Lab Assignments

You have to submit the Lab report as mentioned below for all questions
Title, Objective(s), Problem Analysis, Algorithm, Flowchart, Coding, Output (compilation, debugging & testing) , Discussion & Conclusion.

1. Write a C program to convert centigrade temperature into Fahrenheit and vice-versa. For both the cases take input from KB.
2. Write a Program to calculate and display the areas and volume of a rectangular cuboid having its height (h=10cm), width (w=12cm) and depth (8cm)
3. Write a program to calculate the area and perimeter of a triangle by taking inputs for its three sides.
4. Write a program to demonstrate the difference between pre and post increment and decrement.
5. Write a program to find the sum and average of all the elements of an array using pointers.
6. Write a program to multiply two numbers (taken from KB) and display its product without using asterisk (*).
7. Write a C program to find the minimum and maximum from a set of given numbers.
8. Write a C program to search a given number in a set of given numbers.
9. Write a program to divide two numbers (taken from KB) and display its quotient and remainder without using division operator (/) and modulus operator (%).
10. Write a program to input marks of 5 subjects (Physics, Chemistry, Math, English & Biology) for a student. Display the grade of each subjects and also the result of total marks and percentage obtained with his/her rank in the class. The rank is categorized as fail (marks < 40%), pass & third division (marks between 40 to 55%), second (marks between 55 to 65%), first (marks between 65 to 80%), Distinction (marks between 80 to 95%), extra ordinary (marks above 95 to 100%).
11. Write a program to find the largest and smallest among three entered numbers and also display whether the identified largest/smallest number is even or odd.
12. Write a program to calculate simple interest for any given P (Principal), T (Time), I (rate of interest).
13. Write a program to take input of name, rollno and marks obtained by a student in 5 subjects each have its 100 full marks and display the name, rollno with percentage score secured.
14. Write a program to find GCD (greates common divisor or HCF) and LCM (least common multiple) of two numbers.
15. Write a program to print the size of char, float, double and long double data types in C
16. Write a C program to prompt the user to input 3 integer values and print these values in forward and reversed order.
17. Write a program to demonstrate the differences between “call by value” and “call by address”
18. Write a menu driven functional program to perform addition, subtraction, multiplication, division and modulo operation.

19. Write a functional program to read a sentence from KB and count the number of vowels in it by using switch statement.
20. Write a program to swap two variables values with and without using third variables.
21. Write a C program to calculate the following
    i. sum: sum=1-x2/2! +x4/4!-x6/6!+x8/8!-x10/10!
    ii. sum=x-x3/3!+x5/5!.....,
22. Write a program to check odd or even number using bitwise operator and continue.
23. Write a program to display the following.

1	6	10	13	15
2	7	11	14	
3	8	12		
4	9			
5				

24. Write a program to produce the output as shown below:

x	y	expressions	results
6	3	x=y+3	x=6
6	3	x=y-2	x=1
6	3	x=y*5	x=15
6	3	x=x/y	x=2
6	3	x=x%y	x=0

25. Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C program to generate the first n terms of the sequence.
26. Write a program to check whether the entered year is leap year or not (a year is leap if it is divisible by 4 and divisible by 100 or 400.) using nested if – else statement.
27. Write a program for reading elements using pointer into array and display the values using array.
28. Write a program to get input of two or higher digit integer number and display in reverse order.
29. Write a program to multiply two 3*3 matrix.
30. Write a program to do the following
    i. Get input of two float numbers in to variables x & y. receive the mathematical operator (+, -, *, /) using unformatted I/O into the variable Ch1 and perform operations on x & y and display the result.

    ii. Define the math operator '+' as PLUS, '-' as MINUS, '*' as MULT & '/' as DIVIDE using preprocessor directives and do the operations over variables (x,y) defined on above question like z=x PLUS y.

31. Write a program that asks a number and test the number whether it is multiple of 5 or not, divisible by 7 but not by eleven.
32. Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.
33. Write a program to read the values of coefficients a, b and c of a quadratic equation $ax^2+bx+c=0$ and find roots of the equation.
34. Write a C program which copies one file to another.
35. Write a program to display Fibonacci series of last term up to 300.

36. Write a program to compare two strings without using sring.h header file
37. Write a program to add, subtract, multiply and divide two integers using user defined type function with return type.
38. Write a program to initialize one dimensional array of size 8 and display the sum and average of array elements
39. Write a program to calculate sum of first 50 natural numbers using recursive function.
40. Write a program to read a string and check for palindrome without using string related function (a string is palindrome if its half is mirror by itself eg: abcdcba)
41. Define a function named fact() to calculate factorial of a number n and then write a program that uses this function fact() to calculate combination and permutation.
42. Write a program to print the following pattern

```
U N
U N I V
U N I V E R
U N I V E R S I
U N I V E R S I T Y
U N I V E R S I
U N I V E R
U N I V
U N
```

43. Write a recursive function to generate Fibonacci series.
44. Write a program that illustrates use of local, global and static variables
45. Write a program to read two matrices of order 3 * 2, add them and display the resultant matrix in matrix form.
46. Create a structure named company which has name, address, phone and noOfEmployee as member variables. Read name of company, its address, phone and noOfEmployee. Finally display these members' value using dot and arrow operator.
47. Write a program to read a sentence and count the number of characters & words in that sentence.
48. Write a program to copy one string to another string with and without using string handling function.
49. Write a program to concatenate two strings.
50. Write a program to enter to Cartesian coordinate points and display the distance between them.
51. Define a structure "complex" (typedef) to read two complex numbers and perform addition, subtraction of these two complex numbers and display the result.
52. Write a program to demonstrate the differences among getch(), getche(), getchar().
53. Write a program to demonstrate the difference between scanf() & gets(), printf() & puts().
54. Design and develop a C function ***isprime***(num) that accepts an integer argument and returns 1 if the argument is prime, a 0 otherwise. Write a C program that invokes this function to generate prime numbers between the given range.
55. Write a C program to maintain a record of **"n"** student details using an array of structures with four fields (Roll number, Name, Marks, and Grade). Assume appropriate data type for each field. Print the marks of the student, given the student name as input.
56. Write a C program to find the sum of individual digits of a positive integer.

57. Write a C program that displays the position or index in the string S where the string T begins, or – 1 if S doesn't contain T.
58. 2's complement of a number is obtained by scanning it from right to left and complementing all the bits after the first appearance of a 1. Thus 2's complement of 11100 is 00100. Write a C program to find the 2's complement of a binary number.
59. Write C programs that uses non recursive function to search for a key value in a given list of integers using Linear search
60. Write a C program, which takes two integer operands and one operator form the user, performs the operation and then prints the result. (Consider the operators +,-,*, /, % and use Switch Statement)
61. Write a recursive function to add two given numbers.
62. Write a C program to read in two numbers, x and n, and then compute the sum of this geometric progression: $1+x+x^2+x^3+\ldots\ldots\ldots\ldots+x^n$

    For example: if n is 3 and x is 5, then the program computes 1+5+25+125.

    Print x, n, the sum

    Perform error checking. For example, the formula does not make sense for negative exponents – if n is less than 0. Have your program print an error message if $n<0$, then go back and read in the next pair of numbers of without computing the sum. Are any values of x also illegal? If so, test for them too.