# PROGRAM LIST FOR ICP LAB

## 1. Programs on Variable – Constant – Data-type – Keywords, Operators & Expressions

1. Program to find area and circumference of circle.
2. Program to show swap of two no's without using third variable.
3. Input a character through keyboard and print its equivalent ASCII value.
4. Input an ASCII value through keyboard and print its equivalent character.
5. Display the size of various data-types in C.
6. Program to display first 10 natural no & their sum.
7. Program to print a table of any number.
8. Program to shift input data by two bits to the left.
9. Program to calculate sum of 5 subjects & find percentage.
10. Program to find factorial of a number.
11. Compute GCD (HCF) and LCM of two numbers.
12. Program to convert temperature from degree centigrade to Fahrenheit.
13. Program to show the use of conditional operator.
14. Write a program that accept integer number and convert it into binary number and octal.
15. Write a program that accept integer number and convert it into Hexadecimal number.
16. Write a program to add two binary numbers

## 2. Programs Control with Branching

1. Program to find that entered year is leap year or not.
   (Hint- A year (except century years) is a leap year, if it is divisible by 4.
   If it is a century year then it is a leap year if it is divisible by 400)
2. Input three numbers and print the largest and smallest among them.
3. Program to find whether given no is even or odd.
4. Program to print Fibonacci series up to 100.
5. Program to find whether given no is a prime no or not.
6. Input a letter through keyboard.

    a. If it is a lower case letter then convert it to an uppercase letter.
    b. If it is an upper case letter then convert it to a lower case letter.
    c. Otherwise, display an error message, by specifying its type: either a Digit or a Special symbol.

## 3. Program Control with Looping and Switch Case

1. Input an integer through keyboard and check whether it is palindrome.
   (Hint: First reverse the given integer and then compare both the numbers. If they match then the given integer is a palindrome. Example: 12321)

2. Display and Count all the prime numbers from 2 to 100.

3. Program to print stars Sequence1.

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

4. Program to print star Sequences2.

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

5. Print this triangle.

```
          1
      1   0   1
  1   0   1   0   1
```

6. Program to use switch statement. Display Monday to Sunday.

7. Program to display arithmetic operator using switch case.

## 4. Array-Program

1. Program to show sum of 10 elements of array & show the average.
2. For a given number Search the array, If number found in the array then print its position in the array.
3. Program to find the maximum no in an array
4. Sort an array of n elements both in ascending and descending order.
5. Merge two sorted arrays, and print the merged array.

   Ex. Arra1: 3 8 4 9 20
   Array2: 1 2 15 20 27 35.

   After merging Array1 and Array2 the resultant array contains following
   Array3: 1 2 3 4 8 9 15 20 27 35.

6. Program to display 2D & 3D matrix.
7. Matrix operations (All)

   Ex. Input Two Matrices A and B and Print the following.

   a. Addition A + B
   b. Subtraction A - B
   c. Multiplication A X B
   d. Transpose of a matrix - $A^T$
   e. Checking whether a square matrix is symmetric.
   f. Determinant of a matrix- Det (A) or |A|
   g. Inverse $A^{-1}$
   h. Diagonal Matrix
   i. Triangular Matrix (Upper and Lower)

8. Print the Pascal's Triangle

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

## 5. Strings- Program

1. Compute the length of a string.
2. Copying one string to another.
3. Count the no. Of occurrences of a specified character in a given string.

   Ex. Let us take the string 'abacus'. No. In this string the character 'a' occurred 2 times.
4. Count and print all vowels in a given string.

   Ex. Let us take the string 'abacus'. This string contains 3 vowels.
5. Concatenating two strings (Appending one string after another).

   Ex. Str1 is "abc", str2 is "123". After concatenation str1 is "abc123".
6. Check whether a string is palindrome.

   Ex. The string madam is a palindrome.
7. Convert an integer to string.

   Ex. takes an integer 546. Its equivalent string is "546".
8. Comparing two strings.

   Ex. Str1 is abc, str2 is cab. Output Str2 is greater than str1.

## 6. Function, recursion & Pointer – Program

1. Program to find largest of two numbers using functions.
2. Program to find factorial of a number using recursion.
3. Program to find square of a number using functions.
4. Program to swap two numbers using functions.
5. Program to find factorial of a number using functions
6. Program to show table of a number using functions.
7. Program to add two number using pointer.
8. Program to find the maximum number in array using pointer.
9. Program to reverse a number using pointer.
10. Program to show call by value.
11. Program to show call by reference.

## 7. Structure and File Handling

1. Define a structure called student having properties like student id, student name and branch of student.
2. Write a program which allows user to add new student, delete a student and also display all the students. Use array to store student's record.
3. Write a program to copy the content of one file to another file.
4. Write a program which takes 10 integer numbers from user. Save-all the positive numbers to one file, all the negative numbers to another file.
5. Write a program to merge the content of two different file ina single file.