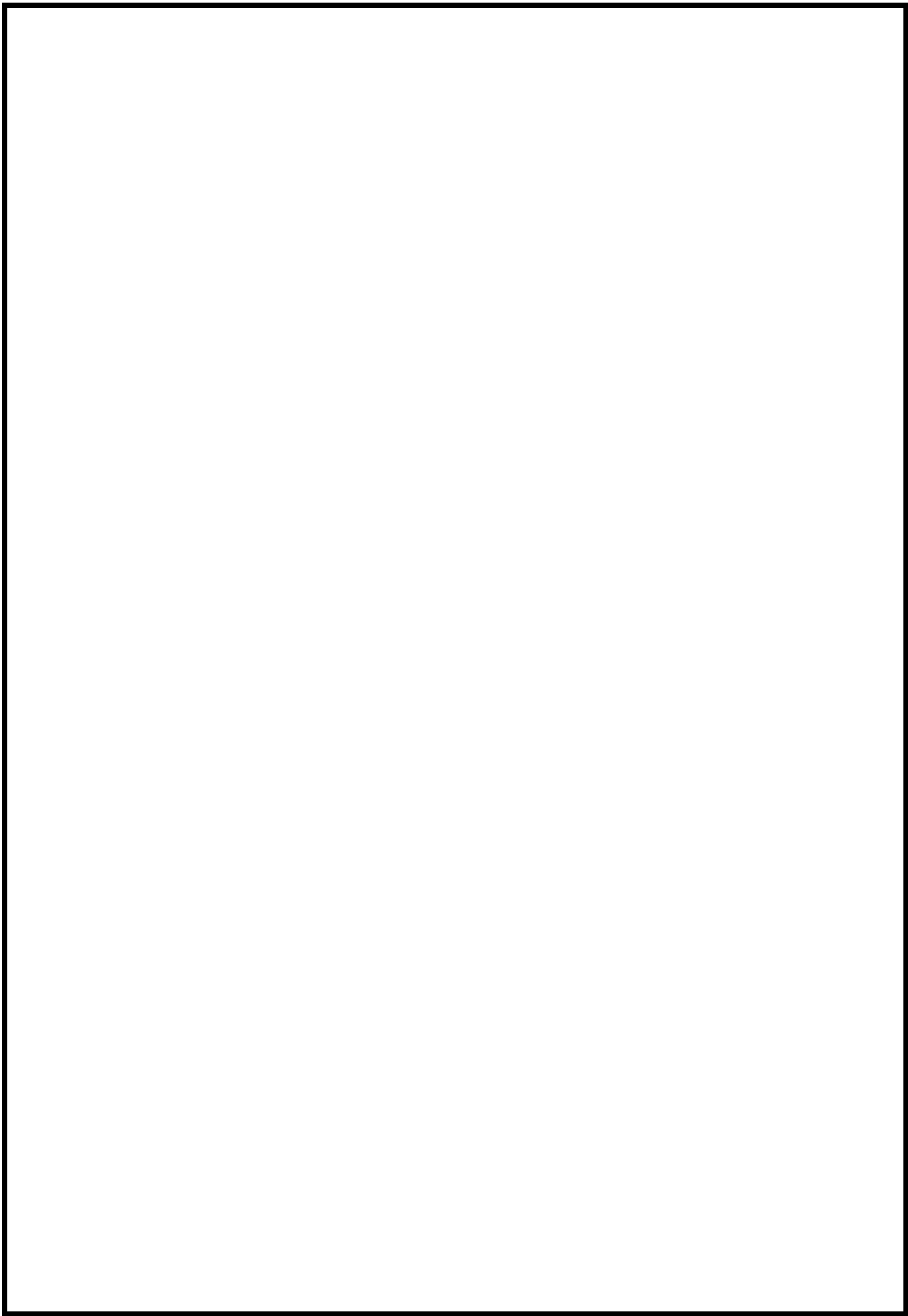
Name of the Course: **REMEDIAL MATHEMATICS**

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

Scheduled Date: 26/12/2024 to 16/04/2025

**Reference Books:**

1. Differential Calculus by Shanthinarayan
2. Pharmaceutical Mathematics with application to Pharmacy by Panchaksharappa Gowda D.H.
3. Integral Calculus by Shanthinarayan
4. Higher Engineering Mathematics by Dr. B.S. Grewal



| S.No | Chapter name                                                                          | Topic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | No. of hours                            | Name of the faculty |
|------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|---------------------|
| 1.   | <b>ALGEBRA<br/>PARTIAL<br/>FRACTION,<br/>LOGARITHMS,<br/>FUNCTIONS AND<br/>LIMITS</b> | <p>a. Introduction, Polynomial, Rational fractions, Proper and Improper fraction<br/>Resolving into Partial fraction, Application of Partial Fraction in Chemical Kinetics and Pharmacokinetics.</p> <p>b. Introduction, Definition, Theorems/Properties of logarithms, Common logarithms, Characteristic and Mantissa, worked examples, application of logarithm to solve pharmaceutical problems</p> <p>c. Real Valued function, Classification of real valued functions,</p> <p>d. Introduction, Limit of a function, Definition of limit of a function Properties of Limits and Solved Problems</p>                   | <p>02</p> <p>01</p> <p>01</p> <p>02</p> | A NARASIMHUDU       |
| 2.   | <b>MATRICES AND DETERMINANT</b>                                                       | <p>Introduction matrices, Types of matrices, Operation on matrices, Transpose of a matrix</p> <p>Matrix Multiplication, Determinants, Properties of determinants, Product of determinants, Minors and co-Factors</p> <p>Adjoint or adjugate of a square matrix, Singular and non-singular matrices, Inverse of a matrix. Inverse of a matrix, Solution of system of linear equations using matrix method, Solution of system of linear equations using Cramer's rule Characteristic equation and roots of a square matrix Cayley-Hamilton theorem</p> <p>Application of Matrices in solving Pharmacokinetic equations</p> | 06                                      | A NARASIMHUDU       |

|    |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |    |               |
|----|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------------|
| 3. | <b>Calculus:<br/>Differentiation</b> | Introductions, Derivative of a function, Derivative of a constant, Derivative of a product of a constant and a function, Derivative of the sum or difference of two functions, Derivative of the product of two functions (product formula), Derivative of the quotient of two functions (Quotient formula) – Without Proof, Derivative of $x^{n/r}$ , where n is any rational number, Derivative of $e^x$ , Derivative of $\log_e x$ , Derivative of $a^x$ , Derivative of trigonometric functions from first principles (without Proof), Successive Differentiation, Conditions for a function to be a maximum or a minimum at a point. Applications | 06 | A NARASIMHUDU |
|----|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------------|

|    |                               |                                                                                                                                                                                                                                                           |    |               |
|----|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------------|
| 4. | <b>Analytical Geometry</b>    | Introduction: Signs of the Coordinates, Distance formula, Straight Line: Slope or gradient of a straight line, Conditions for parallelism and perpendicularity of two lines, Slope of a line joining two points, Slope– intercept form of a straight line | 03 | A NARASIMHUDU |
| 5. | <b>Integration</b>            | Introduction, Definition, Standard formulae, Rules of integration, Method of substitution, Method of Partial fractions, Integration by parts, definite integrals, application                                                                             | 03 | A NARASIMHUDU |
|    | <b>Differential Equations</b> | Some basic definitions, Order and degree, Equations in separable form, Homogeneous equations, Linear Differential equations, Exact equations, Application in solving Pharmacokinetic equations                                                            | 03 |               |



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**COURSE OUTCOMES**

Academic Year: 2024–2025 Class: I Sem: I

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

Name of the Course: **REMEDIAL MATHEMATICS**

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

Scheduled Date: 26/12/2024 to 16/04/2025

**Course Outcomes**

| CO No  | Course Outcomes                                                                                                                                                                                                                     |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C1.6.1 | Understanding basic formulas to be used in pharmacy.                                                                                                                                                                                |
| C1.6.2 | Know the theory and their application in pharmacy. Solve different types of problems by applying theory. Appreciate the important applications of maths in pharmacy.                                                                |
| C1.6.3 | The student will be able to understand the methods of differential calculus to optimize single and multivariable functions.                                                                                                         |
| C1.6.4 | The student will be able to understanding of the principles and concepts of coordinate geometry in pharmacy. The student will be able to understand the methods of Integral calculus to optimize single and multivariable functions |

|        |                                                                                                                                                                                                                                                                                                                                |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C1.6.5 | The student is able to identify the type differential equations and uses the right method to solve the differential equations. Also the able to apply the theory of differential equations to the real world problems. The student is able to transform functions on time domain to frequency domain using Laplace Transforms. |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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**CO- POMAPPING**

Academic Year: 2024–2025 Class: I Sem: I

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

Name of the Course: **REMEDIAL MATHEMATICS**

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

Scheduled Date: 26/12/2024 to 16/04/2025

**COURSE OUTCOMES**

At the end of the course the student is able to

| CO No  | Course Outcomes                                                                                                                                                      |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C1.6.1 | Understanding basic formulas to be used in pharmacy.                                                                                                                 |
| C1.6.2 | Know the theory and their application in pharmacy. Solve different types of problems by applying theory. Appreciate the important applications of maths in pharmacy. |

|        |                                                                                                                                                                                                                                                                                                                                             |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        |                                                                                                                                                                                                                                                                                                                                             |
| C1.6.3 | The student will be able to understand the methods of differential calculus to optimize single and multivariable functions.                                                                                                                                                                                                                 |
| C1.6.4 | The student will be able to understand the principles and concepts of coordinate geometry in pharmacy. The student will be able to understand the methods of Integral calculus to optimize single and multivariable functions                                                                                                               |
| C1.6.5 | The student is able to identify the type differential equations and uses the right method to solve the differential equations. Also the student is able to apply the theory of differential equations to the real world problems. The student is able to transform functions from time domain to frequency domain using Laplace Transforms. |





|            |            |            |             |  |            |          |             |            |             |  |             |
|------------|------------|------------|-------------|--|------------|----------|-------------|------------|-------------|--|-------------|
| C1.6.1     | 3          | 3          | 2           |  | 2          | 2        | 2           |            | 3           |  | 2           |
| C1.6.1     | 2          | 3          |             |  | 1          |          |             | 3          | 3           |  | 3           |
| C1.6.2     | 2          |            |             |  |            |          | 2           | 2          | 2           |  | 2           |
| C1.6.3     | 3          | 2          | 2           |  |            |          |             |            | 3           |  | 2           |
| C1.6.4     | 2          | 2          | 3           |  |            |          | 3           |            | 2           |  | 2           |
| C1.6.5     | 3          |            | 2           |  |            | 2        |             |            | 1           |  | 3           |
| <b>Avg</b> | <b>2.5</b> | <b>2.5</b> | <b>2.25</b> |  | <b>1.5</b> | <b>2</b> | <b>2.33</b> | <b>2.5</b> | <b>2.33</b> |  | <b>2.33</b> |

High:3 Medium:2 Low:1

#### Gaps identified from CO – POMapping

1. Poison information leaflets
2. Reporting medication errors

#### Plan of action / corrective measure taken to overcome the gap

1. Additional Class / Seminar

#### Revised CO – POMatrix

| POs        | PO1        | PO2         | PO3         | PO4 | PO5        | PO6      | PO7         | PO8        | PO9         | PO10 | PO11       |
|------------|------------|-------------|-------------|-----|------------|----------|-------------|------------|-------------|------|------------|
| COs        |            |             |             |     |            |          |             |            |             |      |            |
| C1.6.1     | 3          | 3           | 2           |     | 2          | 2        | 2           |            | 3           |      | 2          |
| C1.6.1     | 2          | 3           |             |     | 1          |          |             | 3          | 3           |      | 3          |
| C1.6.2     | 3          |             |             |     |            |          | 2           | 2          | 3           |      | 3          |
| C1.6.3     | 3          | 2           | 2           |     |            |          |             |            | 3           |      | 2          |
| C1.6.4     | 2          | 3           | 3           |     |            |          | 3           |            | 3           |      | 2          |
| C1.6.5     | 3          |             | 2           |     |            | 2        |             |            | 1           |      | 3          |
| <b>Avg</b> | <b>2.6</b> | <b>2.75</b> | <b>2.25</b> |     | <b>1.5</b> | <b>2</b> | <b>2.33</b> | <b>2.5</b> | <b>2.66</b> |      | <b>2.5</b> |

#### CO – PO Matrix Justification

**Mapped Pos: PO – 1,2,3,5,6,7,8,9,11**

#### **PO-1: Comprehensive Pharmacy and Clinical Knowledge:**

Demonstrate proficiency in core knowledge and skills related to pharmaceutical, biomedical, clinical, and epidemiological sciences. This includes expertise in areas supporting quality pharmacy practice, such as pharmaceuticals, medicinal chemistry, pharmacokinetics, pharmacodynamics, pharmacology, pathophysiology, pharmacotherapeutics, and pharmaceutical care.

**PO-2: Patient-Centered Care:** Provide personalized care to diverse patients, incorporating the best available evidence and considering patients' individual circumstances. Develop, modify, implement, document, and monitor pharmacotherapy care plans independently or as part of healthcare teams.

**PO-**

**3: Problem Solving and Decision Making:** Utilize observational, analytical, and critical thinking skills to identify and address pharmacotherapy problems. Make informed decisions based on evidence-based practice.

**PO-5: Professionalism:** Exhibit professional ethics, attitudes, and behaviors including patient advocacy, altruism, accountability, compassion, integrity, and respect for others. Understand, analyze, and communicate the value of professional roles in society, such as healthcare professionals, health promoters, educators, managers, employers, and employees.

**PO-6: Innovation and Entrepreneurship:** Engage in innovative activities, using creative thinking to envision improved ways of achieving professional goals. Apply scientific inquiry and critical thinking in daily practice. Acquire the skills needed to start a community pharmacy or a chain of community pharmacies with patient care services.

**PO-7: Confidentiality and Professional Ethics:** Practice ethically, maintaining patient confidentiality, addressing errors in care and professional misconduct, and adhering to principles of ethical research. Apply ethical principles when making decisions and take responsibility for the outcomes associated with those decisions.

**PO-8: Interpersonal and Communication Skills:** Demonstrate effective interpersonal written and verbal communication skills, adapting to socioeconomic, cultural, and situational factors. Educate families, patients, caregivers, and other healthcare professionals. Collaborate effectively within healthcare teams and provide consultation to regulatory agencies and policy makers.

**PO-9: Clinical Pharmacist and Society:** Apply contextual knowledge to assess societal healthcare needs and demonstrate effective planning abilities to address healthcare practice issues. Educate and raise awareness among patients regarding health aspects and disease prevention, providing cost-effective drug therapy.

**PO-11: Practice-Based Learning and Improvement:** Evaluate and improve patient care and pharmacy services. Demonstrate self-assessment skills and a commitment to lifelong learning for high-quality care. Locate, appraise, and integrate evidence from scientific studies to enhance the quality of care and services. Effectively utilize information, informatics, and technology to optimize learning and patient care.

C1.6.1- To understand and explain the daily activities of clinical pharmacist and to monitor the patient drug therapy through medication chart review and clinical review.

|       | Justification                                                                                                                                                             |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PO-1  | Students can be able to learn about activities of clinical pharmacist, monitoring the drug therapy, reviewing the medication charts, clinical knowledge regarding therapy |
| PO-2  | Students can be able to provide individualized patient care by monitoring pharmacotherapy care plan                                                                       |
| PO-3  | Students can identify the problems in drug therapy                                                                                                                        |
| PO-5  | Students can apply knowledge of clinical pharmacist professional activities                                                                                               |
| PO-6  | Students can apply the knowledge of monitoring drug therapy and medication chart review in providing patient care services                                                |
| PO-7  | Students can learn about ethics of clinical pharmacist                                                                                                                    |
| PO-9  | Students can apply the knowledge in planning the effective drug therapy and can provide good health care to society                                                       |
| PO-11 | Students can be able to improve the patient care and can provide quality health services to the patient                                                                   |

C1.6.2- To obtain

Medication history interview and counsel the patients on various diseases and life style modifications and by applying communication skills.

|       | <b>Justification</b>                                                                                                                           |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------|
| PO-1  | Students will be able to gain knowledge on medication history interview, counselling methods, communication skills, life style modifications   |
| PO-2  | Students can be able to provide patient counseling on various diseases                                                                         |
| PO-5  | Students can be able to know Communication skills required for providing patient counseling                                                    |
| PO-8  | Students can apply the knowledge of communication skills in educating patients and can provide consultation to other health care professionals |
| PO-9  | Students can provide awareness to patients regarding health by educating them on life style modifications.                                     |
| PO-11 | Students can apply the knowledge in improving patients quality of life                                                                         |

C1.6.2 - To provide response to a drug and poison information queries using modified systemic approach and to gain ability to establish a drug and poison information centre

|       | <b>Justification</b>                                                                                |
|-------|-----------------------------------------------------------------------------------------------------|
| PO-1  | Students will be able to learn about drug and poison information                                    |
| PO-7  | Students can be able to learn about maintaining patient confidentiality while answering the queries |
| PO-8  | Students can educate the patient and health care professionals regarding drugs and poisons          |
| PO-9  | Students can apply the knowledge of written and verbal communication skills in answering queries    |
| PO-11 | Students can utilize drug and poison information in patient care                                    |

C1.6.3 - To interpret selected laboratory results of specific disease states mentioned and to report ADRs and understand the process of pharmacovigilance

|       | <b>Justification</b>                                                                      |
|-------|-------------------------------------------------------------------------------------------|
| PO-1  | Students will be able to learn laboratory reference ranges of specific disease conditions |
| PO-2  | Students can be able to provide the effective drug therapy to the patient.                |
| PO-3  | Students can be able to identify the adverse drug reactions and can report ADRs.          |
| PO-9  | Students can apply the knowledge of laboratory results in disease prevention.             |
| PO-11 | Students can apply the knowledge in improving patient care.                               |

C1.6.4 - To identify and resolve drug related problems and medication errors

|       | <b>Justification</b>                                                                             |
|-------|--------------------------------------------------------------------------------------------------|
| PO-1  | Students will be able to learn about adverse drug reactions and medication errors                |
| PO-2  | Students can be able to provide the personalized care to the patient.                            |
| PO-3  | Students can apply the knowledge in identifying adverse reactions of drugs and medication errors |
| PO-7  | Students can address medication errors that occurred to the patient                              |
| PO-9  | Students can identify the health care issues of the patient                                      |
| PO-11 | Students can apply the knowledge in improving quality of life of patient                         |

C1.6.5 - To critically evaluate biomedical literature in order to get an unbiased clinical evidence to develop individualized pharmaceutical care plan

|      | <b>Justification</b>                                                                                                              |
|------|-----------------------------------------------------------------------------------------------------------------------------------|
| PO-1 | Students will be able to learn about evaluation of medical literature and can provide patient care.                               |
| PO-3 | Students can be able to identify problems in pharmaceutical care plan.                                                            |
| PO-6 | Students can apply the knowledge of diagnostic agents in identifying the disease and providing effective treatment to the disease |

**Faculty Coordinator    Head of the Department**



## 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 Sem: I

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

Name of the Course: **REMEDIAL MATHEMATICS**

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

Scheduled Date: 26/12/2024 to 16/04/2025

### ASSIGNMENTS

| ASSIGNMENT TOPIC                                                                                                                                                                 | Course Outcome | BTL         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------|
| <b>Assignment 1</b>                                                                                                                                                              |                |             |
| Resolving into Partial fraction, Application of Partial Fraction in Chemical Kinetics and Pharmacokinetics.                                                                      | C1.6.1         | Remembering |
| Application of logarithm to solve pharmaceutical problems                                                                                                                        | C1.6.1         | Remembering |
| Classification of real valued functions, Definition of limit of a function Properties of Limits and Solved Problems                                                              | C1.6.1         | Analyzing   |
| Solution of system of linear of equations using matrix method Solution, Solution of system of linear of equations using Cramer's rule                                            | C1.6.2         | Remembering |
| <b>Assignment 2</b>                                                                                                                                                              |                |             |
| Differentiation of a sum, Product, Quotient Composite, Parametric, exponential, trigonometric and Logarithmic function.                                                          | C1.6.3         | Analyzing   |
| Slope or gradient of a straight line, Conditions for parallelism and perpendicularity of two lines, Slope of a line joining two points, Slope– intercept form of a straight line | C1.6.4         | Remembering |

|                                                                                                                                                                                          |        |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------------|
| Definite integrals, integration by substitution and by parts, Properties of definite integrals.                                                                                          | C1.6.4 | Understanding |
| Definition, order, degree, variable separable, homogeneous, Linear, heterogeneous, linear, differential equation with constant coefficient, simultaneous linear equation of second order | C1.6.5 | Applying      |
| Definition, Laplace transform of elementary functions, Properties of linearity and shifting.                                                                                             | C1.6.5 | Remembering   |

**Formatoftheassignment:**

1. Minimum& Maximumnumberofpages.
2. Itshallbecomputerdraftcopy.
3. Reference(s)shallbeincludedatthe end.
4. Nameandsignatureofthestudent.
5. Assignmentcanbeacombinedpresentationattheend of theacademicyear.
6. Time allocatedforpresentationmaybe8+2Min.



CodeNo:BP106RMT

Roll.No:

Balaji College of Pharmacy, Ananthapuramu.

I Year B.Pharm I Mid Examinations, Feb-2025

## REMEDIAL MATHEMATICS

Time: 2:00 Hrs

Max. Marks: 30

## I. Answer all the following Questions (5X2=10 Marks)

| S.No | Question                                                                                                    | Marks | Course Outcome | BTL         |
|------|-------------------------------------------------------------------------------------------------------------|-------|----------------|-------------|
| 1.   | a) Resolve $\frac{5x+1}{(x+2)(x-1)}$ into partial fraction                                                  | 2M    | C1.6.1         | Apply       |
|      | b) Find the Value of $\log_9 \sqrt{3}$                                                                      | 2M    | C1.6.1         | Remembering |
|      | c) Find the Value of $\lim_{x \rightarrow 1} \frac{2x+1}{3x^2-4x+5}$                                        | 2M    | C1.6.2         | Remembering |
|      | d) If $A = \begin{bmatrix} 2 & 1 \\ -3 & -1 \end{bmatrix}$ then find $A+A^T$                                | 2M    | C1.6.2         | Remembering |
|      | e) If $A = \begin{bmatrix} 0 & 2 & -3 \\ 4 & -1 & 7 \\ 0 & 4 & -6 \end{bmatrix}$ then find determinant of A | 2M    | C1.6.2         | Remembering |

## II. Answer the following Questions (3X1=30 Marks)

| S.No | Question                                                                                                                                     | Marks | Course Outcome | BTL         |
|------|----------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------|-------------|
| 1.   | (a) Find the Value of $\lim_{x \rightarrow 1} \frac{x^3-1}{x-1}$                                                                             | 05M   | C1.6.1         | Remembering |
|      | (b) Resolve $\frac{x}{(x+2)(3-2x)}$ into partial fraction                                                                                    | 05M   | C1.6.1         | Apply       |
| 2.   | a) If $f(x) = [x]$ ; where $[x]$ denotes greatest integer less than or equal to $x$ , show that $\lim_{x \rightarrow 2} f(x)$ does not exist | 05M   | C1.6.1         | Remembering |
|      | b) Resolve $\frac{x^2+2x+3}{x^3}$ into partial fraction                                                                                      | 05M   | C1.6.1         | Apply       |
| 3.   | a) Find the Value of $\lim_{x \rightarrow 1} \left( \frac{1}{x-1} - \frac{2}{x^2-1} \right)$ (Co-01) (BLT-01)                                | 05M   | C1.6.1         | Remembering |
|      | b) Resolve $\frac{x^2}{(x-a)(x-b)(x-c)}$ into partial fraction (Co-01) (BLT-03)                                                              | 05M   | C1.6.1         | Remembering |

|           |                                                                                                                                                                                                                                                                 |            |                                |                            |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------------|----------------------------|
|           |                                                                                                                                                                                                                                                                 |            |                                |                            |
| <b>4.</b> | a) If $A = \begin{bmatrix} 4 & 3 \\ 6 & 9 \end{bmatrix}$ then find $(A^T)^{-1}$<br>b) If $A = \begin{bmatrix} 3 & -3 & 1 \\ 8 & 1 & 0 \\ 2 & 2 & 2 \end{bmatrix}$ ; $B = \begin{bmatrix} 0 & 3 & 9 \\ 0 & 1 & 2 \\ 2 & 2 & 2 \end{bmatrix}$ then Find AB and BA | 05M<br>05M | <b>C1.6.2</b><br><b>C1.6.2</b> | Remembering<br>Remembering |
| <b>5.</b> | Solve the system of equations x-3y+2z=8; 3x+4y+z=5 and 4x+2y-9z=2 by matrix method (Co-02) (BLT-01)                                                                                                                                                             | 10M        | <b>C1.6.2</b>                  | Remembering                |
| <b>6.</b> | a) If $A = \begin{bmatrix} 2 & 3 \\ -1 & 2 \end{bmatrix}$ then find $A^2 - 4A + 7I$<br>b) Find x; If $A = \begin{bmatrix} 1 & 2 & x \\ 5 & 7 & 9 \\ 1 & 2 & 3 \end{bmatrix}$ where 'A' is singular matrix.                                                      | 05M<br>05M | <b>C1.6.2</b><br><b>C1.6.2</b> | Remembering<br>Remembering |

**Course Outcome analysis:**

| CO     | Total CO Marks | %CO  |
|--------|----------------|------|
| C1.6.1 | 34M            | 48%  |
| C1.6.2 | 36M            | 52%  |
| C1.6.3 | 0M             | 0%   |
| C1.6.4 | 0M             | 0%   |
| C1.6.5 | 0M             | 0%   |
| TOTAL  | 70M            | 100% |

**Bloomstaxonomy analysis for educational objectives:**

| Taxonomy   | Taxonomy Marks | %Taxonomy |
|------------|----------------|-----------|
| Remember   | 58M            | 83%       |
| Understand | 0M             | 0%        |
| Apply      | 12M            | 17%       |
| Analyze    | 0M             | 0%        |
| Evaluate   | 0M             | 0%        |
| Create     | 0M             | 0%        |
| TOTAL      | 70M            | 100%      |

## BalajiCollege ofPharmacy, Ananthapuramu.

IYearB.PharmIIMid Examinations, April–2025

## REMEDIAL MATHEMATICS

Time:2:00Hrs

Max.Marks: 30

Answerany2Questions

1\*10=10Marks

| S.No | Question                                                                                                                             | Marks | Course Outcome | BTL         |
|------|--------------------------------------------------------------------------------------------------------------------------------------|-------|----------------|-------------|
| 1.   | (a) Find $\frac{dy}{dx}$ ; If $y=xe^{4x}$                                                                                            | 2M    | C1.6.3         | Remembering |
|      | (b) Find $\frac{dy}{dx}$ ; If $y=\log(\log(x^2))$                                                                                    | 2M    | C1.6.3         | Remembering |
|      | (c) Find the value of 'a' if the distance between the points (a, 2) and (-3, 4) is $2\sqrt{2}$ units                                 | 2M    | C1.6.4         | Remembering |
|      | (d) Find the co-ordinates of the point which divides internally the line joining the pair of points (5,2) and (7,9) in the ratio 2:7 | 2M    | C1.6.4         | Remembering |
|      | (e) Evaluate $\int (2x + 5)dx$                                                                                                       | 2M    | C1.6.5         | Evaluating  |

Answerany4Questions

4\*5=20Marks

| S.No | Question                                                                                                                                                           | Marks | Course Outcome | BTL         |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------|-------------|
| 1.   | (a) Find $\frac{dy}{dx}$ ; If $y=\frac{(x^2-2x+3)}{\sqrt{x}}$                                                                                                      | 05M   | C1.6.3         | Remembering |
|      | (b) Find $\frac{dy}{dx}$ ; If $y=x.e^x.\sin x$                                                                                                                     | 05M   | C1.6.3         | Remembering |
| 2.   | (a) If $2x^2+3xy-y^2=1$ ; then find $\frac{d^2y}{dx^2}$                                                                                                            | 05M   | C1.6.3         | Remembering |
|      | (b) Find $\frac{dy}{dx}$ ; If $y=\frac{4-x^2}{4+x^2}$                                                                                                              | 05M   | C1.6.3         | Remembering |
| 3.   | Find the equation of the line, which passes through the point of intersection of the lines $5x-6y=1$ and $3x+2y=5$ and is perpendicular to the line $3x-5y+11=0$ . | 10M   | C1.6.4         | Remembering |
| 4.   | (a) Find the equation of the line having intercepts a and b with the o-ordinates axis is $a+b=5$ and $ab=6$ .                                                      | 05M   | C1.6.4         | Remembering |
|      | (b) Find the equation of the line passing through the point (2,4) and having intercepts, whose sum is $\frac{1}{3}$                                                | 05M   | C1.6.4         | Remembering |

|           |                                                                           |     |               |             |
|-----------|---------------------------------------------------------------------------|-----|---------------|-------------|
| <b>5.</b> | (a) Solve $(x^2-1)\frac{dy}{dx}+2xy=1$                                    | 05M | <b>C1.6.5</b> | Remembering |
|           | (b) Evaluate $\int \frac{3\cos x+11\sin x}{2\cos x+3\sin x} dx$           | 05M | <b>C1.6.5</b> | Evaluating  |
| <b>6.</b> | (a) Form the differential equation; if $y^2=4a(x+a)$                      | 05M | <b>C1.6.5</b> | Remembering |
|           | (b) Evaluate $\int \frac{\sec x.\operatorname{cosec} x}{\log(\tan x)} dx$ | 05M | <b>C1.6.5</b> | Evaluating  |

**CourseOutcomeanalysis:**

| <b>CO</b> | <b>TotalCOMarks</b> | <b>%CO</b> |
|-----------|---------------------|------------|
| C1.6.1    | 0M                  | 0%         |
| C1.6.2    | 0M                  | 0%         |
| C1.6.3    | 24M                 | 34%        |
| C1.6.4    | 24M                 | 34%        |
| C1.6.5    | 22M                 | 32%        |

|       |     |      |
|-------|-----|------|
| TOTAL | 70M | 100% |
|-------|-----|------|

**Bloomstaxonomyanalysisforeducationalobjectives:**

| <b>Taxonomy</b> | <b>TaxonomyMarks</b> | <b>%Taxonomy</b> |
|-----------------|----------------------|------------------|
| Remember        | 58M                  | 83%              |
| Understand      | 0M                   | 0%               |
| Apply           | 0M                   | 0%               |
| Analyze         | 0M                   | 0%               |
| Evaluate        | 12M                  | 17%              |
| Create          | 0M                   | 0%               |
| TOTAL           | 70M                  | 100%             |



**Balaji College of Pharmacy, Anantapuramu**

Approved by PCI, New Delhi & Affiliated to JNTU Anantapur

Rudrapeta Bypass, Sanapa Road, Anantapuramu, Andhra Pradesh -515002

**UNITWISE IMPORTANT QUESTIONS**

Academic Year: 2024–2025 Class: I Sem: I

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

Name of the Course: **REMEDIAL MATHEMATICS**

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

Scheduled Date: 26/12/2024 to 16/04/2025

| QUESTIONS                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------|
| <b><u>UNIT I (Algebra)</u></b>                                                                                           |
| 1. Resolve $\frac{x-1}{x(x+2)(x+6)}$ into partial fraction.                                                              |
| 2. Resolve $\frac{x}{(x-2)(x-3)}$ into partial fraction.                                                                 |
| 3. Find $\log_3(1 + \frac{1}{3}) + \log_3(1 + \frac{1}{4}) + \log_3(1 + \frac{1}{5}) + \dots + \log_3(1 + \frac{1}{80})$ |
| 4. Resolve $\frac{2x+3}{(x-3)(x+1)}$ into Partial Fraction.                                                              |
| 5. Solve $\log_2 x + \log_2 x - 3 = 2$                                                                                   |
| 6. If $f(x) = \frac{2x}{1+x^2}$ prove that $f(\tan \theta) = \sin 2\theta$                                               |
| 7. Evaluate $\lim_{x \rightarrow 2} \frac{\sin(x-2)}{x^2-4}$                                                             |
| 8. Evaluate $\lim_{x \rightarrow a} \frac{(x+2)^{\frac{5}{3}} - (a+2)^{\frac{5}{3}}}{x-a}$                               |
| 9. Evaluate $\lim_{x \rightarrow 0} \left[ \frac{\sqrt{1+x}-1}{x} \right]$                                               |
| <b><u>UNIT II (Matrices and Determinant)</u></b>                                                                         |

1. If  $A = \begin{bmatrix} 1 & -2 & 1 \\ 0 & 1 & -1 \\ 3 & -1 & 1 \end{bmatrix}$  then prove that  $A^3 - 3A^2 - A - 3I = 0$ .
2. Prove that  $\begin{vmatrix} 1 & a^2 & a^3 \\ 1 & b^2 & b^3 \\ 1 & c^2 & c^3 \end{vmatrix} = (a-b)(b-c)(c-a)(ab+bc+ca)$ .
3. Prove that  $\begin{vmatrix} 1 & a & a^2 \\ 1 & b & b^2 \\ 1 & c & c^2 \end{vmatrix} = (a-b)(b-c)(c-a)$ .
4. If  $A = \begin{bmatrix} 1 & 4 & 7 \\ 2 & 5 & 8 \end{bmatrix}$  and  $B = \begin{bmatrix} -3 & 4 & 0 \\ 4 & -2 & -1 \end{bmatrix}$  then verify that (i)  $(A')' = A$  (ii)  $(5B)' = 5B'$  (iii)  $(A+B)' = A' + B'$ .
5. Find the Inverse of the matrix  $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$
6. Solve the equations  $x+2y+3z=14$ ,  $3x+y+2z=11$  and  $2x+3y+z=11$  by Determinant Rule.
7. Solve the equation's  $2x+y-z=1$ ;  $x-y+z=2$ ;  $5x+5y-4z=3$  by Cramer's rule.
8. If  $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$  Show that  $A^2 - 4A - 5I = 0$ .
9. Solve the system of equation's using Matrix Inverse Method  $x+2y+3z=14$ ;  $3x+y+2z=11$  and  $2x+3y+z=11$
10. Solve the equations  $3x+4y+5z=18$ ,  $2x-y+8z=13$  and  $5x-2y+7z=20$  by matrix method.
11. Solve the system of equation's using Matrix Inverse Method  $x+y+z=6$ ;  $x-y+z=2$  and  $2x+y-z=1$ .
12. If  $A = \begin{pmatrix} 3 & 1 \\ -1 & 2 \end{pmatrix}$  then verify that  $A^2 - 5A + 7I = 0$ .
13. Find the inverse of the matrix  $A = \begin{bmatrix} -1 & -2 & -2 \\ 2 & 1 & -2 \\ 2 & -2 & 1 \end{bmatrix}$
14. Solve the equations  $x+2y+3z=6$ ,  $2x+4y+z=7$  and  $3x+2y+3z=8$  by matrix method.
15. If  $A = \begin{bmatrix} 2 & -3 & 0 \\ 2 & 1 & 3 \\ 4 & 1 & 2 \end{bmatrix}$  and  $B = \begin{bmatrix} 4 & 1 & 0 \\ 2 & -3 & 1 \\ -1 & 1 & 1 \end{bmatrix}$  Prove that  $(AB)^T = B^T A^T$ .
16. If  $A = \begin{bmatrix} 1 & 2 & 3 \\ 0 & -4 & 1 \\ 0 & 3 & -1 \end{bmatrix}$  then find determinant of A.

### **UNIT III (CALCULUS)**

1. Differentiate of the function  $y = e^x + x^n + 5 \log x$  w. r. to  $x$ .
2. If  $y = e^x \cdot \sec x$  then find  $\frac{dy}{dx}$ .
3. Find the maxima and minima value of the function  $f(x) = 3x^3 - 9x^2 - 27x + 30$ .

4. Find the derivative of the function  $\frac{e^{x+1}}{e^x-1}$  with respect to 'x'.
5. Differentiate of the function  $\frac{\sin x}{1+\cos x}$  with respect to 'x' .
6. Differentiate of the function  $f(x)=x^3 \log x$  w.r.to 'x'.
7. If  $y=ae^x + be^{-x}$  then prove that  $\frac{d^2y}{dx^2} - y = 0$
8. Find the maxima and minima value of the function  $f(x) = x^3 - 6x^2 + 9x + 1$
9. If  $y = \log(x + \sqrt{1 + x^2})$ ; find  $\frac{dy}{dx}$
10. Differentiate of the function  $x^y = e^{x-y}$  with respect to 'x'
11. If  $Y = \sqrt{\tan x + \sqrt{\tan x + \sqrt{\tan x + \dots \dots \dots \text{to } \infty}}}$  then find  $\frac{dy}{dx}$

#### **UNIT IV (INTEGRAL AND ANALYTICAL GEOMETRY)**

1. Find the equation of the line passing through the point (5,-2) and making an angle  $150^\circ$  with the X-axis in the positive direction.
2. Find the equation of the line having intercepts a,b on the axis such that  $a+b=5$  and  $ab=6$ .
3. If the acute angles between the lines  $4x-y+7=0$ ;  $kx-5y-9=0$  is  $45^\circ$ . Then find the value of k.
4. Show that the points (3,-2),(7, 6), (-1, 2) and (-5,-6) taken in order form a rhombus.
5. Find k; If (k, 2k), (2k, 3k) and (3, 1) are collinear.
6. Find the equation of the straight line perpendicular to  $5x-3y+1=0$  and passing through the points (4, 3).
7. Show that the point's A(-2,3), B(1,2) and C(7,0) are Co-linear.
8. Find the equation of the line passing through the points (4,3) and (7,8)
9. Find the angle between the lines  $x-y\sqrt{3}-5=0$  and  $\sqrt{3}x + y - 7 = 0$
10. If the distance between the points (3,a) and (4,1) is  $\sqrt{10}$  then find the value of "a".
11. Find the equation of line passing through the point (1,1) and perpendicular to line  $3x-4y-6=0$
12. Prove that  $\int_0^{\frac{\pi}{2}} \frac{\sin x}{\sin x + \cos x} dx = \frac{\pi}{4}$
13. Evaluate the definite integral  $\int_0^1 \frac{\tan^{-1}x}{1+x^2} dx$
14. Evaluate  $\int_0^{\frac{\pi}{2}} \log(\tan x) dx$
15. Evaluate the definite integral  $\int_0^{\frac{1}{2}} \frac{1}{\sqrt{1-x^2}} dx$



### UNIT V (DIFFERENTIAL EQUATIONS AND LAPLACE TRANS FORM)

1. Find  $L\{e^{-4t} \sin 2t \cos t\}$ .
2. Find  $L\{e^{-3t}(2\cos 5t - 3\sin 5t)\}$ .
3. Find  $L\{\sin 3t \cos t\}$ .
4. Find  $L\{e^{-4t} \sin 2t \cos t\}$
5. Find  $L\{e^{2t} + 4t - 2\sin 2t + 3 \cos 3t\}$
6. Find  $L\{e^{2t} + 4t^3 - 2\sin t + 3\cos 3t\}$
7. Evaluate  $L\{e^{-3t} \cos 2t\}$
8. Find  $L\{e^{3t} - 2e^{-2t} + \sin 2t + \cos 3t + \sinh 3t - 2\cosh 4t + 9\}$
9. Solve  $\frac{dy}{dx} + \sqrt{\frac{1-y^2}{1-x^2}} = 0$  Given that  $y=1$  when  $x=0$ .
10. Solve  $\frac{dy}{dx} + 3y = e^{-x}$
11. Form the differential equation by eliminating the arbitrary constants from the equation  $y = ae^{3x} + be^{-3x}$
12. If  $y = ae^x + be^{-x}$  then prove that  $\frac{d^2y}{dx^2} - y = 0$

## B.Pharm I Year I Semester (R23) Regular &amp; Supplementary Examinations April/May 2025

## REMEDIAL MATHEMATICS

(B.Pharmacy)

Time: 3 hours

Max. Marks: 70

PART – A  
(Compulsory Question)

\*\*\*\*\*

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

- (a) Write  $4^{3/2} = 8$  in the logarithm form. 2M
- (b) Evaluate  $\lim_{x \rightarrow 2} \left( \frac{x^3 - 8}{x - 2} \right)$ . 2M
- (c) If  $A = \begin{pmatrix} 1 & -2 \\ 3 & -4 \end{pmatrix}$ , then find adjoint of A. 2M
- (d) Define symmetric matrix, give an example. 2M
- (e) Find the derivative of  $2^x$  w.r.to  $x$ . 2M
- (f) Find the derivative of  $(x^3 + \sin x)$  w.r.to  $x$ . 2M
- (g) Write the quadrant of the following points.  $A(-5, 7)$ ,  $B(2, -8)$ . 2M
- (h) Find the equation of the line which is parallel to  $y$ -axis and passes through the point  $(8, -5)$ . 2M
- (i) Evaluate  $\int \left( \frac{1+x^2}{x} \right) dx$ . 2M
- (j) Determine the order and degree of the differential equation  $\frac{d^3 y}{dx^3} - 3 \left( \frac{dy}{dx} \right)^5 + x = 0$ . 2M

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

- 2 (a) Resolve  $\frac{x^2}{(x^2+1)(x^2+4)}$  into partial fractions. 5M
- (b) Solve for  $x$ , if  $\frac{\log_{10} 225}{\log_{10} 15} = \log_{10} x$ . 5M
- OR
- 3 (a) Prove that  $\lim_{x \rightarrow 0} \frac{\sin x}{x} = 1$ . 5M
- (b) If  $f(x) = \begin{cases} \frac{\sin 3x}{x}, & \text{if } x \neq 0 \\ 1, & \text{if } x = 0 \end{cases}$ , find whether  $f(x)$  is continuous at  $x = 0$ . 5M
- 4 (a) Without expanding, evaluating the determinant  $\begin{vmatrix} 41 & 1 & 5 \\ 79 & 7 & 9 \\ 29 & 5 & 3 \end{vmatrix}$ . 5M
- (b) Find the inverse of the matrix  $A = \begin{pmatrix} 1 & 1 & 1 \\ 1 & 2 & -3 \\ 2 & -1 & 3 \end{pmatrix}$ . 5M
- OR
- 5 (a) If  $A = \begin{bmatrix} 1 & 3 \\ 2 & 4 \end{bmatrix}$  and  $B = \begin{bmatrix} 1 & 4 \\ 2 & 5 \end{bmatrix}$ , verify that  $(AB)^T = B^T A^T$ . 5M
- (b) Solve the following system of equations by matrix method. 5M
- $$2x - y + z = 0, \quad 3x + 2y - z = 0, \quad x + 4y + 3z = 0.$$

Contd. in Page 2

**BALAJI COLLEGE OF PHARMACY, ANANTHAPURAMU, ANDHRA PRADESH.**

**B.PHARMACY I YEAR I SEMESTER (R23) INTERNAL EVALUATION SHEET - THEORY**

**SUBJECT NAME & CODE: RM&BP106RMT**

**SESSIONAL MID - I**

| S. No. | Hallticket Number | 1. Objective Paper |   |   |     |     |                                | Subjective Paper |    |    |    |    |    |                             |                        | Assig . | Total Marks (30) |
|--------|-------------------|--------------------|---|---|-----|-----|--------------------------------|------------------|----|----|----|----|----|-----------------------------|------------------------|---------|------------------|
|        |                   | A                  | B | C | D   | E   | Total Objective Marks (10) (A) | 1                | 2  | 3  | 4  | 5  | 6  | Total Subjective Marks (30) | (B) Condensed 15 Marks | (5M)    | (A+B+C)          |
|        |                   |                    |   |   |     |     |                                |                  |    |    |    |    |    |                             |                        | (C)     |                  |
|        |                   |                    |   |   |     |     |                                |                  |    |    |    |    |    |                             |                        |         |                  |
| 1      | 24T11R0001        | 2                  | 2 |   | 1.5 | 1.5 | 7                              | 4                |    |    | 5  | 5  |    | 14                          | 7                      | 5       | 19               |
| 2      | 24T11R0002        | 1                  | 2 |   | 2   | 2   | 7                              |                  | 7  | 7  |    |    |    | 14                          | 7                      | 5       | 19               |
| 3      | 24T11R0003        | 2                  | 2 | 2 |     | 1   | 7                              | 4                |    | 2  | 9  |    |    | 15                          | 7.5                    | 5       | 19.5             |
| 4      | 24T11R0004        | 1                  | 2 |   |     |     | 3                              | 7                |    |    | 3  |    |    | 10                          | 5                      | 5       | 13               |
| 5      | 24T11R0005        | 2                  | 2 |   | 2   | 2   | 8                              |                  | 10 |    | 10 |    | 10 | 30                          | 15                     | 5       | 28               |
| 6      | 24T11R0006        | 2                  | 2 | 1 | 1   | 2   | 8                              | 10               |    | 10 |    | 10 |    | 30                          | 15                     | 5       | 28               |
| 7      | 24T11R0007        | 2                  | 2 |   | 2   | 2   | 8                              | 10               |    | 6  |    | 5  |    | 21                          | 10.5                   | 5       | 23.5             |
| 8      | 24T11R0008        | 2                  | 2 |   | 2   |     | 6                              | 10               |    | 10 |    | 10 |    | 30                          | 15                     | 5       | 26               |
| 9      | 24T11R0009        |                    |   |   |     |     | 0                              |                  |    |    |    |    |    | 0                           | 0                      |         | 0                |
| 10     | 24T11R0010        | 2                  | 2 |   |     | 1   | 5                              | 10               |    | 5  | 6  |    |    | 21                          | 10.5                   | 5       | 20.5             |
| 11     | 24T11R0011        | 2                  | 2 |   | 1   |     | 5                              | 10               |    | 5  |    |    |    | 15                          | 7.5                    | 5       | 17.5             |
| 12     | 24T11R0012        | 2                  | 2 |   | 2   | 1   | 7                              | 4                |    | 2  | 3  |    |    | 9                           | 4.5                    | 5       | 16.5             |
| 13     | 24T11R0013        |                    | 2 |   | 2   | 1   | 5                              | 5                |    | 5  |    | 8  |    | 18                          | 9                      | 5       | 19               |
| 14     | 24T11R0014        | 1                  | 2 | 1 |     | 2   | 6                              | 2                |    | 2  |    | 4  |    | 8                           | 4                      | 5       | 15               |
| 15     | 24T11R0015        | 2                  | 2 | 1 | 2   | 2   | 9                              | 9                |    | 6  |    |    |    | 15                          | 7.5                    | 5       | 21.5             |
| 16     | 24T11R0016        | 2                  | 2 | 2 | 1   | 1   | 8                              | 10               |    | 9  | 10 |    |    | 29                          | 14.5                   | 5       | 27.5             |
| 17     | 24T11R0017        |                    |   |   |     |     | 0                              |                  |    |    |    |    |    | 0                           | 0                      |         | 0                |
| 18     | 24T11R0018        | 1                  | 2 | 1 | 2   | 2   | 8                              |                  |    | 4  |    |    |    | 4                           | 2                      | 5       | 15               |
| 19     | 24T11R0019        |                    | 2 |   | 2   | 2   | 6                              | 9                |    | 6  |    | 6  |    | 21                          | 10.5                   | 5       | 21.5             |
| 20     | 24T11R0020        |                    | 2 | 1 | 1   | 1   | 5                              | 10               |    | 7  |    | 5  |    | 22                          | 11                     | 5       | 21               |
| 21     | 24T11R0021        |                    |   |   |     |     | 0                              | 8                |    | 2  |    |    |    | 10                          | 5                      | 5       | 10               |
| 22     | 24T11R0022        | 2                  | 2 | 2 | 2   | 2   | 10                             | 1                |    | 1  |    | 1  |    | 30                          | 15                     | 5       | 30               |

|    |                |   |   |   |   |   |    |        |        |        |        |        |        |    |      |   |      |
|----|----------------|---|---|---|---|---|----|--------|--------|--------|--------|--------|--------|----|------|---|------|
|    | 2              |   |   |   |   |   | 0  |        | 0      |        | 0      |        |        |    |      |   |      |
| 23 | 24T11R002<br>3 | 1 | 2 |   | 2 | 1 | 6  | 6      |        | 2      |        | 2      |        | 10 | 5    | 5 | 16   |
| 24 | 24T11R002<br>4 | 2 | 2 | 1 | 2 | 2 | 9  | 3      |        | 6      | 1<br>0 |        |        | 19 | 9.5  | 5 | 23.5 |
| 25 | 24T11R002<br>5 | 2 | 2 | 1 | 2 | 2 | 9  | 1<br>0 |        | 9      |        | 7      |        | 26 | 13   | 5 | 27   |
| 26 | 24T11R002<br>6 | 1 | 2 | 2 | 2 | 2 | 9  |        |        | 8      |        | 1<br>0 |        | 18 | 9    | 5 | 23   |
| 27 | 24T11R002<br>7 | 1 | 2 | 1 | 1 | 1 | 6  | 7      |        | 5      |        |        |        | 12 | 6    | 5 | 17   |
| 28 | 24T11R002<br>8 |   |   |   |   |   | 0  |        |        |        |        |        |        | 0  | 0    |   | 0    |
| 29 | 24T11R002<br>9 | 1 | 2 | 1 | 1 | 1 | 6  | 4      |        | 2      |        | 2      |        | 8  | 4    | 5 | 15   |
| 30 | 24T11R003<br>0 |   |   |   |   |   | 0  |        |        |        |        |        |        | 0  | 0    |   | 0    |
| 31 | 24T11R003<br>1 | 2 | 2 |   | 2 | 1 | 7  |        | 1<br>0 |        | 7      | 1<br>0 |        | 27 | 13.5 | 5 | 25.5 |
| 32 | 24T11R003<br>2 | 2 | 2 | 1 | 1 | 2 | 8  | 8      |        |        | 6      | 4      |        | 18 | 9    | 5 | 22   |
| 33 | 24T11R003<br>3 | 2 | 2 | 1 | 1 | 2 | 8  |        | 4      |        |        |        | 8      | 12 | 6    | 5 | 19   |
| 34 | 24T11R003<br>4 | 2 | 2 | 2 | 2 | 2 | 10 |        | 1<br>0 |        | 1<br>0 |        | 5      | 25 | 12.5 | 5 | 27.5 |
| 35 | 24T11R003<br>5 | 2 | 2 |   | 1 | 2 | 7  | 1<br>0 |        |        | 7      |        | 7      | 24 | 12   | 5 | 24   |
| 36 | 24T11R003<br>6 |   |   |   |   |   | 0  |        |        |        |        |        |        | 0  | 0    |   | 0    |
| 37 | 24T11R003<br>7 | 2 | 2 |   | 1 | 1 | 6  | 6      |        |        | 1<br>0 |        | 1<br>0 | 26 | 13   | 5 | 24   |
| 38 | 24T11R003<br>8 |   | 2 |   |   |   | 2  | 7      |        | 7      |        | 8      |        | 22 | 11   | 5 | 18   |
| 39 | 24T11R003<br>9 | 1 | 2 | 2 | 1 | 2 | 8  | 1<br>0 |        | 1<br>0 |        |        | 1<br>0 | 30 | 15   | 5 | 28   |
| 40 | 24T11R004<br>0 | 2 | 2 | 1 |   |   | 5  |        |        |        |        |        | 3      | 3  | 1.5  | 5 | 11.5 |
| 41 | 24T11R004<br>1 | 1 | 2 | 1 | 2 | 2 | 8  | 8      |        |        | 1<br>0 |        | 1<br>0 | 28 | 14   | 5 | 27   |
| 42 | 24T11R004<br>2 | 2 | 2 |   | 2 | 2 | 8  | 1<br>0 |        |        | 1<br>0 |        | 6      | 26 | 13   | 5 | 26   |
| 43 | 24T11R004<br>3 |   |   |   |   |   | 0  |        |        |        |        |        |        | 0  | 0    |   | 0    |
| 44 | 24T11R004<br>4 | 2 | 2 | 1 | 2 | 2 | 9  | 1<br>0 |        | 8      |        | 2      |        | 20 | 10   | 5 | 24   |
| 45 | 24T11R004<br>5 | 2 | 2 | 1 | 1 | 2 | 8  | 3      |        | 2      |        |        | 9      | 14 | 7    | 5 | 20   |
| 46 | 24T11R004<br>6 | 1 | 1 |   |   |   | 2  | 4      |        | 6      |        |        |        | 10 | 5    | 5 | 12   |
| 47 | 24T11R004<br>7 |   | 2 | 1 | 1 |   | 4  | 1<br>0 |        |        | 4      |        |        | 14 | 7    | 5 | 16   |
| 48 | 24T11R004<br>8 | 2 | 2 | 2 | 1 |   | 7  |        |        |        |        | 4      |        | 4  | 2    | 5 | 14   |
| 49 | 24T11R004      | 1 | 2 |   | 2 | 1 | 6  |        |        |        |        |        |        | 0  | 0    | 5 | 11   |

|    |                |   |   |   |   |   |    |        |        |        |        |        |        |    |      |   |      |
|----|----------------|---|---|---|---|---|----|--------|--------|--------|--------|--------|--------|----|------|---|------|
|    | 9              |   |   |   |   |   |    |        |        |        |        |        |        |    |      |   |      |
| 50 | 24T11R005<br>0 | 2 | 2 |   | 2 | 2 | 8  | 1<br>0 |        |        | 1<br>0 |        | 1<br>0 | 30 | 15   | 5 | 28   |
| 51 | 24T11R005<br>1 | 2 | 2 | 1 | 2 | 2 | 9  | 1<br>0 |        |        | 1<br>0 |        | 1<br>0 | 30 | 15   | 5 | 29   |
| 52 | 24T11R005<br>2 | 1 | 2 |   | 2 | 1 | 6  |        |        |        | 2      |        | 2      | 4  | 2    | 5 | 13   |
| 53 | 24T11R005<br>3 | 2 | 2 | 1 | 1 | 2 | 8  | 1<br>0 |        |        | 1<br>0 |        | 8      | 28 | 14   | 5 | 27   |
| 54 | 24T11R005<br>4 | 1 |   |   | 2 | 1 | 4  |        | 5      |        | 4      |        | 2      | 11 | 5.5  | 5 | 14.5 |
| 55 | 24T11R005<br>5 |   |   |   |   |   | 0  |        |        |        |        |        |        | 0  | 0    |   | 0    |
| 56 | 24T11R005<br>6 | 2 | 2 | 2 | 2 | 2 | 10 | 9      |        | 9      |        |        | 5      | 23 | 11.5 | 5 | 26.5 |
| 57 | 24T11R005<br>7 | 2 | 2 | 1 | 2 | 2 | 9  |        |        |        | 7      |        |        | 7  | 3.5  | 5 | 17.5 |
| 58 | 24T11R005<br>8 | 2 | 2 |   |   | 2 | 6  | 1      | 5      | 3      |        |        | 2      | 11 | 5.5  | 5 | 16.5 |
| 59 | 24T11R005<br>9 | 2 | 1 |   | 1 | 2 | 6  | 1<br>0 | 9      |        | 9      |        | 1<br>0 | 38 | 19   | 5 | 30   |
| 60 | 24T11R006<br>0 | 2 | 2 | 2 | 1 | 2 | 9  | 3      |        |        | 5      |        | 6      | 14 | 7    | 5 | 21   |
| 61 | 24T11R006<br>1 | 1 |   |   | 1 | 1 | 3  |        |        | 3      |        |        |        | 3  | 1.5  | 5 | 9.5  |
| 62 | 24T11R006<br>2 | 1 | 1 |   | 1 |   | 3  | 1      |        | 2      | 5      | 3      |        | 11 | 5.5  | 5 | 13.5 |
| 63 | 24T11R006<br>3 | 1 | 2 |   | 1 | 2 | 6  |        |        | 9      |        | 3      |        | 12 | 6    | 5 | 17   |
| 64 | 24T11R006<br>4 |   | 2 |   | 2 | 1 | 5  | 5      |        |        | 7      |        | 4      | 16 | 8    | 5 | 18   |
| 65 | 24T11R006<br>5 |   | 2 |   | 2 | 2 | 6  |        | 1<br>0 |        | 1<br>0 | 2      |        | 22 | 11   | 5 | 22   |
| 66 | 24T11R006<br>6 |   | 2 |   | 2 | 2 | 6  |        |        |        | 1<br>0 |        | 5      | 15 | 7.5  | 5 | 18.5 |
| 67 | 24T11R006<br>7 |   | 2 |   | 2 | 2 | 6  | 4      |        |        | 7      | 4      |        | 15 | 7.5  | 5 | 18.5 |
| 68 | 24T11R006<br>8 | 1 | 2 |   | 1 | 1 | 5  | 8      |        |        | 6      |        | 5      | 19 | 9.5  | 5 | 19.5 |
| 69 | 24T11R006<br>9 | 1 | 2 | 1 | 1 | 2 | 7  | 7      |        |        | 2      | 1<br>0 |        | 19 | 9.5  | 5 | 21.5 |
| 70 | 24T11R007<br>0 | 2 | 2 |   | 2 | 2 | 8  |        | 8      |        | 8      | 1<br>0 |        | 26 | 13   | 5 | 26   |
| 71 | 24T11R007<br>1 | 1 | 2 |   | 1 | 2 | 6  |        | 7      | 2      |        | 6      |        | 15 | 7.5  | 5 | 18.5 |
| 72 | 24T11R007<br>2 | 1 | 2 |   | 1 | 2 | 6  |        | 1<br>0 | 6      |        | 1<br>0 |        | 26 | 13   | 5 | 24   |
| 73 | 24T11R007<br>3 | 2 | 2 |   | 2 | 2 | 8  | 1<br>0 |        |        | 1<br>0 | 1<br>0 |        | 30 | 15   | 5 | 28   |
| 74 | 24T11R007<br>4 | 2 | 2 |   | 2 | 2 | 8  | 1<br>0 |        | 1<br>0 | 1<br>0 |        |        | 30 | 15   | 5 | 28   |
| 75 | 24T11R007<br>5 | 2 | 2 |   | 2 |   | 6  |        | 5      |        | 3      |        | 3      | 11 | 5.5  | 5 | 16.5 |
| 76 | 24T11R007      |   | 2 |   | 1 |   | 3  |        |        |        | 2      |        |        | 2  | 1    | 5 | 9    |

|         |                |   |   |   |   |   |    |        |        |        |        |        |        |    |      |   |      |
|---------|----------------|---|---|---|---|---|----|--------|--------|--------|--------|--------|--------|----|------|---|------|
|         | 6              |   |   |   |   |   |    |        |        |        |        |        |        |    |      |   |      |
| 77      | 24T11R007<br>7 | 2 | 2 | 2 | 2 | 2 | 10 | 1<br>0 |        |        | 1<br>0 |        | 9      | 29 | 14.5 | 5 | 29.5 |
| 78      | 24T11R007<br>8 | 2 | 2 | 2 | 2 | 2 | 10 |        | 1<br>0 | 1<br>0 |        |        | 8      | 28 | 14   | 5 | 29   |
| 79      | 24T11R007<br>9 | 2 | 2 |   | 1 | 2 | 7  | 1<br>0 |        | 1<br>0 |        |        | 5      | 25 | 12.5 | 5 | 24.5 |
| 80      | 24T11R008<br>0 |   | 1 |   |   |   | 1  | 5      |        |        |        |        |        | 5  | 2.5  | 5 | 8.5  |
| 81      | 24T11R008<br>1 |   | 2 |   | 2 | 2 | 6  |        | 1<br>0 |        | 6      | 1<br>0 |        | 26 | 13   | 5 | 24   |
| 82      | 24T11R008<br>2 | 2 | 2 |   | 2 | 2 | 8  | 1<br>0 |        | 1<br>0 |        | 1<br>0 |        | 30 | 15   | 5 | 28   |
| 83      | 24T11R008<br>3 |   |   |   |   |   | 0  |        |        |        |        |        |        | 0  | 0    |   | 0    |
| 84      | 24T11R008<br>4 |   | 2 |   | 2 | 2 | 6  | 5      |        |        | 4      | 8      |        | 17 | 8.5  | 5 | 19.5 |
| 85      | 24T11R008<br>5 | 2 | 2 |   | 2 |   | 6  | 1<br>0 |        | 3      |        | 8      |        | 21 | 10.5 | 5 | 21.5 |
| 86      | 24T11R008<br>6 | 2 | 2 |   | 2 | 2 | 8  | 8      |        | 2      |        |        |        | 10 | 5    | 5 | 18   |
| 87      | 24T11R008<br>7 | 1 | 2 | 1 | 2 | 2 | 8  |        |        |        |        |        | 5      | 5  | 2.5  | 5 | 15.5 |
| 88      | 24T11R008<br>8 | 2 | 2 |   | 2 | 2 | 8  |        | 7      | 9      |        | 1<br>0 |        | 26 | 13   | 5 | 26   |
| 89      | 24T11R008<br>9 | 1 | 2 | 1 | 2 | 2 | 8  |        |        | 1      | 4      | 4      |        | 9  | 4.5  | 5 | 17.5 |
| 90      | 24T11R009<br>0 | 1 | 2 |   | 2 | 1 | 6  | 2      |        |        | 6      |        | 8      | 16 | 8    | 5 | 19   |
| 91      | 24T11R009<br>1 | 1 | 2 | 1 | 2 | 2 | 8  |        | 1<br>0 |        | 1<br>0 |        |        | 20 | 10   | 5 | 23   |
| 92      | 24T11R009<br>2 | 1 | 2 |   | 2 | 2 | 7  | 6      |        |        | 8      |        |        | 14 | 7    | 5 | 19   |
| 93      | 24T11R009<br>3 | 1 | 2 |   | 2 | 2 | 7  |        | 5      |        | 6      |        | 2      | 13 | 6.5  | 5 | 18.5 |
| 94      | 24T11R009<br>4 | 2 | 2 | 2 | 2 | 2 | 10 | 1<br>0 |        | 1<br>0 |        | 1<br>0 |        | 30 | 15   | 5 | 30   |
| 95      | 24T11R009<br>5 | 1 | 2 | 1 | 2 | 2 | 8  |        | 8      | 5      |        | 3      |        | 16 | 8    | 5 | 21   |
| 96      | 24T11R009<br>6 | 2 | 2 | 1 | 2 | 2 | 9  | 7      |        |        | 7      |        | 1<br>0 | 24 | 12   | 5 | 26   |
| 97      | 24T11R009<br>7 | 2 | 2 | 1 | 2 | 2 | 9  | 1<br>0 |        | 1<br>0 |        | 1<br>0 |        | 30 | 15   | 5 | 29   |
| 98      | 24T11R009<br>8 | 2 | 2 | 1 | 2 | 2 | 9  |        | 1<br>0 |        | 1<br>0 |        | 1<br>0 | 30 | 15   | 5 | 29   |
| 99      | 24T11R009<br>9 | 2 | 2 |   | 2 | 2 | 8  | 8      |        |        | 7      |        | 8      | 23 | 11.5 | 5 | 24.5 |
| 10<br>0 | 24T11R00A<br>0 | 1 | 2 |   |   | 2 | 5  |        | 5      | 5      |        |        |        | 10 | 5    | 5 | 15   |
| 10<br>1 | 24T11R00A<br>1 | 1 | 2 |   | 2 | 2 | 7  |        | 1<br>0 |        | 9      |        | 1<br>0 | 29 | 14.5 | 5 | 26.5 |
| 10<br>2 | 24T11R00A<br>2 | 2 | 2 | 1 | 2 | 2 | 9  |        | 1<br>0 | 1<br>0 |        |        | 8      | 28 | 14   | 5 | 28   |

|     |            |   |   |   |   |   |    |   |   |    |    |    |   |    |
|-----|------------|---|---|---|---|---|----|---|---|----|----|----|---|----|
| 103 | 24T11R00A3 | 0 | 2 | 1 | 2 | 2 | 7  | 6 | 6 | 10 | 22 | 11 | 5 | 23 |
| 104 | 24T11R00A4 | 2 | 2 |   | 2 | 2 | 8  | 2 | 4 | 4  | 10 | 5  | 5 | 18 |
| 105 | 24T11R00A5 | 2 | 2 | 2 | 2 | 2 | 10 | 8 | 7 | 5  | 20 | 10 | 5 | 25 |

**BALAJI COLLEGE OF PHARMACY, ANANTHAPURAMU, ANDHRA PRADESH.**

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

**SUBJECT NAME & CODE:**

**SESSIONAL MID - II**

| S. No. | Hallticket Number | 1. Objective Paper |   |   |   |   |                                | Subjective Paper |   |    |    |   |   |                             |                   | Assig . | Total Marks (30) |
|--------|-------------------|--------------------|---|---|---|---|--------------------------------|------------------|---|----|----|---|---|-----------------------------|-------------------|---------|------------------|
|        |                   | A                  | B | C | D | E | Total Objective Marks (10) (A) | 1                | 2 | 3  | 4  | 5 | 6 | Total Subjective Marks (30) | Condensed 15Marks | (5M)    | (A+B+C)          |
|        |                   |                    |   |   |   |   |                                |                  |   |    |    |   |   |                             |                   | (C)     |                  |
|        |                   |                    |   |   |   |   |                                |                  |   |    |    |   |   |                             |                   |         |                  |
| 1      | 24T11R0001        | 2                  |   |   |   |   | 2                              |                  |   | 5  |    |   | 5 | 10                          | 5                 | 5       | 12               |
| 2      | 24T11R0002        |                    |   | 2 | 1 | 2 | 5                              |                  | 5 |    | 9  |   | 9 | 23                          | 11.5              | 5       | 21.5             |
| 3      | 24T11R0003        | 1                  |   | 2 |   | 1 | 4                              | 9                |   |    | 10 |   | 6 | 25                          | 12.5              | 5       | 21.5             |
| 4      | 24T11R0004        | 2                  | 1 | 2 | 1 | 2 | 8                              | 7                |   | 10 |    |   | 5 | 22                          | 11                | 5       | 24               |
| 5      | 24T11R0005        | 2                  | 1 | 2 | 2 | 2 | 9                              | 5                |   | 10 |    |   | 7 | 22                          | 11                | 5       | 25               |
| 6      | 24T11R0006        | 2                  | 1 | 1 | 1 | 2 | 7                              | 8                |   | 5  |    |   | 5 | 18                          | 9                 | 5       | 21               |
| 7      | 24T11R0007        | 2                  | 1 | 2 | 2 | 2 | 9                              | 8                |   | 10 |    |   | 8 | 26                          | 13                | 5       | 27               |
| 8      | 24T11R0008        | 2                  | 2 | 2 | 2 | 2 | 10                             | 6                |   | 8  |    |   | 6 | 20                          | 10                | 5       | 25               |
| 9      | 24T11R0009        |                    |   |   |   |   | 0                              |                  |   |    |    |   |   | 0                           | 0                 |         | 0                |
| 10     | 24T11R0010        | 1                  | 1 | 2 | 1 | 1 | 6                              |                  |   | 8  |    |   | 6 | 14                          | 7                 | 5       | 18               |
| 11     | 24T11R0011        | 2                  | 1 | 0 | 2 | 2 | 7                              | 10               |   | 8  |    |   | 6 | 24                          | 12                | 5       | 24               |
| 12     | 24T11R0012        | 1                  | 1 | 1 | 1 |   | 4                              | 3                |   | 6  |    |   | 6 | 15                          | 7.5               | 5       | 16.5             |
| 13     | 24T11R0013        |                    |   |   |   |   | 0                              |                  |   |    |    |   |   | 0                           | 0                 |         | 0                |
| 14     | 24T11R0014        | 1                  | 1 | 2 |   |   | 4                              |                  | 5 |    |    |   | 6 | 11                          | 5.5               | 5       | 14.5             |
| 15     | 24T11R0015        | 1                  | 1 | 2 | 2 | 1 | 7                              | 5                |   | 5  |    |   | 4 | 14                          | 7                 | 5       | 19               |
| 16     | 24T11R0016        | 1                  |   | 2 | 1 | 2 | 6                              | 6                |   |    | 6  | 7 |   | 19                          | 9.5               | 5       | 20.5             |
| 17     | 24T11R0017        | 2                  | 1 | 2 |   |   | 5                              |                  |   | 10 |    |   | 6 | 16                          | 8                 | 5       | 18               |
| 18     | 24T11R0018        | 2                  | 1 | 2 |   |   | 5                              |                  |   | 10 |    |   | 6 | 16                          | 8                 | 5       | 18               |
| 19     | 24T11R0019        | 1                  |   | 2 | 2 | 2 | 7                              |                  | 4 | 10 |    |   | 6 | 20                          | 10                | 5       | 22               |

|    |            |         |         |         |         |   |    |        |   |        |        |  |   |    |      |   |      |
|----|------------|---------|---------|---------|---------|---|----|--------|---|--------|--------|--|---|----|------|---|------|
| 20 | 24T11R0020 | 2       | 1       | 2       |         | 2 | 7  | 8      |   | 1<br>0 |        |  | 6 | 24 | 12   | 5 | 24   |
| 21 | 24T11R0021 | 1       | 1       | 1       | 1       | 1 | 5  | 6      |   | 3      |        |  |   | 9  | 4.5  | 5 | 14.5 |
| 22 | 24T11R0022 | 2       | 1       | 2       | 2       | 2 | 9  | 8      |   |        | 1<br>0 |  | 8 | 26 | 13   | 5 | 27   |
| 23 | 24T11R0023 | 1       | 1       | 1       |         | 1 | 4  | 2      |   |        |        |  |   | 2  | 1    | 5 | 10   |
| 24 | 24T11R0024 | 2       | 1       | 2       | 2       | 2 | 9  | 8      |   | 1<br>0 |        |  | 7 | 25 | 12.5 | 5 | 26.5 |
| 25 | 24T11R0025 | 2       | 2       | 2       | 2       | 1 | 9  | 9      |   | 7      |        |  | 6 | 22 | 11   | 5 | 25   |
| 26 | 24T11R0026 | 1       | 1       | 2       | 2       |   | 6  |        |   | 1<br>0 |        |  |   | 10 | 5    | 5 | 16   |
| 27 | 24T11R0027 | 1       | 1       | 1       | 2       | 2 | 7  |        |   | 5      |        |  | 6 | 11 | 5.5  | 5 | 17.5 |
| 28 | 24T11R0028 |         |         | 2       | 2       |   | 4  |        |   | 8      |        |  |   | 8  | 4    | 5 | 13   |
| 29 | 24T11R0029 |         |         |         |         |   | 0  |        |   | 8      |        |  |   | 8  | 4    | 5 | 9    |
| 30 | 24T11R0030 |         |         |         |         |   | 0  |        |   |        |        |  |   | 0  | 0    |   | 0    |
| 31 | 24T11R0031 | 2       | 1       | 2       | 2       | 1 | 8  |        | 8 | 6      |        |  | 6 | 20 | 10   | 5 | 23   |
| 32 | 24T11R0032 | 2       | 1       | 2       | 2       |   | 7  | 8      |   | 8      |        |  |   | 16 | 8    | 5 | 20   |
| 33 | 24T11R0033 | 2       | 1       | 2       | 2       | 1 | 8  | 8      |   | 8      |        |  |   | 16 | 8    | 5 | 21   |
| 34 | 24T11R0034 | 2       | 1       | 2       | 2       | 2 | 9  |        | 6 | 5      |        |  | 6 | 17 | 8.5  | 5 | 22.5 |
| 35 | 24T11R0035 | 2       |         | 2       | 2       | 2 | 8  | 6      |   | 8      |        |  | 6 | 20 | 10   | 5 | 23   |
| 36 | 24T11R0036 |         |         |         |         |   | 0  |        |   |        |        |  |   | 0  | 0    |   | 0    |
| 37 | 24T11R0037 | 1       | 1       | 0       | 1       | 1 | 4  |        | 6 | 5      |        |  | 6 | 17 | 8.5  | 5 | 17.5 |
| 38 | 24T11R0038 | 2       | 1       | 2       | 1       |   | 6  | 8      |   | 6      |        |  |   | 14 | 7    | 5 | 18   |
| 39 | 24T11R0039 | 1       | 1       | 2       | 2       | 2 | 8  |        | 4 | 6      |        |  | 4 | 14 | 7    | 5 | 20   |
| 40 | 24T11R0040 | 1       | 1       | 1       | 1       | 1 | 5  | 6      |   | 6      |        |  |   | 12 | 6    | 5 | 16   |
| 41 | 24T11R0041 | 1       | 1       | 2       | 2       | 2 | 8  | 4      |   | 1<br>0 |        |  | 4 | 18 | 9    | 5 | 22   |
| 42 | 24T11R0042 | 2       | 1       |         | 1       |   | 4  | 6      |   | 6      |        |  | 6 | 18 | 9    | 5 | 18   |
| 43 | 24T11R0043 | 2       | 1       | 2       | 2       | 1 | 8  | 6      |   | 6      |        |  | 2 | 14 | 7    | 5 | 20   |
| 44 | 24T11R0044 | 1       |         | 2       | 2       | 1 | 6  | 8      |   | 8      |        |  | 8 | 24 | 12   | 5 | 23   |
| 45 | 24T11R0045 | 1       | 1       | 2       | 1       | 2 | 7  | 6      |   | 6      |        |  | 6 | 18 | 9    | 5 | 21   |
| 46 | 24T11R0046 | 1       | 1       | 2       | 2       | 2 | 8  | 6      |   | 8      |        |  | 6 | 20 | 10   | 5 | 23   |
| 47 | 24T11R0047 |         | 1       |         |         |   | 1  | 6      |   | 6      |        |  | 6 | 18 | 9    | 5 | 15   |
| 48 | 24T11R0048 | 0.<br>5 | 0.<br>5 | 0.<br>5 | 0.<br>5 |   | 2  |        |   | 8      |        |  | 6 | 14 | 7    | 5 | 14   |
| 49 | 24T11R0049 | 1       | 1       |         |         |   | 2  | 6      |   | 6      |        |  |   | 12 | 6    | 5 | 13   |
| 50 | 24T11R0050 | 2       |         | 2       | 2       | 2 | 8  |        | 3 | 1<br>0 |        |  | 6 | 19 | 9.5  | 5 | 22.5 |
| 51 | 24T11R0051 | 2       | 2       | 2       | 2       | 2 | 10 | 1<br>0 |   | 8      |        |  | 8 | 26 | 13   | 5 | 28   |
| 52 | 24T11R0052 | 2       | 1       |         | 2       | 2 | 7  | 3      |   |        |        |  | 3 | 6  | 3    | 5 | 15   |
| 53 | 24T11R0053 | 2       | 1       | 2       | 2       | 2 | 9  | 1<br>0 |   | 8      |        |  | 6 | 24 | 12   | 5 | 26   |
| 54 | 24T11R0054 | 2       | 2       | 1       |         |   | 5  | 3      |   | 4      |        |  | 3 | 10 | 5    | 5 | 15   |



|    |            |   |   |   |   |   |    |   |   |        |        |   |    |     |   |      |
|----|------------|---|---|---|---|---|----|---|---|--------|--------|---|----|-----|---|------|
| 55 | 24T11R0055 |   |   |   |   |   | 0  |   |   |        |        |   | 0  | 0   | 0 | 0    |
| 56 | 24T11R0056 | 2 | 2 | 2 | 2 | 1 | 9  | 3 |   | 7      |        |   | 10 | 5   | 5 | 19   |
| 57 | 24T11R0057 | 1 | 2 | 2 | 2 | 2 | 9  | 8 |   | 6      |        | 6 | 20 | 10  | 5 | 24   |
| 58 | 24T11R0058 | 1 | 1 | 2 | 2 | 2 | 8  | 6 |   | 1<br>0 |        | 6 | 22 | 11  | 5 | 24   |
| 59 | 24T11R0059 | 1 | 1 | 2 | 2 | 2 | 8  | 4 |   | 4      |        | 4 | 12 | 6   | 5 | 19   |
| 60 | 24T11R0060 | 1 | 1 | 2 | 1 |   | 5  | 6 |   |        |        | 6 | 12 | 6   | 5 | 16   |
| 61 | 24T11R0061 | 1 | 1 | 1 | 1 | 1 | 5  |   |   |        |        |   | 0  | 0   | 5 | 10   |
| 62 | 24T11R0062 | 1 | 1 |   | 2 | 1 | 5  |   |   |        | 6      |   | 6  | 3   | 5 | 13   |
| 63 | 24T11R0063 | 1 | 1 | 2 | 2 | 2 | 8  | 6 |   | 8      |        | 6 | 20 | 10  | 5 | 23   |
| 64 | 24T11R0064 |   |   |   |   |   | 0  |   |   | 2      |        | 6 | 8  | 4   | 5 | 9    |
| 65 | 24T11R0065 | 1 | 1 | 2 |   | 1 | 5  | 5 |   | 6      |        | 6 | 17 | 8.5 | 5 | 18.5 |
| 66 | 24T11R0066 | 1 | 1 | 1 | 1 | 1 | 5  |   |   | 6      |        |   | 6  | 3   | 5 | 13   |
| 67 | 24T11R0067 | 1 | 1 |   | 2 | 2 | 6  |   | 4 |        | 6      |   | 10 | 5   | 5 | 16   |
| 68 | 24T11R0068 | 1 | 2 |   |   |   | 3  | 6 |   | 4      |        | 4 | 14 | 7   | 5 | 19   |
| 69 | 24T11R0069 | 1 | 1 | 2 | 2 | 1 | 7  | 4 |   | 4      |        | 4 | 12 | 6   | 5 | 18   |
| 70 | 24T11R0070 | 2 | 1 | 2 | 2 | 1 | 8  | 6 |   | 8      |        | 6 | 20 | 10  | 5 | 23   |
| 71 | 24T11R0071 | 1 | 2 | 2 | 1 | 1 | 7  | 6 |   | 2      |        | 6 | 14 | 7   | 5 | 19   |
| 72 | 24T11R0072 | 2 | 2 | 2 | 2 | 2 | 10 |   | 4 | 8      |        | 6 | 18 | 9   | 5 | 24   |
| 73 | 24T11R0073 | 1 | 2 | 2 | 2 | 2 | 9  |   |   | 8      |        | 6 | 14 | 7   | 5 | 21   |
| 74 | 24T11R0074 | 2 | 2 | 2 | 2 | 2 | 10 | 8 |   | 8      |        | 8 | 24 | 12  | 5 | 27   |
| 75 | 24T11R0075 | 1 |   | 2 | 1 | 2 | 6  |   | 4 |        | 4      | 4 | 12 | 6   | 5 | 17   |
| 76 | 24T11R0076 | 2 | 1 | 1 | 1 | 1 | 6  |   | 5 |        |        | 4 | 9  | 4.5 | 5 | 15.5 |
| 77 | 24T11R0077 | 2 | 2 | 2 | 2 | 1 | 9  | 6 |   | 8      |        | 6 | 20 | 10  | 5 | 24   |
| 78 | 24T11R0078 | 2 | 2 | 2 | 2 | 2 | 10 |   | 8 |        | 1<br>0 | 8 | 26 | 13  | 5 | 28   |
| 79 | 24T11R0079 | 2 | 2 | 2 | 1 |   | 7  |   |   | 8      |        | 6 | 14 | 7   | 5 | 19   |
| 80 | 24T11R0080 | 2 |   |   |   |   | 2  |   |   | 8      |        | 6 | 14 | 7   | 5 | 14   |
| 81 | 24T11R0081 | 2 | 2 | 1 | 1 | 1 | 7  | 8 |   | 6      |        | 8 | 22 | 11  | 5 | 23   |
| 82 | 24T11R0082 | 2 | 2 | 2 | 2 | 2 | 10 | 8 |   | 1<br>0 |        | 8 | 26 | 13  | 5 | 28   |
| 83 | 24T11R0083 |   |   |   |   |   | 0  |   |   |        |        |   | 0  | 0   | 0 | 0    |
| 84 | 24T11R0084 | 0 |   | 2 | 2 | 2 | 6  |   |   | 9      |        |   | 9  | 4.5 | 5 | 15.5 |
| 85 | 24T11R0085 |   |   | 1 | 2 | 1 | 4  |   |   | 6      |        | 6 | 12 | 6   | 5 | 19   |
| 86 | 24T11R0086 | 1 | 1 | 1 |   | 2 | 5  | 6 |   | 1<br>0 |        | 6 | 22 | 11  | 5 | 21   |
| 87 | 24T11R0087 | 1 | 1 | 2 | 2 | 1 | 7  |   |   | 1<br>0 |        | 4 | 14 | 7   | 5 | 19   |
| 88 | 24T11R0088 | 2 | 1 | 2 | 2 | 2 | 9  | 4 |   | 8      |        | 4 | 16 | 8   | 5 | 22   |
| 89 | 24T11R0089 |   |   |   |   |   | 0  |   |   |        |        |   | 0  | 0   | 0 | 0    |
| 90 | 24T11R0090 | 1 | 2 | 2 | 2 | 1 | 8  | 6 |   | 8      |        | 6 | 20 | 10  | 5 | 23   |

|     |            |   |   |   |   |   |    |   |   |   |  |   |    |     |   |      |
|-----|------------|---|---|---|---|---|----|---|---|---|--|---|----|-----|---|------|
| 91  | 24T11R0091 | 1 | 1 | 1 | 1 | 1 | 5  | 6 |   | 8 |  | 6 | 20 | 10  | 5 | 20   |
| 92  | 24T11R0092 | 1 |   |   | 2 | 2 | 5  | 6 |   | 8 |  | 6 | 20 | 10  | 5 | 20   |
| 93  | 24T11R0093 |   |   | 2 | 1 | 1 | 4  | 3 |   | 2 |  | 2 | 7  | 3.5 | 5 | 12.5 |
| 94  | 24T11R0094 | 2 | 2 | 2 | 2 | 2 | 10 | 0 | 1 | 0 |  | 6 | 26 | 13  | 5 | 28   |
| 95  | 24T11R0095 | 1 | 1 | 2 | 2 | 1 | 7  | 6 |   | 8 |  | 6 | 20 | 10  | 5 | 22   |
| 96  | 24T11R0096 | 2 | 1 | 2 | 2 | 2 | 9  | 6 |   | 6 |  | 6 | 18 | 9   | 5 | 23   |
| 97  | 24T11R0097 | 1 | 2 | 2 | 2 | 2 | 9  | 6 |   | 6 |  | 6 | 18 | 9   | 5 | 23   |
| 98  | 24T11R0098 | 2 | 2 | 2 | 2 | 2 | 10 | 4 |   | 8 |  | 6 | 18 | 9   | 5 | 24   |
| 99  | 24T11R0099 | 1 | 1 | 2 | 2 | 1 | 7  | 6 |   | 8 |  | 3 | 17 | 8.5 | 5 | 20.5 |
| 100 | 24T11R00A0 | 1 | 1 |   |   |   | 2  | 6 |   | 8 |  | 6 | 20 | 10  | 5 | 17   |
| 101 | 24T11R00A1 | 2 | 2 | 2 | 2 | 2 | 10 | 8 |   | 8 |  | 6 | 22 | 11  | 5 | 26   |
| 102 | 24T11R00A2 | 2 | 2 | 2 | 2 | 2 | 10 | 0 | 1 | 0 |  | 8 | 28 | 14  | 5 | 29   |
| 103 | 24T11R00A3 | 2 | 1 | 1 | 2 | 1 | 7  | 2 |   | 6 |  | 4 | 12 | 6   | 5 | 18   |
| 104 | 24T11R00A4 | 1 |   |   | 2 | 2 | 5  |   |   | 5 |  | 8 | 13 | 6.5 | 5 | 16.5 |
| 105 | 24T11R00A5 | 2 | 1 | 2 | 2 |   | 7  | 8 |   | 6 |  | 4 | 18 | 9   | 5 | 21   |

Signature of the faculty member