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S.E. (Computer Engineering) (II Sem.) EXAMINATION, 2016

COMPUTER GRAPHICS AND GAMING

(2012 PATTERN)

Time : Two Hours

Maximum Marks : 50

N.B. :- (i) Solve 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) Figures to the right indicate full marks.

(iii) Neat diagrams must be drawn if necessary.

1. (a) Explain the functioning of the following interactive computer devices :
- (i) Joysticks
  - (ii) Touch Panels
  - (iii) Light Pen. [6]
- (b) What is scan conversion ? Using DDA algorithm rasterize a line from (0, 0) to (6, 7). [6]

Or

2. (a) Enlist any four graphics file formats. Explain tiff image file format in detail. [6]
- (b) Scan convert the line from (5, 5) to (13, 9) using Bresenham's line drawing Algorithm. [6]

P.T.O.

3. (a) Which algorithm is suitable for filling polygon with different pattern ? Explain. [4]
- (b) Write matrices for 3-D object scaling, rotation about X-axis, Y-axis, Z-axis. [8]

Or

4. (a) Explain boundary fill algorithm using recursive approach for 4-connected and 8-connected pixels. [8]
- (b) Derive matrix for rotation about arbitrary point. Also rotate point (3, 3) with respect to (1, 1) by 90 degree. [4]
5. (a) Explain B-spline curve. What are its advantages over the Bezier curve ? [8]
- (b) What is fractals ? Explain any two applications of the fractals. [3]

Or

6. (a) Explain RGB and HIS color model. [6]
- (b) Write a short note on the following back face removal algorithm :
- (i) Painter algorithm
  - (ii) Z-Buffer.
- (c) Explain point source illumination and diffused illumination. [3]

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7. (a) What is an Animation ? Explain different animation techniques. [6]
- (b) Explain block diagram of i860 processor. [7]

Or

8. (a) Explain the significance of NVIDIA workstation in gaming. [4]
- (b) Explain the features of computer graphics and animation software. [4]
- (c) Explain a segment table with an example along with data structure used to implement the segment table. [5]