

**A-0879**

**Total Pages : 6**

**Roll No. -----**

**MCS-502/MIT (CS)-303**

**OOPS using C++**

**M.Sc. Cyber Security (MSCCS)**

**3<sup>rd</sup> Semester Examination 2024(Dec.)**

**Time: 2:00 hrs**

**Max. Marks: 70**

**Note :** This paper is of Seventy (70) marks divided into Two (02) Section A and B. Attempt the questions contained in these sections according to the detailed instructions given therein. Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

**P.T.O.**

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## Section-A (Long-Answer-Type Questions)

Note : Section 'A' contains Five (05) long-answer-type questions of Nineteen (19) marks each. Learners are required to answer any Two (02) questions only.

[2x19=38]

Q.1. Answer the following:

- a. Explain briefly characteristics of Object Oriented Programming language and mention advantages of OOPS approach over function/procedural programming. [7]
- b. Explain the steps involved in reading and writing a file in a C++ program. [7]
- c. Compare while ( ) and do-while ( ) looping constructs with the help of suitable example for each. [5]

Q.2. Answer the following:

- a. Explain the different types of constructors in C++. [6]
- b. Write a C++ program to add two complex numbers using overloading “+” operator. [3]

- c. How is function overloading implemented in C++? Explain with an example program.

[10]

Q.3. Answer the following:

- a. Write a C++ program to display number of objects created using static member. [5]
- b. State any four points of differentiation between compile time polymorphism and run time polymorphism. [7]
- c. Define a class named 'Bank Account' to represent following members: [7]

Data Members:-

- Account Number
- Name of depositor
- Account type
- Balance amount

Member functions:-

- initialize members
- deposit amount
- withdraw amount
- display balance

Write a C++ program to test the Bank Account class for 10 customers.

P.T.O.

Q.4. Answer the following:

- a. Write a program in C++ to open an existing file and insert the text “My C++ file” at the end of it. Incorporate suitable comments, to improve the code readability. [10]
- b. Explain the difference between public, private and protected, access specifiers with respect to classes in C++. [6]
- c. Discuss in brief the data types in C++ programming. [3]

Q.5. Answer the following:

- a. Write a C++ program to define class “Circle” and implement the following: [10]
  - i. a constructor
  - ii. a member function to find area of a circle
  - iii. a member function to find circumference of a circle.
- b. Explain accessing member data and returning vales using “this” pointer. [9]

## **Section-B (Short-Answer-Type Questions)**

Note : Section 'B' contains Eight (08) short-answer-type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only.

[4x8=32]

- Q.1. Write a C++ program that replaces the string “Computer” in the String “Diploma in Computer Engineering” with string “Information Technology”.
- Q.2. Write a C++ program to calculate sum of distance and display the results using friend function.
- Q.3. Define virtual functions. Explain method of calling a virtual function through a base class reference.
- Q.4. Write a program to sort ten integer numbers.

P.T.O.

- Q.5. Explain public and private inheritance with example.
- Q.6. Explain passing arrays to functions and arrays as objects.
- Q.7. Explain the specification of class, and using objects as function arguments.
- Q.8. Explain the method of passing simple data types to functions by reference.

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