G - 862 (Pages : 04) COMP 3-2(RC)

[Total No. of Questions : 8]

S.E. (Comp.) (Semester - III) Examination, May 2011

BASICS OF C++

Duration : 3 Hours **Total Marks : 100**

Instructions : 1) Answer any five questions selecting atleast one from each module.

2) Make necessary assumptions if required.

MODULE - I

Q1) a) What do you mean by "object oriented programming" explain with an example. **[5]**

b) What is the difference between the following two statements? Explain. **[3]**

Const int M = 100;

define M 100

c) Write a C++ program to calculate first 15 terms of fibonacci series. **[6]**

d) What do you mean by "precedence of operators"? Give the precedence of arithmetic, relational and logical operators in C++. **[6]**

Solve : int b = 6.6 / a + (2 * a + (3 * c) / a * d) / (2 / n)

Using operator precidence (a = 1, c = 2, d = 3, n = 1).

Q2) a) "C++ is a compiled language". Justify. **[5]**

b) Explain increment and decrement operators in C++ with help of an example. **[3]**

c) In C++, a variable can be declared anywhere in the scope, what is the significance of this feature. **[4]**

d) Write a menu driven program which has the following options : **[8]**

i) Factorial of a number.

ii) Prime or not.

iii) Odd or even.

iv) Quit.

P.T.O.

MODULE - II

Q3) a) Explain the following with examples in C++. [6]

i) Address operator.

ii) Indirection operator.

b) What are local and global variables in C++? Explain each in brief giving examples. [5]

c) Write a C++ program which defines array of 10 elements and take a number as input. If the number is in the array show its position, if not show a message that the number is not in the array. [5]

d) Trace the output of the following program [4]

```
main ( )
{
    int a[5], i, b = 16 ;
    for (i = 0; i < 5; i ++)
        a[ i ] = 2 * i ;
        f (a, b);
    for (i = 0; i < 5 ; i ++)
        cout << a [ i ] ;
        cout << b ;
}
f(int * x, int y)
{
    int i;
    for (i = 0 ; i < 5; i ++)
        *(x + i) + = 2;
    y + = 2 ;
}
```

Q4) a) Explain the following terms with respect to functions provide examples.

i) function prototype. [6]

ii) function calls.

b) Justify the statement "Array can be used as a pointer". [4]

c) Explain the use of pointers in C++. [3]

d) Write a C++ program that allows the user to create a character string and then reverse the characters. use concept of functions. [7]
Note : use in-built functions as well as user-defined functions to implement the program
(e.g Hello → olleH).

MODULE - III

Q5) a) Differentiate between the structured tag technique and the method of declaring structures as local / global variable use examples to illustrate the difference . [6]

b) Create using structured arrays Book-Catalog (Catalog, publisher, Book)
Catalog (Title, Date) [10]
Publisher (Name, Address)
Address (Street, City, Region, Country)
Book (Book-No, Name, Author, Price)
Write a function for displaying the data.

c) Explain the need for overloading constructors. Use an example to demonstate. [4]

Q6) a) With a C++ example explain how binary operators are over loaded.[6]

b) Write a C++ program to demonstrate two ways of accessing computer system time using pointer objects. [6]

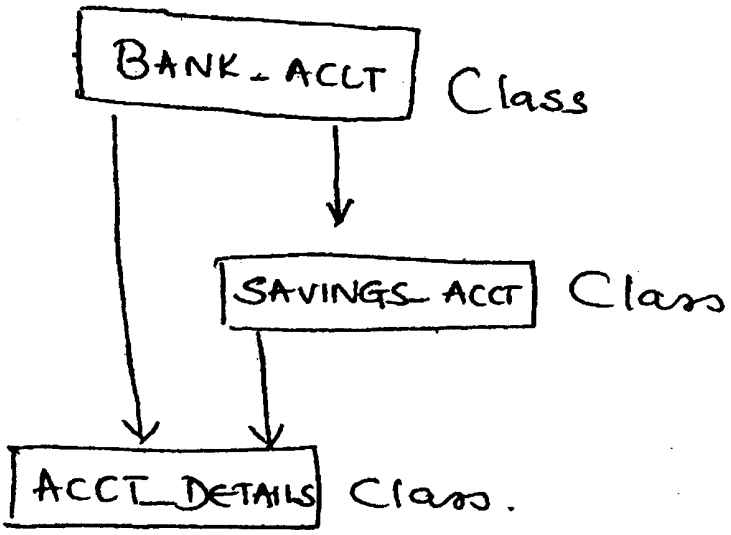
c) Differentiate between structures and classes. Can they be used inter changably. Discuss the advantages of each. [8]

MODULE - IV

Q7) a) Use the example of a shopper in a grocery mall to illustrate the different types of class relation ships. [8]

b) Write a C++ program to find the square root of a number illustrating the use of name space std reference in it. [6]

c)



Explain how you would represent this kind of relationship in C++. Can the above relationship be simplified further without losing information Justify your answer. **[6]**

Q8) a) Explain the significance of "this" pointer. Illustrate its usage. **[4]**

b) Write a C++ program that sets up a base class Bank Acct containing protected data of a basic bank savings account consisting of (name, acct-no, balance) this class has 3 virtual functions deposit, withdraw and show details. **[8]**

c) Explain the exception handling technique used in C++ write a program to illustrate the use of multiple catch statements for multiple conditions. **[8]**

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