53 (IT 602) CGMM

2018

COMPUTER GRAPHICS AND MULTIMEDIA

Paper : IT 602

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. Explain with an example Sutherland-Hodgman Polygon Clipping. 20

2. *(a)* What are the types of visible surface detection algorithm? Explain Depth-Buffer method of visible surface detection. 2+8=10

   (b) What is Depth Cueing? Explain with an example and diagram of Orthogonal Projection Transformation. 2+8=10

3. *(a)* What is Computer Graphics? Explain few applications of Computer Graphics. 2+8=10

(b) What is the difference between emissive and non-emissive display ? Explain *any* non-emissive display technology with a diagram. 2+8=10

4. (a) Define Aspect Ratio. What is the advantage of Bresenham algorithm over DDA line drawing algorithm ? 2+3=5

(b) Explain with a diagram the Boundary Fill algorithm. 10

(c) What is the fraction of the total refresh time per frame spent in retrace of the electron beam for a non-interlaced raster system with a resolution of 1280 by 1024, a refresh rate of 60*Hz*, a horizontal retrace time of 5μs, and a vertical retrace time of 500μs ? 5

5. (a) Explain with a diagram, how to generate 3D rotation matrix. 10

(b) Show that transformation matrix, for a reflection about the line $y = x$, is equivalent to a reflection relative to the *X*-axis followed by a counterclockwise rotation of 90°. 10

6. What is Computer Animation ? Explain Double Buffering method used in Computer Animation. Explain with diagram Keyframe Animation. 2+6+12=20

7. Write short notes on : 2×10=20

(a) Three-Dimensional Viewing Devices

(b) Inside-outside Test.
