311502

Dec. 2021
BCA 5TH SEMESTER
Computer Graphics (BCA-17-302)

Time : 90 Minutes]   [Max. Marks : 25

Instructions :

  1. *It is compulsory to answer all the questions (1 mark each) of Part-A in short.*

  2. *Answer any three questions from Part-B in detail.*

  3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART - A

1. (a) Define 'window and viewport'.   (1)

    (b) Define 'aspect ratio'.   (1)

    (c) Perform a 45° rotation of triangle A (0, 0), B (1, 1) and C (5, 2) about the origin.   (1)

    (d) Discuss the perspective projections.   (1)

    (e) What do you mean by orthographic projection? (1)

    (f) List the characteristics of random scan display. (1)

    (g) List the advantages of Bresenham's line drawing algorithm.   (1)

(h) Describe vanishing points. (1)

(i) What is the advantage of 8-point symmetry? (1)

(j) What is Vertical Retrace? (1)

PART - B

2. (a) Derive an expression for midpoint circle drawing algorithm. (3)

(b) Scan convert a line from pinel coordinates (1, 1) to (8, 5) using Bresenham's line drawing algorithm. (2)

3. (a) Discuss Flood-fill algorithm for polygon. (3)

(b) Discuss any *two* 2D-transformations along with their matrix representation. (2)

4. Discuss Sutherland Hodgeman polygon clipping with example. (5)

5. Discuss basic illumination models with example of each. (5)

6. (a) Discuss the terms – Translation, rotation, scaling. (3)

(b) Write note on: 3-D viewing. (2)