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**Question Paper Code : 75550**

5 Year M.Sc. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Fifth Semester

Software Engineering

XCS 354/10677 SW 405 – COMPUTER GRAPHICS

(Common to 5 Year M.Sc. Computer Technology/M.Sc. Information Technology)

(Regulation 2003/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the use of Data Glove?
2. In which field Trackball and Joystick are widely used?
3. What are the disadvantages of DDA algorithm?
4. What is bitmap font and outline font?
5. Compare concave and convex polygon.
6. What is a clip window?
7. How many control points are required to influence each section of spline curve? (between two successive knot values)
8. List any two viewing parameters of 3D object.
9. How does frame by frame animation work?
10. What are the methods of motion specification?

PART B — (5 × 16 = 80 marks)

11. (a) Explain about video display devices with necessary diagrams. (16)  
Or  
(b) With suitable diagrams explain the operation and applications of the following :
  - (i) LCD (8)
  - (ii) LED. (8)



12. (a) Use mid-point method to derive decision parameters for generating points along a straight line path with slope in the range 0, m, 1. Show that the mid-Point decision parameters are the same as those in the Bresenham line Algorithm. (16)

Or

- (b) (i) Describe the attribute types of a curve and character. (8)  
(ii) What is anti-aliasing? Briefly write the anti-aliasing procedure. (8)
13. (a) (i) What is the deficiency of Sutherland-Hodgeman polygon clipping algorithm. How to rectify this using Weiler-Atherton polygon clipping algorithm? Explain. (2 + 2 + 8)  
(ii) Write short notes on window to view port coordinate transformation. (4)

Or

- (b) (i) Explain two dimensional Translation and Scaling with an example.  
(ii) Obtain a transformation matrix for rotating an object about a specified pivot point. (8+8)
14. (a) (i) Explain the properties of Bspline curves. (6)  
(ii) How are Bspline knot vectors classified? (6)  
(iii) What are the advantages of Bspline over Bezier curve? (4)

Or

- (b) Derive the 3D transformation matrix for rotation about  
(i) an arbitrary axis  
(ii) an arbitrary plane. (8 + 8)
15. (a) (i) Design a storyboard layout and accompanying key frames for an animation of a Single polyhedron. (9)  
(ii) How to specify objects motion in an animation system. (7)

Or

- (b) (i) Explain Z-buffer algorithm . What are the advantages and disadvantages of this-algorithm. (8)  
(ii) Develop an algorithm that would test a given plane surface against a rectangular area to decide whether it is a surrounding, overlapping, inside or outside surface. (8)