

Roll No.....

Total Pages: 3
10502

MCA/M-18
OBJECT ORIENTED PROGRAMMING USING C++
Paper: MCA-14-22

Time: Three Hours

Maximum Marks: 80

Note: Attempt five questions including No. 1 which is compulsory. All questions carry equal marks.

Compulsory Question

1. Answer the following questions in brief :
 - (a) What is function prototype? Compare function prototyping in C and C++.
 - (b) What is function overloading? Give an example.
 - (c) What is constant member function? Explain its usage.
 - (d) What is nested class? Explain with an example.
 - (e) What are derivation rules?
 - (f) Distinguish between eof() and fail() function.
 - (g) How is function template overridden for a specific data type? Explain.
 - (h) How are uncaught exceptions caught? Explain.

UNIT-I

- 2.(a) What are static data member and member function? Explain with suitable example.
(b) What is copy constructor? Explain with an example.
- 3.(a) Draw the class hierarchy diagrams for console I/O and explain the purpose of each class in brief.
(b) How can you create dynamic objects? Explain with a suitable example.

UNIT-II

4. (a) How can you overload insertion and extraction operators? Explain with examples.

- (b) What are rules to overload binary operator? Overload ' $>$ ' operator to compare objects of Distance class. Distance is given in feet and inches.
5. (a) What is friend function? Why do you require a friend function? What are the differences to overload operators using member function and friend function?
- (b) How is class object converted into values of fundamental data type? Explain with an example.

UNIT-III

6. (a) What is inheritance? Give an example of multiple inheritance and implement it in C++.
- (b) What is containership? How is it different from inheritance?
7. (a) What is runtime polymorphism? How is it implemented in C++? Explain with an example.
- (b) What is virtual derivation? Explain with a suitable example in C++.

UNIT-IV

8. (a) What are function templates? Write a function template for bubble sort.
- (b) How can you limit a function to throw exceptions? Explain with an example.
9. (a) What is text file? How can you create and use it? Explain with an example.
- (b) How can you read and write objects randomly in a file? Explain with an example.