Reg. No. : | | | | | | | | | | | | |

Question Paper Code: U4F05

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Fourth Semester

Computer Science and Design

21UCD405 - COMPUTER GRAPHICS

(Regulations 2021)

Duration: Three hours | Maximum: 100 Marks

Answer All Questions

PART A - (10 x 2 = 20 Marks)

1.	What are passive and active computer graphics?	CO1-U	
2.	Using the DDA algorithm calculates the number of steps for the given coordinates starting point (5, 6) and ending point (13, 10)?	CO2-App	
3.	What is meant by 2D clipping in computer graphics?	CO1-U	
4.	Draw a Line using OpenGL primitives with the coordinates (7,9) and (5,12).	CO2-App	
5.	What is a homogeneous coordinate system?	CO1-U	
6.	What is 3D Reflection in Computer Graphics?	CO2-App	
7.	What role do color and lighting play in the design of animated sequences?	CO1-U	
8.	What is Rendering?	CO1-U	
9.	What is the Vulkan graphics API?	CO2-App	
10.	What is a pipeline in Vulkan?	CO1-U	

PART – B (5 x 16= 80 Marks)

11.	(a)	Explain the Midpoint circle Drawing Algorithm with an example and mention its advantages and disadvantages.	CO1-U	(16)
		Or		
	(b)	Explain Cathode Ray Tube (CRT) monitor and Raster Scan display with its advantage and disadvantage.	CO1-U	(16)

12.	(a)	What is 2D Transformation and its types in detail and Explain the concept of composite transformation in 2D?	CO2-App	(16)
		Or		
	(b)	Write about the Cohen-Sutherland line clipping algorithm with an example.	CO2-App	(16)
13.	(a)	Given a 3D object with coordinate points A(0, 3, 1), B(3, 3, 2), C(3, 0, 0), D(0, 0, 0). Apply the translation with the distance 1 towards the X axis, 1 towards the Y axis, and 2 towards the Z axis and obtain the new coordinates of the object in a pictorial representation and display the Matrix form.	CO2-App	(16)
		Or		
	(b)	A point has coordinates in the x, y, z direction i.e., (5, 6, 7). The translation is done in the x-direction by 3 coordinate and y direction. Three coordinates and in the z- direction by two coordinates. Shift the object. Find coordinates of the new position	CO2-App	(16)
14.	(a)	Explain texture mapping and transparency for surface rendering using OpenGL.	CO1-U	(16)
		Or		
	(b)	Explain the importance of storyboarding in the design of animation sequences.	CO1-U	(16)
15.	(a)	Explain the role of shaders in Vulkan, and how do they differ from shaders in other graphics APIs.	CO1-U	(16)
		Or		
	(b)	Explain the basic architecture of a Vulkan application and how Vulkan handles memory management.	CO1-U	(16)