

Total No. of Questions – [ 08 ]

Total No. of Printed Pages –[02]

G.R. No.

Paper Code - U228-124 (ESE)

**MAY 2019/ENDSEM**

**S. Y. B. TECH. (COMPUTER) (SEMESTER - II)**

**COURSE NAME: COMPUTER GRAPHICS**

**COURSE CODE: CSUA22174**

**(PATTERN 2017)**

Time: [2 Hours]

[Max. Marks: 50]

**Instructions to candidates:**

- 1) Answer Q.1, Q.2, Q.3, Q.4, Q.5 OR Q.6, Q.7 OR Q.8
- 2) Figures to the right indicate full marks.
- 3) Use of scientific calculator is allowed
- 4) Use suitable data where ever required

Q.1) a) Find out which pixel would be turned ON for the line with endpoints (3,2) to (8,6) using Bresenham Line drawing algorithm. Also give value of decision parameter in each iteration. [6]

**OR**

b) What is character generation in computer graphics? Explain any two character generating Methods. [6]

Q.2) a) Give two methods to prove that given point is inside the polygon. [6]

**OR**

b) Explain with an example Cohen-Sutherland out-code algorithm for line clipping. [6]

Q.3) a) Derive transformation matrix to scale the rectangle about a pivot point in 2D transformation [6]

**OR**

b) Explain various types of parallel projection in detail. [6]

Q.4) a) Discuss various data structures used to create segment table. [4]

**OR**

b) Differentiate between 2-D and 3-D animation. [4]

Q.5) a) Explain any TWO hidden surface removal algorithms. [6]

b) Write a note on : Specular reflection [4]

c) Explain Phong shading. [4]

**OR**

Q.6) a) Why are hidden surfaces removal algorithms needed? How does z-buffer algorithm determine which surfaces are hidden. [6]

b) Write a note on : Diffused illumination [4]

c) Explain Gouraud shading. [4]

- Q.7) a) Explain any TWO curve generation methods with example. [6]  
b) Write a note on: Hilbert curve. [4]  
c) Write a note on: WebGL. [4]

**OR**

- Q.8) a) What are fractals? Explain Koch curve in detail. [6]  
b) Write a note on : OpenGL. [4]  
c) Compare Bezier and B-spline curves. [4]