

BT-4/M09

9308

## Object Oriented Programming Using C++

Paper : IT-252 E

Time : Three Hours]

[Maximum Marks : 100

Note :- Attempt any FIVE questions selecting at least ONE question from each unit.

## UNIT-I

1. (a) What is the application of scope resolution operator in C++ ?  
6
- (b) Differentiate between Default Constructor and constructor with default argument.  
6
- (c) What do you mean by dynamic initialization of objects ? Explain.  
8
2. (a) When do you declare a member of class static ? Explain.  
10
- (b) What is friend function ? What are the merits and demerits of friend function ?  
10

## UNIT-II

3. (a) Create a class Rational which represents a numerical value by two double values numerator and denominator. Include the following public member functions :
  - (i) Constructor with no arguments
  - (ii) Constructor with two arguments
  - (iii) Overload '>>' operator to enable input through C in. 12
- (b) Write a program to implement the concept of Virtual Base Class.  
8
4. (a) What are pure virtual functions ? How are they different from normal functions ?  
10
- (b) What is Containership ? How does it differ from inheritance ?  
10

### UNIT-III

5. (a) Write a program that creates a binary file by reading the data from the terminal for the students consist of Roll No., Name and Marks. 10
- (b) What is file mode ? Describe the various file mode options available. 10
6. (a) How exceptions are handled in C++ ? 10
- (b) What do you mean by rethrowing an exception and stack unwinding ? 10

### UNIT-IV

7. (a) Write a function template for finding the maximum value in an array. 10
- (b) Differentiate between function template and class template. 10
8. Write short notes on :-
- (a) Object modelling techniques
- (b) Abstract class
- (c) Virtual destructor
- (d) Manipulators. 20