

BT-4/J08

8426

**Object Oriented Programming using C++****Paper : IT-252 E****Time : Three Hours]****[Maximum Marks : 100**

**Note :-** Attempt **FIVE** questions in all taking at least **ONE** from each unit.

**UNIT-I**

1. (a) Explain the features of C++ that make it different from C. 7  
(b) What do you mean by Namespaces ? Explain using suitable example. 6  
(c) Using suitable examples explain the difference between Overloading and Overriding methods. 7
2. (a) Write a program to define three classes. Define a 'friend' function. Read and display the data for three classes using common functions and 'friend' functions. 8  
(b) Explain with example dynamic memory allocation with New and Delete. 7  
(c) Explain This pointer with example. 5

**UNIT-II**

3. (a) Using the concepts of operator overloading, write a program to evaluate the equation  $a = b * 3$ , where a and b are objects of the same class. Use 'Friend' function. 12  
(b) What is the difference between overloading of binary operators and unary operators ? 8



4. (a) What is public, private and protected inheritance ? Explain with example. 10  
(b) Write a program to show sequence of execution of constructor and destructor in multiple inheritance. 10

### UNIT-III

5. (a) What is the difference between virtual function and virtual classes ? Explain using examples. 10  
(b) Discuss virtual destructors and their role using suitable examples. 10
6. (a) What are the different types of file opening modes ? List their names with meaning. 6  
(b) How a Random Access File is updated ? 7  
(c) How do we create a sequential access file ? 7

### UNIT-IV

7. (a) What are Templates ? How can templates be used for generic programming ? 7  
(b) What is class template and non-type parameters ? 6  
(c) Explain inheritance with Class Template. 7
8. (a) What are exception handlers ? What will happen if an exception is thrown for which no matching catch ( ) block is defined ? 8  
(b) Write a program to throw exception when  $j = 1$  otherwise perform the subtraction of  $x$  and  $y$ . 7  
(c) Explain stack unwinding. 5