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[5459]-190

S.E. (Computer Engineering) (II Semester) EXAMINATION, 2018
COMPUTER GRAPHICS
(2015 PATTERN)

Time : Two Hours

Maximum Marks : 50

- N.B. :—** (i) Answer total *four* questions. Q. No. 1 or Q. No. 2,
Q. No. 3 or Q. No. 4, Q. No. 5 or Q. No. 6, Q. No. 7
or Q. No. 8
(ii) Neat diagrams must be drawn wherever necessary.
(iii) Figures to the right indicate full marks.

1. (a) Write Bresenham's line drawing algorithm to draw dotted line.
Also explain any *two* advantages of Bresenham's line drawing
algorithm over other line drawing algorithm. [6]
(b) Write and explain with example Sutherland-Hodgeman line clipping
algorithm. [6]

Or

2. (a) Write and explain Cohen Sutherland line clipping
algorithm. [4]
(b) Define the following terms : [4]
(1) Frame Buffer
(2) Aspect Ratio
(3) Convex Polygon
(4) Concave Polygon.
(c) Write and explain any *one* inside test algorithm. [4]

P.T.O.

3. (a) Write transformation matrices for : [6]
- (i) 2-D Rotation clockwise direction
 - (ii) 2-D Rotation about arbitrary point
 - (iii) 2-D reflection wrt X-axis
 - (iv) 3-D rotation about Y-axis
 - (v) 3-D Scaling
 - (vi) 3-D translation.
- (b) Explain the following terms with example : [6]
- (i) Parallel Projection
 - (ii) Homogenous coordinates
 - (iii) Segment table.

Or

4. (a) What is inverse transformation ? Explain with an example. [4]
- (b) Explain the CIE chromaticity diagram. [4]
- (c) Explain 3-D clipping with an example. [4]
5. (a) Write short notes on the following back face removal algorithm : [4]
- (i) Painter's algorithm
 - (ii) Z-buffer.
- (b) Explain point source illumination and diffused illumination. [5]
- (c) Enlist and explain in detail any *two* shading algorithms. [4]

Or

6. (a) Explain Phong Specular reflection model in detail. [4]
(b) Explain BSP tree with its advantages. [3]
(c) Write a short note on Phong and Gauraud model. [6]
7. (a) What is fractal ? Explain Hilbert curve in detail. [4]
(b) Write a short note on blending function of Bezier curve. [4]
(c) What is OpenGL ? Write any *three* 3D transformation Function of OpenGL. [5]

Or

8. (a) Draw block diagram of NVIDIA workstation and explain it in brief. [5]
(b) Explain Kotch curve and its application in detail. [4]
(c) Write a short note on Interpolation and approximation. [4]