C CLASS PRACTICE PROGRAMS

Basic Declarations and Expressions

1. Write a C program to print your name, date of birth. and mobile number.
2. Write a C program to print a block F using hash (#), where the F has a height of six characters and width of five and four characters. And also to print a big 'C'.
3. Write a C program that accepts three integers and finds the maximum of three.
4. Write a C program that reads two integers and checks whether they are multiplied or not.
5. Write a C program to read a password until it is correct. For wrong password print "Incorrect password" and for correct password print "Correct password" and quit the program. The correct password is 1234
6. Write a C program to read an array of length 6, change the first element by the last, the second element by the fifth and the third element by the fourth. Print the elements of the modified array
7. Write a C program that accepts principal amount, rate of interest and days for a loan and calculate the simple interest for the loan, using the following formula.

Basic Part-II

1. Write a C program that takes n number of positive integers. Find the integer that appears the least number of times among the said integers. If there are multiple such integers, select the smallest one.
2. Write a C program that takes a string and two integers (n1, n2). Now reverse the sequence of characters of the string between n1 and n2.
3. Write a C program that accepts three integers from the user and find the second largest number among these.
4. Write a C program that accepts two sequences ((a1, a2, .. an), (b1, b2, .. bn)) of integers as input. Find all integers that appear in both sequences, one by one, in ascending order.
5. Write a C program that accepts a sequence of different values and calculates the sum of the values before, after the maximum value.The sum of the values before the maximum value is 0, if there are no values before the maximum. Similarly, the sum of the values after the maximum value is 0, if there are no values after the maximum.
6. Write a C program that accepts a sequence of positive integers from the user and find the length of the longest contiguous subsequence from the said sequence.

7. Write a C program that accepts three integers A, B, X. Out of the integers between A and B (inclusive) find the smallest absolute value of difference from X.

Basic Algorithm

1. Write a C program to compute the sum of the two given integer values. If the two values are the same, then return triple their sum.
2. Write a C program to check whether three given integer values are in the range 20..50 inclusive. Return true if 1 or more of them are in the said range otherwise return false.
3. Write a C program to count the number of two 5's are next to each other in an array of integers. Also count the situation where the second 5 is actually a 6.
4. Write a C program to check whether two or more non-negative given integers have the same rightmost digit.
5. Write a C program to create a new array containing the middle elements from the two given arrays of integers, each length 5.
6. Write a C program to compute the sum of values in a given array of integers except the number 17. Return 0 if the given array has no integer.
7. Write a C program to check a given array of integers and return true if the specified number of same elements appears at the start and end of the given array.

Variable Type

1. Write a C program to convert a string to a double.
2. Write a C program to generate a random number.
3. Write a C program to return the quotient and remainder of a division.
4. Write a C program to convert a string to an integer.

Input, Output

1. Write a C program that calculates the volume of a sphere.
2. Write a C program that prints the perimeter of a rectangle to take its height and width as input.
3. Write a C program that converts kilometers per hour to miles per hour.
4. Write a C program that takes hours and minutes as input, and calculates the total number of minutes.
5. Write a program in C that takes minutes as input, and display the total number of hours and minutes.
6. Write a program in C to calculate the sum of three numbers with getting input in one line separated by a comma.
7. Write a C program to find the third angle of a triangle if two angles are given.

Conditional Statement

1. Write a C program to accept two integers and check whether they are equal or not.
2. Write a C program to check whether a given number is positive or negative.
3. Write a C program to find whether a given year is a leap year or not.
4. Write a C program to find the largest of three numbers.
5. Write a C program to accept a coordinate point in a XY coordinate system and determine in which quadrant the coordinate point lies.
6. Write a C program to read roll no, name and marks of three subjects and calculate the total, percentage and division.
7. Write a C program to read temperature in centigrade and display a suitable message according to temperature state below :
    a. Temp < 0 then Freezing weather
    b. Temp 0-10 then Very Cold weather
    c. Temp 10-20 then Cold weather
    d. Temp 20-30 then Normal in Temp
    e. Temp 30-40 then Its Hot
    f. Temp >=40 then Its Very Hot
8. Write a C program to check whether an alphabet is a vowel or consonant.
9. Write a program in C to read any Month Number in integer and display Month name in the word.

Loop

1. Write a program in C to display the n terms of odd natural numbers and their sum .Write a program in C to print the Floyd's Triangle.

    1

    01

    101

    0101

    10101

2. Write a program in C to find the sum of the series 1 +11 + 111 + 1111 + .. n terms.Write a c program to find the perfect numbers within a given number of range.Write a program in C to display the pattern like a diamond.

```
    *
   ***
  *****
 *******
*********
 *******
  *****
   ***
    *
```

3. Write a C program to display Pascal's triangle.

```
      1
    1   1
  1   2   1
1   3   3   1
1   4   6   4   1
```

4. Write a program in C to display the such a pattern for n number of rows using a number which will start with the number 1 and the first and a last number of each row will be 1.

```
  1
 121
12321
```

5. Write a C Program to display the pattern like a pyramid using the alphabet.

```
      A
    A B A
  A B C B A
A B C D C B A
```

6. Write a program in C to print a string in reverse orderWrite a program in C to check Armstrong number of n digits.

7. Write a C program to find HCF (Highest Common Factor) of two numbers.
8. Write a program in C to find LCM of any two numbers.

Array

1. Write a program in C to store elements in an array and print it.
2. Write a program in C to sort elements of the array in descending order.
3. Write a program in C for subtraction of two Matrices.
4. Write a program in C to find the Floor and Ceil of the number 0 to 10 from a sorted array.
5. Write a program in C to find the smallest positive number missing from an unsorted array.
6. Write a program in C to check whether an array is a subset of another array.
7. Write a program in C to search an element in a row wise and column wise sorted matrix.
8. Write a program in C to print all unique elements of an unsorted array.
9. Write a program in C to find the minimum distance between two numbers in a given array.
10. Write a program in C to find the maximum n – m such that array[n] > array[m] from a given array[].
11. Write a program in C to find the maximum for each and every contiguous subarray of size k from a given array.
12. Write a program in C to rearrange an array such that even index elements are smaller and odd index elements are greater than their next.

Pointer

1. Write a program in C to add two numbers using pointers.
2. Write a program in C to add numbers using call by reference.
3. Write a program in C to store n elements in an array and print the elements using a pointer.
4. Write a program in C to print all permutations of a given string using pointers.
5. Write a program in C to Calculate the length of the string using a pointer.
6. Write a program in C to swap elements using call by reference.
7. Write a program in C to count the number of vowels and consonants in a string using a pointer.
8. Write a program in C to show how a function returns a pointer.
9. Write a program in C to print a string in reverse using a pointer.

Linked List

1. Write a program in C to create a singly linked list of n nodes and display it in reverse order.
2. Write a program in C to insert a new node at the beginning of a Singly Linked List.
3. Write a program in C to insert a new node in the middle of a Singly Linked List.
4. Write a program in C to delete a node from the middle of a Singly Linked List.
5. Write a program in C to create a doubly linked list and display in reverse order.
6. Write a program in C to insert a new node at the end of a doubly linked list.
7. Write a program in C to insert a new node at the middle in a doubly linked list.
8. Write a program in C to find the maximum value from a doubly linked list.
9. Write a program in C to insert a node at the beginning of a circular linked list.
10. Write a program in C to delete a node from the beginning of a circular linked list.
11. Write a program in C to delete the node at the end of a circular linked list.
12. Write a C programming to sort a given linked list by bubble sort.

String

1. Write a program in C to input a string and print it.
2. Write a program in C to compare two strings without using string library functions.
3. Write a program in C to find the maximum occurring character in a string.
4. Write a program in C to extract a substring from a given string.
5. Write a program in C to Find the Frequency of Characters.
6. Write a program in C to find the largest and smallest word in a string.
7. Write a program in C to check whether a character is Hexadecimal Digit or not.
8. Write a program in C to count the number of punctuation characters that exist in a string.
9. Write a program in C to split a string by space into words.
10. Write a C programming to convert vowels into uppercase characters in a given string.
11. Write a C programming to multiple two given positive numbers represented as a string. Return a string representation of the product.
12. Write a C programming to replace each lowercase letter with the same uppercase letter of a given string. Return the new string.

Math

1. Write a C program to reverse the digits of a given integer.
2. Write a C program to check whether an integer is a palindrome or not. An integer is a palindrome when it reads the same forward as backward.

3. Write a C program to calculate x raised to the power n (x^n).
4. Write a C program to check if a given string can be interpreted as a decimal number.
5. Write a C program to get the Excel column title that corresponds to a given column number.
6. Write a C program to find the number of trailing zeros in a given factorial.
7. Write a C programming to check if a given integer is a power of three.
8. Write a C programming to get the maximum product from a given integer after breaking the integer into the sum of at least two positive integers.
9. Write a C program to multiply two integers without using multiplication, division, bitwise operators, and loops.
10. Write a C program to find the next smallest palindrome of a given number.
11. Write a C program to find angle between given hour and minute hands.

Function

1. Write a program in C to check a given number is even or odd using the function.
2. Write a program in C to find the sum of the series 1!/1+2!/2+3!/3+4!/4+5!/5 using the function.
3. Write a program in C to get the largest element of an array using the function.
4. Write a program in C to print all perfect numbers in a given range using the function.
5. Write a C programming to find out maximum and minimum of some values using a function which will return an array.

Recursion

1. Write a program in C to print the first 50 natural numbers using recursion.
2. Write a program in C to Print Fibonacci Series using recursion.
3. Write a program in C to find the sum of digits of a number using recursion.
4. Write a program in C to find GCD of two numbers using recursion.
5. Write a program in C to reverse a string using recursion.
6. Write a program in C to check if a number is a prime number or not using recursion.
7. Write a program in C to print even or odd numbers in a given range using recursion.
8. Write a program in C to Check whether a given String is Palindrome or not.
9. Write a program in C to calculate the power of any number using recursion.
10. Write a program in C to find the first capital letter in a string using recursion.

File Handling

1. Write a program in C to create and store information in a text file.
2. Write a program in C to write multiple lines in a text file.
3. Write a program in C to find the content of the file and number of lines in a Text File.
4. Write a program in C to delete a specific line from a file.
5. Write a program in C to append multiple lines at the end of a text file.
6. Write a program in C to copy a file in another name.
7. Write a program in C to merge two files and write it in a new file.
8. Write a program in C to encrypt a text file.
9. Write a program in C to remove a file from the disk.
10. Write a program in C to display the last modification time of a file.

Search and Sorting

1. Write a C program to find the position of a target value within a sorted array using Binary search.
2. Write a C program to find the position of a target value within a sorted array using Jump search.
3. Write a C program to find the position of a target value within an array using Linear search.
4. Write a C program to sort a list of elements using the selection sort algorithm.
5. Write a C program to sort a list of elements using the bubble sort algorithm.
6. Write a C program to sort a list of elements using the insertion sort algorithm.
7. Write a C program to sort a list of elements using the merge sort algorithm.
8. Write a C program to sort numbers using heap sort algorithm (MAX heap).
9. Write a C program to sort a list of elements using the quick sort algorithm.
10. Write a C program to sort a list of elements using the radix sort algorithm.
11. Write a C program that sorts numbers using the shell sorting method.
12. Write a C program that sorts numbers using the Cocktail Sort method.
13. Write a C program that sorts numbers using the Bucket sort method.

Total question - 143