SE | (Comp) IV (RCN) 25/5/12

AGJ 1st half (i) 85

Con. 4112-12.

Computer Graphics

GN–7937

(3 Hours) [Total Marks : 100

N.B. : (1) Question No. **1** is **compulsory**.
(2) Attempt any **four** out of remaining questions.
(3) Assume **suitable** data if **necessary**.
(4) **Figures** to the **right** indicate **full** marks.
(5) Illustrate answers with diagrams wherever **required**.

1. (a) What are the applications of Computer Graphics. **5**
   (b) Explain frame by frame Animation. **5**
   (c) Explain Ray Tracing. **5**
   (d) Explain Antialiasing Techniques. **5**

2. (a) Write Bresenham's line drawing algorithm. Also write mathematical derivations for the same. **10**
   (b) Explain 4-connected and 8-connected methods. Also explain flood fill and boundary fill algorithms. **10**

3. (a) What is segment ? Explain segment table and any four operations which can be performed on segments. **10**
   (b) Explain Liang Barsky line clipping algorithm. **10**

4. (a) Explain Sutherland - Hodgeman polygon clipping algorithm. How Welier - Athorton algorithm solves the problem of concave ploygon clipping ? **12**
   (b) Describe HSV and RGB color model. **8**

5. (a) Explain the rotation of an object about an arbitrary point. Derive composite matrix for the same. **10**
   (b) Describe 3D clipping of an object. **10**

6. (a) Explain Painter's Algorithm. **10**
   (b) Explain the bezier curve and write the properties of bezier curve. **10**

7. (a) Explain and compare Phong Shading and Gaurard Shading. **10**
   (b) Describe diffuse illumination and point-source illumination. **10**