

Total No. of Questions : 12]

SEAT No. :

P643

[Total No. of Pages : 3

[4457] - 118

S.E. (Computer) (Semester - II)

COMPUTER GRAPHICS

(2008 Course)

Time :3 Hours]

[Max. Marks :100

Instructions to the candidates:

- 1) *Answers to the two Sections should be written in separate answer books.*
- 2) *In Section-I attempt Q.1 or 2, 3 or 4, 5 or 6 and in Section-II Q.7 or 8, 9 or 10, 11 or 12.*
- 3) *Neat diagrams must be drawn whenever necessary.*
- 4) *Figures to the right indicate full marks.*
- 5) *Assume suitable data, if necessary.*

SECTION - I

Q1) a) Explain Bresenham's circle drawing algorithm with mathematical treatment? Explain significance of Δ , δ , δ' . [12]

b) Explain the various character generation methods. [6]

OR

Q2) a) Consider the line from (0, 0) to (6,6) Bresenham's algorithm to rasterize this line. [6]

b) Explain following terms with suitable example: [6]

i) Pixels

ii) Resolution

iii) Frame buffer.

c) What is antialiasing? Explain any two antialiasing techniques. [6]

Q3) a) Enlist any three polygon filling algorithms. Explain even-odd method of inside test. [8]

b) What is windowing and clipping? What is interior and exterior clipping? [8]

P.T.O.

OR

- Q4)** a) Explain Cohen-Sutherland out code algorithm with example. [8]
b) Enlist any three methods of polygon filling. Explain how a polygon is filled with pattern. [8]

- Q5)** a) Write a note on Parallel and Perspective projection and state their types. [8]
b) Describe 3D viewing transformations. [8]

OR

- Q6)** a) Magnify the triangle with vertices A(0, 0), B(1, 1), C(5, 2) to twice its size as well as rotate it by 45°. Derive the translation matrices. [8]
b) Derive the transformation matrix for rotation about an arbitrary point. Explain with example. [8]

SECTION - II

- Q7)** a) What is a segment? How do we create it? Why do we need segments? Explain in detail the various operations of segments. [10]
b) Describe the steps required to produce real time animation. [8]

OR

- Q8)** a) Define animation and explain the methods of controlling the animation. Give different types of animation languages. [10]
b) Write the algorithm for the following : [8]
i) Change of visibility attribute of segments.
ii) Delete a segment.

- Q9)** a) Explain Back-Face removal algorithm. [8]
b) Explain RGB, HSV and CMY color model. [8]

OR

- Q10)** a) Why are hidden surfaces algorithms needed? Explain Z-Buffer Algorithm. [8]
b) Explain different surface shading algorithms. [8]

Q11) Write short notes on :

[16]

- a) B-splines
- b) Interpolation
- c) Fractals
- d) 3-D graphics design tool

OR

Q12) Write short notes on :

[16]

- a) Blending functions
- b) Bezier curves
- c) Fractal lines and surfaces.
- d) B- Splines

