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Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam – 603 110
(An Autonomous Institution, Affiliated to Anna University, Chennai)
Department of Computer Science and Engineering
Continuous Assessment Test – I
Question Paper

Degree & Branch	B.E CSE					Semester	VII
Subject Code & Name	UCS1703 Graphics and Multimedia					Regulation:	2018
Academic Year	2023-2024 ODD	Batch	2020-24	Date	07.09.2023		FN
Time: 08:10 - 09:40 a.m (90 Minutes)	Answer All Questions					Maximum: 50 Marks	

(K1: Remembering, K2: Understanding, K3: Applying, K4: Analyzing, K5: Evaluating)

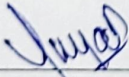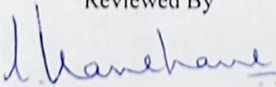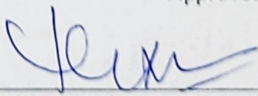| CO1	Apply the algorithms to manipulate output primitives such as line, circle, ellipse (K3)
CO2	Demonstrate transformations, representations and clipping on 2D objects and map window to viewport transformations (K3)
CO3	Apply three Dimensional concepts like representations, geometric transformations, and projections (K3)
CO4	Understand the working of different illumination and color models used to render an animation scene (K2)
CO5	Understand different types of multimedia file formats, compression techniques and design basic 3D Scenes using Blender (K2)

Part – A (6×2 = 12 Marks)

K1	1. In which component of the graphics system is the picture definition stored and how?	CO1	1.4.1 13.2.1
K1	2. What is persistence in a CRT monitor? How does it affect the refresh rate?	CO1	1.3.1 1.4.1
K3	3. DDA line drawing algorithm is applied to plot a line AB from A(1,6) to B (5,9). Find (x_2, y_2) when $(x_1, y_1) = (2,7)$.	CO1	1.1.1 1.4.1 2.1.3 13.3.1
K2	4. Illustrate the 2D graphics pipeline.	CO2	1.4.1
K3	5. Identify the correct answer. Shearing is a transformation that a. distorts but does not move the object b. distorts and may move the object based on the shearing reference line c. moves the object but does not distort the object d. retains the original shape of the object but enlarges or decreases the size Justify your answer by applying shearing on a unit square.	CO2	1.4.1 2.1.3
K2	6. Compare and contrast Uniform and Differential scaling.	CO2	1.1.1 1.4.1 2.1.2 13.2.1

Part – B (3×6 = 18 Marks)

K2	7. Explain random and raster scan systems. Show using diagrams how basic output primitives are drawn in these systems.	CO1	1.3.1 1.4.1 13.2.1
K3	8. Apply Midpoint circle drawing algorithm to plot the points on the circle with centre = (4,5) and radius = 4. Show how each point (x_k, y_k) is calculated.	CO1	1.1.1 1.4.1 2.1.3 13.3.1
K2	9. Illustrate the technique of interlacing with suitable diagrams.	CO1	1.3.1 1.4.1

Part – C (2×10 = 20 Marks)

K3	10. Apply the Bresenham's line drawing algorithm for the given points (2,1) and (10,12). Plot the pixels and draw the line. Show how each point (x_k, y_k) is calculated.	CO1	1.1.1 1.4.1 2.1.3 2.4.1 13.3.1
	(OR)		
K3	11. Apply the ellipse drawing algorithm to plot points on the ellipse with $r_x = 9$ and $r_y = 7$. Show how each point (x_k, y_k) is calculated.	CO1	1.1.1 1.4.1 2.1.3 2.4.1 13.3.1
K3	12. a. Rotate a triangle (4,6), (2,2), (6,2) about the vertex (4,6) by 180 degrees counterclockwise and find the new vertex. Use homogeneous co-ordinate representation.	CO2	1.1.1 1.4.1 2.1.3 2.4.1 13.3.1
	(OR)		
K3	13. Apply reflection on a square with vertices (2,2) (6,2) (2,6) and (6,6) with respect to the line x = y and with reflection factor = 2. Use homogeneous co-ordinate representation.	CO2	1.1.1 1.4.1 2.1.3 2.4.1 13.3.1

Prepared By	Reviewed By	Approved By
Course Coordinator	PAC Team	HOD,CSE