Roll No .....

MCA-403

MCA IV Semester

Examination, June 2016

Computer Graphics and Multimedia

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
ii) All parts of each question are to be attempted at one place.
iii) All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.
iv) Except numericals, Derivation, Design and Drawing etc.

1. a) Explain DDA algorithm to draw the line when m>1. Draw the line from pixel coordinate (1, 1) to pixel coordinates (8, 5).
   b) Differentiate in two lines between LCD and LED technology used.
   c) Explain Raster scan and Random scan system.
   d) Write Bresenham's line drawing algorithm and compare along with other line algorithms.

   OR

   Write the Mid point circle algorithm.

2. a) Write the transformation that rotates an object θ about the origin. Derive the matrix representation for this rotation.
   b) What is composite transformation?
   c) What are the Antialiasing techniques available? Explain in brief.

   d) Explain the 2D transformation matrix for translation, rotation, scaling, shearing and flipping.

   OR

   Explain the Boundary fill and Flood fill algorithm.

3. a) If we use direct coding of RGB values with 2 bits per primary color, how many possible colors we have each pixel?
   b) Explain the Z buffer algorithm in brief.
   c) Explain the painter's algorithm for hidden surface removal.
   d) Magnify the triangle with vertices A (0, 0), B (1, 1) and C (5, 2) to twice its size whole keeping C (5, 2) fixed.

   OR

   Explain the Cohen Sutherland algorithm for line clipping.

4. a) Create a matrix that rotates points 90 degrees about the point (1, 1).
   b) Describe in brief the parallel and perspective projections.
   c) Explain 3 dimension rotation matrix along with x, y and z axis.
   d) Explain B-spline methods in brief.

   OR

   Explain different types of continuity in Bezier curves.

5. a) What are the different animations techniques?
   b) List 4 different file formats of multimedia data. What are the Multimedia tools available?
   c) Explain the terms in brief.
      i) Morphing ii) Virtual Reality
   d) Describe in brief the Authoring tools in multimedia.

   OR

   Differentiate between lossy and lossless compression techniques.

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