

BE PRINTING ENGG. FOURTH YEAR EIGHT SEMESTER - 2025

Subject : Computer Graphics

Time : 3 hrs

Full Marks : 100

Group / Part (in case of half paper)

Instructions : The figures in the margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable.

Answer any five of the following.

5×20 = 100

1) Write application of computer graphics. Explain properties of bitmap and vector graphics. Write Bresenham Circle drawing Algorithm. Write several properties of pixel. What is transformation of graphics. Show translation matrix for reflection about $y = -x$ to reflection relative to x axis by rotation of 45.

3+3+5+2+2+5 [CO1]

2) Explain Additive color model with diagram. Difference between Random and Raster Scan. Explain Binary and Gray Scale Image. Compute the size of 900*500 Image at 240 pixels/Inch. Explain RLE , Huffman encoding. Compute the resolution of 2*2 inch image that has 572*572 pixels.

4+3+3+3+4+3 [CO2]

3) Write DDA Line Drawing Algorithm. Draw Line segment in between (0,0) and (5,4) using Bresenham Line Drawing Algorithm. Explain seed fill algorithm for 8-connected pixels. Differentiate within DDA and Bresenham Process. What is aspect ratio, dot pitch give example. Explain translation process mathematical example.

4+4+4+2+3+3 [CO2]

4) Write antialiasing process. What are Benefits and Pitfalls Of Flood fill. Find Reflection of line $y=8x+3$ and find transformation matrix in terms of θ . Also find θ . Using Scaling magnify the triangle ABC with vertices A(0,0), B(1,1) and C(5,2) to seven times. What is object space and window for clipping. What is Block Graphics.

3+2+5+5+3+2 [CO3]

5) What are various Projection. Explain Isometric, Orthographics, Perspective Projection. Perform Shearing Transformation in the given cuboid(OABCDEFGH) along Z-direction if a shearing parameter is as follows $S_x=2$, $S_y=3$. Explain categories of computer graphics and their features. Write various image, video file formats. What is scan conversion and What are effects of this conversion.

1+5+5+3+3+3 [CO3]

6) What is Clipping. Write characteristics Of Clipping. What are point and line clipping. Explain Sutherland Hodgeman line clipping process with example. Explain mid-point sub division process for clipping. Write 3-d reflection methods with example.

2+2+3+5+4+4 [CO4]