

Code No: NR-22003-MCA

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
MCA-II Semester Supplementary Examinations, February 2010
COMPUTER GRAPHICS

Time: 3hours

Max.Marks:60

Answer any Five questions
All questions carry equal marks

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- 1.a) What is frame buffer. What is its role in the display of graphical display. Explain with a neat sketch.
- b) Explain the steps in Bresenham's algorithm for line generation in first quadrant. Illustrate the working of the algorithm with a numerical example.
- 2.a) What is meant by normalized device coordinates. Explain its role in transformations.
- b) Explain the steps involved in scan-line polygon filling algorithm. What data structures are used for it?
- 3.a) List the sequence of transformations that are involved in rotation about an arbitrary point. Rotate a triangle with vertices $A(x_1, y_1)$, $B(x_2, y_2)$ and $C(x_3, y_3)$ about vertex A 45° clock wise. Assume $x_1 \neq 0$, $y_1 \neq 0$.
- b) Explain briefly the routines correspond to segment creation and segment deletion.
- 4.a) Explain the importance of 4 bit code assigned to each of a regions in Cohen - Sutherland algorithm
- b) Give a detailed note about the issues that are specific to polygon clipping which are not seen in line clipping
- 5.a) List various graphical input devices which are commonly used and give a brief note about each
- b) Explain about event handling mechanism followed with mouse internally
- 6.a) List the steps involved in rotation about an arbitrary axis. Illustrate the intermediate steps with figures
- b) Classify the projections. Give a brief note about each
- 7.a) Explain the steps involved in scan line algorithm for hidden surface removal.
- b) What is meant by interpolation shading? Which algorithms follow it? How their principles are different
- 8.a) Explain the algorithm steps in Bezier curve generation.
- b) Distinguish between Bezier and B-spline algorithms used for curve generation.