## B.E. INFORMATION TECHNOLOGY SECOND YEAR FIRST SEMESTER SUPPLEMENTARY EXAM – 2018

### COMPUTER GRAPHICS

Time: 3 hrs.

Full Marks: 100

#### Answer any Four Questions

1.  a) Derive the transformation matrix for rotation about origin . (12)
    b) Define Homogeneous Coordinate system? Why this is important in Computer Graphics?  (7+ 6 )

2. a) Describe Bresenham Line Drawing Algorithm for drawing $x+5=0$. Discuss aliasing effect on this (10 +5)
 (b) Prove that reflection about an axis (X or Y) can be done with only translation.
Hence write the required transformation matrix. (5+5)

3. a) What are convex and concave polygons. Maximum how many points a straight line can cut a (i) convex polygon and (ii) concave polygon. (Justify. Do not consider the case when the line coincides with some edge.) (5+5+5+5)
b) Describe the method of raster scanning. (5)

4. a) Describe Painter algorithm. (15)
   b) Write a line clipping algorithm when the view port is a square. (10)

5. a) Derive the transformation matrix for perspective projection w.r.t center of projection (0.0). (15)
   b) Describe CMY and RGB color model. (5+5)