Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER • 2014

Subject code: 710204N **Date: 04-12-2014**

Subject Name: Computer Graphics

Time: 10:30 am - 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)**	Explain CRT in detail with its merits and demerits	**07**
	(b)	Explain different Scan conversation methods and compare it	**07**
Q.2	**(a)**	Explain aliasing and anti-aliasing techniques. Describe un-weighted area sampling for anti-aliasing. What are its drawbacks? How are these drawbacks tackled through weighted area sampling?	**07**
	(b)	Write midpoint ellipse generation algorithm. Given input parameters rx=8 and ry = 6 find other points with the help of Midpoint ellipse algorithm	**07**
		OR	
	(b)	Write midpoint circle generation algorithm with suitable example	**07**
Q.3	**(a)**	Define Clipping. Write and explain Cohen-Sutherland line clipping algorithm.	**07**
	(b)	Explain and compare Boundary fill and Flood fill algorithm	**07**
		OR	
Q.3	**(a)**	Explain Weiler-Atherton polygon clipping assuming that the clipping window is a rectangle in standard position	**07**
	(b)	Explain different character generation method in detail	**07**
Q.4	**(a)**	List different Transformations and show that the composition of two rotations is additive by concatinating the matrix representation for $R(\Theta 1) \bullet R(\Theta 2) = R(\Theta 1 + \Theta 2)$	**07**
	(b)	Explain Window to View-port Coordinate Transformation	**07**
		OR	
Q.4	**(a)**	Describe Hermite Interpolation	**07**
Q.4	**(b)**	Describe Perspective projections and Parallel Projections	**07**
Q.5	**(a)**	Determine the Bezier blending functions for five control points. Plot each function and label the maximum and minimum values.	**07**
	(b)	Explain i) Back face Detection method ii) Depth buffer method for detection	**07**
		OR	
Q.5	**(a)**	Explain the classification of Visible surface Detection methods with example.	**07**
	(b)	List basic illumination models, explain all in detail.	**07**

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