



(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 110411

Roll No.

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### B. Tech.

#### (SEM. IV) THEORY EXAMINATION, 2014-15 COMPUTER GRAPHICS

Time : 2 Hours]

[Total Marks : 50

Note : Attempt all questions.

1 Answer any two parts of the following :  $6 \times 2 = 12$

- (a) Write merit and demerits of LCD (Liquid Crystal Display)
- (b) If base address of a frame buffer is 100 and screen size is (15 inch  $\times$  19 inch) with resolution is 13 dpi (dot per inch) calculate the memory location where the coordinate of pixels are store.
  - (i) Pixel P1 at A (200, 25)
  - (ii) Pixel P2 at B(75, 45)
- (c) Calculate value of pixels, which is scan converted by DDA algorithm and end point of line is (4,4) and (-3,0).

- 2 Attempt any two of the following :  $6 \times 2 = 12$
- (a) Write Bresenham's algorithm of line and explain.
  - (b) Explain the Sutherland-Cohen line clipping algorithm.
  - (c) Differentiate between Raster and Vector Graphics.
- 3 Answer any two parts of the following :  $6 \times 2 = 12$
- (a) Explain Phong and Warn model for illumination.
  - (b) Let  $P_0(0, 0)$ ,  $P_1(1, 2)$ ,  $P_2(2, 1)$ ,  $P_3(3, 1)$ ,  $P_4(4, 10)$  and  $P_5(5, 5)$  be given data control points. If interpolation based on Bezier curve is used to find a curve interpolating these data points. Find parametric midpoint of the gradient and also calculate coordinate of parametric quartiles of the curve.
  - (c) Explain various types of quadratic surfaces with their equation and blobby objects.
- 4 Answer any two parts of the following :  $7 \times 2 = 14$
- (a) What do you understand by the term "Concatenation of transformations"? What are its advantages? If A and B are two different transformations, illustrate with suitable example that  $A \cdot B \neq B \cdot A$ .
  - (b) Apply the Liang-Barsky to clip the line segment from A (3,7) to B (8,10) against the regular rectangular window P (1,2), Q (9,2), R (9,8) and S (1,8)
  - (c) Explain midpoint circle algorithm.