Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER–IV • EXAMINATION – SUMMER 2017

Subject Code: 2640008 **Date:08/06/2017**

Subject Name: Computer Graphics (CG)

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.**

Q.1	**(a)**	What is Computer Graphics? Discuss any three applications.	**07**
	(b)	1. Differentiate Raster Scan and Random Scan Displays	**04**
		2. Define: Persistence, Resolution, Refresh rate	**03**
Q.2	**(a)**	Write a Midpoint Circle Algorithm.	**07**
	(b)	Describe OpenGL with basic syntax and explain OpenGL POLYGON Fill-Area functions.	**07**
		OR	
	(b)	Explain Inside-Outside Test.	**07**
Q.3	**(a)**	Discuss line caps and joins in detail. Write OpenGL line-width function and line-style function.	**07**
	(b)	Write a short note on General Two-Dimensional Pivot-Point Rotation.	**07**
		OR	
Q.3	**(a)**	Explain general scan-line polygon-fill algorithm.	**07**
	(b)	1. Write a 4-connected boundary fill algorithm.	**03**
		2. Discuss Antialiasing in brief.	**04**
Q.4	**(a)**	Explain Basic Three-Dimensional Geometric Transformations in detail.	**07**
	(b)	Discuss Cohen-Sutherland Line Clipping Algorithm.	**07**
		OR	
Q.4	**(a)**	Show that the composition of two rotations is additive by concatenating the matrix representations for $R(\Theta 1).R(\Theta 2) = R(\Theta 1+\Theta 2)$	**07**
	(b)	Discuss Sutherland-Hodgman Polygon Clipping Algorithm.	**07**
Q.5	**(a)**	Write a short note on two-dimensional viewing pipeline.	**07**
	(b)	Explain Perspective Projections in detail.	**07**
		OR	
Q.5	**(a)**	What is Shear? Discuss various cases of shear in detail.	**07**
	(b)	Explain Orthogonal Projections in detail.	**07**

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