Total No. of Questions : 12]

SEAT No. :

P1443

[Total No. of Pages :2

[4759]-198

B.E. (Information Technology)

ADVANCED GRAPHICS

(414450) (2008Course) (Semester-II) (Elective-III)

Time : 3 Hours] *[Max. Marks : 100*

Instructions to the candidates:

1) ***Answer 3 questions from section-I and 3questions from section-II.***
2) ***Answers to the two sections should be written in separate 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) Write the properties of B-Spline curves. **[6]**

b) Determine the Bezier Blending function for five control points, plotted each function and label the maximum and minimum function values. **[8]**

c) Describe any two 3D display methods. **[4]**

OR

Q2) a) Explain different types of polygons with related equations. How polygon tables are used for representing polygon surfaces. **[10]**

b) Explain the perspective projection and parallel projection diagrammatically? **[4]**

c) Write the parametric equations for the polygon and parametric surfaces. **[4]**

Q3) a) An animation sequence is to be developed to show a car accelerating from stationary position and then moving with constant speed. Show how the accelerations can be simulated for this purpose? **[8]**

b) Explain various methods for controlling animation. **[8]**

OR

Q4) a) What are the four steps in Animation sequence? Explain any two steps in detail. **[8]**

b) Define Real- time Animation. Discuss any two devices used for producing animation. **[8]**

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Q5) a) Explain the Boolean operations in CSG. **[8]**

b) Explain the concept of primitive instancing with eg. **[8]**

OR

Q6) Write a short note on following: **[16]**

a) B-Rep and its data structures

b) Data structures for Polygon surfaces

c) Spatial-partitioning representations

d) Polygon Meshes

SECTION-II

Q7) a) Explain CIE chromacity diagram in detail. **[10]**

b) Explain basic illumination models. **[8]**

OR

Q8) a) Illustrate the unique cube representation for RGB model. Enlist at least four differences between RGB and CMY color model. **[8]**

b) What is the significance of rendering? Explain various types of polygon rendering methods. **[10]**

Q9) a) Compare between flat shading and Gouraud shading. Explain Phong shading. **[8]**

b) Explain HSV and HLS color models. **[8]**

OR

*Q10)*a) Explain the basic illumination models. **[8]**

b) Explain the concept of beam tracing with eg. **[8]**

*Q11)*a) Describe any two special devices that are used for man machine interaction in virtual reality systems. **[8]**

b) Define Virtual Reality. Explain various application areas of virtual reality. **[8]**

OR

*Q12)*Write a short note on following: **[16]**

a) Virtual Reality Languages

b) Ray Tracing

c) Additive color mixing approach

d) Specular Reflection