

**J-9/2050**

**OBJECT ORIENTED PROGRAMMING  
USING C++ (203)  
(Semester-II)**

Time : Two Hours]

[Maximum Marks : 70

**Note** : Attempt any *four* questions. All questions carry equal marks.

- I. Write a program of passing and returning array as an argument to function.
- II. Describe the concept of call by value and call by reference with the help of an example.
- III. Explain different data types available in C++ in detail with example of each.
- IV. Write a program in C++ to multiply two 3-D matrices using pointers.
- V. Develop a class Matrix for integers in C++. Class must have all possible constructor and destructor functions to create matrix object. Also overload '+', '-' operators for matrix.
- VI. What is inheritance? Explain different types of inheritance with suitable example.

- VII. Write a program to create a class Employee with data members employee identification number, employee name, basic pay, DA, HRA. Create member functions to Input the data, calculate the total salary and display it along with employee details.
- VIII. What are friend functions? Write a C++ program to find the sum of two complex numbers using friend functions.
- IX. (a) Why do we need virtual destructors?
- (b) What is meant by virtual base class ? What is its use ?
- (c) Write down the steps in object oriented design.
- (d) What is a static member function?
- (e) Differentiate between unary and binary operator overloading.
- (f) What do you mean by access specifiers in C++?
- (g) What is method overriding?
- (h) What are the benefits of inheritance?
- (i) How is polymorphism achieved at runtime?
- (j) Compare early binding and late binding.
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