



United International University
School of Science and Engineering

Mid Term Assessment Trimester: Summer 2021
Course Title: Coordinate Geometry and Vector Analysis
Course Code: Math 201 Marks: 20

Time: **1 Hour**

Additional Time for Uploading answer script: 15 Minutes

Total Time: 1 Hour and 15 Minutes

Answer all questions.

1. Identify the following equation is which type of conic.

$$2\sqrt{2}x^2 + 5\sqrt{2}xy + 2\sqrt{2}y^2 + 18x + 18y + 36\sqrt{2} = 0$$

Or

[6]

Sketch the graph of the conic $-x^2 - 2y^2 + 18x + 18y + 36 = 0$.

2. a) Determine whether the given lines are skew. [5]

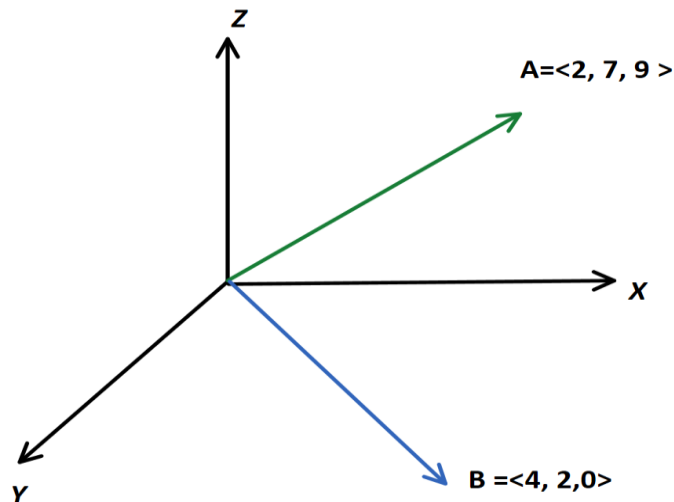
$$L_1: \quad x = 2 - t, \quad y = -1 + 2t, \quad z = -1 - 5t$$

$$L_2: \quad x = -t, \quad y = 5 - 5t, \quad z = 3 + 2t$$

- b) Find the equation of line of intersection of the planes. [3]

$$x + y + z - 5 = 0 \text{ and } 5x - 2y + 4z = 7.$$

- 3.



[6]

- a) Find the orthogonal projection of **B** along **A**.
b) Find the angle between vector **A** and **y**-axis.
c) Find a unit vector that is orthogonal to vector **A** and **x** -axis.