



VIT[®]
Vellore Institute of Technology
Creating the Future, One Education at a Time

Final Assessment Test – May 2024

Course: CBS1002 - Object Oriented Programming

Class NBR(s): 3576/3578

Time: Three Hours

Slot: G2+TG2

Max. Marks: 100

- KEEPING MOBILE PHONE/ELECTRONIC DEVICES EVEN IN 'OFF' POSITION IS TREATED AS EXAM MALPRACTICE
- DON'T WRITE ANYTHING ON THE QUESTION PAPER

Answer any TEN Questions**(10 X 10 = 100 Marks)**

1. Explain the different types of programming paradigms with an example and justify the need of Object Oriented Programming in real life scenario.
2.
 - a) Why it might be useful to define a copy constructor for a C++ class? [3]
 - b) Give an example of a copy constructor for a simple class. [2]
 - c) Define the assignment operator (=) explicitly for a C++ class? Give an example definition of the assignment operator for a simple class. [5]
3. Using C++, create a class Cuboid with the attributes: length, breadth and height. Ensure that all the attributes values are set to 1 using parameterized constructors. Use 'this pointer' to access the class attributes. Create array of objects representing three cuboids. Get two cuboid dimensions from the user and one should use the default values. Define a member function to compute the volume of the cuboid and display the same. Destroy the objects properly.
4. Write a program to Implement a Matrix class. Perform matrix multiplication using binary operator overloading and matrix copy using overloading of assignment operator.
5.
 - a) What does public Inheritance mean? Also explain protected and private inheritance. [5]
 - b) Create base classes Patient (pat-name, age, sex) and IPD (ward-no, bed-no, charge-per-day). Derive a class IPD-patient from these two base classes with no-of-days-admitted attribute. Create two objects of the class IPD-patient and display the results in the main function. [5]
6. Create a class that stores the details about a room in a hotel (room no, type, cost, tv, intercom, refrigerator, status). Create a class that maintains the customer details (name, age, address, phone no). Allow booking of the room by the customer after checking the status of its availability. Have the status as a static variable so that only one copy of status exists for all the customers.
7. Write a C++ program to find the volume of cube, cylinder, sphere, cone and rectangular box using function overloading.
8. Create a C++ class for player object with the following attributes player no., name, number of matches and number of goals done in each match. The number of matches varies for each player. Write parameterized constructor which initializes player no., name, and number of matches and create an array for number of goals and number of matches dynamically.

9. a) Write short notes on predefined streams. [5]
b) Create a new file to store and retrieve the student marks details using file I/O classes. [5]
10. Write a C++ program that calculates the average of N integers. The program should prompt the user to enter the value for N and then afterward must enter all the N numbers. If the user enters a nonpositive value for N, then an exception should be thrown (and caught) with the message "N must be positive." Then the user should be prompted to enter the number again and display the average of N integers.
11. Distinguish between call by value, call by reference, pass by reference and return by reference with an example.
12. a) Write a C++ program to illustrate the use of class template. [5]
b) Write a C++ program to search an element in an array using Function template. [5]

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