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[5559]-190

S.E. (Computer Engineering) (II Semester) EXAMINATION, 2019

COMPUTER GRAPHICS

(2015 PATTERN)

Time : Two Hours

Maximum Marks : 50

- N.B. :-**
- (i) Answer Q. No. 1 or Q. No. 2 and Q. No. 3 or Q. No. 4 and Q. No. 5 or Q. No. 6 and Q. No. 7 or Q. No. 8.
 - (ii) Neat diagram must be drawn wherever necessary.
 - (iii) Figures to the right indicate full marks.
 - (iv) Assume suitable data, if necessary.

1. (a) Explain DDA line drawing algorithm. Consider line segment from A(- 2, - 1) to B(6, 3) use DDA line drawing algorithm to rasterize this line. [6]
- (b) Explain any *one* inside test algorithm. [2]
- (c) Explain Cohen-Sutherland line clipping algorithm with example. [4]

Or

2. (a) Define the following terms : [2]
- (i) Resolution
 - (ii) Aspect ratio.

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- (b) Write Bresenham line drawing algorithm. Also explain mathematical foundation of it. [6]
- (c) Explain in detail polygon fill with scanline algorithm. [4]
- 3.** (a) Write transformation matrix for : [2]
- (i) 2-D reflection wrt Y-axis
- (ii) 3-D rotation about X-axis.
- (b) Consider a square P(0, 0), Q(0, 10), R(10, 10), S(10, 0). Rotate the square anticlockwise about fixed point R(10, 10) by an angle 45 degree. [4]
- (c) Explain RGB and HSV color model. [6]
- Or
- 4.** (a) Explain the following terms : [2]
- (i) Key-frame
- (ii) Morphing.
- (b) Write an algorithm to rename a segment. Draw a sample segment table. [4]
- (c) What are the types of projection and write in brief about each type of projections. [6]
- 5.** (a) Explain Warnock's algorithm. [3]
- (b) Explain light sources, ambient light, diffuse reflection and specular reflection. [4]
- (c) Explain BSP tree for hidden surface removal and explain its advantages. [6]

Or

6. (a) What is Lambert's cosine law ? What is its significance ? [3]
(b) Describe Z-buffer hidden surface algorithm. [4]
(c) Enlist and explain any *two* shading algorithms. [6]
7. (a) Write short note on B-spline curve. [3]
(b) Write any *four* important features of NVIDIA gaming platform. [4]
(c) Explain Koch curve and Hilbert curve with example. [6]

Or

8. (a) Explain architecture of *i860*. [3]
(b) Explain bezier curve. List its properties. [4]
(c) What is open GL ? Write its features and functions. [6]