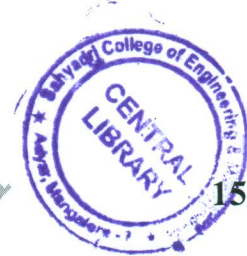


# CBCS SCHEME



15EC562

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## Fifth Semester B.E. Degree Examination, Dec.2018/Jan.2019 Object Oriented Programming using C++

Time: 3 hrs.

Max. Marks: 80

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

### Module-1

- 1 a. What is C++? List the applications of C++. (04 Marks)
- b. Describe the structure of a C++ program with an example. (08 Marks)
- c. When do we use cascading of input/output operators? Give example. (04 Marks)

OR

- 2 a. Write a C++ program to find the sum of digits of a given number.  
e.g If input number = 16738  
output is 25 i.e.  $1 + 6 + 7 + 3 + 8$ . (04 Marks)
- b. Explain the different types of expressions in C++. Give examples for each type. (any four) (08 Marks)
- c. With an example, describe the purpose of new and delete operators in C++. (04 Marks)

### Module-2

- 3 a. Mention the restrictions posed by the compiler on inline functions. (04 Marks)
- b. Design a class 'triangle' containing data items 'base' 'height' and four member functions setdata(), getdata(), displaydata() and findarea(), to set values to 'base' and 'height', to get the user input, to display and find area of triangle (i.e.  $\frac{1}{2} * \text{base} * \text{height}$ ) respectively. Write the main function which creates the object and uses the members of the class. (08 Marks)
- c. Discuss the different types of function overloading in C++. (04 Marks)

OR

- 4 a. When do we use default arguments? State the rules that need to be followed while using default arguments. (04 Marks)
- b. Draw a neat diagram and explain the process of memory allocation to objects in C++. (06 Marks)
- c. Develop a C++ program to define two classes namely husband and wife that hold a private member 'salary' respectively. Calculate and display the total income of the family using friend function. (06 Marks)

### Module-3

- 5 a. How are constructors differ from member functions of a class? (04 Marks)
- b. What is operator overloading? Give syntax and example. List the operators that cannot be overloaded. (06 Marks)
- c. Explain the significance of friend functions to overload operators. (06 Marks)

OR

- 6 a. Discuss the importance of dynamic constructors and destructor in a C++ class. (08 Marks)
- b. Write a C++ program to add two complex numbers by overloading the + operator. Also overload << and >> operators for reading and displaying the complex numbers. (08 Marks)

**Module-4**

- 7 a. What is inheritance? List its advantages. (04 Marks)  
b. Explain the visibility inheritance modes. Give an example. (08 Marks)  
c. Compare multiple inheritances with multilevel inheritance. (04 Marks)

OR

- 8 a. What is abstract class? Give an example. (04 Marks)  
b. Demonstrate the working of pointers as objects with a relevant example. (08 Marks)  
c. State the differences between virtual and pure virtual functions. (04 Marks)

**Module-5**

- 9 a. What is a data stream? Describe the hierarchy of file stream classes in C++. (08 Marks)  
b. Explain the following unformatted I/O functions : i) getline() ii) write(). (04 Marks)  
c. Compare and contrast width() and setw(). (04 Marks)

OR

- 10 a. How file opening and closing is done? What are the functions required for reading and writing data in a file. Explain with an example. (08 Marks)  
b. Create a C++ program to read a text file and find number of characters, words and lines in a file. (08 Marks)

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