Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V(NEW) EXAMINATION – SUMMER 2022

Subject Code:3150712 Date:04/06/2022

Subject Name:Computer Graphics

Time:02:30 PM TO 05:00 PM Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Explain applications of Computer Graphics.	**03**
	(b)	Compare Raster scan system and Random scan system.	**04**
	(c)	Describe DDA line drawing algorithm.	**07**
Q.2	**(a)**	Explain 2D Reflection and Shearing transformation.	**03**
	(b)	Bresenham line Algorithm, Calculate between the starting coordinates (9, 18) and ending coordinates (14, 22).	**04**
	(c)	Find out the new coordinates. For a triangle with corner coordinates (0, 0), (1, 0) and (1, 1). Rotate the triangle by 90 degree anticlockwise direction.	**07**
		OR	
	(c)	Explain midpoint ellipse generation algorithm, Write pseudo code for midpoint ellipse generation algorithm.	**07**
Q.3	**(a)**	Explain 3D rotation.	**03**
	(b)	Describe beam penetration technique for color display.	**04**
	(c)	Explain scan line fill algorithm and with all data structures used in algorithm.	**07**
		OR	
Q.3	**(a)**	Explain window to view port transformation	**03**
	(b)	Describe scaling in 2D transformations.	**04**
	(c)	Explain types of projection.	**07**
Q.4	**(a)**	What are the characteristics of line drawing algorithm?	**03**
	(b)	What are inside – outside tests?	**04**
	(c)	What is aliasing? How to compensate the aliasing? Describe in detail.	**07**
		OR	
Q.4	**(a)**	Explain properties of Bezier curve.	**03**
	(b)	Explain following terms : 1) Aspect ratio 2) Cubic spline 3) Window port	**04**
	(c)	Describe NLN clipping algorithm.	**07**
Q.5	**(a)**	Explain RGB color model.	**03**
	(b)	Explain parallel and perspective transformation.	**04**
	(c)	Explain Depth Buffer method for visible surface detection.	**07**
		OR	
Q.5	**(a)**	Explain CMY color model.	**03**
	(b)	Explain following terms : (1) Dominant Frequency (2) Purity (3) Clipping (4) Frame buffer	**04**
	(c)	Describe Cohen Sutherland Line clipping algorithm with example.	**07**

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