

BCSE 3 Odd Sem Graphics Assignments

Name – ROHIT KUMAR SADHUKHAN

Roll - 001910501023

Group - A1

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Email – rohit.sadhukhan1234@gmail.com

Phone - (+91) 8443078244

Assignments attempted:

- 1 Create a raster grid showing 4 quadrants to plot pixels of variable sizes
- 2 Implement a line drawing algorithm to draw lines between two end points in the raster grid using, a) DDA b) Bresenham's line drawing algorithm. Show execution times for each algorithm in ms. Check for all possible line endpoints in 4 quadrants.
- 3 Implement a circle drawing algorithm to draw a circle with a given radius in the raster grid using, a) polar b) Bresenham's Midpoint circle drawing algorithm. Optional: a) Midpoint. Check for execution time in ms.
- 4 Implement an ellipse drawing algorithm to draw a circle with a given radius in the raster grid using a) polar, b) Bresenham's Midpoint ellipse drawing algorithm. Check for execution time in ms.
- 5 Draw a closed polygon. Implement scanline fill algorithm to fill the polygon.
- 6 Implement the seed-fill algorithms: a) Boundary fill, b) Flood fill.

7 Draw a closed polygon and implement different transformation functions (with respect to origin) on it. a) translation, b) rotation, c) scaling, d) shear, e) reflection with respect to x/y axes. Extend the algorithm to apply the transformations successively on the same object using homogeneous coordinates and matrix multiplication.

8 Composite Transformation. a) Rotation and scaling with respect to an arbitrary point, c) reflection with respect to an arbitrary line

9 Implement Line Clipping with respect to a rectangular clip window, using a) Cohen-Sutherland Algorithm,

10 Implement Polygon Clipping with respect to a rectangular clip window, using a) Sutherland-Hodgeman Algorithm,