Code No: RT32032   **R13**   SET - 1

III B. Tech II Semester Supplementary Examinations, April/May -2019
INTERACTIVE COMPUTER GRAPHICS
(Mechanical Engineering)

Time: 3 hours   Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	What are the advantages of LCD over raster-scan CRT?	[3M]
	b)	Write about Composite transformations.	[4M]
	c)	Define window to viewport coordinate transformation.	[4M]
	d)	What are Bernstein polynomials? What is their significance?	[4M]
	e)	Write the special cases in determining the depth-order of surfaces.	[4M]
	f)	How to overcome the limitations with temporal aliasing?	[3M]

PART -B

2	a)	Write short notes on Flat Panel Displays.	[4M]
	b)	Explain how virtual-reality systems can be used in design applications. What are other applications for virtual-reality systems?	[8M]
	c)	List out the merits and demerits of Penetration techniques.	[4M]
3	a)	When 8-way symmetry of circle is used to obtain a full circle from pixel coordinates generated from first octant, does overstrike occur? Where?	[8M]
	b)	Derive the matrix for scaling in an arbitrary direction, for any specified scaling factors about a fixed point (x_b, y_b).	[8M]
4	a)	What is the procedure followed in point clipping with respect to a rectangular window?	[8M]
	b)	Illustrate with suitable examples how the three Categories of lines are processed using Cohen-Sutherland line clipping algorithm.	[8M]
5	a)	Discuss about the computational complexity involved in each of the shading algorithms.	[8M]
	b)	Develop an algorithm for calculating the normal vector to a Bezier surface at the point P(u, *v).*	[8M]
6	a)	How can the amount of computation required by the scan-line method be reduced?	[8M]
	b)	Implement a back-face detection procedure using a perspective projection to view visible faces of a convex polyhedron. Assume that all parts of the object are in front of the view plane, and provide a mapping onto a screen viewport for display.	[8M]
7	a)	Explain how the animation effects are achieved using look-up table entries.	[8M]
	b)	Describe the Squash and stretch rules of animation in detail.	[8M]

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