

Code No: R31054

R10

Set No: 1

III B.Tech. I Semester Supplementary Examinations, May 2013

COMPUTER GRAPHICS

(Common to Computer Science Engineering & Information Technology)

Time: 3 Hours

Max Marks: 75

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Briefly explain DDA scan conversion line algorithm.
(b) Describe about the random scan systems in detail
2. (a) Explain in detail about inside and outside tests for polygons.
(b) Write a program to scan converts the interior of a specified ellipse into a solid color.
3. (a) Describe about general scaling directions in composite transformations.
(b) Explain about rotation and translation geometric transforms.
4. (a) Explain about 2D viewing functions.
(b) Describe about Cohen-Sutherland line clipping algorithm in detail.
5. (a) What are the properties of B-Spline curves? Explain about them in detail.
(b) Describe in detail about Bezier surfaces.
6. (a) Explain in detail about 3-D projections.
(b) Describe in detail about clipping in three dimensional plane.
7. (a) Explain in detail about BSP tree method.
(b) Summarize about the steps of depth buffer algorithm.
8. (a) Describe about general computer animation functions in detail.
(b) Explain about design of animation sequences.



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Set No: 2

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Time: 3 Hours

Max Marks: 75

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What are the properties of ellipses? Describe in detail about midpoint ellipse algorithm.
(b) Give in detail about the basic design and operation of Cathode ray tubes.
2. (a) Explain about scan line polygon fill algorithm.
(b) Describe about identifying interior and exterior regions for a self intersecting polygon.
3. (a) Describe in detail about the transformations between coordinate systems.
(b) Explain in detail about shear and reflection 2-D transformations.
4. (a) Describe in detail about viewing pipeline.
(b) Explain in detail about window to-view-port coordinate transformations.
5. (a) Explain in detail about 3-D polygon surfaces.
(b) Discuss in detail about Bezier curves and discuss about design techniques using Bezier curves.
6. (a) Describe in detail about general 3-Dimensional rotations.
(b) Explain in detail about perspective projections.
7. (a) Explain in detail about back face detection method.
(b) Describe in detail about relative surface characteristics and describe about area subdivision method.
8. (a) Explain in detail about morphing in animation.
(b) Explain about key frame system in detail.



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Set No: 3

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COMPUTER GRAPHICS

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Time: 3 Hours

Max Marks: 75

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Discuss in detail about midpoint circle generation algorithm .
(b) Explain in detail about the operation of color CRT monitors.
2. (a) Describe about flood fill algorithm in detail.
(b) Explain about scan line fill of curved boundary areas in detail.
3. (a) Explain and elucidate basic 2D geometrical transformations.
(b) Prove that the multiplication of transformation matrices for each of the following sequence of operations is commutative
 - i) two successive rotations
 - ii) two successive translations.
4. (a) Explain about Sutherland –Hodgeman polygon clipping in detail.
(b) Explain about line clipping in detail.
5. (a) Describe about quadric surfaces in detail.
(b) Explain in detail about Hermite curves.
6. (a) Give three dimensional transformation pipeline from modeling coordinates to final device coordinates.
(b) Describe about reflection and shear transformations in detail.
7. (a) Explain about area subdivision and octree methods for surface detection in detail.
(b) Describe in detail about depth sorting method.
8. (a) Discuss different ways of specifying motion of objects in animation systems.
(b) Explain in detail about raster animations.



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Set No: 4

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COMPUTER GRAPHICS

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Time: 3 Hours

Max Marks: 75

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain in detail about Bresenham's line generation algorithm.
(b) Describe in detail about the architecture of raster scan systems.
2. (a) Give the procedure for boundary fill and describe about boundary fill across pixel spans for a 4-connected area.
(b) How to perform polygon fill effectively? Explain the significance of sorted edge table?
3. (a) Explain about matrix representations and the significance of homogeneous coordinates in geometrical transformations.
(b) Describe in detail about general pivot point rotation and fixed point scaling.
4. (a) Describe about viewing coordinate reference frame.
(b) Discuss in detail about Cyrus-beck line clipping algorithm.
5. (a) Describe about interpolation and approximation splines in detail.
(b) Elucidate in detail about polygon and quadratic surfaces.
6. (a) Discuss about translation in 3-D transformations.
(b) Explain in detail about 3D viewing pipeline.
7. (a) Give classification of visible surface detection algorithms.
(b) Explain about depth buffer method in detail.
8. (a) Describe about simulating accelerations for key frames in detail.
(b) Give a brief account on computer animation languages.

