

Roll No.

BCA-301(N)

B. C. A. (Third Semester) EXAMINATION, Dec., 2013

(New Course)

Paper First

OBJECT ORIENTED PROGRAMMING USING C++

Time : Three Hours]

[Maximum Marks : 75

Note : Section A is compulsory. Attempt any *seven* questions out of ten from Section B and only *one* question from Section C.

Section—A

(Numerical/Analytical/Problematic Questions)

1. What will be the output of the following program segment ? 5

```
Class Num {  
    int x; float y;  
    public :  
    void init (void) {  
        x = y = 0;  
    }  
    void read (int i, float j) {  
        x = i; y = j;  
    }  
}
```

[2]

BCA-301(N)

```

void display (void) {
    cout << "x = " << x << "\n";
    cout << "y = " << y << "\n";
};

void main () {
    Num obj 1, obj 2;
    obj 1. init ();
    obj 2. init ();
    obj 1. read (15, 11, 21);
    obj 1. display ();
    obj 2. display ();
}

```

2. Identify errors in the following program :

5

```

class X {
    Public :
        int a, b;
        void Initial () {
            a = b = 0; }
        float sum ();
        float sqr ();
    }
    float sum ()
    { return a + b; }
    float sqr ()
    { return sum () * sum ();
    }
}

```

R-78

[3]

BCA-301(N)

3. Define a class Travel in C++ with the description given below : 10

Private members :

T-code of type string

No-of-adult of type integer

No-of-children of type integer

Distance of type integer

Total-fare of type float

PUBLIC MEMBERS:

- A constructor to assign values as the following :

T-code with word "NULL"

No-of-adult as 0, No-of-children as 0, Distance as 0, Total-fare as 0.

- A function assign fare () which calculate and assign value of the data member total fare as follows :

For each adult :

fare (₹)	for distance (km)
500	> = 1000
300	<1000 & > = 500
200	< 500

For each child : above fare will be 50% of the fare mentioned in the above table :

- A function entertour () to input values of data members T-code, no-of-adult, no-of-children and distance; and invoke the assignfare() function.
- A function showtravel () to display the content of all datamembers for a travel.

R-78

P. T. O.

Section—B

(Short Answer Type Questions)

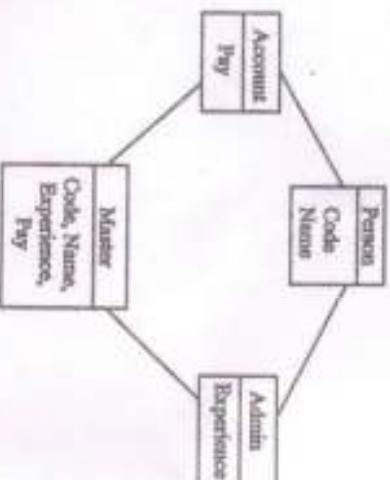
Note : Attempt any seven questions. Each question carries 6 marks.

4. What do you mean by operator overloading ? Write a program to overload '+' for both numeric addition and string concatenation.
5. Write different ways to open a file. Explain with example.
6. What do you mean by inheritance ? Describe visibility of inherited base class members in derived class with proper illustration.
7. What is constructor ? Discuss constructor overloading with example.
8. How does a class enforce data-hiding abstraction and encapsulation ? Explain
9. What do you mean by overriding base class methods in derived class ? Discuss with an example.
10. Illustrate function overloading with finding area of different shaped objects like circle, square, rectangle.
11. Define a class student having data members as char name [40], char grade, float marks and member function void getdata(void) and void display_data (void). Write a program to read and write class object you defined above.
12. Differentiate between public, private and protected visibility modes in context of OOP using suitable example to illustrate each.
13. What is the relationship of a class and its object ? How is memory allocated to a class and its object ? What is the advantages and disadvantage of inline function ?

Section—C

(Long Answer Type Questions)

14. (a) Discuss class template with example. 4
- (b) Discuss exception handling with example. 4
- (c) Discuss nesting of classes with special emphasis on constructor definition of enclosing class. Show with proper example. 5
15. (a) Consider a class network of the following figure : 8



The class master derives information from both account and admin classes which in turn derive information from the class person. Define all the 4 classes and write a program to create and display the information in master class.

- (b) Write a program to create a text file test .TXT and display the file content. 5