SE (Comp) / Sem III / CG / 03/12/2014

QP Code : **14394**

(OLD COURSE)
(3 Hours) **Total Marks : 100**

N. B. : (1) Question **No.1** is compulsory
(2) Attempt any **four** questions from **Q. No. 2 to 7**
(3) Assume **suitable** data if **necessary**

1. (a) What do you mean by term Computer Graphics? State various applications of it. **5**
(b) Explain different color models. **5**
(c) Explain antialiasing technique. **5**
(d) Draw matrices for representing following operations: **5**
(i) Translation (ii) Scaling (iii) Rotation

2. (a) What is window? What is viewport? Assume window and viewport are rectangular. Derive the formulas required for transforming a point (X_w , Y_w) in a window to point (X_y , Y_y) in viewport. **10**
(b) Compare boundary fill and flood fill algorithm. Illustrate one example with Diagram. **10**

3. (a) Define fractals? Give classification of fractals. What is fractal dimension? **10**
(b) Explain Sutherland-Hodgeman Polygon clipping algorithm. **10**

4. (a) What do you mean by segment? What are the various attributes in segment table? State which operations can be done on segment and explain the same. **10**
(b) Explain Liang Barsky line clipping algorithm. **10**

5. (a) What is 3D clipping? Derive equations for all the planes (left, right, top, bottom , front , back) **10**
(b) Illustrate inside outside test used in filling algorithms. **10**

6. (a) Explain in brief Raster scan display system. **10**
(b) Explain Mid-Point circle algorithm along this explain all mathematical derivation. **10**

7. Write short notes on following (**Any four**) **20**
(a) Shading Algorithms
(b) Color Models
(c) Dithering Technique
(d) Character generation method
(e) B-spline and Bezier Curve
