MCA 3rd Semester Examination, 2010

OBJECT ORIENTED PROGRAMMING

PAPER — CS/MCA/2303

Full Marks : 100

Time : 3 hours

Answer **Q.No.1** and any **five** questions from the rest

The figures in the right-hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

1. Answer any *ten* questions :   2 x 10

   (*i*) What is "this" pointer ?

   (*ii*) Write the differences between structure and class.

   (*iii*) Why do we need static data members in C++ ?

(2)

(*iv*) Why type casting is required in programming?

(*v*) What is the role of protected access specifier in inheritance?

(*vi*) What is the major difference between an interface and a class?

(*vii*) What are the primitive data types available in Java? Name them.

(*viii*) How can we make a class non-inheritable in Java?

(*ix*) What is the work of static in public static void main (string args [ ])?

(*x*) What is the difference between Multi-level and multiple inheritance?

(*xi*) Why do you mean by dynamic initialization of variable?

(*xii*) How does a Java constructor differ from C++ constructor?

2. (a) What do you mean by dynamic memory allocation ? How do you dynamically allocate memory in C++ ? 2 + 3

   (b) Explain 'set-new-handler' function ? 5

3. (a) What is the Java Virtual Machine ? How does it make Java machine independent ? 5

   (b) What is an applet ? What are its life cycle methods ? 5

4. (a) With the help of example describe the three situation when copy constructors are called ? 5

   (b) What is function overriding ? How does it differ from function overloading ? 2 + 3

5. (a) What is an interface ? What is the nature of methods and variables defined in an interface ? How is an interface different from an abstract class ? 5

(b) What will happen, when the following code is run?

(i) public class If Test {
```
    public static void main (string args [ ]) {
       if (true)
       if (false)
           system.out.println ("a") ;
       else
           system.out. println ("b") ;
    }
}
```

(ii) Byte b = 10;
```
        b = b * 5;
```
     System.out. println ("b =" + b);

(iii) How to prevent a method to be overridden ?
Explain with example.   1 + 1 +

6. (a) What do you mean by 'overloading of operators'? Why should we overload operators ?   2 +

(*Continu*

(b) What is the difference between copy constructor and overloaded assignment operator? Support your answer by giving suitable example programs. 5

7. (a) Explain the difference between a process and a thread. Discuss the different possible states of threads. 5

(b) What is a package? Explain the four access specifiers with reference to a package. 5

8. (a) The following code when tried to compile and run, produced either runtime error or the executing program crashes. Identify the problem and modify the program to overcome the problem. 6

```
# include < iostream >
# include < cstring >
class string
    {
        char name [15];
        char name1 [15];
```

```
        public :
            string (char [ ], char [ ] );
            void print ( );
        };
        string :: string (char p0 [5], char p1 [5])
        {
            strcpy (name, p0);
            strcpy (name1, p1);
            strcat (name, "   ");
            strcat (name, name1 );
        }
    void string :: print ( )
        {
            cout << name << endl;
        }
    void main ( )
    {
        string s1 ("Lata ", "Asha");
        sl. print ( );
        string s2 ("Lata Mangeshkar",
                                "Asha Bhosle" );
        s2. print ( );
    }
```

(b) Write a C++ program to demonstrate the calls to constructor and destructor.   4

[Internal Assessment — 30 Marks]