Total No of Questions: 12

## SEAT NO. :

[Total No. of Pages : 2]

## S.E.Information Technology 2008 Computer Graphics (Semester - II)

Time: 3 Hours

Max. Marks : 100

Instructions to the candidates:

1) Answers to the two sections should be written in separate answer books.

- 2) Answer Q.1 OR Q.2, Q.3 OR Q.4, Q.5 OR Q.6 from SECTION I and Q.7 OR Q.8, Q.9 OR Q.10, Q.11 OR Q.12 from SECTION II.
- 3) Neat diagrams must be drawn wherever necessary.
- 4) Figures to the right side indicate full marks.
- 5) Use of Calculator is allowed.
- 6) Assume Suitable data if necessary

## **SECTION I**

Q1)	a)	Explain display file and its structure.	[6]
	b)	Explain Bresenham's circle drawing algorithm. Why do we prefer incremental algorithm over DDA.	[6]
	c)	Consider two raster systems with the resolutions of $640 \ge 480$ and $1280 \ge 1024$ . How many pixels could be accessed per second in each of these systems by a display controller that refreshes the screen at a rate of 60 frames per second?	[4]
		OR	5.0
Q2)	a)	Explain any two input devices in detail.	[6]
	b)	Explain Bresenham's line drawing algorithm in detail.	[6]
	c)	Differentiate between random and raster scan.	[4]
Q3)	a)	Describe Translation with respect to 2D transformation.	[4]
	b)	Explain rotation relative to a fixed point P(m, n) for any triangle object.	[4]
	c)	Explain 3D rotation .How it is different than 2D rotation.	[8]
	,	OR	
Q4)	a)	Explain 8- connected method of polygon filling.	[4]
	b)	Explain scan line polygon filling method.	[6]
	c)	Explain homogeneous coordinate system.	[6]
05)	a)	Explain Parallel projection.	[4]
	b)	Give examples, one for each case, of 3D objects having	[8]
	- /	(i) never a vanishing point:	r.,
		(ii) at most one vanishing point:	
		(iii) at most two vanishing points:	
		(iv) at most three vanishing points.	

c) Explain viewing pipeline.

[6]

Q6)	a)	Write short note on	[12]
		i) B-spline curve	
		ii) Polygon tables	
		iii) Polygon Mesh	
	b)	Explain Representation schemes for solid objects.	[6]
		SECTION II	
Q7)	a) b) c)	What is frame by frame animation. Explain different steps used in design of animation sequence. Explain Goal Directed motion specification in computer animation	[4] [8] [4]
		OR	
Q8)	a) b)	Explain types of color mixing. Explain following	[4] [8]
		i) YIQ color model	
		ii) CMY color model	
	c)	Explain direct motion specification for objects in animation.	[4]
Q9)	a) b) c)	What do you mean by Illumination model. Explain Diffuse Illumination. Explain ray tracing to solve hidden surface problem. Explain Phong shading model in detail.	[6] [6] [6]
		OR	
Q10)	a) b) c)	Explain Point source illumination. Explain ray tracing algorithm Explain Gouraud shading in detail	[6] [6] [6]
Q11)	a) b)	Explain fractal lines and fractal surfaces Write short note on: ii) Hilbert's Curve	[6] [10]
		ii) Bezier curve	
Q12)	a) b)	<b>OR</b> What is fractal dimension and Explain Triadiac Koch curve in detail. Write short note on: i) Features of any graphics tool that you have studied.	[6] [10]

ii) Shadows