Leading University

Department of Computer Science & Engineering
Final In Course Evaluation, Spring-2021

Course Title: Computer Graphics **Course Code: CSE - 4113**
Full Marks: 30 **Time: 2 Hours**

Answer any 3 questions (Including question no 1 and 2) from the following.

1. a) Use Liang-Barsky Algorithm to clip following lines where clipping window's lower left corner is at (3,4) and upper right corner is at (8,9) **10**

i) A(3,1) B(12,12)
ii) C(6,1) D(-7,10)
iii) E(4,6) F(8,-2)

2. a) Describe window-to-viewport mapping. **2.5**

b) Use Cohen-Sutherland Algorithm to clip following lines where clipping window's lower left corner is at (-1,2) and upper right corner is at (7,8) **7.5**

i) A(-1,7) B(-11,-1)
ii) C(4,3) D(9,4)
iii) E(6,6) F(-8,9)

3. a) Indicate which raster locations would be chosen by Breshenham's algorithm when scan converting a line from pixel coordinate (-5,1) to pixel coordinate (2,-5) **5**

b) Find the normalization transformation that maps a window whose lower left corner is at (1,1) and upper right corner is at (3,5) onto (a) a viewport that is the entire normalized device screen and (b) a viewport that has lower left corner at (0,0) and upper right corner (0.5, 0.5). **5**

4. a) Describe Sutherland-Hodgman Algorithm for clipping a polygon. **3**

b) i) Perform 60° negative rotation of point Q(-4,5,9) about x-axis , Find Q´. **4**

ii) Perform 45° poisitive rotation of point R(3,-5,7) about y-axis, Find R´.

c) Perform 30° rotation of a point P(-3, -6) about a pivot point (2,-4). Find P'? **3**