2018

MCA 4th Semester Examination

GRAPHICS & MULTIMEDIA

PAPER—MCA-401

Subject Code—32

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 line using Bresenham's line drawing algorithm for all types of slope.

(b) Compare DDA line drawing algorithm with Bresenham's line drawing algorithm. 8+6

2. (a) With the help of a schemetic diagram explain the working principle of CRT.

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

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

(b) The reflection along the line y = x is equivalent ot the reflection along the X-axis followed by counter clockwise rotation by θ degree. Find the value of θ. 7+7

4. (a) A triangle is defined by

$$\begin{bmatrix} 2 & 4 & 4 \\ 2 & 2 & 4 \end{bmatrix}.$$

Find the transformed coordinates after the following transformations :

(i) 90° rotation about origin,

(ii) reflection about line y = –x.

(b) Prove that if rotation angle is θ the transformation matrix formed when multiplied by the transformation matrix formed when angle is $-\theta$ is equal to identify matrix.

8+6

5. (a) What do you mean by the form "projection" ? Why are need projection ? Explain the different types of projection.

(b) Write a short notes on 3D rotations.

2+2+6

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

(a) LED and LCD ;

(b) Shadow mesk method & Beam penetration method ;

(c) Hypertext & Hypermedia ;

(d) Parallel and perspective projections.

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

(a) Shear (2D) ;

(b) Bresenham's circle generation ;

(c) 3D reflection ;

(d) Thin CRT.

[Internal Assessment : 30]