**Q1.STATEMENT:**

Write a C++ program to swap the values of two variables using Call by value and Call by reference mechanism.

**Q2.STATEMENT:**

Design a class called ”Complex” that represents complex numbers.The class should contain data members that stores real and imaginary parts. Moreover, it should contain member functions that can implement the elementary operations (Addition, Subtraction, Multiplication and division) of two complex numbers. Furthermore, the class should contain Print() member function that print complex numbers and the result of elementary operation on the screen in the form a + ib.

**Q3.STATEMENT:**

Write a program to calculate the age of a person and height in cms when year of birth and height in meters is known.

**Q4.STATEMENT:**

Create a base class called 'SHAPE' having two data members of type double member function get data( ) to initialize base class data members pure virtual member function display area ( ) to compute and display the area of the geometrical object. Derive two specific classes 'TRIANGLE' and 'RECTANGLE' from the base class. Using these three classes design a program that will accept dimension of a triangle / rectangle interactively and display the area.

**Q5.STATEMENT:**

Create a class 'COMPLEX' to hold a complex number. Write a friend function to add two complex numbers. Write a main function to add two COMPLEX objects.

**Q6.STATEMENT:**

Write Program to demonstrate use of constructors and destructors for performing dynamic operations

**Q7.STATEMENT:**

Create a class called 'TIME' that has three integer data members for hours, minutes and seconds constructor to initialize the object to zero constructor to initialize the object to some constant value member function to add two TIME objects member function to display time in HH:MM:SS format . Write a main function to create two TIME objects, add them and display the result in HH:MM:SS format.

**Q8.STATEMENT:**

Write a C++ program to overload unary operator ++ and – to work with counter class object. The counter class should have one data member as count.

**Q9.STATEMENT:**

Write a C++ program to add, subtract and multiply two matrices using operator overloading.

**Q10.STATEMENT:**

Alisha always gets confused with the operators used with strings. When she has to concatenate two strings suppose string1 and string2, she used to write string1+string2. And when she has to compare whether the two strings are equal or first string is greater or smaller than string 2 again she writes like string1==string2,string1>strin2 and string1<string2. Which gives the error in program as these operators does not work with strings directly. So, help out her to work these operators with strings directly.

**Q11.STATEMENT:**

Write a c++ program to create a super class named as figure. Derive two classes from super class named as rectangle and triangle. Create a member function of same name in all the three classes which will calculate area of shapes by making member function of super class as virtual.

**Q12.STATEMENT:**

A company pays its employees weekly. The employees are of three types: Salaried employees are paid a fixed weekly salary regardless of the number of hours worked, commission employees are paid a percentage of their sales and base-salary-pluscommission employees receive a base salary plus a percentage of their sales. For the current pay period, the company has decided to reward base-salary-pluscommission employees by adding 10 per cent to their base salaries. The company wants to implement a C++ program that performs its payroll calculations polymorphically.

**Q13.STATEMENT:**

Distinguish early binding from late binding with use of C++ program.

**Q14.STATEMENT:**

A university with different departments where each department has number of employees working for university. The Head office personal wants to access information of employees of a particular department from respective department clerk where clerk is same name used by each department. How information could be gathered by concept of polymorphism.

**Q15.STATEMENT:**

Implementation of bubble sort using templates.

**Q16.STATEMENT:**

Implementation of exception handling.

**Q17.STATEMENT:**

Start with the person class, and create a multiset to hold pointers to person objects. Define the multiset with the compare function object, so it will be sorted automatically by name of persons. Define half dozen persons, put them in the multiset, and display its contents. Several of the persons should have the same name, to verify that the multiset stores multiple objects with the same key.

**Q18.STATEMENT:**

Write a C++ code to find the number of lines in a text file.

**Q19.STATEMENT:**

Start with a list of int values. use two normal (not reverse) iterators ,one moving forward through the list and one moving backward ,in a while loop, to reverse the contents of the list. You can use the swap() algorithm to save a few statements.(make sure your solution works for both even and odd number of items).

**Q20.STATEMENT:**

Write C++ program to append the Content of File at the end of another.

**Q21.STATEMENT:**

An application that maintains the record of student details along with their attendance and marks (one subject) for all the students in a class. The application also answers the student queries related to marks and attendance. For example if the student wants to know his attendance or marks in the course, he enters his Roll No. and the details of the student are displayed along with the required data. Write C++ program for the application.