

Course Name : BSCIT

Subject Name : Object Oriented Programming using C++

Subject Code : BSCITRMI-203

Date : 24-02-2026

Time : 11:30AM TO 01:45PM

Max Marks : 70

Section A

Q.-1. Answer the following (Attempt any three)

(30)

- (1) What is Object-Oriented Programming (OOP)? Explain its fundamental concepts and contrast them with the procedural programming paradigm.
- (2) Discuss the benefits of Object-Oriented Programming. Compare and contrast three OOP languages: C++, Java, and Smalltalk, highlighting their key features and design philosophies.
- (3) What is polymorphism? Explain in detail the two types of polymorphism.
- (4) What is function overloading? Explain the rules for overloading functions. What are default arguments? Write a program demonstrating function overloading and default arguments.
- (5) What are constructors and destructors? Explain the different types of constructors with examples. When is a destructor invoked?

Section B

Q.-2. Write short notes on any four of the following topics.

(20)

- (1) What is an array of objects? Write a simple program to declare an array of objects for aStudentclass and accept data for 3 students.
- (2) Explain the visibility modes (private,protected,public) in inheritance with respect to base class members. Use a table to summarize
- (3) What is a virtual base class? Why is it necessary in the context of multiple inheritance to avoid ambiguity?
- (4) Explain the use of break and continue statements within loops. How do they alter the normal flow of control?
- (5) Differentiate between the prefix and postfix forms of the increment (++) and decrement (--) operators with examples.
- (6) Explain the concept of encapsulation and data hiding. How are they implemented in a C++ class?

Section C

Q.-3. Multiple Choice Questions

(10)

(1) In C++, function overloading is an example of:

- | | |
|--------------------------|------------------------------|
| A) Run-time Polymorphism | B) Compile-time Polymorphism |
| C) Inheritance | D) Encapsulation |

(2) By default, members of a C++ class are:

- | | |
|--------------|------------|
| A) public | B) private |
| C) protected | D) static |

(3) Which header file is required for using the cin and cout objects for I/O?

- | | |
|---------------|------------|
| A) conio.h | B) stdio.h |
| C) iostream.h | D) math.h |

(4) What is the output of the expression 7 % 2?

- | | |
|------|--------|
| A) 3 | B) 3.5 |
| C) 1 | D) 0 |

(5) Which loop will execute its body at least once?

- | | |
|------------------|---------------------|
| A) for loop | B) while loop |
| C) do-while loop | D) All of the above |

(6) What is the correct way to declare a pointer p to an integer?

- A) int *p;
- B) int p*;
- C) pointer int p;
- D) *int p;

(7) The strlen() function returns:

- A) The string itself
- B) A pointer to the string
- C) The length of the string (excluding the null character)
- D) The memory address of the string

(8) In a structure, the dot (.) operator is used to:

- A) Declare a structure variable
- B) Access a member of a structure variable
- C) Define a structure
- D) Compare two structures

(9) What is the scope resolution operator (::) used for?

- A) To access global variables hidden by local variables
- B) To create a new scope
- C) To end a statement
- D) To access private members of a class from outside

(10) What is the primary use of the goto statement?

- A) To create loops
- B) To transfer control unconditionally to a labeled statement
- C) To exit a function
- D) To skip the current iteration of a loop

Section D

Q.-4. State whether the following statements are true or false

(10)

- (1) In procedural programming, data and functions are tied together in a single unit.
- (2) Data hiding means data is accessible from outside the class but cannot be modified.
- (3) A break statement terminates the entire program.
- (4) All members of a C++ class are public by default.
- (5) The static keyword can be used to define a data member that is shared by all objects of a class.
- (6) switch statement can be used with expressions of any data type.
- (7) In C++, every program must contain a main() function.
- (8) The sizeof operator returns the number of bytes required for a variable or data type at runtime.
- (9) A virtual base class is used to prevent multiple copies of a base class in multiple inheritance.
- (10) The const keyword is used to define symbolic constants in C++.
