

CBCS SCHEME

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17EC562

Fifth Semester B.E. Degree Examination, Dec.2023/Jan.2024 Object Oriented Programming Using C++

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. What are the tokens in C++? Explain any three types of tokens in C++. (06 Marks)
- b. What are the various types of expressions in C++? Explain any four types with suitable examples. (06 Marks)
- c. Write C++ program to calculate fractional of a number. (08 Marks)

OR

- 2 a. What are the various user defined types available in C++? Explain each in brief with suitable example. (06 Marks)
- b. Explain with the help of skeletal flow chart, the various control structures in C++. (08 Marks)
- c. Write a C++ program to reverse a member. e.g if input member is 58762 then your program should give output of 26785. (06 Marks)

Module-2

- 3 a. What is an inline function? What are its advantages? Under what situation inline function may not work? Explain with suitable examples. (08 Marks)
- b. Define a class to represent a student. Include the following members to your class :
Data members : Name of student, age, usn and percentage marks
Member functions : get and set functions to assign the values and display the values of data members. Write a driver program to test the class. (12 Marks)

OR

- 4 a. Write a C++ program to calculate MCF and LCM of two members using recursive function. (10 Marks)
- b. Explain in brief the following with respect to a class in C++.
 - i) Static variable and static member function
 - ii) Friend function and const member function. (10 Marks)

Module-3

- 5 a. Explain in brief the various characteristics of constructor, and destructor. (08 Marks)
- b. Develop a C++ class fraction with int type data members numerator and denominator provide member functions to allow user to input the data members, display the data members of fraction object and to add two fraction objects. (12 Marks)

OR

- 6 a. Explain the concept of operator loading with help of suitable example. Which operators cannot be overloaded? (10 Marks)
- b. Develop a C++ class time to represent time in hours, minutes and seconds. Class should have capability to create objects with no parameters three parameters posed. Over load the + operator to add two objects. (10 Marks)

Module-4

- 7 a. With the help of suitable examples, explain the various forms of inheritance supported by C++. (08 Marks)
- b. Develop an abstract class shape and use it as base class for two derived classes circle and rectangle provide a function in base class calculate_area() is pure virtual function and define it in both. Derived classes write a driver code to test. (12 Marks)

OR

- 8 a. What is polymorphism? Differentiate between compile time and runtime polymorphism with the help of suitable example, explain how runtime polymorphism is implemented in C++. (12 Marks)
- b. What is the significance of virtual base class? Develop a suitable program to explain the concept of virtual base class. (08 Marks)

Module-5

- 9 a. What are I/O manipulators? Explain any four I/O manipulators with help of suitable program segment. (08 Marks)
- b. What is file mode? Explain in brief the various file modes available in C++. (06 Marks)
- c. List the three basic classes in C++ which are used to support file handling. Write a program segment to open a file for reading and display its contents on console. (06 Marks)

OR

- 10 a. Explain in brief, the various IOS format function available in C++. (10 Marks)
- b. Write a program to read a text file and copy its contents into another text file. Use constructor to create file used to read the contents and use member function open() to open a file for writing. (10 Marks)
