

**II B.Tech II Semester Supplementary Examinations,  
November/December 2005  
OBJECT ORIENTED PROGRAMMING  
( Common to Computer Science & Engineering, Information Technology,  
Computer Science & Systems Engineering and Electronics & Computer  
Engineering)**

Time: 3 hours

Max Marks: 80

**Answer any FIVE Questions  
All Questions carry equal marks**

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1. Distinguish between OOP and Procedure Oriented Programming. Justify with suitable examples. [16]
2. (a) What is the order of precedence and associativity of operators given below for order of evaluation? Square brackets, round brackets, ++, +, <, &&, ||, !=, <=, >=, /, %, sizeof, ~, \*, &, ?:, +=, >>. Give in tabular form.  
(b) Write a C program to search for a particular value in an array of integers. [12+4]
3. Implement a Matrix class for 2-by-2 matrices: Include a default constructor, a copy constructor and an inverse  $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$  function. The inverse function should return the inverse of the matrix. [16]
4. Write a program that tests the application function void reverse (stack) which reverses the items on the stack passed to it. This function should use two local stacks to do this job. [16]
5. Create a base class called shape. Use this class to store two double type values that could be used to compute the area of a given geometrical objects. Derive two specific classes called triangle and rectangle from the basic shape. Add to the base class, a member function get\_data ( ) to initialize base class data members and another member function display\_area ( ) to compute and display the area of geometrical objects. Make display\_area ( ) as a virtual function and redefine this function in the derived classes to suit their requirements. Using these three classes, design a program that will accept dimensions of a triangle and rectangle interactively and display the area. Remember the two values given as input will be treated as lengths of two sides in the case of rectangles and as base and height in the case of triangles, and used as follows.  
Area of rectangle = X \* Y  
Area of triangle = 1/2 \* X \* Y [16]
6. (a) Write a program in C++ that prints the factorial of a given number using dynamic binding.  
(b) Write a program in C++ that determines whether a given number is a prime number or not and then prints the result using polymorphism.

- (c) Explain the merits and demerits of the run time binding over the compile time binding. [5+5+6]
- 7. (a) Explain how are the prefix and postfix versions of operator++ distinguished?  
(b) What operators can't be overloaded? [10+6]
- 8. (a) How might the exceptional handling mechanism cause a program to silently crash?  
(b) What are the syntax and semantics for a function template? [8+8]

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