Roll No .....

MCIT-104

M.E/M.Tech., I Semester

Examination, June 2014

Computer Graphics And Multimedia

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any Five questions.
ii) All questions carry equal marks.

1. a) Discuss the operations of random scan system with a neat sketch. 7
   b) Write Bresenham's algorithm for line generation which is suitable for any slope. 7

2. a) Let R be a rectangular window whose lower left corner is at L (–3, 1) and upper right hand corner is at R (2, 6). If the line segment is defined with two end points A (–1, 5) and B (3, 8) determine.
      i) The region codes of two end points.
      ii) Its clipping category.
      iii) Stages in the clipping operations using Cohen-Sutherland algorithm. 7
   b) Discuss the steps involved in the ordered edge list polygon filling algorithm. 7

3. a) Apply a suitable 3D transformation matrix to a line joining (1,1,1) and (2,3,4) to align it to the positive Z axis and so that it originates from the origin. 7
   b) A mirror is placed such that it passes through (2, 0) and (0, 2). Find reflected view of a triangle with vertices (3, 4), (5, 5) and (4, 7) in this mirror. 7

4. a) Give the transformation matrix for the following.
      i) To shaft left by 2 units and due to rotate by 45° clockwise.
      ii) To reflect w.r.t $y=-x$ axis. 7
   b) Draw a flowchart illustrating the logic of Sutherland Hodgeman algorithm for polygon clipping. 7

5. a) Distinguish between object-space and image-space methods Pdf visible surface detection algorithms. Give examples for each. 7
   b) Explain how the procedure for Bezier curve generation is extended to Bezier surface generation. 7

6. a) Distinguish between phong and Gouraud shading models. 7
   b) What are Bernstein polynomials? What is their significance in Bezier curve? 7

7. a) What are the characteristics of multimedia database management systems? Discuss them. 7
   b) Describe the four types of image coding used in MPEG for processing. 7

8. Write short notes: (any four). 14
   a) Hyper Media Messaging
   b) Distributed Multimedia System
   c) Ray tracing
   d) Illumination models
   e) Perspective Projection.

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