

[5254]-195

B.E. (Information Technology)

ADVANCED GRAPHICS

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

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) Explain in detail. [6]

- i) Parallel Projection
- ii) Depth queuing.

b) Explain Polygon surface and polygon Meshes. [6]

c) Explain with mathematical model Bezier surface and B-Spline surface.[6]

OR

Q2) a) Explain following quadratic surfaces. [6]

- i) Ellipsoid
- ii) Torus

b) Explain Surface Rendering and polygon surfaces in detail. [6]

c) Explain the issues related to three dimensional display methods. [6]

Q3) a) What is animation? Explain different types of software's used for it. [8]

b) Discuss any four types of animators used in animation. [8]

OR

Q4) a) What is meant by Animation Language? Explain the types of animation languages with appropriate examples. [8]

b) Explain briefly various real time animation techniques used in computer assisted animation. [8]

P.T.O.

- Q5) a)** Explain in detail Quadtrees and Octrees. [8]
b) Explain desirable properties in solid representation. [8]

OR

- Q6 a)** Compare and contrast primitive instancing and boundary representation. [8]
b) Differentiate various solid modeling methods on following points. [8]
i) Uniqueness.
ii) Compactness and efficiency.
iii) Accuracy.
iv) Domain.

SECTION - II

- Q7) a)** Explain HLV & HLS color cones. [8]
b) Explain YIQ color model. How is YIQ to RGB conversion done? Explain. [6]
c) Write a short note on illumination model. [4]

OR

- Q8) 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]

- 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

- Q10) a)** Explain illumination W.R.T. Ambience, Specular reflection and diffuse reflection. [8]
b) Explain Phong's illumination model in detail. [8]

- Q11)**a) Explain the factors affecting the design of virtual reality system. [8]
b) Explain driving simulation application and different virtual reality devices used in it. [8]

OR

- Q12)**a) What is VRML? Describe the basic structure of a VRML file. [8]
b) Discuss the virtual reality applications in manufacturing and Architecture field and in Robotics field. [8]

