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| **SESSION** | **MAY 2023** |
| **PROGRAM** | **Bachelor of COMPUTER APPLICATION (bCA)** |
| **SEMESTER** | **II** |
| **course CODE & NAME** | **DCA1203 – object oriented programming – c++** |
| **CREDITS** | **4** |

**Set-I**

1. **What is control statement? Explain the following Conditional control statements with suitable syntax and example.**

**i) Nested If statement**

**ii) switch-case**

**Ans:** A control statement is a programming construct that allows the execution of certain code blocks based on specified conditions or criteria. It helps in controlling the flow of execution in a program.

**There are two conditional control statements:**

Nested if statements and "Its Half solved only

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1. **What is Iteration? Explain the following loop structures with suitable syntax and example.**

**i) While loop**

**ii) Do-while**

**Ans: Iteration refers** to the repetition of a set of statements or a code block until a certain condition is met. Loop structures in programming provide a way to implement iteration. In this response, I will explain two loop structures: the while loop and the do-while loop.

1. **While loop**

**2. Describe Static variables and Static Functions in detail with suitable example program.**

Ans: Static variables and static functions are features in programming languages, including C++, that provide unique behaviors and usage compared to their non-static counterparts. Let me explain each of them in detail and provide an example program. Static Variables: Static variables are variables that retain their values across multiple function calls. They are initialized only

**3. What is Inheritance? Explain the following Inheritance types with suitable syntax and example.**

1. **Multiple Inheritance**
2. **Multi-level Inheritance**
3. **Hierarchical Inheritance**
4. **Hybrid Inheritance**

Ans: **Five types of inheritance:**

* Single Inheritance
* Multiple Inheritance
* Multilevel Inheritance
* Hierarchical

**Set-2nd**

**4. What is polymorphism? Explain the following types of polymorphisms and its sub-types with suitable example programs.**

1. **Compile time polymorphism**
2. **Run-time polymorphism**

**Ans:** Polymorphism is a fundamental concept in object-oriented programming that allows objects of different classes to be treated as objects of a common superclass. It enables the same method or function to be called on different objects, resulting in different behaviors based on the object's specific implementation.

**There are two main types of polymorphism:**

**5. Demonstrate the process of opening a file using constructor with suitable example programs.**

**Ans:** To open a file using a constructor, you can use the constructor of the std::if stream class from the C++ Standard Library. The constructor takes a filename as a parameter and opens the file for input operations.

**Here's an example program that demonstrates opening a file using a constructor:**

#include <iostream>

**6. Explain the following Sequence Containers**

1. **Vector**
2. **Deque**

**Ans: There are** two sequence containers:

Vector and Deque.

**i. Vector:**A vector is a dynamic array that provides contiguous storage for elements. It is one of the most commonly used sequence containers in C++.

**Vectors have several key characteristics:**

**Contiguous Memory:** The elements of a vector are stored in a contiguous block of memory, allowing for efficient