



Daffodil International University
Department of Electrical and Electronic Engineering
Faculty of Engineering
Final Examination, Spring – 2025

Course Code: 0541-123
Section: A,B,C,D,E,F
Full Marks: 40

Course Title: Ordinary & Partial Differential Equations
Level-Term: L1-T2
Exam Date: June 28, 2025

Teacher's Initial: TRS
Time: 2 Hours

[Notes: Answer all the following questions

CO's represent one of the learning outcomes of the course.

Figures on the right hand side indicate marks allocated for the questions.]

		Marks
Q1. Solve the following differential equations using the appropriate method:	CO-2	[6]
i) $D^3y + 3D^2y + 3Dy + y = 0$	(C3)	
ii) $D^2y + 4Dy + 3y = e^{-3x}$		
Q2. Compute the general solutions of the following differential equations	CO-2	[12]
i) $(D^2 + 1)^2y = \sin 2x$	(C3)	
ii) $\frac{d^2y}{dx^2} - 2\frac{dy}{dx} + 3y = e^x \sin x$		
iii) $x^2 \frac{d^2y}{dx^2} - 2x \frac{dy}{dx} + 4y = x^3$		
Q3. Solve the following partial differential equations	CO-2	[15]
i) $p \tan x + q \tan y = \tan z$	(C3)	
ii) $(y^2 + z^2 - x^2)p - 2xyq + 2xz = 0$		
iii) $(D^3 - 3DD'^2 + 2D'^3)z = \sin(2x + y)$		
Q4. Illustrate the particular solutions of the differential equation from the following Initial Value Problem:	CO-3	[7]
$2y'' - 11y' + 12y = 0, y(0) = 5, y'(0) = 15$	(C3)	