PG/IS/COS-105/13(Pr.)

M.Sc. 1st Semester Examination, 2013

COMPUTER SCIENCE

(Practical)

PAPER — COS-105

Time : 2 hours

The figures in the right hand margin indicate marks

(*Computer Graphic*)

SET — I

[*Marks* : 25]

Answer any **one** (**lottery basis**) questions : 15 × 1

1. Write a program to draw a hexagon using Generalized Bresenham's line drawing algorithm.

2. Write a program to draw two concentric circle using any standard circle generation algorithm.

3. Write a program to do the following transformation on a triangle.

   (i) $90°$ rotation about origin

   (ii) Reflection about line $y = -x$.

4. Write a program (menu driven) to show all standards of 2D reflection.

5. Write a program to draw a polygon using any standard line drawing algorithm and also increase the size of the polygon twice of its size by keeping any one of its vertices fixed (ie. taking one of its vertices as arbitary point).

6. Write a program to show that a 2D reflection through X-axis followed by a 2D reflection through the line $y = -x$ is equivalent to a rotation about the origin by an angle of $270°$.

7. Write a program to show that a 2D reflection along the line $y = x$ is equivalent to the reflection along X-axis followed by counter clockwise rotation by $90°$.

8. Write a program to show all the standard of 2D shear transformation.

9. A triangle is located at $P(10, 40)$, $Q(40, 40)$, $R(40, 30)$. Write a program to rotate the triangle by $90°$ (cew) about the point Q.

10. Write a program to show all standards of scaling including uniform and differential scaling.
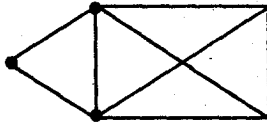
PNB — 05 Marks
Viva — 05 Marks

(4)

[*Marks* : 25]

Answer any **one** questions (**on lottery basis**) :15 × 1

1. Draw a cube having sides of 4 unit using DDA line drawing algorithm.

2. Write a program to implement 2D transformation such as scaling of an object.

3. Write a program to generate following shape by using any line drawing algorithm.

4. Write a program to fill the following area using any standard filling algorithm.

Red	Green	Blue

5. Write a program to draw a circle in 2D plane. Then reflect it with respect to following :

   (*i*) X-axis

   (*ii*) Y-axis

   (*iii*) Origin.

6. Write a program that illustrate the scaling transformation properties in 3D plane.

7. Write a program to implement Cohen-Sutherland line clipping algorithm.

8. Fill a rectangle using flood fill algorithm.

9. Write a program to draw a line using any standard line drawing algorithm, then rotate it $45°$ about origin in 2D surface.

10. Write a program to draw a line in 3D plane using any standard method, then rotate it x^0 with respect to X axis. [The value of x supplied by user at runtime]

[PNB + Viva — 10 Marks]

(*Microprocessor Lab*)

[*Marks* : 25]

Answer any **one** questions

1. Write an assembly language program for multiplication two 16-bit numbers. 15

2. Write an assembly language program to find the 2's complement of 16 bit number. 15

3. Write an assembly language program to find the subtraction of two 16-bit numbers. 15

(*Turn Over*)

4. Write an assembly language program to transfer a block of data from one memory location to another. 15

5. Write an assembly language program to find the addition of two ASCII numbers. 15

6. Write an assembly language program to search a word from a string. 15

7. Write an assembly language program for factorial of a given byte number. 15

8. Write an assembly language program for divide two 8-bit numbers. 15

[PNB + Viva — 10 Marks]