

2003 CENTRE FOR DEVELOPMENT OF ADVANCED COMPUTING(C-DAC) M.C.A

**END-TERM EXAMINATION
SECOND SEMESTER [MCA] – DEC 2003
OBJECT ORIENTED PROGRAMMING**

Paper Code: MCA-110

Time: 3 Hours

Marks: 60

Q. 1 (a) Define and explain the following terms with examples 12

- (i) Encapsulation
- (ii) Polymorphism
- (iii) Inheritance

Q. 2 Compare and contrast the following:- 12

- (i) Private and Public methods.
- (ii) Protected and friends function
- (iii) Static classes and structures
- (iv) Pointer and reference variables.

Q. 3 (a) Implement a integer class that checks for range (of value) violation. 8

(b) Is the following fragment valid? If not, why not? 4

```
int &f ();  
.br/>.br/>.br/>int *x;  
x = f ();
```

Q. 4 (a) What does the following program? 8

```
#include  
class A {  
public :  
A () { cout << "Constructing A\n "; }  
~A () {cout << "Destructing A\n "; }  
};  
class B {  
public:  
B() {cout << "Constructing B \n "; }  
~B () {cout << "Destructing B \n "; }  
};  
class C: public A, public B {  
public:  
C () {cout<<"Constructing C \n "; }  
~C () {cout << "Destructing C \n "; }
```

```
};  
void main( )  
{  
C ob;  
Return 0 ;  
}
```

(b) What is the role of virtual base class? Explain. 2

(c) What is the utility of a virtual function in a class? Explain. 2

Q. 5 Design a template class for implementation of a stack of any object. Implement the template as a linked list. 12

Q. 6 (a) Demonstrate the overloading of the following operators or functions. 10

(i) new (ii) <<

(iii) (binary) (iv) #

(v) * (Multiplication)

(b) Which operators cannot be overloaded in C++. 2

Q. 7 Write short notes on ANY TWO of the following : - 6+ 6

(a) Standard Template Library.

(b) Namespace and Namespace mangling

(c) "Since C++ provides procedural programming constructs, C++ is not an object oriented language". Comment.

(d) Late binding.