

MCKV Institute of Engineering
243, G.T. Road (N), Liluah, Howrah-711204
Lab Assignment
Year-2023
(2023-24)


Subject:- Programming for Problem Solving Lab
 Code:- ES-CS 191
 Stream:- Computer Science and Engineering
 Credit:- 2

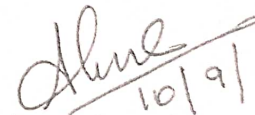
Tutorial Topic	Assignment No.	Problem Statement
Basic Input / Output operation and use of operators	1	Write a program to print your name and your roll number in two lines.
	2	Declare an integer variable a, float b, char c, double d. Input the values, print value, address and the size of a, b, c, d.
Use of operators	3	Write a C program to swap two integer numbers without using any 3 rd variable.
	4	Write a program to calculate maturity amount using compound interest.
Branching and logical expressions	5	Write a program to check a given year is a leap year or not
	6	Input three numbers and find the maximum and minimum of them using Conditional operator (Ternary operator).
	7	Write a program to show the real roots of a quadratic equation.
	8	Write a program to generate a basic calculator which will perform addition, subtraction, division and multiplication of two integer numbers.
Loops: while and for loops	9	Write a program to calculate $Y = \sum_{x=1}^5 x^x$
	10	Write a program to check a number is an Armstrong number or not
	11	Write a program to check that number is prime or not.
	12	Generate the following patterns: i. <pre> * *** ***** </pre> ii. <pre> abcde fgh i </pre>
1D Arrays: searching, sorting	13	Write a program to sort the elements of an integer array in Descending order. (Use Bubble or Insertion or Selection Sort)
	14	Write a program to find a key value from an integer array.
2D arrays and Strings	15	Write a program to multiply a 3X2 integer matrix by its transpose.
	16	Calculate the frequency of the vowels(a, e, i, o, u) in statement given by the user.
	17	Write a program to show a string whether it is palindrome or not with and without using string library function.
	18	Write a program to show the abbreviation of a person's name.
Functions, call by value and call by address	19	Write a function swap1() which will perform swapping two integer values using Call by value and another function swap2() which will perform swapping of two integer values by Call by Address. Show the difference of both the cases.

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	20	Write a program to calculate $Y = \sum_{x=1}^5 \frac{1}{fact(x)}$ Where fact() is user defined function to calculate factorial.
Recursion, structure of recursive calls	21	Write a program to calculate GCD of two integer numbers using recursion.
	22	Write a program to show Fibonacci series by recursion upto n-terms.
Pointers, structures and dynamic memory allocation	23	Write a program to create a structure with the fields as name, roll no and marks (integer). From this create a student database. Display the name of all the students having highest marks. Use dynamic memory allocation for better memory utilization.
File handling	24	Write a program to create a filename "Profile.txt" and write your details in that file and copy the content of that file into another file "myProfile.txt".


Signature of Faculty


Signature of HoD