S.No. : 36 BCS 3505

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

PAPER ID : 33224 Roll No. | 1 | 2 | 2 | 0 | 4 | 3 | 2 | 3 | 0 | 9 |

B. Tech. Examination, 2024-25

(Odd 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) What is text clipping?

   (b) Discuss about morphing.

   (c) What do you mean by picking and pulling?

   (d) What is reaching and grasping?

   (e) What is a pixel mask?

[P. T. O.

(f) What happens if the values of scaling factors sx and sy less than 1?

(g) The cohen-Sutherland algorithm divides the two-dimensional space in how many regions?

(h) What do you mean by frame buffer and video controller?

SECTION – B

2. Attempt any two parts of the following : 2×6=12

(a) What do you mean by computer graphics? Write down the different classification of computer graphics in detail.

(b) Distinguish between raster and vector graphics method? When do we prefer? What?

(c) Write down the condition for point clipping in window.

(d) Describe briefly Brenham's line algorithm? Why do we prefer incremental algorithm over DDA ~~DAA~~?

SECTION – C

Note :– Attempt all questions. Attempt any two parts from each questions. 8×5=40

3. (a) Explain the following :

(i) Basic transformations

(ii) Representing an arbitrary orientation

(iii) Motion capture technologies

(b) Write description of transformations in the display pipe line.

(c) What are the steps of image processing?

4. (a) Compare and contrast parallel and perspective projection.

(b) What are image subtraction and image averaging with example?

(c) What are the properties of curve? What is Bezier curve? Derive parametric equation of Bezier curve?

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5. (a) What do you mean by surfaces? Explain quadric surfaces, spheres, ellipsoid, blobby objects in brief.

(b) Define the concept of 3-D object representation and also explain about 3-D transformation and 3-D viewing in detail.

(c) What do you mean by clipping? Discuss the various types of clipping in detail?

6. (a) Consider two raster systems with the resolution of 640×480 and 1280×1024 :

(i) How many pixels could be accessed per second in each of these systems by a display controller that refreshes the screen at a rate of 60 frames per second?

(ii) What is the access time per pixels in each system?

(b) Explain midpoint circle algorithm with their advantages and disadvantages.

(c) What do you understand by the depth buffer method? Discuss in detail.

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