

COLLEGE OF ENGINEERING, PUNE
(An Autonomous Institute Of Government Of Maharashtra)
Department of Computer Engineering & Information Technology
S.Y.B.TECH (Computer & I.T.) 2011-12
Subject: CT-206 Computer Graphics
End-Semester Examination

Total Marks: 50

Q.1) A) Write a pseudocode to plot a line whose slope is less than 1. Execute same for line having endpoints A(0, 0) and B(6,5).
 Note: use slope intercept equation. (5)

B) a) Write a note on Z Buffer Algorithm
 b) Derive transformation matrix for reflection against an arbitrary axis in 3D. (5)

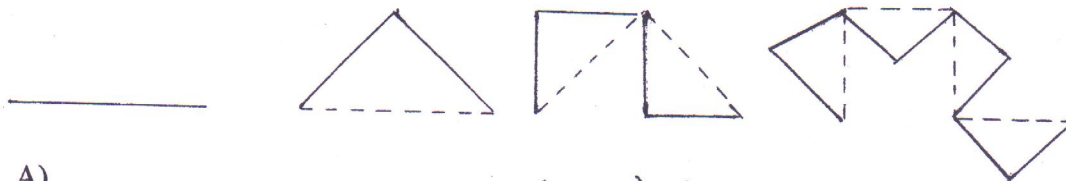
Q.2) A) What is segment table? List and explain different data structures using which one can implement segment table. (5)

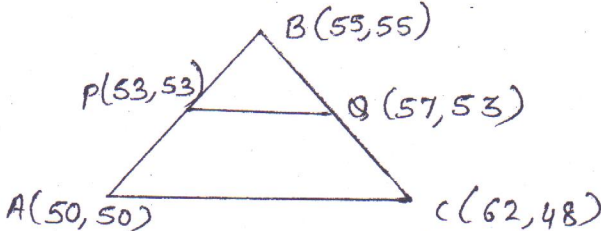
B) Consider a cube A(0, 0, 0), B(2, 0, 0), C(2, 2, 0), D(0, 2, 0), E(0, 0, 2), F(2, 0, 2), G(2, 2, 2) and H(0, 2, 2). Find the co-ordinates of given cube when it is reflected with respect to a plane passing through point P(0, 0, 0) and having a normal vector $N = I + J + K$. (5)

Q.3) A) Clip the line with endpoints A(-56.94, 88.3) and B(16.85, 86.11) against a window with co-ordinates P(-4, 0), Q(31, 60.62), R(-29.62, 95.62) and S(-64.62, 35). (10)

Q.4) A) Find ten different point on cubic Bezier curve passing through the control points P0(0, 1), P1(2, 2), P2(3, -1) and P3(4, 1).
 Note: Use parametric equations. (5)

B) What is Fractal? Derive formula for Fractal Dimension?
 As shown below a fractal curve named the dragon is constructed by repeatedly replacing each line segment by two line segment forming a right angle. What is fractal dimension of this curve? (5)



Q.5) A)  (10)

Intensity at vertex A, B and C are 10, 5 and 3 respectively. Use Gauraud shading algorithm to find intensity of all points lying on the line PQ.