**EXPERIMENT NO. – 1**

**Title:** Problem Solving using Algorithms and Flowcharts.

1.1 Design algorithm, flow chart and write C program for the following problems. Create suitable test cases to evaluate the code.

* 1. Finding the Area of Triangle (given three sides). (Mr. Amitava)
  2. Given value of temperature in Fahrenheit, convert it into Celsius and Kelvin.
  3. Find the sum of first ‘n’ natural numbers.

**EXPERIMENT NO. – 2**

**Title:** Simple Programs in C language with Operators and Expressions.

2.1Get the value of two numbers and swap their values without using third variable and using bitwise operator. (Ms. Sanpid )

2.2 Multiply a given number ‘n’ by 8 using bitwise operator. [Hint: n << 3]

**EXPERIMENT NO. – 3**

**Title:** Simple Programs in C language with Control structures.

3.1 Check whether the given year is leap year or not.

3.2 Find the factorial of a number entered by the user at run-time. (Mr. Sunil Kumar)

3.3 Generate all the Armstrong numbers between 1 and the given value, ‘n’. [Hint: Use for and while loops].

**EXPERIMENT NO. – 4**

**Title:** Simple Programs in C language with Operators, Expressions, and Control structures.

Design algorithm and write C program for the following problems. Create suitable test cases to evaluate the code.

4.1 Find Simple Interest and Compound Interest. (Ms. Kalpana)

4.2 Find the volume of a sphere, cylinder and cone.

4.3 Check whether the given number is odd or even using modulus and ternary operator.

1. Given 3 points (x1, y1), (x2, y2), and (x3, y3). Check if all the 3 points fall on one straight line. [Hint: Assume the 3 points to be the vertices of a triangle].
2. Produce a Pascal’s triangle for given integer value of ‘n’. Here n = levels. [Hint: Use for loop].

**EXPERIMENT NO. – 5**

**Title:** Simple Programs in C language with Pointers and Functions.

5.1 Generate and print the first ‘n’ Fibonacci numbers using function. (Ms. Ambika)

5.2 Write a function power(a, b) to calculate the value of ab.

5.3 Swap two numbers using call by value and call by reference method.

**EXPERIMENT NO. – 6**

**Title:** C programs using Recursion.

6.1 Write the program of factorial using recursion. (Mr. Deepak )

6.2 Write the program for printing the sum of natural numbers using recursion.

**EXPERIMENT NO. – 7**

**Title:** C programs using Arrays, Dynamic Memory and string handling.

7.1 Given 4x4 matrix ‘mat’, write a function named det() to determine the determinant.

7.2 Given two matrices ‘A’ and ‘B’ each of size 3x3, find A\*B-1.

7.3 Create an integer array whose size is determined through the input from keyboard and dynamically allocate its members and display it. Next, reallocate the size of the array to half of its actual size and print the values from the array.

7.4 Implement the functionality of strlen() without using it. Use strrev() to reverse the given string and concatenate it with the initial string using strcat(). (Ms. Apurva)

**EXPERIMENT NO. – 8**

**Title:** C programs using Structure and Union.

8.1 Basic program to demonstrate the clear meaning of structure and union and the difference between them. (Mr. Amit Verma)

8.2 A record contains name of cricketer, his age, date of debut [A structure with date, month, and year as its elements], number of test matches that he has played, and the average runs that he has scored in each test match. Create an array of structure to hold records of 20 such cricketers and read these records. [Hint: Use nested structure]

**EXPERIMENT NO. – 9**

**Title:** C program to implement Stack, Queue, linked-list.

9.1 Implement stack using arrays (Dr. Abhijit Kumar)

9.2 Implement stack using linked list.

9.3 Implement queue using array

9.4 Implement queue using linked list.

**EXPERIMENT NO. – 10**

**Title:** C programs using Circular Linked List, doubly linked list

10.1 Implement insert, delete and traverse operation in circular linked list.

10.2 Implement insertion (end/beginning) deletion (end/beginning) and traversing of doubly linked list.

**EXPERIMENT No. – 11**

**Title:** C program to implement Sorting/Searching techniques and File Handling.

11.1 Implement Binary search. (Ms. Deepa )

11.2 Implement Bubble sort, Selection sort.

11.3 Write the program to print the data from the file in the hard disk over the monitor.

11.4 Write the program to append the data in the file.