JHARKHAND Rai University
RANCHI

End Semester/Reappear (Semester II) Examination May 2025

Programme: MCA
Course: Computer Graphics **Full Marks: 70**
Course Code:3CITE202 **Time: 3 Hrs.**
Enrolment no. _____

Q.No.	Questions	CO	Bloom Taxonomy Category	Marks
	Section I			
1	**Short Answer type questions.**			**4 x 5 = 20**
a	List any 5 input and output devices used in computer graphics.	CO1	Remember	
	or			
	With the help of a block diagram explain the components of Computer Graphics System.	CO1	Understand	
b	Explain three-dimensional viewing.	CO4	Understand	
	or			
	Define Shear. Explain X-shear and Y-shear.	CO4	Remember	
c	Write the steps for Digital Differential Analyzer (DDA) Line Drawing Algorithm. What are the drawbacks of DDA Algorithm?	CO3	Apply	
	or			
	Explain basic concepts of circle drawing.	CO3	Understand	
d	Illustrate why windows and viewports are rectangular in standard position?	CO5	Analyze	
	or			
	Write the steps to obtain device coordinate from modeling coordinate.	CO5	Understand	
	Section II			
	Long Answer type questions.			**3 x 10 = 30**
2	Explain color CRT Monitors. Also discuss the two techniques for producing color displays with a CRT.	CO2	Understand	
	or			
	Describe the working of a Refresh CRT with the help of a diagram. Also explain Random and Raster Scan System.	CO2	Apply	
3	Consider a line from (2, 5) to (7, 10). Rasterize the line using DDA Algorithm. Also plot the line in a graph.	CO3	Evaluate	
	or			
	Using Bresenham's Line Drawing Algorithm, rasterize the line from (3, 4) to (12, 7).	CO3	Evaluate	
4	Given an object having coordinates A (2,2), B (8,1), C (7,7), D (5,4) and E (3,6). Perform the given transformation and plot the output points. a. Scaling Sx=3 and Sy=2 b. Translation Tx=3 and Ty= 5	CO4	Evaluate	
	or			
	Given a homogeneous point (1, 2, 3). Apply rotation 90 degree towards X, Y and Z axis and find out the new coordinate points.	CO4	Apply	
	Section III			
	Application based questions			**1 x 20 = 20**
5	Prove that: a. Two successive Translations are additive. b. Two successive Rotations are additive. c. Two successive scaling are multiplicative.	CO4	Evaluate	
	or			
	Analyze the fundamental concept of reflection and evaluate the differences between its various types. How do these types interact with different surfaces and mediums, and what implications do they have in scientific and technological applications?	CO4	Analyze	

COURSE OUTCOME

CO1 Explain the core concepts of computer graphics, including viewing, projection, perspective, modeling and transformation in two and three dimensions.
CO2 Apply the concepts of color models, lighting and shading models, textures, ray tracing, hidden surface elimination, anti-aliasing, and rendering.
CO3 Interpret the mathematical foundation of the concepts of computer graphics.
CO4 Describe the fundamentals of animation, parametric curves and surfaces, and spotlighting.
CO5 Identify a typical graphics pipeline and apply graphics programming techniques to design and create computer graphics.