

December 2023

B.Tech (ENC) III SEMESTER

Object Oriented Programming using C++ (ECP-303)

Time: 3 Hours

Max. Marks:75

Instructions:

1. It is compulsory to answer all the questions (1.5 marks each) of Part -A in short.
2. Answer any four questions from Part -B in detail.
3. Different sub-parts of a question are to be attempted adjacent to each other.

PART -A

- Q1 (a) How do we detect end of file in C++? Explain with a suitable example. (1.5)
- (b) Write the prototype of a function named summation which accepts two integer reference parameters and returns a floating point value (1.5)
- (c) What is dangling pointer ? (1.5)
- (d) List a few drawbacks of structured programming (1.5)
- (e) Differentiate between class and object (1.5)
- (f) When do we declare a function inline? (1.5)
- (g) What do you mean by friend class? (1.5)
- (h) Is it possible to have virtual destructors? Justify. (1.5)
- (i) State Liskov's Substitution Principle (1.5)
- (j) How is polymorphism implemented in C++? (1.5)

PART -B

- Q2 (a) Write a function called reversit () that reverses a string (an array of char). Use a for loop that swaps the first and last characters, then the second and next to last characters and so on. The string should be passed to reversit () as an argument. Write a program to exercise reversit (). The program should get a string from the user, call reversit (), and print out the result. Use an input method that allows embedded blanks. Test the program with Napoleon's famous phrase, "Able was I" to "I saw Elba". (10)
- (b) Explain with examples the different (Variable) storage classes used in C++ (5)
- Q3 (a) Discuss the role of this pointer. (5)
- (b) What do you mean by constructors? Why are they used? How do constructors and destructors work with inheritance, explain with a suitable example. (10)

- Q4 Create an abstract class Accounts with the following details:

Data Members:

Balance

AccountNumber

AccountHoldersName

Address

Methods:

withdrawl()- abstract
Deposit()- abstract
Display() to show the balance of the account number

Create a subclass SavingsAccount of this abstract class and add:

Data Members:

RateOfInterest

Methods:

CalculateAmount()

Display() to display the rate of interest with new balance and full account holder details.

Create object of this class and call its methods. Also define abstract methods of the base class in the derived class.

Q5 What are the basic characteristics of Object Oriented programming languages? (15)
Explain with a suitable example how inheritance is implemented in C++?

Q6 (a) What is a Template? Explain with the help of an example how to create a Function Template and a Class Template. (8)

(b) Write a program to get character input from the user and store those characters in a file (7)

Q7 Write short notes on (any three) (15)
a) Generic Classes
b) Exception Handling
c) Open Close Principle
d) Recursion and its types
