b) Implement a class **Point** whose objects are 2-D points. It must have two floating-point (10) data members \( x \) and \( y \) which store the co-ordinates of a point, a constructor to initialize the members with values passed by the user, member functions **add()** to add another point with the current point, **sub()** to subtract another point from the current point, **mag()** to compute the distance of the current point from the origin and **dist()** to compute the distance of the another point from current point( Current point refers to the point corresponding to the object used to invoke the respective member function). Also write the **main()** function to test the complete functionality of the class.

14. a) Explain static data members and static member functions in a class by providing (10) suitable examples to illustrate their applications.

b) Implement a class **Time** which has integer data members **hrs**, **mins** and **seconds**. It must (10) have two constructors one to set the time to 00:00:00 and another to set the time to a value decided by the user. It has member functions:
   - **advance()** - to advance the time
   - **delay()** - to delay the time
   - **disp()** - to display the time in the format hrs:mins:seconds
   - **format()** - to process the values and normalize them after initialization or advance/delay operations so that the maximum value for hrs, mins and seconds is 23, 59 and 59 respectively.
   Also write the **main()** function to test the class completely.

Module II

15. a) What is multi-level inheritance? Illustrate with examples how it is different from multiple (10) inheritance.

b) Implement a class **Complex_num** having floating point data members **real** and **imag** (10) used to store the real and imaginary parts of a complex number respectively. Write suitable constructors and a **display()** function to print the numbers in “a + jb” format. Overload the operator “*” to perform addition of two complex numbers and the operator “**” to perform their multiplication. Complete the program with a **main()** function to test all the functionality of the class.

16. a) Explain the significance of virtual functions with examples. (10)

b) Consider a record of the following structure:
   ```
   class Student
   {
      private:
      int roll_num;
      char name[25];
      float total_marks;
   
      public:
      void readData();
      void printData();
   }
   ```
A file “class_M2.txt” already exists with student records in the above mentioned format. Write a menu driven program to perform the following file-handling operations: