

**3<sup>rd</sup> SEMESTER B-TECH EXAMINATION - 2006**  
**OBJECT ORIENTED PROGRAMMING USING C++**

Full Marks-70

Time:3 Hours

Question No. 1 which is compulsory and any five questions from the rest.

The figures in the right-hand margin indicate marks for the questions.

1. Answer the following questions: (2 x 10)
- (a) What is the purpose of the preprocessor directive `#include<iostream>`?
  - (b) Explain the concept of function overloading.
  - (c) How many parameters can be passed to a function?
  - (d) How is the expression `(m>n?m:n)` evaluated?
  - (e) What is Inline Functions in C++?
  - (f) What is the difference among public, protected and private members of a class?
  - (g) What are the two uses of the `&` symbol in C++?
  - (h) Write a C++ statement to define a 10 element integer array called MyArray.
  - (i) Which operators are used to access memory?
  - (j) What is the output produced by the following code?  

```
for (int i=0;i<size;i++)A[i]=size-i;  
cout<<"Average:"<<average(A,5)<<endl;
```
- 2.
- (a) Create a class to specify data of customers in a bank. The data to be stored as :  
Account No., name, balance in the account. Assume maximum of 200 customers  
in the bank. (5)
  - (b) Explain the typecasting. What are explicit and implicit type conversions?  
(5)

3.

- (a) How are static functions and friend functions invoked in C++ program? (5)
- (b) Write a C++ program to calculate the sum of the first seven terms of the series given below, where the value of X is entered from the keyboard.

$$(x-1/x)+(1/2)(x-1/x)^2+(1/2)(x-1/x)^3+(1/2)(x-1/x)^4 \quad (5)$$

4.

- (a) What is the difference between local object and global object? (5)
- (b) Write a program to calculate sum of digits of entered number using indirect recursion. Recursion should be in between main() and member function?

(5)

5.

- (a) What is References in C++? Explain how the references are used as function parameters, with example. (5)

- (b) Write a program to round down and round up the floating point number.(5)

6.

- (a) Explain the use of constructors and destructors function in C++. (5)

- (b) Write a C++ program to calculate the power of a given number. Define under-defined function power(). Make it inline. (5)

7.

- (a) Explain the dynamic memory allocation mechanism using C++ features.(5)

- (b) Write a C++ program to display the following pattern. (5)

Your program should use at least one for loop.

```
1    2    3    4
5    6    7    8
9    10   11   12
```

8.

- (a) What is the difference between a static array and a dynamic array. (2.5)

- (b) What is the output from the following segment of C++ code. (2.5)

```
int x=5,y=7,z=1;
```

```
cout<<z<<"<<"+x<<"<<y++;
```

(c) What are the local classes? (2.5)

(d) You are given the following declaration: (2.5)

```
int A[4];
```

After executing the following code, show the state of the array using as many cells as you think you need:[6 points]

```
for (int o=4;i>=0;i- -)A[i]= 2*i;
```

Array A:

INDEX i →												
A[i]												

---x---