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PGIIIS-N 1556 B-14

M.Sc. IIIrd Semester (CBCS) Degree Examination  
Computer Science  
(Computer Graphics)  
Paper - SCT-3.1  
(New)

Time : 3 Hours

Maximum Marks : 80

Instructions to candidates:

1. Q.No 1 in Section - A is **compulsory**
2. Answer any five questions from Section-B

**Section-A**

I. Answer the following (10x2=20)

- a) What is meant by “scan converting a straight-line segment” in rasler systems?
- b) List any five applications of computer graphics
- c) What is SRGP? State the procedure to draw a line in SRGP
- d) Describe eight symmetrical points on a circle with a neat diagram
- e) Define the terms aliasing and antialiasing
- f) Given  $p(v)$ , a parametric cubic point function for curve section between control points  $P_k$  and  $P_{k+1}$  define boundary conditions for Hermite curve section
- g) Describe the basic idea of z-buffer algorithm
- h) List different kinds of illumination models
- i) What is shear transformation
- j) Describe basic concepts of ray tracing

### Section-B

2. a) Describe raster graphics features of SRGP in brief  
b) Describe mid point line scan conversion algorithm with an example (6+6)
3. a) What is clipping? write cohen-sutherland line clipping algorithm  
b) Describe the raster display system architecture with a neat diagram (6+6)
4. a) What is window -to view port transformation. Describe the steps in transforming a World-coordinate window into a view port.  
b) Discuss the categories of parallel projections (6+6)
5. a) Describe the basic 2D-transformations in homogeneous coordinates  
b) What is polygon-mesh? Discuss polygon-mesh representations (6+6)
6. a) Describe the methods for specifying a particular spline representation with suitable example  
b) What is a bezier curve? Obtain the blending functions for cubic bezier curves (6+6)
7. a) What is coherence? Explain different kinds of coherence  
b) Explain binary space-partitioning(BSP) tree algorithm (6+6)
8. Write short notes on any two of the following
  - a) General pivot-point rotation
  - b) The RGB color model
  - c) Diffuse reflection illumination model (2x6=12)