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BTC/UCS-404/BTI-405

Roll No. 2167

BACHELOR OF TECHNOLOGY (CSE, IT),  
BACHELOR OF TECHNOLOGY (CSE) +  
MBA & BACHELOR OF TECHNOLOGY  
(CSE) - EVENING

FOURTH SEMESTER END TERM

3. Digitize a line from (10, 12) to (20, 16) on a raster screen using Bresenham's straight line algorithm. Show the result on a Cartesian graph.
4. Describe the A- buffer Algorithm with a suitable example.
5. Define Animation. Explain the different Animation techniques with example.
6. Explain the Mid point Circle algorithm and calculate the value of decision parameters.

**SECTION - B (20 Marks)**

*Attempt any two questions.*

*Each question carries 10 marks.*

7. Briefly explain Cohen-Sutherland line clipping algorithm. Use this algorithm to find out the visible portion of line P(40, 80), Q(120, 30) inside the window, which is defined as ABCD : A(20, 20), B(60, 20), C(60, 40) & D(20, 40).
8. Explain Z-Buffer algorithm for determining visible surfaces of an object from a particular viewing point.
9. Explain in details the filtering and Image Processing techniques.

SECTION - C (20 Marks)  
(Compulsory)

10. (a) What do you understand by Bezier Curve?  
Construct enough points on the Bezier curve whose control points are  $P(4, 2)$ ,  $Q(8, 8)$ ,  $R(16, 4)$  to draw an accurate sketch.
- (i) What is the degree of the curve?
  - (ii) What are the co-ordinates at  $u = 0.5$ ? (6)
- (b) Explain window to viewport coordinate transformation. (4)
- (c) Explain Gouraud and Phong Shading. (4)
- (d) Show how Bresenham's Line algorithm draws a line that starts with  $(4, 4)$  and end with  $(-3, 0)$ . (6)