REPEAT MID SEMESTER EXAMINATION-2016

OBJECT ORIENTED PROGRAMMING

[IT-1001]

Full Marks: 25   **Time: 2 Hours**

Answer any five questions including question No.1 which is compulsory.
The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable and
all parts of a question should be answered at one place only

Q1. Answer the following   [1X5]

 a)Write the order of call of constructors for the following class declaration and justify it.

        class D : public A, public virtual B, public C

 b) "Constructors cannot be virtual where as destructors may be". Justify

 c) The assignment operator can be overloaded as a:-

      i) friend function   ii) member function
      iii) both i) and ii)   iv) none
    Justify your answer.

 d) For the program given below, write statements to call display function from base and
     derived class in main.

```
  class base                    class derived :public base        int main ( )
  {                             { int d;                           {   derived D(10,20);
     int x;                        public:
      public:                      derived (int a, int b): base (a)    return 0;
     base (int a){x=a;}            {   d=b;   }                     }
      void display ( )             void display ( )
      { cout <<x<<"\n";}            {cout <<d;}
  };                            };
```

e) Give the function declaration for the following statement
              T1= 4 + T2
            where T1 and T2 are the objects of class 'test'

Q2.a) Create a class which stores the x and y coordinates of a point. Write a function to find   [3]
distance between two point, Initialize the objects using parameterized constructor.

b) What are static data members of a class? How are they different from non-static data   [2]
members?

Q3.a) Explain different types of inheritance available in C++, giving syntax of each   [3]

b) Give the syntax of overloading insertion and extraction operator. Why they can be   [2]
overloaded only as friend function?

Q4.a) Create a class which stores real and imaginary parts of a complex number. Perform   [3]
following operations using operator overloading.
- Add two complex numbers
- Find conjugate of a complex number

b)Differentiate between static and dynamic polymorphism.   [2]

Q5) Create a class employee which stores name, id and salary of an employee. Derive two   [5]
classes 'regular' and 'part-time' from it. The class 'regular' stores TA, DA and grade-pay
and class 'part-time' stores number of hours and pay-per-hour for an employee. Display
all the information for a regular and a part-time employee, using the concept of virtual
function.

Q6.a) WAP to read the content of a file, character by character, and display it. Also display the   [3]
number of blank spaces in the file.

b)WAP to enter a date in dd/mm format. If the day and month values are invalid throw   [2]
exception and display a message regarding the exception.

Q7. Write short notes on any two of the following   [2.5X2]
a)this pointer
b)pure virtual function
c) catch all
d) file modes

_____X_____