NKT/KS/17/5270

Bachelor of Computer Application (B.C.A.) Semester–V Examination

COMPUTER GRAPHICS–I

Paper–1

Time : Three Hours] [Maximum Marks : 50

N.B. :— (1) **ALL** questions are compulsory and carry equal marks.

(2) Draw neat and well labelled diagrams wherever necessary.

EITHER

1. (a) Write a note on Cathode Ray Tube. 5

(b) Explain any two input devices. 5

OR

(c) Explain the following terms :

(i) FrameBuffer

(ii) Pixel. 5

(d) What is Raster Scan Display ? Explain. 5

EITHER

2. (a) Write and explain vector generation algorithm. 5

(b) Explain circle generation algorithm. 5

OR

(c) Explain flood fill algorithm in detail. 5

(d) Rasterize the line y = 2x + 10 using Bresenham's Algorithm. 5

EITHER

3. (a) Explain the rotation about an arbitrary point. 5

(b) Give a 3×3 homogenous coordinate transformation matrix for each of the following translations :

(i) Shift the image up 2 units.

(ii) Move the image down ½ unit and right 1 unit. 5

OR

(c) Explain other transformations in detail. 5

(d) Write a note on homogenous coordinates. 5

EITHER

4. (a) Explain cohen-sutherland outcode line clipping algorithm. 5

(b) A polygon is defined by the vertices A(1,1), B(11,1), C(6,6). Clip a line from $P_1(0,2)$ to $P_2(10,5)$ about the above polygon window using Cyrus beck algorithm. 5

OR

(c) Explain in detail viewing transformation. 5

(d) Use the cohen-sutherland outcode algorithm to clip a line starting from point (–13, 5) and ending point (17,11) against the window having its lower left corner at point (–8,–4) and upper right corner at point (12,8). 5

5. (a) Write the applications of computer graphics. 2½

(b) What is inside-test ? 2½

(c) Explain shear transformation. 2½

(d) Define the following terms :

(i) Clipping

(ii) Windowing. 2½