Code: 9F00404c

MCA IV Semester Regular & Supplementary Examinations July 2015

COMPUTER GRAPHICS

(For students admitted in 2009, 2010, 2011, 2012 and 2013 only)

Time: 3 hours Max Marks: 60

Answer any FIVE questions

All questions carry equal marks

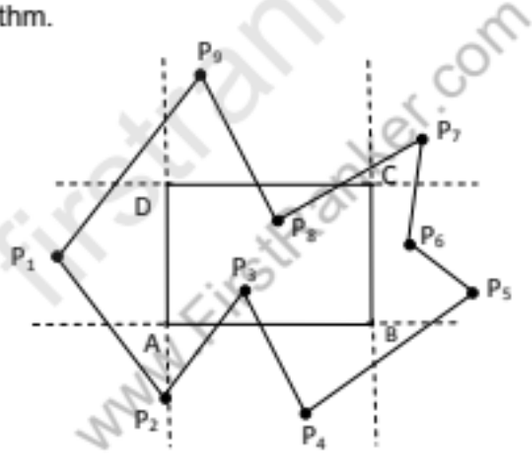
*****

1 (a) List and explain any three application areas of computer graphics.
(b) Differentiate between raster scan systems and random scan systems.

2 (a) Explain the steps required to scan-convert a circle using Bresenham's algorithm.
(b) What steps must be added to fill algorithm if a region is to filled with a pattern?

3 (a) Derive the transformation that rotates an object point θ° about the origin. Write the matrix representation for this rotation.
(b) Explain shear transformation with an example.

4 (a) Write Cohen-Southerland line clipping algorithm.
(b) Clip the polygon P_1, ...P_9 in figure below against the window ABCD using the Sutherland-Hodgman algorithm.



5 Write short notes on the following:
(a) Hermite curve.
(b) B-spline curves.
(c) Bezier surfaces.

6 (a) Define tilting as a rotation about the X axis followed by a rotation about Y axis.
(i) Find the tilting matrix.
(ii) Does the order of performing the rotation matter.
(b) Give a brief note on 3-D viewing pipeline.

7 (a) List and explain the steps involved in z-buffer algorithm.
(b) Explain visibility-detection functions.

8 Explain the general computer animation functions and computer animation languages.