Subject: Object Oriented Programming (CT 501)

Most of the questions are from previous old questions
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LABSHEET

Do not need to submit initial report. But,
Code the program's in house before entering into lab

Discuss only important and confusing points in lab, do not enter in lab with zero knowledge.

Each sheet has number of questions and in each lab I will take an exam of same number of students. One student has to program the random number generation to select the roll number of the students. There is no final exam because this exam is considered as final exam with 10 marks.

Bring your LABSHEET in the lab.

LABSHEET 1: Namespace and Functions

1. Define two namespaces: Square and Cube. In both the namespaces, define an integer variable named "num" and a function named "fun". The "fun" function in "Square" namespace, should return the square of an integer passed as an argument while the "fun" function in "Cube" namespace, should return the cube of an integer passed as an argument. In the main function, set the integer variables "num" of both the namespaces with different values. Then, compute and print the cube of the integer variable "num" of the "Square" namespace using the "fun" function of the "Cube" namespace and the square of the integer variable "num" of the "Cube" namespace using the "fun" function of the "Square" namespace.

2. Write a program to calculate and display the cube of integer, float and double number using function overloading (passing single argument to function).

3. Write the program that uses pass by reference to change meter to centimeter using pass by reference along with the namespace.

4. Write a program to find the area of triangle (when three sides are given) and area of rectangle using function overloading and default argument).

LABSHEET 2: Class and Objects

1. Write a program to create class "time" with data members hours, minute and second. Then add two "time" objects by taking object as argument and also returning object as argument.

2. Write a program to calculate the Perimeter of Triangle using Default and Parameterized constructors.

3. Write a program to find the transpose of given Matrix using the concept of Object Oriented Programming.

4. Write a program to create a class vector that reads integer number. Perform vector addition by passing object as argument and returns the object as result. A vector is a class with array as member.

LABSHEET 3: Friend function and Friend class

1. Write a program to display N number of characters by using default arguments for both parameters. Assume that the function takes two arguments one character to be printed and other number of characters to be printed.

2. Write u program to create a class LandMeasure that readsRopani, Ana, Paisa and Dam as data members. Write a function to pass two objEcts of type Land Measure and return their sum. (16 Ana = I Ropani, 4 Paisa: I Ana,4 Dam: I Paisa).

3. Create a class mdistance to store the values in meter and centimeter and class edistance to store values.in.feet and inches. Perform addition of object of mdistance and object of edistance by using friend function and friend class.

LABSHEET 4: Operator Overloading

1. Write operator functions as member function of a class to overload arithmetic operator +, logical operator '<=' and stream operator << to operate on the objects of user defined type time (hr, min, sec).

2. Write a program to overload the relational operators to compare the length (in meter and centimeter) of two objects.

3. Develop a program using a class to with3x3 matrix as a data member. Overload the * operators so as multiply two matrices.

4. Write a program to add two matrices by overloading the + operator.

5. Create a class having an array as member. Overload index operator ([ ]) to input and display the elements in the array.

LABSHEET 5: Casting and Inheritance

1. Write a program that will convert object from a class Rectangle to object of a class Polar using Casting Operator.

2. . Create a derived class manager from two base classes' person and employee. Assume suitable data members in each class and display the information.

3. Write a program to create classes to represent student, teaching staffs and nonteaching staffs from the base class person. Use proper members in the classes to make your program meaningful.

4. Write a program with three class's students, test and result by using multilevel inheritance. Assume necessary data members and functions yourself and program with input information, input data and calculate marks total and display result.

LABSHEET 6: Virtual Function and Exception handling

1. Write a program having polygon as an abstract class with Length and Height as its data member. Create derived class Rectangle and Triangle. Make Area ( ) as pure virtual function and redefined it in derived class to calculate respective area.

2. Write a program having student as an abstract class and create derived class such as Engineering Science and Medical. Show the use of virtual functions in this program.

3. Write a program to find the square root of given number. Check the validity of input number and raise the exception as per requirement.

5. Write a program to create class "time" with data members hours, minute and second. Then add two "time" objects by taking object as argument and also returning object as argument but throw exception if invalid data is entered and handle the exception as well.

6. Write a program to read your Date of Birth and display it. Your program should throw multiple exceptions for day, month and other values not in range using exception class and each exception is handled by separate handle.

LABSHEET 7: File handling

1. Write a program to write the Information of 10 employees in a file. And also display their details in console.

2. Write a program to store and retrieve the information of patient (Patient_ID, name, address, age and type) in hospital management system.

3. Create class student to store Name, Age and CRN of students. Write a program to write records of N numbers of students into the file. And your program should search complete information of students from file according to CRN entered by user and display it