**B.E. PRINTING ENGINEERING FOURTH YEAR SECOND SEMESTER
EXAM 2024**

Subject : Computer Graphics

Time : 3 hrs   **Full Marks : 100**

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)   Explain CRT with all components and their functions. Write application of computer graphics. Write idea of bitmap and vector graphics. Write DDA Algorithm for line drawing. Write the idea and characteristics of pixel.

5+3+4+5+3

2) Explain Additive and Subtractive color model. Explain HSI Color Model. Explain Color and Gray Scale Image. Compute the size of 800*600 Image at 240 pixels/Inch. Explain half toning, RLE encoding. What is morphing.   5+2+3+4+4+2

3)   Write Bresenham Line Drawing Algorithm. Draw Line segment in between (0,0) and (5,4) using Bresenham Line Drawing Algorithm. Compute resolution of 2*2 inch of image that has 512*512 pixels. Explain boundary fill algorithm for 8-connected pixels.

6+5+4+5

4)   What is Flood Fill Algorithm. What are Benefits and Pitfalls Of Boundary fill. Find Reflection of line y=6x+5 and find transformation matrix in terms of θ. Also find θ. What is edge fill. Using Scaling magnify the triangle ABC with vertices A(0,0), B(1,1) and C(5,2) to five times. Write mid- point circle drawing procedure.

3+3+6+4+4

5)   If a TV Screen has 525 scan lines and aspect ratio 3:4, each pixel contains 8 bit work of intensity information. How many bit/s are needed to show 30 frames/s. Explain any two 3 d transformation methods. Perform Shearing Transformation in the given cuboid(OABCDEFG) along Z-direction if a shearing parameter is as follows S_x=2, S_y=3. What are B-Spline and Bezier Curves. Explain categories of computer graphics and their features.

3+4+4+5+4

6) Short Notes (Any Five)   5*4

a)   Scanners b) Monitors c) Raster Scan d)   Orthographic projection e) Isometric projections
f) 2D Translation g) 2 D Rotation about axis h) Frame Buffer