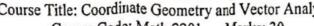
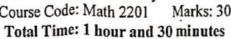
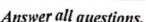
## United International University School of Science and Engineering Mid Term Exam Trimester: Spring 2024 Course Title: Coordinate Geometry and Vector Analysis Course Code: Math 2201 Marks: 30







	Let $L_1$ and $L_2$ be the lines	[10]
	L <sub>1</sub> : $x = 5 + 2t$ , $y = -2 + 6t$ , $z = 3 - 2t$ L <sub>2</sub> : $x = -2 + t$ , $y = 4 + t$ , $z = 3 + 2t$ i) Are the lines parallel? ii) Do the lines intersect? iii) Find the distance between lines? iv) Find the intersection point of the line L <sub>1</sub> and the plane $x - y + 2z = 0$ .	
		1
2.	a) Find the vector component (orthogonal projection) of	[4]
	u = <4, -1, 0 > along w = <2, 0, -1 > and orthogonal to u.	
	b) Find the area of the triangle with vertices 4(0,6, 2)	
	b) Find the area of the triangle with vertices $A(0, 6, -3)$	[3]
	B(1,0,2) and $C(1,-4,1)$ .	
	c) Evaluate the double integral $\int_0^{\ln 3} \int_0^1 xye^{x^2y} dxdy$	[3]
3.	a) Evaluate $\int_1^5 \int_x^{x^2} \int_0^{\ln x} xe^y dydzdx$	[5]