



United International University
School of Science and Engineering

Mid Term Assessment Trimester: Summer 2020
Course Title: Coordinate Geometry and Vector Analysis
Course Code: Math 201 Marks: 20

Time: **1 hour**

Additional Time for Uploading answer script: 15 Min.

Answer all questions.

1. Rotate the coordinate axes to remove the xy - term, then identify the type of conic and sketch its graph. Find its focus in xy coordinate.

$$4x^2 - 2\sqrt{3}xy + 2y^2 - 2x + 2y + 3 = 0 \quad [10]$$

2. a) Determine the distance between the given skew lines [4]

$$L_1: \quad x = 3 - t, \quad y = 4 + 4t, \quad z = 1 + 2t$$

$$L_2: \quad x = t, \quad y = 3, \quad z = 2t$$

- b) Find the equation of line of intersection of the planes [4]

$$-2x + y + z - 3 = 0 \text{ and } 2x - y - 2z = 0.$$

- c) Find the orthogonal projection of $\mathbf{p} = 2\mathbf{i} - \mathbf{j}$ along $\mathbf{q} = \mathbf{j}$. [2]