

# LIST OF PRACTICALS

1. Write a C program to input 3 numbers and print their average.
2. Write a C program to enter the radius of circle/sphere and compute its (i) Perimeter (ii) Area and (iii) Volume
3. Write a program in C to show that Right shift effectively divides a number by 2 and a left shift effectively multiplies a number by 2
4. Write a C program to find the roots of a quadratic equation
5. Write down a function in C to implement bitwise AND, OR, XOR and NOT operations
6. Given a n integer number write a program that displays the number as follows  
  
First line : All digits  
  
Second Line : All except first digit  
  
Third line : All except first two digits  
  
. .  
  
Last line : The last digit
7. Write a program to enter an integer and print the sum of the digits in the integer
8. Write a C program to input an investment amount and compute its fixed deposit commulative return after 10 years at the rate of interest of 7.75%
9. Write A C program to compute the roots of a quadratic equation.

10. A company has categorized its employees at 4 different levels(from 1 to 4). For different employees at different levels the perks are as follows

Level	TA	entertainment Allowance
1	7000	3000
2.	6000	2000
3	5000	1500
4.	5000	1500

For Level 1 Basic salary is between Rs 40000 to 60000 and Tax rate is 10%

For level 2 Basic Salary is between Rs 30000 to 40000 and Tax rate is 8%

For level 3 Basic salary is between Rs 20000 to 30000 and Tax rate is 5%

For Level 4 Basic Salary is between Rs 15000 to 20000 and tax rate is 0

Gross Salary is sum of Basic salary, Perks and HRA which is 25% of Basic Salary

Tax is computed on Gross Salary.

Net Salary is Gross salary- Income tax

Write a Program that will read Employees name, Level and Basic pay and will print Gross salary, Tax and Net Salary. Use Switch-case statement and if statements

11. Given a number, write a program using while loop to reverse the digits of the number. For example number 12345 should be written as 54321.

12. The numbers in the sequence

1 1 2 3 5 8 13 21..... are called Fibonacci numbers. Write a program using do...while loop to calculate and print the first m Fibonacci numbers

13. Write a program to evaluate the following functions to 0.0001% accuracy

$$\text{Sin}x = x - x^3/3! + x^5/5! - x^7/7! + \dots$$

14. Write a C program to display following Pattern

```
1
1 2 1
1 2 3 2 1
1 2 1
1
```

15. Given the two one dimensional arrays A and B which are sorted in ascending order. Write a C program to merge them into single sorted array C that contains every item from arrays A and B in ascending order
16. Write a program that will count the number of occurrences of a specified character in a given line of Text.
17. Write a program to enter two 3 x 3 matrices and find their
  - a. sum
  - b. Multiplication
  - c. Transpose
18. Write a program that counts the number of vowels, consonants and digits in a given line of string
19. Write a program that replaces a substring with another string in a given line of text.
20. Write a program using pointers to read an array of integers and print its elements in reverse order
21. Write a function(using pointer parameters) that compares two integer arrays to see whether they are identical. The function returns 1 if they are identical else 0
22. Write a program in C using pointers to implement insertion and deletion in a queue. A queue is a data structure that follows a first in first out i.e. the element to go in first is the one to come out first
23. A start-up owner is interested to maintain the dataset of the newly recruited employees. She is interested in storing the Emp\_Name (Str), Emp\_Mobile(int), Emp\_Age (int), Emp\_Degree (Str), Emp\_Exp (Float), Emp\_add (Structure). Emp\_add need one user defined data to store street no, city, district and state for the employee address. You have to design a database where we can store all the information for at least 20 employees. The program should be interactive program to input the employee details and also the program should be able to retrieve the data of an employee based on the mobile number
24. Implement the problem 22 using Files.

## **PYTHON PROGRAMS**

25. Implement Problem 10 to 18 using Python.

26. Write a program in Python to calculate percentage of marks in three subjects. Raise exceptions if marks entered are greater than the maximum marks.
27. Using Python Build a collection of employee records, You may use data structures with any combination of built in object types (lists, tuples, dictionaries, strings, numbers). Then access and modify the individual records and individual components of data structure using indexing
28. Write down a Python code to copy from an existing file named "input.txt" to another file "output.txt".