

**B4.4-R4 : COMPUTER GRAPHICS AND 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 two advantages and disadvantages each for Liquid Crystal Display (LCD) panels device.
  - (b) What steps are required to fill a polygon using scan line algorithm, explain with suitable diagram.
  - (c) Why Bresenham's Line algorithm is advantageous over DDA ?
  - (d) What does translation mean ? Explain with suitable example.
  - (e) List and explain four factors affecting digital video.
  - (f) Describe various Multimedia Applications.
  - (g) Explain Homogenous coordinate system. (7x4)
2.
  - (a) Explain the operating characteristics of following display technologies :
    - Raster refresh system
    - Vector refresh system
  - (b) Find the inverse of the matrix
$$\begin{pmatrix} 4 & 7 \\ 2 & 6 \end{pmatrix}$$
  - (c) How long does it take to load a  $640 \times 480$  frame buffer with 12 bits per pixel, if  $10^5$  bits can be transferred per second ? (9+4+5)
3.
  - (a) What steps are required to scan convert a circle using Bresenham's algorithm ?
  - (b) Explain Sutherland-Cohen line clipping algorithm with example. (9+9)
4.
  - (a) Explain boundary fill algorithm.
  - (b) Discuss the properties of Bezier curves.
  - (c) What is projection ? Compare Parallel projection and Perspective projection. (6+6+6)

5. (a) Rotate a polygonal object defined by vertices A(0, 0), B(1, 0), C(1, 1) and D(0, 1) by 45 degree about the origin.
- (b) Consider a triangle having vertices at A(0, 0), B(5, 1) and C(3, 4). Scale this triangle using scale factors  $S_x=2$  and  $S_y=1$ , about
- (i) the origin
- (ii) about the reference point (2, 3) (9+9)
6. (a) Describe different types of authoring tools of Multimedia.
- (b) Derive the expression for four blending functions for Beizer Curves. Show that Bezier Curves lies within the convex hull of control points.
- (c) Distinguish WMV and AVI file format. (8+5+5)
7. (a) Explain MPEG video compression standard.
- (b) Discuss the various image file formats in multimedia. (9+9)

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