

Assignment on Computer Graphics & Multimedia
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1 Answer following questions: (each question 2 marks)

- A What is light pen?
- B What is Shearing?
- C Briefly discuss about Projection.
- D Define Refresh buffer.
- E What is Digitizer?
- F If the resolution of a screen is 1024×768 and each pixel requires 8 bits, then calculate the required memory size.
- G What do you mean by resolution of a screen?
- H Define Aspect ratio.
- I What is Clipping?
- J What do you mean by emissive and non-emissive display?
- K What is Scaling transformation?

2 (a) Write down applications of Computer Graphics. 5
(b) Stepwise illustrate DDA line drawing algorithm. Draw a line (0, 0) to (6, 6) using DDA line drawing algorithm. 5+5

3(a) Write down about Raster scan and Random scan. 3+3
(b) Discuss Beam penetration method and Shadow mask method for producing colour displays with a CRT. 5+5
© Find the transformation matrix for Rotation about the origin. 4

4(a) Write down the Cohen-Sutherland line-clipping algorithm. 6
(b) Derive the transformation matrix for window to viewport transformation. 6
© What is the difference between window and viewport. 3

5(a) Scale the square ABCD, A(0,0), B(4,0), C(4,4), D(0,4) two units in X-direction and two units in Y-direction with respect to origin. 5
(b) Write down the transformation matrix about X-axis and Y-axis in 2D reflection. 4
© Write down applications of Multimedia in modern life. 6

6(a) What is Reflection? 2
(b) A Triangle is defined by $\begin{pmatrix} 3 & 5 & 5 \\ 3 & 3 & 5 \end{pmatrix}$. Find the transformed co-ordinates after the following transformations: (i) 90° rotation about origin (ii) Reflection about X-axis. 5+3

© What is MPEG? Write down difference between lossless JPEG compression and lossy JPEG compression. 5

- 7 Write short notes about: (3 marks each)
- (i) JPEG (Joint photographic expert group)
 - (ii) BMP (Bitmap format)
 - (iii) GIF (Graphics interchange format)
 - (iv) MIX (Microsoft image extension)
 - (v) PNG (Portable Network Graphics)
 - (vi) TIF (Tagged image file)

- 8(a) What do you mean by Composite transformation? 2
- (b) Write down mid-point Circle drawing algorithm. 7
- © Plot a circle using mid-point Circle drawing algorithm where radius is 10 units and centre at (0, 0). 6

- 9(a) Describe Bresenham's line drawing algorithm. 7
- (b) Draw a line with end points (10, 5) and (15, 9) using Bresenham's line drawing algorithm. 8

- 10(a) Write down the algorithm for generating a circle using Bresenham's algorithm. 7
- (b) Find out the pixel location approximating the first octant of a circle having centre at (4, 5) and radius 4 using Bresenham's algorithm. 8