

BTS 140 (C)

B.TECH. DEGREE VI SEMESTER EXAMINATION IN  
COMPUTER SCIENCE AND ENGINEERING  
NOVEMBER 2001

**CS 602 COMPUTER GRAPHICS**  
(1995 Admissions)

Time: 3 Hours

Maximum Marks: 100

**MODULE - I**

- I. (a) Explain the Bresenham's circle algorithm, giving an account of the different steps involved and write the algorithm. (10)
- (b) Describe briefly the working of a DVST using a neat diagram. What are the advantages of using DVST? (10)

**OR**

- II. (a) Differentiate between random scan and raster scan. (5)
- (b) What is meant by display file compilation? (5)
- (c) Explain the DDA method for drawing lines, giving the algorithm. What are the drawbacks of the DDA algorithm? (10)

**MODULE - II**

- III. (a) Explain the mid-point subdivision method employed in line clipping. (10)
- (b) Show that uniform scaling and rotation in a commutative pair of operations. (Both transformations 2-dimensional) (10)

**OR**

(Turn over)



- IV. (a) Explain any one of the polygon clipping algorithm. (10)
- (b) What are concave polygons and how are they dealt with during polygon clipping? (5)
- (c) What is meant by window to viewport transformation? (5)

### MODULE - III

- V. (a) How are graphical input devices classified? Give an example for each. (7)
- (b) Give the transformation matrices for reflection of a three dimensional object about all the three co-ordinate axes. (3)
- (c) Describe the rubber band technique and dragging technique for interactive picture construction. (10)

OR

- VI. (a) Given a cube with  $(x, y, z)$  as one of its vertices, derive the transformation matrices required to rotate this cube about an arbitrary axis through this point. (15)
- (b) How are complex transformations simplified by concatenating transformation matrices? (5)

### MODULE - IV

- VII. (a) What are the different approaches to hidden surface elimination? (5)

- VII. (b) What are the differences between parallel and perspective projection? (7)
- (c) Explain the depth-buffer method for hidden surface elimination. (8)

OR

- VIII. (a) Explain the key issues involved in the design of command languages. (10)
- (b) Explain the working of buffered high performance displays and differentiate between buffered and unbuffered displays. (10)

### MODULE - V

- IX. Answer ANY FOUR of the following: (4 x 5 = 20)

- (i) What are inherent memory devices?
- (ii) What are bezier curves?
- (iii) Give a procedure for drawing a circle using the eight-way symmetry method.
- (iv) What is meant by isometric projection?
- (v) What is meant by device independence?
- (vi) What is meant by windowing transformation?

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