G 3537

M.C.A. DEGREE EXAMINATION, MAY/JUNE 2007.

Third Semester

MC 1704 — COMPUTER GRAPHICS AND MULTIMEDIA SYSTEMS

(Regulation 2005)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What do you mean by liquid crystal? Give an example device that uses it.

2. Define region code. State its use.

3. Determine a sequence of basic transformations that are equivalent to the x-direction shearing matrix.

4. Which of the algorithms Cohen – Sutherland algorithm or Liang – Barsky algorithm is more efficient? Why?

5. What is CIE Chromaticity diagram?

6. Name some of the standard motions in key frames of animation.

7. Define image synthesis.

8. Explain the common raster display system architecture with a neat sketch.

9. How is sharing of applications performed in a centralized architecture and replicated architecture?

10. State the problems faced in the event – loop based programs method of virtual reality.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the algorithm for drawing a circle and a ellipse. List out the properties of both. (16)

Or

(b) Elaborate on the following :

(i) Line Clipping (4)

(ii) Text Clipping (4)

(iii) Raster and random scan displays. (8)

12. (a) Derive the B-Spline matrix for the standard cubic, uniform, non – rational B-Spline. Show all of the working. (16)

Or

(b) (i) Derive the window-to-view port transformation and Elaborate. (4)

(ii) Discuss the various logical classification of input devices. (12)

13. (a) (i) Distinguish Parallel projection with that of Perspective projection. (6)

(ii) What are the steps involved in the design of animation sequence? Explain. (10)

Or

(b) Discuss the four Polygon Rendering Methods. (16)

14. (a) State the importance of Computer Image Processing. Explain in detail the Image synthesis and Image Analysis. (16)

Or

(b) (i) What are the importance measures that should convey spatial and temporal content of the scene in visual representation? (8)

(ii) Describe the different techniques used in the animation control mechanisms. (8)

15. (a) How are the higher layers of the Multimedia Communication System divided into different architectural subsystems based on communication perspective? Elaborate on the application subsystem. (16)

Or

(b) What is synchronization in multimedia systems? What are the presentation requirements related to human perception of synchronization between different media? Explain in detail the Lip synchronization and Elementary Media synchronization requirements. (16)
