

Code: 06MC103

MCA - I Semester Supplementary Examinations, August/September 2012

**OBJECT ORIENTED PROGRAMMING THROUGH C++**

(For students admitted in 2006, 2007 & 2008 only)

Time: 3 hours

Max Marks: 60

Answer any FIVE questions

All questions carry equal marks

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- 1 Discuss the necessity of polymorphism. Illustrate with suitable example.
- 2 (a) What is recursion? Give recursive definitions for GCD of two numbers and for factorial of a number.  
(b) Compare recursion with iteration.
- 3 Implement a stack class for stacks of integers. Include a default constructor, a destructor, and the usual stack operations: push ( ), pop ( ), is Empty ( ), and is Full ( ). Use an array implementation.
- 4 (a) Implement an address class for storing a residential address and a member function to modify the address.  
(b) Explain the difference between the interface and the implementation of a class.
- 5 (a) Explain how the message call is given to member functions for the derived classes.  
(b) Explain how the data members of a base class can be initialized under multiple inheritance with necessary example.
- 6 (a) Explain why a constructor member function cannot be a virtual method (member function).  
(b) What is a pure virtual function? What are the merits and demerits of defining and declaring a pure virtual function in a program?
- 7 (a) Write code for each of the following:  
(i) Read an integer in hexadecimal and print it in decimal.  
(ii) Print 3.14159 in a 12 digit field with preceding zeros.  
(b) Describe the various approaches to detect the end-of-file successfully.
- 8 (a) Write a class template to represent a genetic vector. Include member functions to perform the following tasks:  
(i) to create the vector (ii) to modify the value of a given element.  
(iii) to multiply by a scalar value. (iv) to display the vector in the form (10,20,30,...)  
(b) Explain the differences between templates and macros.

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