Total No. of Questions—8]   [Total No. of Printed Pages—3

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[5152]-169

S.E. (Computer Engineering) (Second Semester)

EXAMINATION, 2017

COMPUTER GRAPHICS AND GAMING

(2012 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.   [6]

(b) Explain any *three* character generation methods.   [6]

Or

2. (a) Write Bresenham's circle drawing algorithm.   [8]

(b) Define the following terms :   [4]

(1) Raster Scan Display

(2) Frame Buffer

3. (a) Write matrices for 3-D object Scaling, Rotation about X-axis, Rotation about Y-axis.   [6]

P.T.O.

(*b*)   Write and explain scan line algorithm for polygon filling. [6]

Or

4.   (*a*)   What is inside test ? Write significance of it. Explain winding number method for inside test.   [6]

(*b*)   Derive matrix for rotation about arbitrary point. Also rotate point (3, 3) with respect to (1, 1) by 90 degree.   [6]

5.   (*a*)   Explain RGB and HIS color model.   [6]

(*b*)   Write short notes on the following back face removal algorithm.   [4]

     (*i*)   Painter's algorithm

     (*ii*)   Z–buffer

(*c*)   Explain point source illumination and diffused illumination. [3]

Or

6.   (*a*)   Enlist and explain any *two* color models.   [4]

(*b*)   Write short notes on :   [9]

     (*i*)   Bezier Curve

     (*ii*)   B-splines

     (*iii*)   Transparency

7.   (*a*)   Explain significance of NVIDIA workstation in gamming. [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 are segment table ?   [5]

8. (*a*) Write any *two* algorithms for segment operation. [6]

(*b*) Explain methods of controlling animation. [3]

(*c*) Compare and contrast conventional and computer based animation. [4]