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

Seat No.	

[5459]-190

S.E. (Computer Engineering) (II Semester) EXAMINATION, 2018

COMPUTER GRAPHICS

(2015 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 to draw dotted line. Also explain any *two* advantages of Bresenham's line drawing algorithm over other line drawing algorithm. [6]

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

Or

2. (*a*) Write and explain Cohen Sutherland line clipping algorithm. [4]

(*b*) Define the following terms : [4]

(1) Frame Buffer

(2) Aspect Ratio

(3) Convex Polygon

(4) Concave Polygon.

(*c*) Write and explain any *one* inside test algorithm. [4]

P.T.O.

3. (*a*) Write transformation matrices for : [6]

(*i*) 2-D Rotation clockwise direction

(*ii*) 2-D Rotation about arbitrary point

(*iii*) 2-D reflection wrt X-axis

(*iv*) 3-D rotation about Y-axis

(*v*) 3-D Scaling

(*vi*) 3-D translation.

(*b*) Explain the following terms with example : [6]

(*i*) Parallel Projection

(*ii*) Homogenous coordinates

(*iii*) Segment table.

Or

4. (*a*) What is inverse transformation ? Explain with an example. [4]

(*b*) Explain the CIE chromaticity diagram. [4]

(*c*) Explain 3-D clipping with an example. [4]

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

(*i*) Painter's algorithm

(*ii*) Z-buffer.

(*b*) Explain point source illumination and diffused illumination. [5]

(*c*) Enlist and explain in detail any *two* shading algorithms. [4]

Or

6. (*a*) Explain Phong Specular reflection model in detail. [4]

(*b*) Explain BSP tree with its advantages. [3]

(*c*) Write a short note on Phong and Gauraud model. [6]

7. (*a*) What is fractal ? Explain Hilbert curve in detail. [4]

(*b*) Write a short note on blending function of Bezier curve. [4]

(*c*) What is openGL ? Write any *three* 3D transformation Function of openGL. [5]

Or

8. (*a*) Draw block diagram of NVIDIA workstation and explain it in brief. [5]

(*b*) Explain Kotch curve and its application in detail. [4]

(*c*) Write a short note on Interpolation and approximation. [4]