BT-7/M-20   37148

COMPUTER GRAPHICS AND ANIMATION
CSE-403-N

Time : Three Hours]   [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) What is meant by pointing and positioning in graphics ? Give a brief overview of the anatomy and working of one pointing and one positioning device of your choice. Also mention the applications for which they may be used.

    (b) How is a polygon filled using scan line fill algorithm ?

2. Use a pseudo code to describe the simple DDA algorithm for scan converting a line whose slope is between 0 and 45 degrees. Indicate which raster locations would be chosen by the algorithm when scan converting a line from pixel coordinate (2, 4) to pixel coordinate (9, 7).

Unit II

3. What is the significance of defining a scene in World Coordinate System ? Why is the window-to-viewport transformation performed ? Find the position of a point P(6, 6) defined in window with diagonal vertices at (2, 2) and (10, 10) transformed onto a normalized view port.

4. Show the effect of shearing transformation on a Quare A(0, 0), B(1, 0), C(1, 1) and D(0, 1) with X-shearing factor Shx = 2. Also find out the new position of the square if it is translated with translation parameters $T_x = 4$ and $T_y = 5$.

Unit III

5. Describe the procedure for generating 4-bit code in Cohen-Sutherland line clipping algorithm. Describe, how this code is used for clipping lines ? Also describe, how the endpoints of the clipped line will be obtained using this algorithm ?

6. Answer the following questions in short :
   (a) Describe the projection that may preserve the relative dimensions of an object.
   (b) What are vanishing points ?
   (c) How is text clipping carried out ?

Unit IV

7. Describe the procedure for drawing Bezier curves. Also list out the properties of Bezier curves.

8. How are depth values used to identify hidden surface in depth buffer algorithm and priority algorithm ? Describe the two algorithms in order to bring out the distinction between the two.