PRESIDENCY UNIVERSITY
BENGALURU

School Of Computer Science and Engineering & Information Science

End-Term Examinations, Aug 2024

Odd Semester: 2023 - 24

Course Code: CSE2066

Course Name: Computer Graphics

Department: CSE

Date: 09/08/2024

Time: 9.30AM to 12.30PM

Max Marks: 100

Weightage: 50%

Instructions:
(i) Read the all questions carefully and answer accordingly.
(ii) Do not write any matter on the question paper other than roll number.

Q.No	Questions	Marks	CO	RBT
1	a. Differentiate between raster and random scan object representation on screen.	4	CO1	L1
	b. Explain beam penetration method of color display.	6	CO1	L2
	c. Using digital differential analyzer(DDA) line drawing algorithm calculate the points between the starting point (5, 6) and ending point (8, 12).	10	CO1	L3
OR				
2	a. List out various application domains of computer graphics	4	CO1	L1
	b. Explain the input devices 1. Light pen and 2. Digitizers.	6	CO1	L2
	c. Explain the Bresenham's line drawing algorithm with an example.	10	CO1	L3

Q.No	Questions	Marks	CO	RBT
3	a. Briefly explain the shear transformation along y-axis.	4	CO2	L1
	b. Given a square object with coordinate points A(0, 3), B(3, 3), C(3, 0), D(0, 0). Apply the scaling parameter 2 towards X axis and 3 towards Y axis and obtain the new coordinates of the object.	6	CO2	L2
	c. Explain Cohen Sutherland line clipping algorithm.	10	CO2	L3
OR				
4	a. Briefly explain reflection along x-axis transformation.	4	CO2	L1
	b. Discuss 2D window to view port transformation.	6	CO2	L2
	c. Given a triangle with corner coordinates (0, 0), (1, 0) and (1, 1). Rotate the triangle by 90 degree anticlockwise direction and find out the new coordinates.	10	CO2	L3

Q.No	Questions	Marks	CO	RBT
5	a. Write the equation of 3D rotation along x, y and z-axis.	4	CO3	L1
	b. Differentiate between parallel and perspective projection.	6	CO3	L2
	c. 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 X axis, 1 towards Y axis and 2 towards Z axis and obtain the new coordinates of the object.	10	CO3	L3

6	a. Explain briefly Orthographic projections and its types.	4	CO3	L1
	b. Explain 3D viewing pipeline architecture.	6	CO3	L2
	c. Given a 3D object with coordinate points A(0, 3, 3), B(3, 3, 6), C(3, 0, 1), D(0, 0, 0). Apply the scaling parameter 2 towards X axis, 3 towards Y axis and 3 towards Z axis and obtain the new coordinates of the object.	10	CO3	L3

7	a. List any four properties of Bezier curves.	4	CO4	L1
	b. Differentiate between implicit, explicit and parametric curve equations	6	CO4	L2
	c. Given a bezier curve with 4 control points B_0[1 0] , B_1[3 3] , B_2[6 3] , B_3[8 1] Determine any 5 points lying on the curve. Also, draw a rough sketch of the curve.	10	CO4	L3

OR

8	a. Briefly explain the blending function of Bezier curve.	4	CO4	L1
	b. Discuss the properties of B-spline curve.	6	CO4	L2
	c. Explain B-Spline curve with a suitable example.	10	CO4	L3

9	a. List the advantages of Bresenham' s line drawing algorithm over DDA(digital differential analyzer) algorithm.	4	CO1	L1
	b. Discuss the working of CRT display device.	6	CO1	L2
	c. Explain any circle drawing algorithm with example.	10	CO1	L3

OR

10	a. Briefly explain the terms 1. Window & 2. Clipping	4	CO2	L1
	b. Explain translation, scaling and rotation 2D transformation.	6	CO2	L2
	c. Explain the process of rotation of an object about a pivot point .	10	CO2	L3