2017

MCA

4th SEMESTER EXAMINATION

COMPUTER GRAPHICS

PAPER — MCA-401

Full Marks : 100

Time : 3 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Answer any *five* questions.

1. (a) With a precise narrative description, write the algorithm for generating a circle using Bresenham's circle generation algorithm.

   (b) $x_{start} = 0$, $y_{start} = 20$, $x_{end} = 40$, $y_{end} = 50$. Find out the pixel location approximating a line between the given

points using Generalized Bresenham's line drawing algorithm. 8+6

2. (a) Mention the different standards of 3D Reflections.

   (b) Applying a 2D rotation followed by a scaling transformation is same as applying first the scaling then rotation. – Justify. 7+7

3. (a) With the help of a schematic diagram explain the working principle of LCD display panel.

   (b) Compare and contrast Raster Scan display system with Random Scan. 8+6

4. (a) Mention the different standards of 2D rotations.

   (b) A polygon has 4 vertices located at A(20, 10), B(60,10), C(60, 30), D(20, 30). Indicate a transformation matrix to double the size of the polygon with point A located at the same place. 7+7

5. (a) What is projection? Why we need projections? Explain the different types of projection. 2+2+6

(b) Write 3D transformation matrix to find reflection of a point P(100, 200, 300) about plane X=0. 4

6. Compare and contrast *any two*: 2×7

(a) DDA and Bresenham line drawing algorithm.

(b) LED and plasma panel display system.

(c) Shadow mask method and Beam penetration method.

(d) Hypertext and Hypermedia.

7. Write short notes on *any two*: 2×7

(a) Thin CRT.

(b) 3D rotation.

(c) 2D-Shear.

(d) DVST.

(e) Bezier Curve.

[Internal Assessment : 30 Marks]

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