Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) EXAMINATION – WINTER 2017

Subject Code: 2151603 Date: 08/11/2017

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.**

			MARKS
Q.1	**(a)**	How long would it take to load a 1280 by 1024 frame buffer with 12 bits per pixel if transfer rate is 1 Mbps?	**03**
	(b)	List out advantages and disadvantages of DVST.	**04**
	(c)	Explain in detail Raster scan display system with complete architecture diagram.	**07**
Q.2	**(a)**	Write short note on Boundary fill (4-connected) algorithm.	**03**
	(b)	Explain Starbust method used for character generation.	**04**
	(c)	Derive all formulas for Bresenham's line drawing algorithm.	**07**
		OR	
	(c)	Explain scan line polygon filling algorithm with suitable example.	**07**
Q.3	**(a)**	Write short note on Antialiasing.	**03**
	(b)	Explain odd-even method of determining polygon inside points.	**04**
	(c)	Derive all formulas for mid-point circle generation algorithm.	**07**
		OR	
Q.3	**(a)**	Explain scaling in 2D transformation.	**03**
	(b)	Write short note on Winding number method.	**04**
	(c)	Derive transformation matrix for 2D rotation.	**07**
Q.4	**(a)**	Write short note on 3D translation.	**03**
	(b)	Briefly explain 3D viewing process.	**04**
	(c)	Explain the Cohen Sutherland line clipping algorithm.	**07**
		OR	
Q.4	**(a)**	List the properties of Bezier curves.	**03**
	(b)	Explain various light sources.	**04**
	(c)	Explain NLN line clipping algorithm.	**07**
Q.5	**(a)**	Define visible line and surface identification.	**03**
	(b)	Write short note on RGB Color Model.	**04**
	(c)	Explain Z-buffer visible surface determination algorithm.	**07**
		OR	
Q.5	**(a)**	What is ambient light and Diffuse illumination?	**03**
	(b)	Write short note on Computer graphics applications.	**04**
	(c)	Explain YIQ and CMY Color Model.	**07**

****