

B.Sc Sem.-3 (NEP) Examination**DSC-C-231****Computer Science****Time : 2-00 Hours]****December-2024****[Max. Marks : 50**

- Q1 Explain the concept of Object-Oriented Programming (OOP) in C++ and how it differentiates C++ from procedural languages like C. (10)
- OR
- Q1 What is the difference between compile-time and run-time in C++? Provide examples of each and discuss. (10)
- Q2 Explain the difference between declaring a variable and defining a variable in C++. Provide an example to support your answer. (10)
- OR
- Q2 What is the difference between int and unsigned int in C++? Give examples where using unsigned int might cause unexpected behaviour. (10)
- Q3 Explain how the increment (++) and decrement (--) operators work in both prefix and postfix forms. Demonstrate with code examples showing how these operators affect variable values and expressions differently in each form. (10)
- OR
- Q3 Consider the expression `result = a++ + ++b + c--;`. Explain the order in which operations are performed, how intermediate values are assigned, and determine the final result if `a = 3`, `b = 4`, and `c = 5`. (10)
- Q4 Evaluate the expression `int x = (y = 3) * (z = 2 + 3);`. Explain the concept of assignment as an expression in C++ and determine the values of `x`, `y`, and `z` after execution. (10)
- OR
- Q4 Given `int a = 4, b = 3, c = 2;`, evaluate the expression `int result = a * b / c + a % b;`. Explain the role of operator precedence and associativity in determining the result. (10)
- Q5 Short Question Attempt any ten out of twelve.(1 Marks each)** (10)
- 1) Match the term in Column A with its correct purpose or definition in Column B:

Column A	Column B
1. <code>std::</code>	A. Used to terminate a statement in C++
2. Semicolon (<code>;</code>)	B. The scope resolution operator in C++
3. <code>main()</code>	C. Used to start execution in a C++ program
4. <code>//</code>	D. Used to write single-line comments

Write answer in paper like 1 - A, 2 - B, 3 - C, 4 - D

- 2) Match the C++ concept in Column A with its correct description in Column B:

Column A	Column B
1. #include <iostream>	A. Used to store floating-point values
2. int	B. Library for standard input/output operations
3. cout	C. Returns an integer value from a function
4. return	D. Outputs data to the console

Write answer in paper like 1 - A, 2 - B, 3 - C, 4 - D

- 3) The correct syntax to include a standard header file in C++ is #include ____.
- 4) The statement `std::cout << "Hello";` sends the string ____ to the standard output.
- 5) In C++, a single line comment can be started using the symbols ____.
- 6) In C++, the keyword used to declare a constant integer that cannot be modified is ____, and trying to modify its value will result in a ____ error.
- 7) **True or False:** In C++, the int data type is used only to store positive whole numbers.
- 8) **True or False:** Declaring a variable in C++ without initializing it always sets it to zero by default.
- 9) **True or False:** The double data type in C++ is always more precise than the float data type.
- 10) **True or False:** In C++, the keyword const can be used to declare a variable whose value can change throughout the program.
- 11) **True or False:** The C++ char data type can only hold letters from the alphabet.
- 12) **MCQ:** Which of the following statements correctly declares a variable and assigns an initial value to it in C++?

A. `int number == 10;` B. `int number = 10;` C. `number int = 10;` D. `int = 10 number;`

ALL THE BEST