END TERM EXAMINATION
Second Semester [MCA] May-June 2009

Paper code: MCA-110   Subject: Object Oriented Programming
Paper id: 44110   (Batch: 2004-2008)
Time: 3 hours   Maximum Marks: 60
Note: Q.No.1 is compulsory. Attempt one question from each unit.

Q1. Answer the following: **(2x6=12)**
  (a) What is dynamic binding? How does it take place in C++?
  (b) What are private/local classes? When are these created or used? Provide a
      suitable example.
  (c) What is default copy constructor? Explain.
  (d) What is ambiguity resolution in class inheritance? When do you encounter such a
      situation and hoe it is handled? Explain with example.
  (e) What are use cases? Explain with suitable example.
  (f) Differentiate between C and C++ on the basis of language constructs.

UNIT-I

Q2. (a) What are the basic principles of Object Oriented Programming?   **(6)**
        Explain in detail.
    (b) Explain the key differences in C and C++.   **(6)**

OR

Q3. (a) Explain the difference in the working of cin and cout of C++ language with
        respect to scanf and printf in C language.   **(6)**
    (b) Write short notes on: **(6)**
        (i)   Initializer list
        (ii) Scope resolution operator
        (iii) Namespaces

UNIT-II

Q4. (a) Write a program in C++ to demonstrate the operator overloading for adding two
        complex numbers.   **(6)**
    (b) Explain the use of const and static for a member of a class. Use suitable   **(6)**
        examples.

OR

Q5. (a) Explain the process of garbage collection in C++.   **(6)**
    (b) What are friend functions? What are the merits and demerits of using friend
        functions?   **(6)**

UNIT-III

Q6. (a) Explain the concepts of aggregation, composition and class hierarchies.   **(6)**
(b) Explain the concepts of overloading and overriding a function with respect to OOP.   **(6)**

OR

Q7. (a) What is polymorphism? Explain with examples, how it is achieved at (a) compile Time and (b) run time.   **(6)**
(b) What are virtual base classes and when are they created. Demonstrate with suitable examples.   **(6)**

UNIT-IV

Q8. (a) Distinguish the following: **(6)**
   (i) List and vectors
   (ii) Sets and maps

(b) What is UML? Describe the use of class diagram and sequence diagrams with a suitable examples.   **(6)**

OR

Q9. (a) Write a program in C++ using a container class to show the count of how many elements in a container have specified value.   **(6)**
(b) Write a sort program to demonstrate the concepts of re-throwing of an exception and multiple catch handlers. You my use any sorting algorithm (name the algorithm).   **(6)**