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Total No. of Pages : 02

Total No. of Questions : 18

M.Sc. (IT)/MCA (Sem.-3)
COMPUTER GRAPHICS
Subject Code : PGCA-1919
Paper ID : 78395

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

Write short notes on :

- 1) What is viewing and windowing?
- 2) What is need of antialiasing?
- 3) What is difference between raster scan systems and random scan systems?
- 4) What are the types of reflections?
- 5) How the 3D images are represented on 2D plane in computer graphics?
- 6) Why the homogeneous coordinates are used?
- 7) Compare Bresenham's and DDA algorithms for line drawing.
- 8) What is the concept of 8-point symmetry in circle drawing algorithm?
- 9) What will be the change in the 3D rotation matrix if the rotation is clock-wise?
- 10) What are the viewing parameters in 3D?

SECTION-B

- 11) Explain midpoint circle algorithm. Given a circle radius $r = 10$, demonstrate the midpoint circle algorithm by determining positions along the circle octant in the first quadrant from $x = 10$ to $x = y$.
- 12) Derive the transformation matrices for the following transformations :
 - a) Reflection about X-axis
 - b) Reflection about Y-axis.
 - c) Reflection about origin
 - d) Reflection about line $Y = X$
 - e) Reflection about line $Y = -X$
- 13) What are the various display technologies? Explain them in detail.
- 14) Show that two successive reflections about either of the two coordinate axes is equivalent to single rotation about the coordinate origin.

SECTION-C

- 15) What is clipping and its need? Can we use graphics clipping algorithms for text clipping? Name various Graphics clipping Algorithms. Also, explain Liang Barsky Line clipping algorithm in detail.
- 16) Explain briefly hidden surface algorithms. How Z-buffer algorithm determines which surfaces are hidden?
- 17) What is the need of Projection? Explain the parallel and perspective projection algorithms.
- 18) Explain the Gourand shading algorithm in detail.

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.