Reg. No. : | | | | | | | | | | | |

Question Paper Code : Z 9346

5 Year M.Sc. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Fifth Semester

Computer Technology

XCS 354 — COMPUTER GRAPHICS

(Common to 5 Year M.Sc. Software Engineering and 5 Year M.Sc. Information Technology)

(Regulation 2003)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the differences between raster scan and random scan devices?

2. List some applications of large screen displays.

3. What are output primitives?

4. What is antialiasing?

5. What is affine transformation?

6. What is text clipping?

7. What is depth cueing?

8. Write the parametric representation for super ellipsoid.

9. List the types of visible surface detection methods.

10. Write about computer animation languages.

PART B — (5 × 16 = 80 marks)

11. (a) Write in detail any four video display devices. (16)

Or

(b) (i) List the different input and output components that are typically used with virtual reality systems. Also explain how users interact with a virtual scene displayed with different output devices, such as two-dimensional and stereoscopic monitors. (8)

(ii) Explain the operating characteristic of any two hard copy devices. (8)

12. (a) Explain in detail the ellipse generating algorithm with an example. (16)

Or

(b) Develop an algorithm for antialiasing elliptical boundaries. (16)

13. (a) Prove that a uniform scaling ($S_x = S_y$) and a rotation form a commutative pair of operations but that, in general, scaling and rotation are not commutative operations. (16)

Or

(b) Write an algorithm for Weiler-Artherton Polygon clipping, assuming that the clipping window is a rectangle in standard position. (16)

14. (a) Explain in detail the visualization of data sets. (16)

Or

(b) Prove that the multiplication of three dimensional transformation matrices for each of the following sequence of operations is commutative:

(i) Any two successive translations. (5)

(ii) Any two successive scaling operations. (5)

(iii) Any two successive rotations about any of the coordinate axes. (6)

15. (a) Discuss in detail visible surface detection methods (any four). (16)

Or

(b) Explain computer animation and the steps involved in transforming a ball to a volley. (16)