

7. Explain the following :

- (i) B-Spline Curve: 5
- (ii) Basic Illumination Models 5

**Unit - IV**

8. (i) What is 3-D shearing transformation ? Illustrate its significance. 8

(ii) What is general projection transform ? How is it significant ? Illustrate. 8

9. Explain the following :

- (i) Composite Transformations 8
- (ii) 3 D Rotation 8

B.C.A., 5<sup>th</sup> Semester Examination,

February-2012

**COMPUTER GRAPHICS**

(BCA-302)

*Time allowed : 3 hours*

*[Maximum marks : 80]*

*Note : Question No. - 1 is compulsory. Answer four questions by selecting one question from each unit. All questions carry equal marks.*

1. (i) What is meant by coordinate systems transformation? 8
- (ii) What is interlacing ? State its relevance. 8
- (iii) What causes flickering ? 8
- (iv) What is Flood-Fill algorithm ? 8
- (v) What is raster scan ? 8
- (vi) What are viewing coordinates ? Illustrate. 8
- (vii) What is quadric surface ? 8
- (viii) What is window-to viewpoint coordinate transformation ? 8

8 × 2 = 16

## Unit - I

2. (i) What is Computer Graphics ? Indicate the importance of this discipline in Computer Science by giving suitable examples. 6
- (ii) What steps are required to plot a line whose slope is between 0 and  $45^\circ$  using Bresenham's method ? Indicate which raster locations would be chosen by Bresenham's algorithm when scan-converting a line from screen coordinate (1, 2) to screen coordinate (7, 8). 10

3. Explain the following :

- (i) Midpoint Circle algorithm 8
- (ii) Random Scan Systems 8

## Unit - II

4. (i) Prove that two two-dimensional rotations about the origin commute : 6
- $$R_1 R_2 = R_2 R_1$$

- (ii) What do you mean by transformation ? Describe the transformations used in magnification and reduction with respect to the origin. Find the new coordinates of the triangle P(1,1), Q(4, 3), R(0, 1) after it has been : 10
- (a) Magnified thrice its size and
- (b) Reduced to half its size

5. Explain the following :

- (i) Cohen-Sutherland Line Clipping Algorithm 8
- (ii) Cyrus-Beck Line Clipping Algorithm 8

## Unit - III

6. (i) What are Bezier surfaces ? How are these represented ? Illustrate their relevance in graphics. 8

- (ii) What are polygon-rendering methods ? Which method is most popular ? Justify your answer. 8