

7E4101

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7E4101

B. Tech. VII Semester (Back) Examination, Nov-Dec-2011

Information Technology

7112 Computer Graphics

Time : 3 Hours

Maximum Marks : 80

Min. Passing Marks : 24

Instructions to Candidates:

Attempt any five questions selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Unit - I

1. a) What is computer graphics? What are different uses and applications of computer graphics. (8)
- b) Suppose an RGB raster system is to be designed using an 8 - inch by 10 - inch screen with a resolution of 100 pixels per inch in each direction. If we want to store 6 bits per pixel in the frame buffer, how much storage (in bytes) do we need for the frame buffer? (8)

OR

1. a) Explain followings :-
 - i) Scanner
 - ii) Track ball. (8)
- b) Explain raster scan display system with diagram. Differentiate Raster system with Random System. (8)

Unit - II

2. a) Explain mid point circle Algorithm Rasterize circle points using this algorithm for $\Omega = 10$ and (x_c, y_c) at $(0, 0)$. (8)
- b) Explain Bezier Curves with its properties. (8)

OR

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2. a) Write a Bresenham's line Algorithm for line for $|m| \leq 1$. Digitize a line with endpoints (20, 10) and (30, 18). (8)
- b) Scan convert a straight line whose end points are (5, 10) and (15, 35), using simple DDA. (8)

Unit - III

3. a) Show that a reflection about the line $y = -x$ is equivalent to a reflection relative to y axis followed by a counter Clock wise rotation of 90° . (8)
- b) Explain parallel projection with diagram. (8)

OR

3. A line is denoted by its end point (0, 0) and (3, 5) in a 2D graphics system. Express the line in matrix notation and perform the following transformation on this line -
 - a) Scale the line by a factor of 3.0 in X direction and 2.0 in Y direction, with respect to (3, 4).
 - b) Translate the original line by 2 units in X direction and 3 units in negative Y direction. Plot the original lines and the lines after each of the above transformation. (16)

Unit - IV

4. a) Explain Sutherland - Hodgeman polygon clipping algorithm. (8)
- b) Explain Scan - line method for removing hidden surfaces of an object. (8)

OR

4. a) Differentiate Phong shading and Gourand shading. (8)
- b) Explain various color models and differentiate them. (8)

Unit - V

5. a) Explain Mpeg in detail. (8)
- b) Explain various presentation tools. (8)

OR

5. a) Explain Authoring tools with their uses. (8)
- b) Explain various file formats in multimedia. (8)