

# CBCS SCHEME

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18MCA11

First Semester MCA Degree Examination, Dec.2018/Jan.2019

## Object Oriented Programming Using C++

Time: 3 hrs.

Max. Marks: 100

Note: Answer FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. What is Object Oriented Programming? Explain any four features of Object Oriented Programming. (10 Marks)
- b. Explain the general form of a C++ program with an example. (05 Marks)
- c. How are the Object Oriented Programming different from procedure oriented programming? (05 Marks)

OR

- 2 a. What is function overloading? Write a program to calculate the volume of different geometric shapes like cube, cylinder and sphere and hence implement the concept of function overloading. (10 Marks)
- b. What are Inline functions? Discuss its advantages and disadvantages. (05 Marks)
- c. What is Function template? Write a program to demonstrate function template. (05 Marks)

### Module-2

- 3 a. What are constructors and destructors? Write a program to demonstrate constructors and destructors. (10 Marks)
- b. What are static data members and static member functions? Explain with examples. (05 Marks)
- c. Write a program to demonstrate how objects are passed as an argument to the functions. (05 Marks)

OR

- 4 a. What is dynamic memory allocation? Explain how it is handled in C++, with an example. (10 Marks)
- b. What is scope resolution operator? Explain with an example. (05 Marks)
- c. What is copy constructor? Explain with an example. (05 Marks)

### Module-3

- 5 a. What is operator overloading? Why it is required? Discuss the syntax of overloading an operator. List the operators which cannot be overloaded in C++. (10 Marks)
- b. Write a C++ program to add two complex numbers by overloading '+' operator. (10 Marks)

OR

- 6 a. What is Inheritance? Discuss the different forms of inheritance supported by C++ with appropriate examples. (10 Marks)
- b. Write a C++ program which demonstrates the execution of parameterized constructors in inheritance. (04 Marks)
- c. What is virtual base class? Explain with an example. (06 Marks)

**Module-4**

- 7 a. What are virtual functions? With an example demonstrate the use of virtual functions. (10 Marks)  
b. What is abstract class? Discuss the use of abstract class. (04 Marks)  
c. Define early and late binding. Explain each of them with an example. (06 Marks)

OR

- 8 a. Briefly explain stream class hierarchy with a neat diagram. (10 Marks)  
b. What are the two ways of formatting of output in C++? Discuss any two functions of formatting output using both the ways. (10 Marks)

**Module-5**

- 9 a. What is exception? How exceptions are handled in C++ with a program example. (10 Marks)  
b. Write a C++ program to handle derived class exceptions. (10 Marks)

OR

- 10 a. Describe terminate( ), unexpected( ) and uncaught\_exception( ) functions with syntax and examples. (10 Marks)  
b. What is STL? List and explain the three types of container in STL. (10 Marks)

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