Seat
No.

[5252]-176

S.E. (Information Technology) (Second Semester)

EXAMINATION, 2017

COMPUTER GRAPHICS

(2012 PATTERN)

Time : Two Hours   Maximum Marks : 50

***N.B.* :—** (*i*)   Answers Q. **1** *or* Q. **2**, Q. **3** *or* Q. **4**, Q. **5** *or* Q. **6**,

Q. **7** *or* Q. **8**.

(*ii*)   Neat diagrams must be drawn wherever necessary.

(*iii*)   Figures to the right side indicate full marks.

(*iv*)   Assume suitable data if necessary

1. (*a*)   Explain Bresenham's Line algorithm and trace it for the line

end points A(0, 0) and B(–8, –4).   [6]

(*b*)   Explain character generation methods.   [6]

2. (*a*)   List various polygon filling algorithms. Explain scan line

algorithm with mathematical formulation.   [6]

(*b*)   Write a pseudo-C algorithm for polygon filling by Boundary

fill and Flood fill recursive method.   [6]

3. (*a*)   What is a segment ? How do we create it ? Why do we

need segments ? Explain in detail the various operations of

segments.   [6]

(b) Use the Cohen-Sutherland Outcode algorithm to clip two lines. $P_1(40, 15)$, $P_2(75, 45)$ and $P_3(70, 20)$, $P_4(100, 10)$ against a window $A(50, 10)$, $B(80, 10)$, $C(80, 40)$, $D(50, 40)$. [6]

4. (a) What is segment table ? Explain window to viewport transformation. [6]

(b) What is projection ? Give the various types of projection. State the difference between Parallel and Perspective Projection. [6]

5. (a) Explain RGB, HSV and HLS color models. [7]

(b) What is surface rendering ? Explain Gourand method of shading. [6]

6. (a) Explain the following terms : Keyframe and Tweening with example. [7]

(b) Compare Gourand and Phong method of shading. [6]

7. (a) State the various properties of Bezier and B-spline curve. [7]

(b) What is blending function ? Explain interpolation method of curve generation. [6]

8. (a) What is true curve generation ? Write a pseudo code to implement DDA arc generation. [7]

(b) Write short note on Curve generating by using approximation. [6]