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# BT-5/D-23 45200

# COMPUTER GRAPHICS

## PC-IT-303A

Time : Three Hours] [Maximum Marks : 75

**Note** : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

### Unit I

**1.** (a) What are pointing and positioning devices in the context of computer graphics ? Explain using suitable examples. 7

(b) In two-dimensional graphics, what are the fundamental primitives ? How are they used in graphic rendering ? 8

**2.** Compare the Digital Differential Analyzer (DDA) and Bresenham's line drawing algorithms. What are their advantages and disadvantages ? **15**

## Unit II

3. (a) What do you mean by clipping ? Explain Cohen-Sutherland line clipping algorithm. 7

   (b) How does the window-to-viewport transformation contribute to the overall viewing process in computer graphics ? 8

4. What is polygon clipping, and why is it essential in computer graphics ? Describe the Sutherland-Hodgman polygon clipping algorithm. 15

## Unit III

5. (a) Differentiate between parallel and perspective projection. 7

   (b) What are the fundamental principles of raster graphics and how do they differ from vector graphics ? 8

6. Discuss the basic 2D transformations, including translation, scaling and rotation. Provide examples of how these transformations are applied in computer graphics. 15

## Unit IV

7. What is Bezier curve ? What are the properties of Bezier curve ? Differentiate between Bezier curve and B-spline curves. 15

8. What do you mean by hidden surface elimination ? Explain the depth buffer algorithm and how does it work to remove hidden surfaces ? What are its advantages and limitations ? 15