

Roll No

MCIT-104**M.E/M.Tech., I Semester**

Examination, December 2014

Computer Graphics And Multimedia*Time : Three Hours***RGPVONLINE.COM** Maximum Marks : 70*Note:* i) Attempt any Five questions.

ii) All questions carry equal marks.

1. a) Use the midpoint to derive decision parameters for generating points along a straight line path with slope in the range $0 < M < 1$. Show that the midpoint decision parameters are the same as those in the Bresenham's line algorithm. 7
- b) Draw a flowchart corresponding to cohen-Sutherland line clipping algorithm. Elaborate your answer taking any one example. 7
2. a) Explain how the Potentially Entering (PE) and Potentially Leaving (PL) cases are determined in Cyrus beck algorithm. 7
- b) Find the normalization transformation which uses a circle of radius five units and centre at (1, 1) as a window and a circle of radius three units and centre at $(\frac{1}{2}, \frac{1}{2})$ as a view port. 7
3. a) Prove that a uniform scaling ($s_x = s_y$) and a rotation form a commutative pair of operations, but that, in general, scaling and rotation are not commutative. 7
- b) Find the matrix for mirror reflection with respect to the plane passing through the origin and having a normal vector whose direction is $N = I + J + K$. 7
4. a) Explain the steps involved in deriving window to view port transformation. 7
- b) Explain about any one polygon filling algorithm. Explain its advantages and disadvantages. 7
5. a) How the curve generation algorithm is extended to generate the surface. 7
- b) Distinguish between object-space and image space methods of visible surface detection algorithms. Give examples for each. 7
6. a) Derive the base matrix (M_B) for Bezier curve. 7
- b) Explain briefly: 7
 - i) Phong and Gouraud shading
 - ii) Ray tracing
7. a) Discuss the important components of multimedia? 7
- b) What do you understand by Hyper media messaging? Explain. 7
8. Write short notes: (any four) 14
 - i) Distributed multimedia system
 - ii) Storage technologies
 - iii) Illumination model
 - iv) Parallel projection
 - v) Perspective Projection

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