



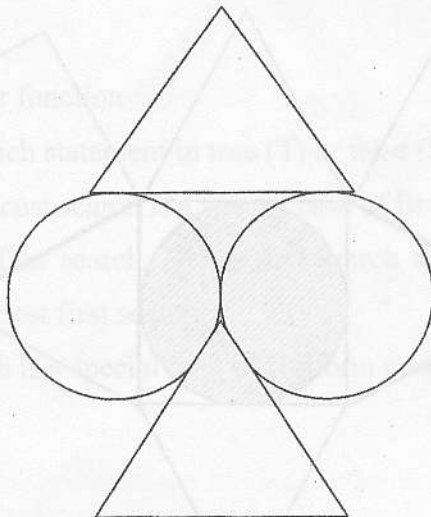
**EASTERN UNIVERSITY, SRILANKA**  
**DEPARTMENT OF MATHEMATICS**  
**THIRD EXAMINATION IN SCIENCE –2009/2010**  
**FIRST SEMESTER (June. /July 2011)**  
**CS 351 – PRACTICAL WORK ON CS301**

**Answer all Questions**

**Time allowed: 02 hours**

**Q1.**

- (i) Write a C++ function called **lineDDA** (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 midpoint circle drawing algorithm, where (xc, yc) are center points of the circle and r is radius of the circle.
- (iii) Create the picture as given below using the above line drawing and circle drawing function.



Q2

- (i) Create a class called *pixel* to represent x y pixel position in display screen with some attributes and implement the method given below to perform the following task.

**Public attributes:**

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

**Public methods:**

Pixel(); //A default constructor to initialize the x,y to default values.

Pixel (int x1,int y1); // A user define constructor to initialize the x,y to values.

Setx() //set the x coordinate.

Sety() //set the y coordinate.

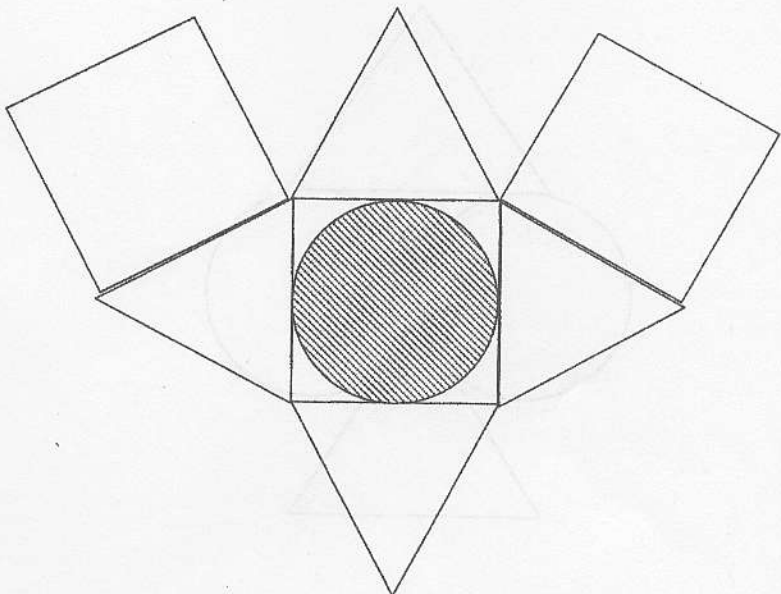
Getx() //return the x coordinate.

Gety() //return the y coordinate.

Void plot (int cl); //plot the xy coordinates.

Void rotate (float theta, pixel pivot); //rotate this pixel through theta degree to respect to pivot

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



(You should apply translation and rotation methods)