Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) EXAMINATION – SUMMER 2021

Subject Code:3150712 Date:09/09/2021

Subject Name:Computer Graphics

Time:10:30 AM TO 01:00 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)**	List the application of computer graphics.	**03**
	(b)	Explain the function of CRT display with neat and clean diagram.	**04**
	(c)	Explain CMY and YIQ color Model.	**07**
Q.2	**(a)**	Compare Raster Scan system and Random Scan System.	**03**
	(b)	Explain DDA line drawing algorithm.	**04**
	(c)	Write a brief note Emissive displays.	**07**
		OR	
	(c)	Explain the Bresenham's circle drawing algorithm with all necessary derivations. Consider start position as (0, r) and move in clockwise direction.	**07**
Q.3	**(a)**	What is the difference between Window and ViewPort?	**03**
	(b)	Explain boundary fill algorithm for polygon filling.	**04**
	(c)	Explain three methods of character generation.	**07**
		OR	
Q.3	**(a)**	List and Explain various 2D transformation.	**03**
	(b)	Explain reflection and shear with example.	**04**
	(c)	What is aliasing? How to compensate the aliasing? Explain in detail.	**07**
Q.4	**(a)**	Justify that two successive rotation is additive.	**03**
	(b)	What is a need of homogeneous co-ordinates? Give homogeneous co-ordinates for translation, rotation and scaling.	**04**
	(c)	Explain and write Liang Bersky line clipping algorithm.	**07**
		OR	
Q.4	**(a)**	What is the difference between Closegraph( ) and Cleardevice( ) function in C graphics library?	**03**
	(b)	Write a short note on Viewing Pipeline.	**04**
	(c)	Briefly explain NLN line clipping algorithm. What are the advantages of NLN over Cohen Sutherland line clipping algorithm.	**07**
Q.5	**(a)**	What is the difference between Object-Space method and Image-Space Method?	**03**
	(b)	Explain back face detection in details.	**04**
	(c)	List advantages of B-spline over Bazier splines. Explain B-spline curves.	**07**
		OR	
Q.5	**(a)**	List the properties of Bezier curves	**03**
	(b)	Explain any two 3D display methods.	**04**
	(c)	Explain XYZ and CMY color models.	**07**