



Daffodil International University
Department of Electrical and Electronic Engineering
Faculty of Engineering
Mid Term Examination Spring- 2025

Course Code: EEE :0541-211
Section: A,B,C,D,E
Full Marks: 25

Course Title: Coordinate Geometry and Vector Analysis
Level-Term: L1-T1
Exam Date: 19/3/2025

Teacher's Initial: IJM
Time: 1.5 Hours

[Notes: Answer all the following questions
CO's represent one of the learning outcome of the
course Figures on the right hand side indicate marks
allocated for the questions]

- Q1.** (a) **Explain** general equation of second degree and **identify** the nature of the equation $x^2 + 2xy + y^2 + 2x - 1 = 0$. CO-1 [3]
(C2)
- Q2.** (a) **Discuss** the diagram of 3-D coordinates systems. CO-1 [2]
(C2) [2]
- (b) **Identify** the cylindrical coordinates $(5, \frac{4\pi}{3}, -4)$ to rectangular coordinates.
- Q3.** (a) **Generalise** the equation of the plane through the point $(2, -1, -4)$ and perpendicular to the plane $3x + 4y - 5z + 6 = 0$ and $x - 2y + 2z + 1 = 0$. CO-1 [3]
(C2)
- (b) **Identify** the constant k so that the planes $x - 2y + kz = 0$ and $2x + 5y - z = 0$ are at right angles ;find in that case the plane through the point $(1, -1, -1)$ and perpendicular to both the given planes [4]
- Q4.** **Estimate** the standard form of the following equation CO-1 [7]
(C2)
 $32x^2 + 52xy - 72y^2 - 64x - 52y - 148 = 0$
- Q5.** A quadratic equation $3x^2 + 7xy - 15y^2 = 0$. CO-1 [4]
(C2)
- (a) **Interpret** the lines represented by the equation.
- (b) **Identify** the angle between the lines $3x^2 + 7xy - 5y^2 = 0$.