USN											21CST602

B.E. Degree(Autonomous)Sixth Semester End Examination (SEE),July/August 2024

Computer Graphics & Fundamentals of Image Processing

(Model Question Paper- III)

Time:3 Hours		MaximumMarks:100

Instructions to students

1. Answer FIVE FULL Questions.

Q. No.	Questions	Marks	CO	RBT Levels
1 (a)	With the help of a diagram, describe the open GL interface.	8	CO1	L2
1(b)	Explain OpenGL Line Primitive functions with examples.	8	CO1	L2
1(c)	Differentiate DDA and Bresenham's line drawing algorithm.	4	CO1	L2
	OR			
2 (a)	Explain the architecture of raster scan system with suitable diagrams.	10	CO1	L2
2(b)	Derive the expression for decision parameter used in Bresenham's line drawing algorithm.	10	CO1	L3
3 (a)	Explain rotation in 2D.Show that two successive rotations are additive.	10	CO2	L2
3(b)	Explain 2-D Reflection in homogenous coordinate system.	10	CO2	L2
	OR			
4 (a)	Briefly explain the 3 basic transformations in 3D. Obtain the homogeneous coordinate matrix for the same.	10	CO2	L2
4(b)	Explain the steps involved in scaling about an arbitrary point. Obtain the net transformation matrix for the same.	10	CO2	L2
5 (a)	Explain how keyboard events are recognized by GLUT. Give suitable example.	10	CO3	L2
5(b)	Illustrate with an example the steps in construction of Animation Sequences	10	CO3	L3
	OR			
6 (a)	What is meant by measure and trigger of a device? Explain with the neat diagram, the various input mode models.	10	CO3	L2
6(b)	List out the characteristics of good interactive program. Explain in detail.	10	CO3	L2
7 (a)	Illustrate the relationship between image processing and other related fields.	10	CO4	L2

7(b)	Explain the fundamental steps in image processing	**10**	**CO4**	**L2**
	OR			
8 (a)	Consider the image segment shown, 3 1 2 1 (q) 2 2 0 2 1 2 1 1 (p)1 0 1 2 Let V = {1, 2}. Compute the lengths of the shortest 4, 8 and m-path between p and q	**10**	**CO4**	**L3**
8(b)	Summarize the arithmetic operations on digital images with relevant expressions and diagrams.	**10**	**CO4**	**L3**
9 (a)	Describe about the Marr-Hilldreth edge detector used in image segmentation with necessary equations.	**10**	**CO5**	**L2**
9(b)	How edge detection is performed in digital images using: a) Roberts operator. b) Sobel operator.	**10**	**CO5**	**L2**
	OR			
10 (a)	Write a program to contour an image	**10**	**CO5**	**L4**
10(b)	Describe the concept of an "edge" in image processing, and how does it contribute to the understanding and analysis of digital images? Classify the types of edges in the digital image.	**10**	**CO5**	**L3**