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

Seat No.

**[4957]-1079**

S.E. (Computer Engg.) (Second Semester) EXAMINATION, 2016
COMPUTER GRAPHICS AND GAMING
(2012 PATTERN)

Time : Two Hours  Maximum Marks : 50

**N.B. :—** (i)  Attempt 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.

(iv)  Assume suitable data, if necessary.

1. (a)  Write and explain any *four* state of the applications of Computer
Graphics.  [4]

(b)  Explain significance of error term in Bresenham's circle drawing
algorithm. Explain its mathematical derivations.  [8]

*Or*

2. (a)  A write Bresenham's line drawing algorithm. Compare pixel
values for line P(0, 0) Q(6, 6).  [6]

(b)  Write short notes on :  [6]

(i)  Frame Buffer

(ii)  Display Devices

(iii)  Character Generation Methods.

P.T.O.

**3.** (*a*) What is inside test ? Explain even odd method in detail. [6]

(*b*) Write and explain with an example Cohen-Sutherland line clipping algorithm. [6]

*Or*

**4.** (*a*) What is homogenous coordinate system ? Derive transformation matrix for rotation about arbitrary point. [8]

(*b*) Write matrices in homogenous coordinate system for the following transformations : [4]

(*i*) 3-D rotation with respect to Y-axis

(*ii*) 3-D scaling

(*iii*) 2-D reflection with respect to origin

(*iv*) 2-D Y-shear.

**5.** (*a*) Explain RGB and HIS color model. [4]

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

(*c*) Explain reflections, shadows, ray tracing. [6]

*Or*

**6.** (*a*) Explain interpolation and B-splines for curve generation. [4]

(*b*) Write short notes on : [6]

(*i*) Painter's algorithm

(*ii*) Warnock algorithm

(*iii*) Z-buffer.

(*c*) Explain fractal lines with an example. [3]

**7.** (*a*) What is segment ? Explain transformation operation on segment. [3]

(*b*) Explain in brief : [8]

(*i*) NVIDIA workstation

(*ii*) Methods for controlling animation.

(*c*) Explain significance of Open GLES. [2]

*Or*

**8.** (*a*) Write basic guidelines for animation and gaming technology. [4]

(*b*) What is segment and segment table ? [3]

(*c*) Explain i860 with a block diagram. [6]