Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER • 2013

Subject code: 710204N **Date: 30-12-2013**

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)**	Describe pivot (fixed) point scalling.	**07**
	(b)	Write the differences between Random Scan display and Raster Scan display.	**07**
Q.2	**(a)**	List advantages and disadvantages of plasma panel display.	**07**
	(b)	Explain the following terms: 1) Aspect Ratio 2) Addressability 3) Dot-Pitch	**07**
		OR	
	(b)	Explain the following terms: 1) Persistence 2) Resolution 3) Raster scan display system.	**07**
Q.3	**(a)**	Explain boundary fill and flood fill for polygon filling.	**07**
	(b)	Write the basic principle of Bresenhams line algorithm and write Bresenham's line algorithm.	**07**
		OR	
Q.3	**(a)**	Explain the three methods of character generation.	**07**
	(b)	Explain Ellipse Drawing Algorithm with steps.	**07**
Q.4	**(a)**	Explain the term region codes. Write the steps of Cohen – Sutherland line clipping algorithm.	**07**
	(b)	What is window and viewport? Retrieve equations for the scalling factors to match the window to viewport in 2D viewing system.	**07**
		OR	
Q.4	**(a)**	Explain and write Liang Bersky line clipping algorithm	**07**
	(b)	What is 2D shear transformation? Convert the unit square to shifted parallelogram using x-direction shear transformation operation where parameter shx=1/2 and Yref=-1 and unit square dimensions are (0,0),(1,0),(0,1).(1,1).	**07**
Q.5	**(a)**	List the advantages of the B-spline over the Bezier splines and explain the B-spline curves properties.	**07**
	(b)	Briefly explain specular and diffuse reflection. What is the importance of illumination and shading model in creating realistic image?	**07**
		OR	
Q.5	**(a)**	Explain the property of light using electromagnetic spectrum. Also explain the following terms: 1) Dominant frequency 2) Purity 3) Luminance	**07**
	(b)	Explain 3D translation Scaling and Rotation.	**07**

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