BCA-4th Semester Lab Assignment-2020
Subject: C++
Paper: 2296 (Practical)
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Q.1	Write a C++ program to design a class **Complex** with data members for real and imaginary part. Provide default and parameterized constructors and member functions to **get(), set(), display(), add(), subtract(), multiply(), and divide()** two **complex numbers.**
2	Write a C++ program to read two times and add them .To create a class to represent time (Hour,Minute,Second) in 24 Hour Format.
3	Write a C++ program to design a class cylinder and the operations on cylinder as follows : a) Calculate the volume. B) Calculate the surface area. c) Find the area of cylinder base. d) Set the radius , height and the center of the base.
4	Write a C++ program to find the **area** and **perimeter** of **square** and **triangle** by creating the class **shape, square, triangle** and required data members and functions like input **values(), area(), perimeter().**
5	Write a C++ program to create a class **point** that consists of x and y co-ordinates and using this design a class **Linesegment** which consists of two points. Use appropriate constructors and destructors. Write a function **compare-lines** to check whether two line segments are parallel or perpendicular or not.
6	Write a C++ program to overload ' + , - , * ' operator to addition, subtraction and multiplication of two matrices same order
7	Write a C++ program to check the following operations on the class **STACK** as : a) Current Status. B) Push an item. C) pop an item, d) Empty stack or not.
8	Write a C++ program to create a **String** class and do the following : a) Write a **toggle()** member function that converts all alphabetic characters present in an input string to lowercase if it is in upper-case and to upper-case if it is in lower-case.. b) Overload the + operator to allow you to join two strings into one.
9	Write a C++ program to find the **area** and **perimeter** of triangles by creating the class **triangles, isosceles, equilateral** and required data members and functions like **values(), area(), perimeter().**
10	Write a C++ program to check the following operations on the class **QUEUE** as : a) insert element to the queue. B) Delete an element from the queue. C) Destroy the queue.
11	Write a C++ program to create a class consisting of four **points** that consists of x and y co-ordinates and using this design a class **Quadrilateral.** appropriate constructors and destructors. Write a function to check whether the quadrilateral is a **square or rectangle or trapezoid or a rhombus.**
12	Write a C++ program to overload input and output **operators >> and <<** to take complex numbers from user. Now overload addition and multiplication operators **+ and *** to demonstrate **addition** and **multiplication** of two complex numbers.
13	Write a C++ program to **overload ++ and [] operator.**
14	Write a C++ program to implement runtime Polymorphism. Use proper constructor data member and functions.
15	Write a C++ program to make **function template** program which can **swap two variables** which may be int, float or character.

16	Write a C++ program to make **function template** program which can Sort n numbers using **bubble sort/selection sort/insertion sort/merge sort/quicksort method.**
17	Write a C++ program to write a function **matmul()** using **function template** and **multiply two matrices**. Invoke the functions to operate on **two integer matrices and two float matrices**. Write a display method to show the result.
18	Write a C++ program that uses a **stack** to print the **prime factors** of positive integer in **descending order.**
19	Write a C++ program to create a **template class for stack** and suitable member functions to show the operation of stack.
20	Write a C++ program that accepts a date as input and displays the number of Sundays and the corresponding dates of the month.
21	Write a C++ program to demonstrate single inheritance that uses both public and private access specifier.
22	Write a C++ program to demonstrate multiple inheritance that uses both public and private access specifier.
23	Write a C++ program to demonstrate hybrid inheritance that uses both public and private access specifier.
24	Write a C++ program that uses inline function to count the number of vowels,consonant,integers in a string.