## Lab Sheet 1(Basic construct in C)

1. Write a program find to addition, subtraction, multiplication and division of two numbers entered by the user.
2. Write a program to calculate the surface area of cube. [Hint area=6l2]
3. Write a Program to calculate the area and circumference of the circle.
4. The length and breadth are input through the keyboard. Write a program to calculate the area and perimeter of the rectangle.
5. Write a program to divide one integer by another integer and find the quotient and remainder.
6. Write a program to convert entered number of seconds into hours, minutes and seconds.
7. Write a program to convert entered number of days into years, months and days.
8. Write a program to convert length from mm to km, m, cm and mm.
9. Write a program to input three digit numbers and reverse the number.
10. If the marks obtained by a student in five different subjects are input through the keyboard, find out the aggregate marks and percentage marks obtained by the student. Assume that the maximum marks obtained by a student in each subject are 100.
11. Write a program that will convert temperature in Centigrade into Fahrenheit. [Hint: C=5/9(F-32) and F=9/5*C+32]
12. Write a program that asks three coefficients of a quadratic equation and calculate its root.
13. Write a program to read three sides of a triangle and calculate the area. [Hint: Area=√s(s-a)(s-b)(s-c)]
14. Two numbers are input through the keyboard. Write a program to interchange the the contents.
15. If a five-digit number is entered through the keyboard, write a program to calculate the
16. the sum of its digits.
17. Two number are entered through keyboard and if the first number is greater than second number then print the sum of number otherwise print the difference of number (use tannery operator)
18. Entered a number in decimal and print it in octal and hexadecimal.
19. Write a program that ask the radius of sphere and print the volume of sphere.
20. Write a program that ask a number and print the remainder after dividing the number by 5.

**Lab Sheet 2 (decision control and looping)**

1. Write a program to generate Fibonacci series.
2. Write a program to print out all Armstrong numbers between 1 and 500.
3. [Hint: If sum of cubes of each digit of the number is equal to the number itself, then the number is called an Armstrong number. For example, 153= (1*1*1) + (5*5*5) + (3*3*3)]
4. Write a program to generate numbers from 1 to 10 using while statement.
5. Write a program to generate numbers from 9 to 0 using while statement.
6. Write a program to print all the numbers from 10 to 1 and find their sum using while loop.
7. Write a program to calculate factorial of a given number.
8. Write a program to enter the numbers till the user wants and at the end it should display the count of positive, negative and zeros entered.
9. Write a program to generate following output.
    1. *****
    2. ****
    3. ***
    4. **
    5. *
10. Write a program to display Multiplication table from 1-10.
11. Write a program to display square of given number if it is odd and cube if it is even.
12. Two numbers are entered through the keyboard. Write a program to find the value of one number raise to the power of another.
13. Write a program to fond the product of digits of any number
14. Write a program to find the sum of digits of any number.

## Lab Sheet 3 (Array and Strings)

1. Write a program that asks user to enter 10 numbers, read them into an array and finds the sum, product, average and maximum of all numbers and prints them.
2. Write a program to enter 10 different numbers and print them with array variables and their addresses.
3. Write a program to accept 10 numbers and finds and prints the largest and smallest among those numbers.
4. Write a program that asks user to enter 10 numbers and sorts them in an ascending order and display the sorted number.
5. Write a program to read 10 numbers and reorders them in ascending order using function.

6. Write a program that accepts the marks of BscCSIT-I semester student in C- programming. Now display the marks in descending order. Also display maximum and minimum marks.
7. Twenty-five numbers are entered through the keyboard into an array. Write a program to find out how many of them are positive, how many are negative, how many are even and how many are odd.
8. Write a program to read 10 numbers and reorders them in ascending order using array.
9. Write a program to read a 2*3 matrix and display it on screen.
10. Write a program to read two m*n matrices and display their sum, difference and product.
11. Write a program to display prime numbers betweens 1 to 100.
12. Write a program to read marks of 10 students and print out the top five.
13. Write a program to copy contents of one array into another in reverse order.
14. Write a program to find length of string input from user using and without using library function strlen( ).
15. Write a program that accept a string from user and display the content in upper case.
16. Write a program that accept a string from user and display the content in lower case.
17. Write a program that accept a string from user and toggle the case of alphabet.
18. Write a program that determines the string is palindrome or not.
19. Write a program that accept the string and display it in reverse order using and without using strrev( ) function..
20. Write a program that accept a string and display its ascii value.
21. Write a program that determines how many lower case, upper case and space are in a given string.
22. Write a program to input a string and count number of vowels present in the string.
23. Write a program to compare two strings and display larger one.
24. Write a program to concatenate two strings without using string handling built in function.
25. Write a program to read names of 10 students and sort them in alphabetical order.

## Lab Sheet 4 (Functions)

1. Write a program to accept two numbers perform addition, subtraction, multiplication, division between them using user defined function called add( ), sub( ), div( ) and mul( ).
2. Write a program to find out the largest among three numbers using user defined function.
3. Write a function which receives a float and int from main(), finds the product of these two and returns the product which is printed through main.
4. Write a program to check whether the given number is prime or not using user defined function.
5. Write a program to find factorial of a given number using user defined function named **long int factorial(int,int).**
6. Write a program to calculate a raised to power b using user defined function with following prototype **int power(int,int).**
7. Write a program to display factorial of a given number using recursive function.
8. Write a program to calculate sum of the series 1+2+3+4+……+n using recursive function.
9. Write a program to calculate Fibonacci series using recursive function.
10. Write a program to calculate a raised to the power b using recursive function.
11. Write a program to find the sum of first twenty natural numbers using function.
12. Write a program to generate the Fibonacci series using recursive function

## Lab Sheet 5 (Structure and Union)

1. Write a program to display the following data in proper manner using structure.

| a. **Name** | **Total Marks** | **Grade** |
|---|---|---|
| b. Ram | 100 | C |
| c. Sita | 120 | B |
| d. Gita | 130 | B |
| e. Gopal | 150 | A |

2. Create a structure named student that has name, roll, marks and remarks as members. Assume appropriate types and size of member. Write a program using structure to read and display the data entered by the user.

3. Write a program to read the name, rollno and mark of 5 students using array of structure. Display the name and rollno of those students whose mark is greater than 50.

4. Write a program to read the name, address and salary of 5 employee using array of structure. Display information of each employee in ascending order of their name.

5. Write a program that reads different names and address into the computer and sorts the names into alphabetical order using structure variables.

6. Create a structure named book which has name, pages and price as member variables. Read name of book, its pages and price as member variables. Read name of book, its page number and price. Finally display these members value .Use pointer to structure instead of structure itself to access member variable.

7. Create a structure named book which has members name, pages and price. Write a program to read name, no of pages and price of 5 books using array of structure. Display the name, no of pages and price of most expensive book.

8. Create a union named student that has roll and marks as member. Assign some value to those members one at a time and display the result one at a time.

9. Write a program to define a structure Date and declare its variable called Date1 and initialize it to February 25, 1957, in the correct format.

10. Define a structure called date with three elements day, month and year. Write a program to enter the date and print it.

11. Declare a structure template that holds student access information into the student registration system. It should hold the 8 character student username, the student 9 character Id number, and the student 5 digit pin number. Write a program that ask the student information and display them to user.

12. Define a structure called date with three elements day, month and year. Write a program to enter the two date and print the difference.

13. Design a air line data structure that store the following
    a. a)flight number
    b. b)Originating airport code
    c. c)Destination airport code
    d. d)starting time
    e. e)arriving time
14. Now write a program that prints all the flight information for a specific airport entered by user.

15. Define a structure Employee and its variable called Person1 and initialize it to “Hari”, with a salary of $50,000, who was hired on March 10, 2001.( use structure with in structure).

**Lab Sheet 6 (Pointers)**

1. Write a program which defines three variables of different types: char, float and int. Dispalys the memory address reserved by these variables.
2. Write a program to find the sum of all the elements of an array using pointer.
3. Write a program to read marks obtained by n student in a subject and display the top five marks.

4. Write a program to print the size of pointers that holds the address of three different type variables: int, float, char.
5. Write a program to exchange to value using the pointer. (Call by address)
6. Write a program to add two matrices using pointers ( m by n size matrix).
7. Write a program that takes one dimensional array of n numbers and sorts the elements in ascending order. Use dynamic memory allocations.
8. Write a program to read number of employees, n, working in a company. Reserve the memory required to store age of employees using malloc() function. Read age of n employees from user and count the number of employees of age above 80 years.
9. Write a program to read matrix of size mxn entered by user, and display its transpose matrix.

**Lab Sheet 7 (File Handling)**

1. Create a file named test.txt and write some text "Welcome to my college" to the file.
2. Write a program to open file "test.txt" created in previous question, read its content and display it on screen.
3. Write a program to write and read string using character I/O.
4. Write a program to append some text to a certain file. Take name from user.
5. Write a program to create a file named student .txt in d:\test\ drive and write name, roll, address and marks of a student to this file.
6. Write a program read name, address, and telephone, save it in a file and display them on the screen.
7. Write a program to store string to the data file "new1.dat" and display the same content on the monitor reading from the data file.
8. Write a program to write and read even numbers between 10 and 50 to a file named evennumbers.txt in d:\test\evennumbers.txt.
9. Write a program to create a data file and write the natural numbers 1 to 20 to this file and then read the numbers from the file to display the twice of the stored numbers.
10. Write a program that asks user for 10 numbers and stores them in an array. Write this array to a file and read it to display on the screen.

**Lab Sheet 8**

1. Write a program to draw a line.

2. Write a program to draw a rectangle. The length and breadth of rectangle should be taken from users.

3. Write a program to draw a circle. The radius of circle is to be asked to user.