Roll No. | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 09

M.Sc. (IT) (Sem.–3)

COMPUTER GRAPHICS

Subject Code : PGCA-1919

M. Code : 78395

Date of Examination : 14-12-22

Time : 3 Hrs. **Max. Marks : 70**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION - B & C. have FOUR questions each.**
3. **Attempt any FIVE questions from SECTION B & C carrying TEN marks each.**
4. **Select atleast TWO questions from SECTION - B & C.**

SECTION-A

1. Write short notes on :

a) 2D Viewing Pipeline

b) Refresh Rate of a screen

c) DDA algorithm

d) Matrix for Reflection in 3D space

e) Gouraud Shading

f) Usage of mid-point in circle drawing

g) Depth Sorting of Surfaces

h) Ray Tracing

i) Boundary Fill Algorithm

j) Scan Conversion.

SECTION-B

2. What are the different color models being used in Computer Graphics? Write down their usage in real life and illustrate conversion of one color model to other using suitable equations.

3. What are the various steps for drawing an ellipse using Mid-Point Ellipse Algorithm? Calculate coordinate points for an ellipse having center at (30,60) and radius 10, using this algorithm.

4. When do you need composite transformations in computer graphics? Rotate a triangle having coordinates (3, 2), (5, 2) and (5, 6) around a fixed point (2, 1) on an angle of 90 degree in anti-clock wise direction.

5. What are the various applications of computer graphics? Illustrate.

SECTION-C

6. Write down various steps of Liang-Barsky clipping algorithm. How it is advantageous over Cohen Sutherland line clipping algorithm? Illustrate with suitable diagrams and examples.

7. Write down various homogeoous metrics for Rotation and Reflection in 3D space. Rotate a line having endpoints (3, 2, 6) and (6, 4, 9) around Y-axis and find new coordinates for the line.

8. Write short notes on :

   a) Phong's Model

   b) Types of Reflections.

9. Compare working of Area subdivision method with Scan line method for visible surface detection. Write down various steps of these algorithms.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.