S.No. : 23   BCA 3405

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Following Paper ID and Roll No. to be filled in your Answer Book.

PAPER ID : 31121   Roll No. [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

B. C. A. Examination 2021-22

(Even Semester)

COMPUTER GRAPHICS

Time : Three Hours]   *[Maximum Marks : 60*

Note :– Attempt all questions.

SECTION – A

1. Attempt all parts of the following :   8 × 1=8

    (a) Write the properites of video displaiy devices.

    (b) Name the various types of clipping.

    (c) What is aspect ratios.

    (d) What is scan-conversion?

    (e) Differentiate convex polygon and concave polygon.

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(f)   Define the term "Resolution".

(g)   What are out-codes?

(h)   Define viewing transformation.

SECTION – B

2. Attempt any two parts of the following : $2 \times 6 = 12$

   (a)   Discuss 2-D transformation for reflection through an arbitrary line with suitable diagram.

   (b)   What are the criteria that should be satisfied by a good line drawing algorithm.

   (c)   Using Bresenham's algorithm to draw line from point (20,10) to (30, 18) with slope of 0.8.

   (d)   Explain the basic concept of DDA algorithm.

SECTION – C

Note:-   Attempt all questions. Attempt any two parts from each questions. $8 \times 5 = 40$

3. (a)   Explain the boundary fill algorithm. Also discuss the situation in which the boundary fill algorithm do not work properly.

(b) Explain the Cohen Sutherland line clipping algorithm with example.

(c) What are the component of computer graphics? Describe each of them in detail.

4. (a) Perform a 45° rotation of tringle A $(0, 0)$, B $(1,1)$ and C $(5, 2)$ about

   (i) Origin

   (ii) Point P $(-1, -1)$

(b) Describe various operations carried out on the segments.

(c) Prove that two scaling transformations are comutative i.e $S_1 S_2 = S_2 S_1$

5. (a) Differentiate between random-seen and raster-scan displays.

(b) Explain various applications of multimedia system.

(c) What is a segment? How is segment useful to draw and redraw a part of image and how is segment table created?

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6. (a) Explain multimedia file formats.

(b) What is M1D1? List out the components of M1D1 interface.

(c) What is inside and outside testing? Describe the difference between even-odd and winding number method with example.

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