B4.4-R4: COMPUTER GRAPHICS & MULTIMEDIA

NOTE:

> 1. Answer question 1 and any FOUR from questions 2 to 7.
> 2. Parts of the same question should be answered together and in the same sequence.

Time: 3 Hours **Total Marks: 100**

**1.**

a) Write a short note on "Direct View Storage Tubes".

b) Explain Phong Shading. What is the limitation of Phong Shading?

c) What is rendering? List out the methods for rendering.

d) What are the various types of parallel projections? Describe any two.

e) Explain "Ambient Light Illumination Model".

f) Define Loss-less and Lossy Compression.

g) The tools by which various media components are integrated into a structure and flow are known as multimedia authoring tools. Explain categories of Multimedia Authoring Tools.

(7x4)

2.

a) Write Bresenham's Circle Algorithm.

b) Write a short note on "Cathode Ray Tube".

c) A square as shown in (a) is converted to a parallelogram as in (b) using composite transformation matrix M. Determine such matrix.
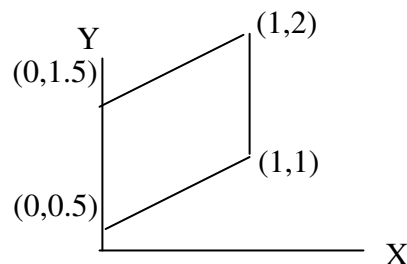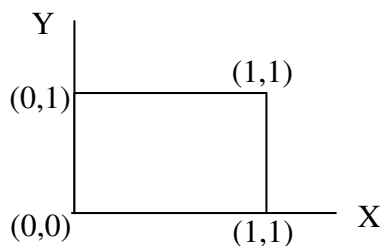
(6+4+8)

3.

a) Use outcode based line clipping method to clip a line starting from A(-13,5) and ending at B(17,11) against the window having its left corner at (-8,-4) and upper right corner at (12,8).

b) Explain Mid-point subdivision Algorithm for 2D.

c) Indicate which raster locations would be chosen by DDA algorithm when scan converting a line from screen co-ordinate (0,0) to screen coordinate(-8,-4)?

(6+4+8)

4.

a) Describe Gamma Correction.

b) What steps are required to fill a region using Flood fill algorithm?

c) Explain Half toning.

(8+5+5)

5.
a)   Explain YIQ Color Model.
b)   Define Hermite Spline Curve. Mention applications of Hermite Curve.
c)   Explain Gouraud Shading.

(8+4+6)

6.
a)   Suppose we construct a Bezier curve, using the control points (0,0), (1,1), (2,0). Give four points that lie on the curve.
b)   Represent following 2-D transformations in homogeneous coordinates:
    i)   Translation
    ii)   Rotation
    iii)   Reflection against origin
    iv)   Reflection against line Y=-X
c)   What are the major features (capabilities) of Multimedia Authoring Tools?

(6+8+4)

7.
a)   List applications of multimedia.
b)   Define the following terms with respect to Sound:
    i)   Resolution
    ii)   Decibel
    iii)   SNR
    iv)   Distortion
    v)   Fidelity
    vi)   Saturation
c)   Write a short note on TIFF.

(6+9+3)