Assignments-I

1. Create a class called Time that has separate int data members for hours, minute, and seconds. One constructor should initialize the data to 0, and another should initialize it to fixed values. A member function should display it in 11:43:34 format. Another member function should add two objects of type Time passed as arguments. A main() program should create two initialized Time object and one that isn't initialized. Then it should add the two initialized values together, leaving the result in the third time variable. Finally, it should display the value of this third variable.
2. Create a class named student with fields studentName, grade, and marks of three subjects. Class student contains the following functions:

   set_Data(studentName,marks1,marks2,mark3)
   Sets student data into the object
   calculateAverage():
   Compute average student marks
   ComputeGrade()
   If avg > 60 first class
   If 50 < avg < 60 second class
   If 40 < avg < 50 third class
   Fail if any subject marks are less than 40
   display(): prints student details

3. Write a C++ program to add two complex numbers. The class Complex contains three constructors.
   a. One with no parameter.
   b. With one parameter(Same value for real and imaginary part)
   c. With two parameters.
   d. A friend functions
      i. One to add two complex number by taking two reference variables of the class complex.
      ii. One to multipy two complex number by taking two reference variables of class complex
4. Write a C++ program to perform a different arithmetic operation such as addition, subtraction, division, modulus, and multiplication using an inline function
5. Create two classes Distance1 & Distance2 that store the value of distances. Distance1 stores distance in meters and centimeters and Distance2 stores the distance in feet and inches. Write a program that can read values for the class objects and add one object of Distance1 with another object of Distance2. Use a

friend function to carry out the addition operation. The object that stores the results may be a Distance1 or Distance2 object, depending on the unit in which the result is required.

6. Define a point class, where each object represents a point in Cartesian coordinates (x, y). Define objects of this class and calculate the distance between the 2 points through a friend function.
7. Write a C++ program to define a matrix and do matrix-vector multiplication using a friend function
8. Create objects of employee class to show the order of invocation of constructors and destructors. Display the sizes of each of these classes and explain with comments.
    a. Call by value
    b. Call by reference
9. Write a C++ program to swap two number by both call by value and call by reference mechanism, using two functions swap_value() and swap_reference respectively, by getting the choice from the user and executing the user's choice by switch-case