BCA-301

B.C.A. (Semester Third) Examination – 2011

Paper: First

OBJECT ORIENTED DESIGN AND PROGRAMMING

Time: Three Hours] *[Maximum Marks:* **75**

Note: Sections A is compulsory. Attempt any seven questions from Section B and one question from Section C.

Section – A

(Numerical/Analytical/Problematic Questions)

1. Give the following class definitions answer the questions that follows. **(5)**

(a)

```
Class Book
  {
        Char Title [20];
        Char Author [20];
        int No-of-pages
Public:
        void read ( );
        void read ( );
  }
Class Text book: private Book
     {
        int no-of-chapters, No-of-assignments;
        Protected:
int standard;
 Public:
void read text book ( );
void show text book ( );
```

```
};
        Class physics book: Public Textbook
{
          Char Topic [20];
        Public:
          Void read physics book ( );
          void show physics book ( );
}
```

(i) Name the members, which can be accessed from the member functions of class physics book.

(ii) Name the members, which can be accessed by an object of class Textbook.

(iii) Name the members, which can be accessed by an object of class physics book.

(iv) What will be the size of an object (in bytes) of class physics book?

(b) Identify the errors in the following program segments: **(5)**

```
Class X
  {
    Static int a, b, c;
    Public:
    Static float X, Y;
    Void read (int I, int j, char K)
   {
        a=I:
```

```
        b=j;
        c=k;
        X=Y=o;
    }
Void display ( )
    {
     count <<(a<<b<<c<<x<<y<<end);
    }
};
```

2. Write a program to calculate the mean of two numbers using friend functions. **(8)**

Section – B (6Each)

(Long Answer Types Questions)

3. (a) Write four rules for declaring variables.

   (b) What is a reference variable? What is its use?

4. (a) What is the difference between define and const? Explain with suitable example.

   (b) Differentiate between a logical error and Syntax error. Also give suitable examples of each in C++.

5. The use of goto statement is avoided in structured programming. Why?

6. (a) Write the name of header files to which the following below.

   (i) Sqrt ( ) (ii) Strcpy ( )

   (iii) Puts ( ) (iv) Open ( )

   (b) Give the name of the function that clears the input/output buffer.

7. (a) Define Multilevel and multiple inheritances in context of object oriented programming. Give suitable example to illustrate the same.

   (b) Differentiate between a constructor and destructor function.

8. What type of information pointer do variables represent?

9. Write a program to calculate the factorial of a given number. Define user defined function fact ( ). Make it inline.

10. (a) What is the difference between local object and global object?

    (b) What is the recursive function? Explain with a function

11. (a) Compare the relationship between classes in composition and inheritance.

    (b) How do structures in C and C++ differ?

12. Describe the following terms in the context of C++
    (a) Polymorphism
    (b) Virtual function
    (c) En capsulation

Section – C
(Long Answer Types Questions)

13. What is function overloading? Use the concept of function overloading to compute the area of rectangle, area of triangle and area of circle.

14. Write a program to add two complex number using operator overloading.