**SC-180**

| Seat No. | |
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**Total No. of Pages :2**

# T.E. (Computer Science & Engineering) (Semester - V) Examination, November - 2019
# COMPUTER GRAPHICS
## Sub. Code :66293

**Day and Date :Friday, 22-11-2019** **Total Marks :50**
**Time : 02.30 p.m.to 4.30 p.m.**

**Instructions :**
1) **Q. No. 3 and Q.No. 6 are compulsory Attempt any one from Q. NO. 1 and QNo.2 Q. any one from Q. NO. 4 and Q. NO. 5.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data if necessary.**

**Q1)** a) Derive the transformation matrix for reflecting a two dimensional object through an arbitrary line. **[6]**

b) Explain Sutherland cohen subdivision algorithm for line clipping. **[6]**

**Q2)** a) Explain different criteria's used by bresenham's circle generation algorithm to select the appropriate pixel which best represents the actual circle. **[6]**

b) Define generalized 3D transformation matrix. Explain 3D rotation and reflection. **[6]**

**Q3)** a) Consider the clipping window $X_L$=-1, $X_R$=+1, $Y_B$=-1 and $Y_T$=+1 and the line From $P_1$(-3/2,1/6) to $P_2$(1/2,3/2). Clip the line using end point code algorithm. **[7]**

b) What is scan conversion. Explain run length encoding technique. **[6]**

***P.T.O.***

**Q4)** a) Explain parametric representation of cubic spline curve? **[6]**

b) What is warping? Explain Mesh warping method. **[6]**

**Q5)** a) What is procedural animation? Differentiate between key-frame based animation and procedural animation **[6]**

b) Explain phone Shading method for rendering a polygon surface. **[6]**

**Q6)** a) Explain the convex hull property of B-spline Curve **[7]**

b) Expalin diffuse reflection model for calculating surface intensity at a given point **[6]**

SUK-67266