B4.4-R4: COMPUTER GRAPHICS AND MULTIMEDIA

«QP_SRLNO»

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) Differentiate between Random Scan display and Raster Scan Display?
b) Distinguish between Perspective and Parallel Projections?
c) Explain Shear Transformation in details?
d) What is Antiliasing?
e) What is a Normalization Transformation? What is its Purpose?
f) What are the Properties of Bezier Curve?
g) What is the distinction between MPEG2 and MPEG4 video compressions?

(7x4)

2.

a) Explain the working of Direct view storage Tube (DVST) with the diagram?
b) Consider the Line from (0,0) to (4,6). Use the Simple DDA algorithm to Rasterize this line?
c) Write and explain Bresenham's Midpoint circle algorithm?

(4+7+7)

3.

a) Consider a Rectangular clipping window given by the coordinates A(0,0), B(100,0), C(100,90), D(0,90). Find the visible portion of line P(50,30) and Q(130,70) using midpoint subdivision clipping algorithm?
b) Write short notes on Animation and its types.

(12+6)

4.

a) Construct the B-spline curve of order 4 and with 4 polygon vertices P1(1,1), P2(2,3), P3(4,3) and P4(6,2)?
b) Discuss the characteristics of Gourand & Phong Shading. Explain which one is appropriate in which condition?

(12+6)

5.

a) Give a 3x3 homogenous coordinate transformation matrix for each of the following translations
   i) Shift the image to the right 3-units
   ii) Shift the image up 2 units
   iii) Move the image down ½ unit and right 1 unit
   iv) Move the image down 2/3 unit and left 4 units?
b) Find the transformation matrix for reflection about the line Y=X?

(8+10)

6.

a) Prove that the 3-D rotations are Non Commutative.
b) Define Multimedia? What is the classification and Elements of Multimedia? Explain in detail

(8+10)

7. Write Short-notes on:

a) Boundary Fill Algorithm
b) JPEG Format
c) Multimedia Applications

(6+6+6)