Dr Kamlish Dutte

12/2022 (174 R

Department of Computer Science & Engineering CSD-314 Compute Graphics BTech CSE 5th Semester Roll No._

Final Exam

Max. Marks 50

Time 3 hours

	Given two points, (a, b) and (c, d), provide the following equations of a line:
	i) Slope-intercept, ii) Parametric
	Generate the coordinates of line $x/2 + y/10 = 1$ using DDA line algorithm
2.	Describe midpoint circle drawing algorithm for drawing circle and elipses. What are the properties that
	are exploited while using midpoint algorithm. What are the advantages of using midpoint algorithm?
3.	In homogeneous coordinate system, what are the alternative ways of achieving uniform scaling. Create a
	matrix that scales data by a factor of three, centered at the point $(1, 1, 0)$. A vertex at $(1, 1, 0)$
	shouldn't move.
	should the tot
	Determine a sequence of transformation (using matrix representation) to obtain the following
	transformation. Show your calculations, including intermediate matrices.
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Describe a 3X3 transformation matrix that reflects triangle PQR through the line L. All matrices should be filled out with exact numerical values). The sequence of transformation should be strictly adhered.

5.	Describe 3D projection taxonomy. Compare advantages and disadvantages of perspective and parallel
	projections. What role does vanishing point play in projections? Define cavalier and cabinet projection
	with example
6	Describe 3D rotation around i) z-axis ii) x-axis iii) arbitrary axis parallel to coordinate axis iv) axis
0.	defined by (P1 P2) line. What are various issues that may arise during 3D rotation?
	defined by (1 1,1 2) line. What are various issues that may arise during 5D rotation?
7.	Compare interpolation and extrapolation splines. Explain how various parametric and geometric
	continuity conditions impact at connection points. Describe how curve drawing using B-splines work,
	given a set of control points.
8	Compare "object space" and "image space" methods for hidden surface detection. Describe one
0.	algorithm from each category
9.	Define real-time illumination model. Explain how shadows are rendered. With the help of suitable
	examples demonstrate how shadow models are achieved in rasterized pipeline.
10.	What is the significance of texture in computer graphics? What are different mechanisms to achieve
	texture? Describe texture mapping by applying it to the rectangular surface on the right. Explain your
	procedure of mapping.
	proceeding of multipling.
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	(0, 0) (1, 0) (0.5, 0) (1, 1)

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