Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER– IV EXAMINATION – WINTER 2016

Subject Code:2640008 **Date:26/10/ 2016**

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		Define the following terms- a) Computer graphics b) Raster scan system c) Absolute and relative coordinates d) Color and Gray scale e) Shear f) GLUT g) Vanishing Point	**14**
Q.2	**(a)**	List down input devices for computer graphic system and discuss any two in detail.	**07**
	(b)	Write Bresenham's line drawing algorithm. Discuss one advantage and disadvantage of the algorithm.	**07**
		OR	
	(b)	Write Bresenham's Midpoint circle drawing algorithm and explain in brief.	**07**
Q.3	**(a)**	Explain Boundary fill and flood fill algorithm for areas with irregular boundaries.	**07**
	(b)	Discuss OpenGL functions for attributes of graphics primitives.	**07**
		OR	
Q.3	**(a)**	Describe antialiasing and explain supersampling straight-line segment and subpixel weighting masks in detail.	**07**
	(b)	Write the matrix for three dimensional translation and rotation.	**07**
Q.4	**(a)**	What is reflection? Explain reflection about x-axis, y-axis, line y=x taking suitable example.	**07**
	(b)	Write down Cohen Sutherland line clipping algorithm.	**07**
		OR	
Q.4	**(a)**	Write a short notes on following- 1. Projections 2. Depth Cueing 3.Surface rendering 4. Exploded and cutaway views.	**07**
	(b)	What will be the effect of scaling factor Sx=1/3 and Sy=1/4 on a given triangle ABC whose co-ordinates are A= (3, 2) B= (5, 3) and C= (4, 4).	**07**
Q.5	**(a)**	Discuss Liang-Barsky line clipping algorithm	**07**
	(b)	Explain Three-dimensional viewing transformation with suitable diagram.	**07**
		OR	
Q.5	**(a)**	Explain Sutherland-Hodgman Polygon clipping algorithm with example.	**07**
	(b)	Discuss Parallel projection in detail.	**07**

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