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Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science and Engineering
Final Examination, Fall-2025
Course Code: MAT211, Course Title: Engineering Mathematics
Level: L2 Term: T1 Batch: RE_B

Time: 2 Hrs **Marks: 40**

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)***	**Solve** $x^3\frac{d^3y}{dx^3}+5x^2\frac{d^2y}{dx^2}+7x\frac{dy}{dx}+8y=x^2.$	**[6]**	**CO2**
	b)	**Identify** y_p **for the ODE** $(D^3-D^2-4)y=e^x\sin 2x.$	**[4]**	
2.	***a)***	**Evaluate** $\mathcal{L}\{4e^{-2t}-2\cosh t+3t^4+1\}.$	**[4]**	**CO3**
	b)	**Evaluate** $\mathcal{L}\{t^2(sin4t+t)\}.$	**[6]**	
3.	***a)***	**Determine the value of** $\mathcal{L}^{-1}\left\{\frac{s}{s^2+6s+5}\right\}$	**[5]**	**CO3**
	b)	**Solve** $Y''(t)+Y(t)=t, \quad Y(0)=1, \quad Y'(0)=-2.$	**[5]**	
4.		Define Fourier Series. Find the Fourier Series of $f(x)=e^{4x}, -\pi<x<\pi$	**[10]**	**CO4**

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