SEAT No.:

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[5154]-205

B.E. (Information Technology) ADVANCED GRAPHICS

(2008 Pattern) (Semester - II) (Elective - III) (414450 C)

Time: 3 Hours] [Max. Marks:100

Instructions to the candidates:

- 1) Answer question 1 or 2, 3 or 4, 5 or 6 from Section I and question 7 or 8, 9 or 10, 11 or 12 from Section II.
- 2) Answers to the two sections should be written in separate answer books.
- 3) Neat diagrams must be drawn wherever necessary.
- 4) Figures to the right side indicate full marks.
- 5) Assume Suitable data if necessary.

SECTION-I

- Q1) a) Compare and contrast parallel projection and perspective projection 3D display methods.
 - b) Explain following quadratic surfaces.

[6]

i) Ellipsoid.

- ii) Torus.
- c) What is Spline? What are the major differences between Bezier curve and B-Spline. [6]

OR

- **Q2)** a) Explain Surface Rendering and polygon surfaces in detail. [6]
 - b) Explain the issues related to three dimensional display methods. [6]
 - c) Explain polygon table and geometric data representation with suitable example. [6]
- **Q3)** a) Explain various animation techniques.

[8]

b) What is meant by key-framing, tweening and morphing with suitable example? [8]

Q4)	a)	Explain the basic rules of animation in brief. [8]
	b)	Which are the different animation software's? Explain any one animation software in detail. [8]
Q5)	a)	Discuss in brief the construction of three-dimensional objects using sweep representations. [8]
	b)	What is Constructive Solid Geometry (CSG)? Which operations are carried out in Constructive solid Geometry? [8]
		OR
Q6)	a)	Explain in detail Quadtrees and Octrees. [8]
	b)	Explain desirable properties in solid representation. [8]
		SECTION-II
Q7)	a)	What is the necessity of a color model? Explain the following color models with necessary equations and applications. [8]
		i) CMY ii) HSV
	b)	Explain CIE chromaticity diagram. How is RGB to CMY conversion done? Explain. [6]
	c)	Explain any one color selection system with its application. [4]
		OR
Q8)	a)	Explain YIQ color model. Also explain the following illumination models: Phone shading. [8]
	b)	Explain HLV & HLS color cones. [6]
	c)	What are the applications of color models. [4]
Q9)	a)	How ray tracing works? Draw and explain tracing rays from light source to eye. [8]
	b)	What is surface rendering? Explain Gourads shading. [8]
		OR

b) Explain Illumination W.R.T. ambience, Specular reflection and diffuse reflection. [8]

Define Illumination model. Discuss the basic components of illumination

- Q11)a) Explain the factors affecting the design of virtual reality system. [8]
 - b) What is meant by virtual reality system? Explain the applications of virtual reality system. [8]

OR

- Q12)a) Explain in brief various issues with design and implementation of a VR system.[8]
 - b) What is VRML? Describe the basic structure of a VRML file. [8]



*Q10)*a)