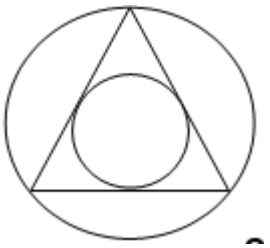
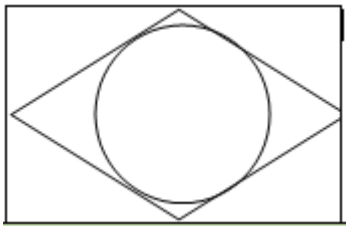
O1	Implement a class Complex which represents the Complex Number data type. Implement the following 1. Constructor (including a default constructor which creates the complex number 0+0i). 2. Overload operator+ to add two complex numbers.
O2	Develop a program in C++ to create a database of student's information system containing the following information: Name, Roll number, Class, Division, Date of Birth, Blood group, Contact address, Telephone number, Driving license no. and other. Make use of constructor, default constructor, Destructor, Accept and Display Function, Friend class.
O3	Imagine a publishing company which does marketing for book and audio cassette versions. Create a class publication that stores the title (a string) and price (type float) of publications. From this class derive one class: book which adds a page count (type int). Write a program that instantiates the book allows user to enter data and displays the data members.
O4	Write a C++ program that creates an output file, writes information to it, closes the file, open it again as an input file and read the information from the file.
O5	Write a function template for selection sort that inputs, sorts and outputs an integer array
O6	Write C++ program using STL for sorting and searching user defined records such as personal records (Name, DOB, Telephone number etc) using vector container.
O7	Write a program in C++ to use map associative container. The keys will be the names of states and the values will be the populations of the states. When the program runs, the user is prompted to type the name of a state. The program then looks in the map, using the state name as an index and returns the population of the state.
O8	Imagine a publishing company which does marketing for book and audio cassette versions. Create a class publication that stores the title (a string) and price (type float) of publications. From this class derives one class: tape which adds a playing time in minutes (type float). Write a program that instantiates the tape class, allows user to enter data and Displays the data members.

O9	Implement a class Complex which represents the Complex Number data type. Implement the following 1. Overload operator* to multiply two complex numbers. 2. Overload operators << and >> to print and read Complex Numbers. 3.
O10	Write a function template for selection sort that inputs, sorts and outputs a float array .
C1	Write C++ program to draw a concave polygon and fill it with desired color using scan fill algorithm. Apply the concept of inheritance.
C2	Write C++ program to implement Cohen Southerland line clipping algorithm.
C3	a) Write C++ program to draw the following pattern. Use DDA line and Bresenham's circle drawing algorithm. Apply the concept of encapsulation.  **OR** b) Write C++ program to draw the following pattern. Use DDA line and Bresenham's circle drawing algorithm. Apply the concept of encapsulation. 

C4	a) Write C++ program to draw 2-D object and perform following basic transformations, a) Scaling b) Translation c) Rotation. Apply the concept of operator overloading. **OR** b) Write C++ program to implement translation, rotation and scaling transformations on equilateral triangle and rhombus. Apply the concept of operator overloading.
C5	a) Write C++ program to generate snowflake using concept of fractals. **OR** b) Write C++ program to generate Hilbert curve using concept of fractals. **OR** c) Write C++ program to generate fractal patterns by using Koch curves.
C6	a) Design and simulate any data structure like stack or queue visualization using graphics. Simulation should include all operations performed on designed data structure. Implement the same using OpenGL. **OR** b) Write C++ program to draw 3-D cube and perform following transformations on it using OpenGL Rotation about an axis (X/Y/Z). **OR** c) Write OpenGL program to draw Sun Rise and Sunset.
C7	a) Write a C++ program to control a ball using arrow keys. Apply the concept of polymorphism. **OR** b) Write a C++ program to implement bouncing ball using sine wave form. Apply the concept of polymorphism. **OR** c) Write C++ program to draw man walking in the rain with an umbrella. Apply the concept of polymorphism.
C8	a) Design and simulate any data structure like stack or queue visualization using graphics. Simulation should include all operations performed on designed data structure. Implement the same using OpenGL. **OR** b) Write C++ program to draw 3-D cube and perform following transformations on it using OpenGL Translation. **OR** c) Write OpenGL program to draw Sun Rise and Sunset.

C9	a) Design and simulate any data structure like stack or queue visualization using graphics. Simulation should include all operations performed on designed data structure. Implement the same using OpenGL. **OR** b) Write C++ program to draw 3-D cube and perform following transformations on it using OpenGL Scaling. **OR** c) Write OpenGL program to draw Sun Rise and Sunset.
C10	a) Write a C++ program to implement the game of 8 puzzle. Apply the concept of polymorphism. **OR** b) Write a C++ program to implement the game Tic Tac Toe. Apply the concept of polymorphism.