

# CBCS Scheme

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16/17MCA22

Second Semester MCA Degree Examination, June/July 2018

## Object Oriented Programming using C++

Time: 3 hrs.

Max. Marks: 80

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

### Module-1

- 1 a. What is the difference between procedure oriented and object oriented programming? (08 Marks)
- b. Explain the salient features of object oriented programming languages. (08 Marks)

OR

- 2 a. What is constructor? Explain two different types of constructors with program example. (08 Marks)
- b. Describe the following:
  - i) Scope resolution operator
  - ii) Inline function. (08 Marks)

### Module-2

- 3 a. What are reference? Explain the three ways of using the reference with example. (08 Marks)
- b. Describe the following:
  - i) Array of object
  - ii) this pointer. (08 Marks)

OR

- 4 a. Explain the concept of passing reference to objects function, with an example. (08 Marks)
- b. Write a program to calculate the volume of different geometric shapes like cube, cylinder and sphere and hence implement the concept of function overloading. (08 Marks)

### Module-3

- 5 a. Describe the operator prefix ++ and postfix ++ operator with an example program. (08 Marks)
- b. Create a class called MATRIX using two-dimensional array of integers, implement the following operations by overloading the operator == which checks the compatibility of two matrix to be added and subtracted. Perform the addition and subtraction by overloading the + and - operators respectively. Display the results by overloading the operator << if  $(m_1 == m_2)$  then  $m_3 = m_1 + m_2$  and  $m_4 = m_1 - m_2$  else display error. (08 Marks)

OR

- 6 a. What is inheritance? Explain any two types of inheritance with program example. (08 Marks)
- b. Write a C++ program which demonstrate how parameters are passed to base-class constructor. (04 Marks)
- c. Write a C++ program simple inheritance concept by a base class FATHER with data members FirstName, SurName, DOB and BankBalance and creating 3 derived class SON, which inherits SurName and BankBalance feature from base class but provides its own feature FirstName and DOB, create and initialize F<sub>1</sub> and S<sub>1</sub> objects with appropriate constructor and display the father and son details. (04 Marks)

1 of 2

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-4

- 7 a. What are virtual functions? With example demonstrate the use of virtual functions. (08 Marks)  
b. Write a C++ program to create a template function for bubble sort and demonstrate sorting of integers and doubles. (08 Marks)

OR

- 8 a. What is abstract class? With example demonstrate the use of abstract class with an example. (08 Marks)  
b. What is exception? How exceptions are handled in C++ with program example. (08 Marks)

Module-5

- 9 a. Discuss the four built-in streams that are automatically opened when a C++ program begins execution. (08 Marks)  
b. Define the following:  
i) seekg()  
ii) seekp()  
iii) tellg()  
iv) tellp()  
v) precision()  
vi) width()  
vii) fill()  
viii) self(). (08 Marks)

OR

- 10 a. Write a program to implement FILE I/O operations on characters. I/O operations includes inputting a string, calculating length of string in a file, fetching the stored characters from it, etc. (08 Marks)  
b. What is STL? Describe vector with program example. (08 Marks)

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