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

Seat No.	

[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.

P.T.O.

(*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, 10). 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]