(b) What is meant by viewing pipeline ? Illustrate.   8

9. Explain the following :

   (a) Composite Transformations   8

   (b) 3D Shearing   8

   _____

Roll No. ....

97678

BCA 5th Semester (New)

Examination – November, 2018

COMPUTER GRAPHICS

Paper : BCA-302

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

1. (a) What is interactive computer graphics ? State its relevance. $2 \times 8 = 16$

   (b) What is random scan system ?

   (c) Why Bresenham's line algorithm is preferred over DDA line algorithm ?

   (d) What is meant by coordinate systems transformation ?

   (e) What is quadric surface ?

(f) What are viewing coordinates ? Illustrate.

(g) What is Cyrus-beck line clipping algorithm ?

(h) What is flickering ? What causes flickering ?

UNIT – I

2. (a) What are raster-scan systems ? how do these work ? Illustrate.   7

(b) What is scan conversion ? What steps are required to plot a line whose slope is between 0 and 45° using Bresenham's method ? Indicate which raster locations would be chosen by Bresenham's algorithm when scan-converting a line from screen coordinate (2,3) to screen coordinate (7,12).   9

3. (a) What are plasma displays ? How do these work ? Illustrate.   6

(b) What is flood-Fill algorithm ? What is its relevance ? Illustrate.   5

(c) What is mid-point circle algorithm ? How does it work ? Illustrate.   5

UNIT – II

4. (a) What is 2D composite transformation ? Illustrate through a suitable example.   6

(b) What is 2D viewing transformation ? Find the normalization transformation that maps a window whose lower left corner is at (1,2) and upper right corner is at (5,8) onto.   10

  (i) A viewport that is the entire normalized device screen and

  (ii) A viewport that has lower left coner at (0,0) and upper right corner $\left(\dfrac{1}{2},\dfrac{1}{2}\right)$

5. Explain the following :

(a) Cohen-Sutherland line-clipping algorithm   8

(b) Sutherland-Hodgeman polygon clipping algorithm http://haryanapapers.com   8

UNIT – III

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

(b) What are Bezier surface ? How are these represented ? Illustrate their relevance in graphics.   8

7. Explain the following :

(a) Hermite Curve   8

(b) Basic Illumination Models   8

UNIT – IV

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