EASTERN UNIVERSITY, SRILANKA

DEPARTMENT FO MATHEMATICS

EXTERNAL DEGREE EXAMINATION IN SCIENCE –2005/2006

THIRD YEAR FIRST SEMESTER (Mar, /May, 2010)

EXTCS 351 – PRACTICAL WORK ON EXTCS 301

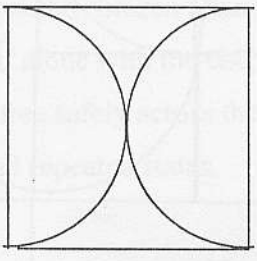
Answer all questions **Time allowed: 02 hours**

1.

(i) Write a C++ function called **line*DDA*** (int x0,int y0,int x1,int y1) to implement the ***Digital differential analyzer (DDA)*** line drawing algorithm, where (x0,y0) and (x1,y1) are end points of the line.

(ii) Write a C++ function called **midCIR** (int xc, int yc, int r) to implement the ***bresenham*** midpoint circle drawing algorithm, where (xc, yc) are center points of the circle and r is the radius of the circle.

(iii) Create the picture as given below using the above line drawing and circle drawing function.



(iv) Fill the picture with any background color.

2.

Create a class called *pixel* to represent x-y pixel position in display screen with some attributes and implement the methods given below to perform the following tasks.

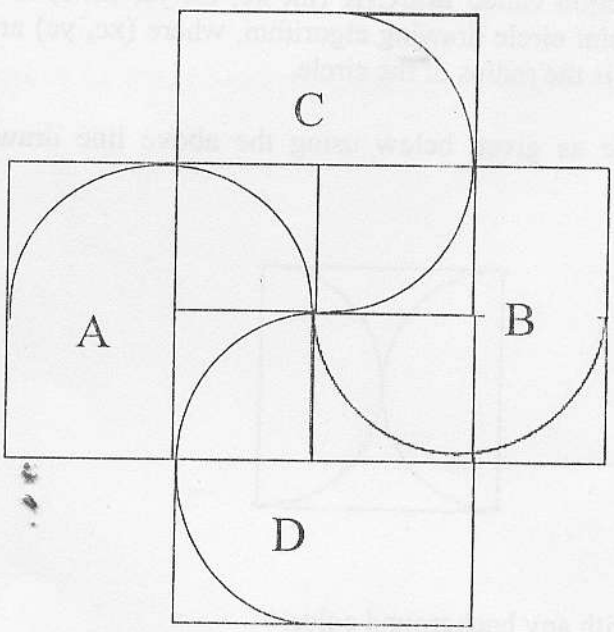
Public attributes:

Int x,y;	// To store the x,y coordinates,

Public methods:

Pixel();	//A default constructer to initialize x,y to default values.
Pixel (int x1,int y1);	// A user define constructer to initialize x,y to values.
Setx()	//set the x coordinate.
Sety()	//set the y coordinate.
Getx()	//return the x coordinate.
Gety()	//return the y coordinate.
Void plot (int cl);	//plot the x-y coordinate's pixel.
Void rotate (float theta, pixel pivot);	//rotate this pixel through theta degree with respect to pivot

(i) Using midpoint circle algorithm and line DDA algorithm construct a ***mysquare*** class and create the picture as given below.



(ii) Display them in the center of your screen.

(iii) Rotate only A and B square through 45^0 degree when you press any key on the keyboard.

(iv) Enlarge and tiny the given squares from the origin using scaling algorithm.