School of Aeronautics (Neemrana)

Paper For Internal Assessment Examination (Theory) - Credit 3

Instructions For Students / Faculty Mid Term I (Total 60 Marks, 2hrs.)

- Part A: Total number of questions to be given are five, each carrying 3 marks and are compulsory to attend. There is no choice. They are short answer type questions (Not More Than 25 Words For Both Question & Answer), no objective type or fill in the blanks. Total 15 marks.
- Part B: Total number of questions to be given are six, out of which student has to answer any four. They are long answer type (Not More Than 50 Words For Question), each carrying 6 marks. Total 24 marks.
- Part C: Total number of questions to be given are four, out of which student has to answer any three. They are numerical answer type / fully elaborative type (**Not More Than 70 Words For Question**)*, each carrying 7 marks. Total 21 marks.

Mid Term II & III (Total 90 Marks, 2.5 hrs.)

- Part A: Total number of questions to be given are ten, each carrying 2 marks and are compulsory to attend. There is no choice. They are short answer type questions (Not More Than 25 Words For Both Question & Answer), no objective type or fill in the blanks. Total 20 marks
- Part B: Total number of questions to be given are seven, out of which student has to answer any five. They are long answer type (Not More Than 50 Words For Question), each carrying 6 marks. Total 30 marks.
- Part C: Total number of questions to be given are five, out of which student has to answer any four. They are numerical answer type / fully elaborative type (**Not More Than 70 Words For Question)***, each carrying 10 marks. Total 40 marks.

* LIST OF ELABORATIVE THEORY QUESTION SUBJECTS: Communication Skills, Human Values, Technical Communication, Managerial Economics and Financial, Aircraft Materials and Processes, Aircraft Systems, Aircraft Maintenance Practices, Avionics-I, Aircraft Rules and Regulation, Wind Tunnel Techniques, Maintenance of Airframe and System, Helicopter Theory, Avionics-II, Maintenance of Power Plant and System, Unmanned Aerial Vehicles & Systems (UAV), Space Mission Design & Optimization, CAD, Airlines and Airport Management.

FACULTY MEMBERS, PLEASE ENSURE EXCEPT ABOVE LISTED SUBJECTS, NO THEORITICAL ELABORATIVE QUESTION SHOULD BE GIVEN IN PART 'C' OF QUESTION PAPER

Question Paper & Student Details

Mid Term *		Mid term 2	Date of Submission of QP		8/21/2020
Name of Faculty *		Sapana Thakur	Date of Examination *		8/24/2020
Subject * Advanced Eng		g . Mathematics	Course* B.TECH.		
Batch		AE -19,18,2 AND MT-5	Semester *	3	
Email Id of Faculty:*		panathakur1990@gmail.com	Phone Number of Faculty*		8823094838
Student Name			Student I	Reg No.	

3AN2-01: Advanced Engineering Mathematics (Credit-3)

COURSE OBJECTIVE

- 1. To introduce the basic concepts of solving algebraic, transcendental equations and numerical techniques of interpolation in various intervals in real life.
- 2. To acquaint the student with understanding of numerical techniques of differentiation and integration this plays an important role in engineering and technology disciplines.
- 3. To make the students appreciate the purpose of using Laplace transforms to create a new domain in which it is easier to handle the problem that is being investigated.
- 4. To acquire knowledge on Fourier transform techniques used in wide variety of situations in which the functions used are not periodic;
- 5. To develop Z- transform techniques which will perform the same task for discrete time systems as Laplace Transform, a valuable aid in analysis of continuous time systems.

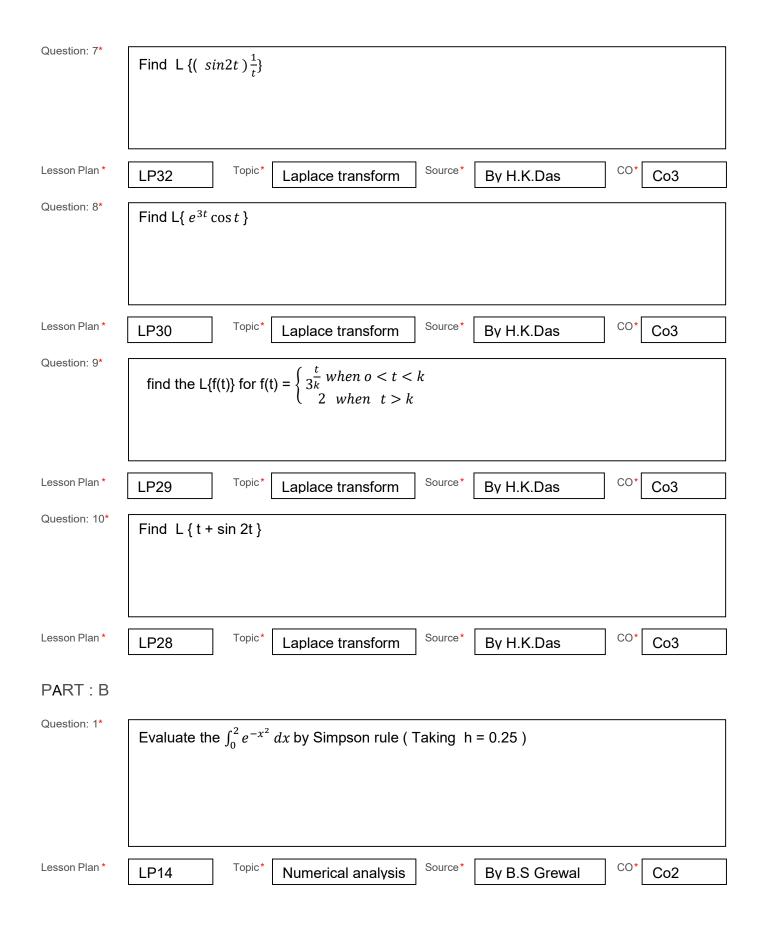
3AN2-01: Advanced Engineering Mathematics (Credit-3)

COURSE OUTCOME

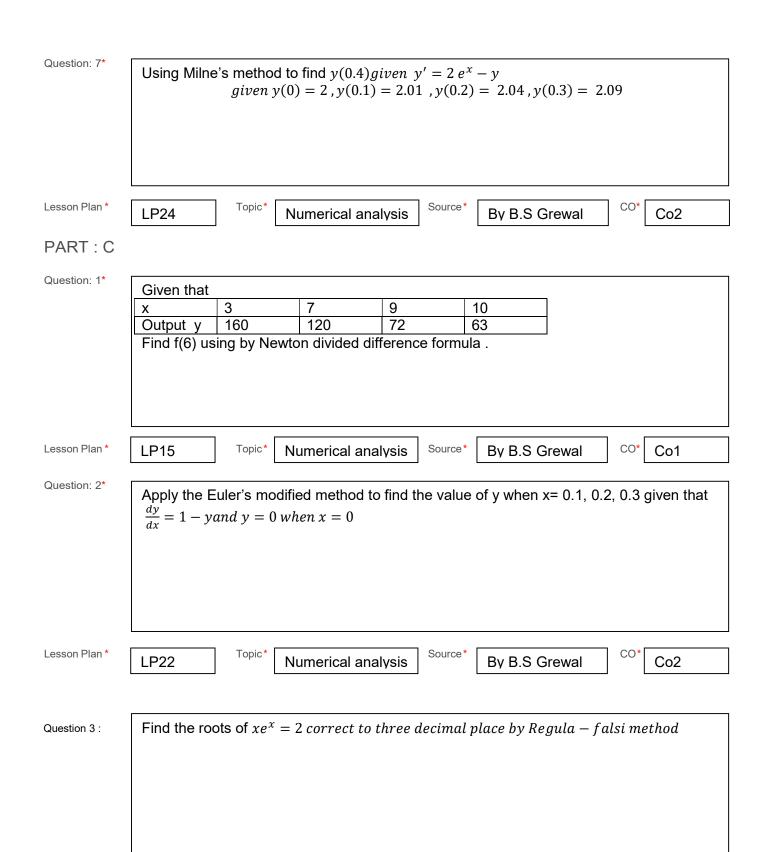
Upon completion of the course, Students will be able to

- CO1: Understand the basic concepts and techniques of solving algebraic and transcendental equations.
- CO2: Apply the numerical techniques of differentiation and integration for engineering problems.
- CO3: Appreciate Laplace transform methods for solving linear and differential equations.
- CO4: Obtain Fourier transforms for the functions which are needed for solving application problems.
- CO5: Manipulate discrete data sequences using Z transform techniques.

PART : A		
Question: 1	What is the difference between Euler's and Euler's modified method	
Lesson Plan *	LP22 Topic* Numerical analysis Source* By B.S Grewal CO* Co2	
Question: 2*	What is the difference between Milne's and Adam's predictor –corrector methods	
Lesson Plan *	LP24 Topic* Numerical analysis Source* By B.S Grewal CO* Co2	
Question: 3*	What is the difference between Newton Raphson and Regula –Falsi method	
Lesson Plan *	LP21 Topic* Numerical analysis Source* By B.S Grewal CO* Co1	
Question: 4*	Prove that $L\{e^{at}\} = \frac{1}{s-a}$; $s > a$	
Lesson Plan *	LP26 Topic* Laplace transform Source* By H.K.Das CO* Co3	
Question: 5*	Find L $\{t^2e^{4t}\}$	
Lesson Plan *	LP30 Topic* Laplace transform Source* By H.K.Das CO* Co3	
Question: 6*	Find L $\{1-\cos t\}$	
Lesson Plan *	L31 Topic* Laplace transform Source* By H.K.Das CO* Co3	



Question: 2*	Find the roots of $x \sin x + \cos x = 0$ correct to three decimal place using by Newton – Raphson method
Lesson Plan *	LP17
Question: 3*	Apply the Euler's method to find the value of y when x= 0.6 given that $\frac{dy}{dx} = 1 - 2xy$ and $y = 0$ when $x = 0$ and h= 0.2
Lesson Plan *	LP18 Topic* Numerical analysis Source* By B.S Grewal CO* Co2
Question: 4*	Heirar Adamsta - Daalsfardh madh ad ta fin de (0.0)
	Using Adam's – Bashforth method to find $y(0.8)$
	given $\frac{dy}{dx} = x - y^2$
	given $y(0) = 0, y(0.2) = 0.02, y(0.4) = 0.0795, y(0.6) = 0.1762$
Lesson Plan *	LP25 Topic* Numerical analysis Source* By B.S Grewal CO* Co2
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Question: 5*	Apply the Taylor's series to find the value of y when y= 0.1 correct to three decimal
	Apply the Taylor's series to find the value of y when x= 0.1 correct to three decimal places given that
	$\frac{dy}{dx} = e^x - y^2 $ and $y = 1$ when $x = 0$
	$\int dx = c \qquad y \text{when } x = 0$
Lesson Plan *	LP18 Topic* Numerical analysis Source* By B.S Grewal CO* Co2
	Li 10 Numerical analysis By B.S Grewai CO2
Question: 6*	Solve L{ $\sin 3t + 3 t \cos 2t e^{3t}$ }
Lesson Plan *	LP27 Topic* Laplace transform Source* By H.K.Das CO* Co3



Source*

By B.S Grewal

CO*

Co1

Lesson Plan *

LP20

Topic*

Nu. Analysis

Question: 4*	Find the Laplace transformation when function is a multiple of exponential function and given one example of that property
Lesson Plan *	LP30 Topic* Laplace transform Source* By H.K.Das CO* Co3
Question: 5*	Apply the Runge-kutta fourth order method to find the value of y(0.1)and y(0.2) given that $\frac{dy}{dx} = x^2 - y \ and \ y(0) = 1$
Lesson Plan *	LP24 Topic* Numerical analysis Source* By B.S Grewal CO* Co2

I have scrutinized the question paper. There is no spelling mistake of any type or irrelevant question.

Faculty's Sign Sapana Thakur