

Time: Three hours

Maximum : 80 Marks

Answer **ALL** questions

PART A - (8 X 2 = 16 marks)

1. The technique used to summarize the financial, statistical, mathematical, scientific and economic data is?
 - a. Computer Art
 - b. Image processing
 - c. Presentation Graphics
 - d. None of above
2. Which of the following can be applied to change a trapezoid in to a rectangle?
 - a. Scaling
 - b. Reflection
 - c. Shearing
 - d. Translation
3. In perspective projection, the lines of projection are not parallel and they converge at a single point called
 - a. Center of projection
 - b. Projection reference point
 - c. Interaction point
 - d. None of the above
4. The color model used in printing is
 - a. RGB
 - b. CMY
 - c. HSV
 - d. None of the above
5. Apply 8-way symmetry property to reflect the pixel (2,8) in first octant in all the other octants.
6. What is the primary applicatrion of homogeneous coordinates?
7. How blobby objects are represented in 3D-graphics?
8. State the basic difference between diffuse and specular reflection.

PART B - (4 X16 = 64 marks)

- 9 (a) Device Bresenham's circle drawing algorithm and plot one quadrant of a circle of radius 7 pixels with origin as centre. (16)

(OR)

- (b) Use ellipse drawing algorithm to rasterize the ellipse with $r_x=10$ and $r_y=14$. (16)

10. (a) Which of the following algorithm divides a two dimensional working space in to 9-regions? Explain the same using your own example. (16)

- a. Cohen-Sutherland line clipping algorithm
- b. Sutherland-Hodgeman polygon clipping algorithm

(OR)

- (b) Elaborate how basic transformations are applied with respect to origin and pivot point and explain how sequence of transformations can be done efficiently. (16)

11. (a) What are the approaches used in visible surface detection and explain how they are used to eliminate hidden surfaces? (16)

(OR)

- (b) How transformations are done in a 3D viewing plane and represent the entities as matrices? (16)

12. (a) Discuss about any 3-color models in detail and compare and contrast them. (16)

(OR)

- (b) How realism can be rendered in a 3D – scene? Explain the lighting models used to incorporate the realistic components. (16)