MCA DEGREE II SEMESTER EXAMINATION, APRIL 2008

CAS 2201 COMPUTER GRAPHICS

Time: 3 Hours

Maximum marks : 50

PART A
(Answer *ALL* questions)
(All questions carry *EQUAL* marks)

(15 x 2 = 30)

I. a. Explain the algorithm required to generate a circle using mid point circle method.
    b. How would a flood fill algorithm fill the region, using the 8-connected definition for region pixels?
    c. What are the three major adverse side effects of scan conversion?

II. a. Explain B spline curves.
    b. Differentiate between bitmap font and outline font.
    c. Explain any two line attributes.

III. a. Explain antialiasing.
     b. What are affine transformations?
     c. Explain Beam penetration method for producing colour displays with a CRT.

IV. a. Obtain a matrix representation of an object rotated by 45° about the origin.
    b. Explain perspective projection.
    c. What is phong shading?

V. a. Explain diffuse illumination.
    b. Explain backface defection method for visible surface detection.
    c. Explain 2D viewing transformation.

PART B
(All questions carry *EQUAL* marks)

(5 x 4 = 20)

VI. A. Briefly explain about flat panel displays.
                            OR
     B. Give the Bresenham's line drawing algorithm and explain it.

VII. A. Explain scan line area filling algorithm.
                            OR
     B. Explain general fixed point scaling.

VIII. A. Explain interactive picture construction techniques.
                            OR
      B. Show that the composition of two rotations is additive by concatenating the matrix representation for $R(Q_1)$ & $R(Q_2)$ to obtain $R(Q_1).R(Q_2) = R(Q_1 + Q_2)$.

IX. A. Briefly explain Cohen Sutherland line clipping algorithm.
                            OR
     B. Explain Depth buffer method for visible surface detection.

X.   A. Write about the Basic Ray Tracing Algorithm.
                            OR
     B. Explain any three colour models.

***