EXPERIMENT LIST FOR PROGRAMMING LAB – I

Sr. No.	Problem statement
1	A class student has three data members: name, roll, marks of 5 subjects and member functions to assign streams on the basis of the table given below: Average marks — Stream 96% and more — computer science 91% - 95% — electronics 86% - 90% — mechanical 81% - 85% — electrical 76% - 80% — chemical 71% - 75% — civil Declare the class student and define the member functions.
2	Declare a class to represent bank account of 10 customers with the following data members: Name of depositor Account number Type of account (s for savings, c for current) Balance amount The class also contains the following member functions: A. To initialize B. To deposit money C. For withdrawal if the balance after withdrawal is greater than 10000 D. To display the data members
3	Define a class employee with the following specifications: Private members of class employee: Empno Ename Basic Hra = 10% of basic Da = 20% of basic Netpay Calculate() Public members of class employee: Havedata() Dispdata()
4	Create a class called Date,with integer data members for day,month and year.The class comprises of member functions (1) To display date in DD/MM/YYYY format. (2)To subtract an integer from date object (3)To subtract one date from another.
5	Define a class serial with following specifications:

	Private members: Serial code integer Title 20 characters Duration float Noofepisodes integer Public member function of class serial: 1. A constructor to initialize duration as 30 and noofepisodes as 10 2. Newserial () to accept values of serial code and title 3. Otherentries () to assign value to duration and noofepisodes with the help of values passed to the function 4. Dispdata () to display the data members on the screen

6	Declare a class string .It must have constructors which allow definition of object in the following form (the class string has data members str of type char *):
	String name1; //str point to NULL
	String name2=”ABC”; //one argument constructor is invoked
	String name3=name2; //one argument constructor taking string object
	Write a program to model string class and to manipulate its objects. The destructor must release memory allocated to str data members by its counterpart.

7	Demonstrate the destructor while calculating the area of a circle.
8	Given that an EMPLOYEE class contains following data members: Employee number, Employee name, Salary and print data members. Write a C++ program to read the data of employee. Overload constructor to Initialize object of class EMPLOYEE.
9	Write a program to overload function AREA() to find area of triangle using heroes formula, area of rectangle , area of square and area of circle.
10	Write a C++ program to create a class called STACK using an array of integers. Implement the following operations by overloading the operators + and -. i) s1=s1 + element; where s1 is an object of the class STACK and element is an integer to be pushed on the top of the stack. ii) s1=s1 - ; where s1 is an object of the class STACK – operator pops the element.
11	Write a program overloading + operator to concatenate two strings.
12	Write a program to create a class called DATE. Accept two valid dates in the form of dd/mm/yyyy. Implement the following operation by overloading the operator + & -. After every operation display the results by overloading the operator<< i) no_of_days=d1-d2, where d1 and d2 are DATE objects, d1>=d2, no_of_days is an integer. ii) d2=d1+no_of_days, where d1 is DATE object and no_of_days is an integer.

13	Write a program overloading arithmetic operators to add two complex numbers.
14	Define a class to store coordinates of a point with member function to read the coordinates and display the coordinates. Define a derived class with the additional capability to store the distance of the point from the origin. Write the additional member functions for the same. Write a program, using the classes defined above to read coordinates of a point and find its distance from the origin.
15	Create 2 classes namely student and exam. Make the derived class result to inherit the details of total- marks and students through multilevel inheritance.
16	Imagine a publishing company that markets both book and audio cassette versions of its works. Create a class publication that stores the title (a string) and price (Type float) of a publication from this class derived two classes : book, which adds a page count (type in) ; and tape , which adds a playing time in minutes (Type float). Each of these classes should have getdata() and a putdata(). Write a main program to test the book and tape classes by creating instances of them and asking a user to fill in their data with getdata () and displaying the data with putdata().
17	Design a program for calculating the area of a triangle, rectangle and circle by taking shape as the base class using virtual functions.
18	Write a program that illustrates the role of virtual base class in building class hierarchy.
19	Write a program to read and write data in a text file.
20	Write a program to count total number of words in a file.
21	Write a program for merging of records from 2 files.
22	Write a C++ program to create a template function for Quick sort & demonstrate sorting of integer & double. Write a C++ program to create a class called QUEUE with member function to add an element and to delete an element from the queue of integer and double. Demonstrate the operation by displaying the content of the queue after every operation. QUEUE class must be template type.
23	Write a C++ program to create a class called LIST (linked list) with member function to insert an element from the front of the list. Demonstrate all the function after creating a list object.
24	Write a C++ program to create a class called DLIST (Double Linked List) with member function to insert a node at a specified position and delete a node from a specified position of the list. Demonstrate the operation by displaying the content of the list after ever operation.

25	Write a C++ program to create a class called EXPRESSION. Using appropriate member functions to convert a given valid infix expression to postfix expression form, Display the infix and postfix expression.
26	Write a program to implement insertion sort.
27	Write a C++ program to create a class called BIN_TREE (binary tree) with member function to perform in-order, pre-order, post-order traversals. Create a BIN_TREE object and demonstrate the traversals.