



Daffodil International University

Department of Computer Science and Engineering

Faculty of Science & Information Technology

Midterm Examination, Fall 2025

Course Code: MAT211, Course Title: Engineering Mathematics

Level: L2 Term: T1 Batch: Retake_A

Time: 01:30 Hrs

Marks: 25

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.	a)	Demonstrate the ordinary differential equation of a family of curves $y = A\cos x + B\sin x$	[5]	CO1
2.	a)	Solve the given ODE $\frac{dy}{dx} = e^{x-y} + x^2 e^{-y}$	[5]	CO2
	b)	Solve the first order first degree homogeneous ODE $\frac{dy}{dx} = \frac{y}{x} + \tan\left(\frac{y}{x}\right)$	[5]	
	c)	Solve the first order first degree Linear ODE $x \frac{dy}{dx} + 2y = x^2 \log x$	[5]	
3.	a)	Solve the higher order ODE $(D^3 - 6D^2 + 11D - 6)y = e^x$.	[5]	CO2