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Daffodil International University

Department of Computer Science and Engineering
Faculty of Science & Information Technology
Midterm Examination, Spring 2023
Course Code: MAT211, Course Title: Engineering Mathematics
Level: L2 Term: T1 Batch: 61

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)	Define Order and Degree of ODE with an example. Derive a differential equation by eliminating arbitrary constants from $y = e^{-x}(A\cos x + B\sin x)$	[1+3]	CO1
	b)	Find the solution of the homogeneous D.E. $\frac{dy}{dx} + \frac{y(x+y)}{x^2} = 0$	[5]	
2.	a)	Solve the ODE $\frac{dy}{dx} + xy = xy^2$ by using suitable method.	[5]	CO2
	b)	Solve the ODE $D^3y - 2Dy + 4y = 3\cos 3x$.	[5]	
3.	a)	Explain the solving procedure of higher order linear ODE with variable coefficients.	[1]	CO3
	b)	Determine the solution for $x^3\frac{d^3y}{dx^3} - x^2\frac{d^2y}{dx^2} + 2x\frac{dy}{dx} - 0y = x^3$	[5]	