



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
(C2) | [3] |
| Q2. | (a) Discuss the diagram of 3-D coordinates systems. | CO-1
(C2) | [2]
[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
(C2) | [3] |
| | (b) Identify the constant <u>k</u> 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
$32x^2 + 52xy - 72y^2 - 64x - 52y - 148 = 0$ | CO-1
(C2) | [7] |
| Q5. | A quadratic equation $3x^2 + 7xy - 15y^2 = 0$.
(a) Interpret the lines represented by the equation.
(b) Identify the angle between the lines $3x^2 + 7xy - 5y^2 = 0$. | CO-1
(C2) | [4] |