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

III B. Tech II Semester Supplementary Examinations, November - 2018

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)	List out the merits and demerits of Direct View Storage Tube (DVST) devices.	[3M]
	b)	Write about Affine transformations.	[4M]
	c)	What is the significance of dot products in Cyrus-Beck line clipping algorithm?	[4M]
	d)	Distinguish between curve and surface in 3-D space.	[4M]
	e)	Mention the difficulties that can be encountered in implementing the painter's algorithm.	[4M]
	f)	Define interframe coherence.	[3M]

PART -B

2	a)	Discuss the design issues in color CRT monitors.	[4M]
	b)	Explain the differences between a general graphics system designed for a programmer and one designed for a specific application, such as architectural design?	[8M]
	c)	Differentiate between pixel addressing and object addressing.	[4M]
3	a)	Show that two successive reflections about any line passing through the coordinate origin is equivalent to a single rotation about the origin.	[8M]
	b)	Calculate the pixel location approximating the first octant of a circle having centre at (4, 5) and radius 4 units using Bresenham's algorithm.	[8M]
4	a)	What are the phases defined in typical viewing pipeline? Explain briefly about each phase.	[8M]
	b)	Justify that the Sutherland - Hodgeman algorithm is not suitable for clipping when the clipping polygon is a concave window.	[8M]
5	a)	Derive the matrix form for the cubic Bezier curves.	[8M]
	b)	Describe the Phong illumination model. Explain the parameters used in Phong's model.	[8M]
6	a)	Show how the calculation of the intersection of an edge with a scan line can be made incremental as opposed to absolute.	[8M]
	b)	Derive the transformation matrix for scaling an object by a scaling factor ' *s'* in a direction defined by the direction angles α, β and γ.	[8M]
7	a)	Describe linear list notation of animation languages.	[8M]
	b)	Discuss in detail the steps of Animation	[8M]

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