1079
B.E. (Information Technology)
Fifth Semester
ITE-532/572: Computer Graphics

Exam.Code:0923
Sub. Code: 6847

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt *five* questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

 a) Differentiate between resolution, bit depth and aspect ratio.

 b) What is Vanishing point, interpolation?

 c) Discuss the role of frame buffer and graphics adapter?

 d) What is view plane normal?.

 e) What is inside outside test? Discuss its role in computer graphics.   (5x2)

UNIT – I

II. a) Explain the principle of Bresenham's line generation algorithm. Use it to rasterize the line from (5, 5) to (13, 9).

 b) Discuss DDA arc generating algorithm. Explain some advantages and disadvantages of the DDA method.   (2x5)

III. a) Differentiate between geometric and coordinate transformation with example. Also illustrate the application of composite matrix transform and homogenous coordinates using geometric transformations on a triangle (sample graphics object).

 b) What is Aliasing? Discuss various anti-aliasing methods.   (2x5)

IV. a) Explain clipping in a 2D coordinate system? Use the Cohen Sutherland algorithm to clip two lines P1(40,15)-P2(75,45) and P3(70,20)-P4(100,10) against a window A(50,10), B(80,10), C(80,40), D(50,40).

 b) Explain: Window to Viewport transformation, Flood fill, Shadow mask CRT.   (2x5)

UNIT – II

V. a) What is 3D viewing? What are the various 3D viewing parameters?

 b) Explain the rotation transformation in 3D coordinate system and derive the rotation transformation matrices?   (2x5)

P.T.O.

VI. a) What are Splines? Write any four differences between Bezier curves and B-spline curves.

b) What are projections? Explain the characteristic of various kinds of projection.

(2x5)

VII. a) How are the various visible surface detection methods categorized? Explain with suitable examples.

b) Discuss the Z-buffer algorithm and explain the data structure used for its implementation.

(2x5)

x-x-x