# MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY

## Lab Examination, Even Semester, 2021

Sub- Programming for Problem Solving          Sub Code- ES-CS 291

Discipline- B.Tech. (All)                                  Semester- 2ND

Full Marks- 60                                                   Time: 3 Hours

**Marks Distribution: Algorithm/Flowchart-10, Coding-20, Output-10, Viva-20**

1.      a) Write a C Program to find the sum of all elements of a matrix.
b) Write a C program to find the factorial using recursion.

2.      a) Write a C program to calculate the power of a number using a function.
b) Write a C program to print the prime numbers up to a given range.

3.      a) Write a C Program to sort a set of n numbers in descending order.
        b)  Write a C program to print the following pattern. Accept number of rows as input from user.

              A
              AB
              ABC
              ABCD
              ABCDE

4.      a) Write a C program to count the number of words in a sentence.
        b) Write a C program to print all numbers within a given range such that they are divisible by 7 but not divisible by 3.

5.      a) Write a C program to check whether a number is prime or not.
        b) . Write a C function to check whether an integer number is power of 2 or not.

6.      a) Write a C Program to count the number of vowels in a string.
        b) Write a C Program to search the key value in a set of n values. Print the position of the key value if it is a successful search.

7.      a) The length and breadth of a rectangle and radius of a circle are input through the keyboard. Write four different functions to calculate the area and perimeter of the rectangle, and the area and the circumference of the circle.
        b) Write a C Program to count words and characters in a sentence.

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8.        a) Write a C program to print the following pattern, take number of rows as input:

                                        x x x x
                                          x x x
                                            x x
                                              x

          b) Write a C program to accept a string from the user and display it in upper-case.

9.        a) Write a C- program to reverse a number accepted from the user..
          b) Write a C program to read a string and count the number of words.

10.      a) Write a C Program to find the factorial of a number using a recursive function.
          b) Write a C Program to calculate the  average of elements in an array.

11.      a) Write a C Program to sort a set of n numbers in ascending order.
          b) Define a structure with the following three members: roll no, name and total marks
of student.
             Write a c program to read and display the details of a student.

12.      a) Write a C program to find the sum of the series
                              $S = x + (x-1) + (x-2)  +  (x-3) + ......... + \text{nth term}$.
          b) Write a C Program to convert a binary number into a decimal number.

13.      a) Write a C Program to count the number of Even and Odd in an array using pointers.
          b) Write a C Program to create a text file and write "Hello World" to the file.

14.      a) Write a C Program to solve the series
                              $S = 1 - 2  + 3  - 4 .........$ up to nth term using factorial function.
          b) Write a C Program to print the largest number in an array.

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15.      a) Write a C Program to perform Matrix multiplication.

     b) Write a C Program to convert temperature from centigrade to Fahrenheit using function.

16.      a) Write a C recursive function to print Fibonacci series up to a given range.

     b) Write a program to print the largest & smallest number among three numbers accepted from the user.

17.      a) Write a C program to print the digits of a given integer in word [If the input is 250, then output should be TWO FIVE ZERO].

     b) Write a C function to swap two numbers accepted from the user.

18.      a) Write a program to calculate the summation of the first 10 natural numbers using recursion.

     b) Write a C function to check if a number is a perfect number or not.

19.      a) Write a C program to find LCM of two numbers.

     b) Write a C Program to copy the contents of one file to another file. Accept the file names via command line arguments.

20.      a) Write a C program to insert to calculate the product of the first 10 natural numbers using recursion.

     b) Write a C function to find where a number is strong or not.

21.      a) Write two C functions to calculate the Simple Interest and Compound interest, where year, capital & rate of interest are to be accepted from the user.

     b) Write a C Program to find Armstrong numbers within a given range.

22.      a) Write a C Program to convert lower case text to upper case text.

     b) Write a C program to check whether a given year is Leap year using a function.

23.      a) Write a C function to find the factorial of a given integer and use it to find nCr.

     b) Write a C Program to print accept a string from the user and count the number of vowels.

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24.      a) Write a C Program to concatenate two strings.

         b) Write a C program to calculate the sum of 5 subjects and find the percentage where the marks of all the subjects are inputted through command line arguments.

25.      a) Write a C Program to print all the perfect numbers up to a given range.
         b) Write a C Program to count vowels in a String.

26.      a) Write a C program to Swap two nos' without using the third variable using function.
         b)  Write a C Program to transpose a given Matrix.

27.      a) Write a C Program to print all the prime numbers up to a given range.
         b) Write a C Program to determine whether a given matrix is symmetric or not.

28.       a) Write a recursive function in C to print the Fibonacci series up to a given range.
         b)  Write a C Program to create a text file "f1.txt" and copy the content of it to another file "f2.txt".

29.      a) Write a C function to find the factorial of a given integer and use it to find nCr.
         b) Write a program to print the largest number in an array of integers.

30.      a) Write a C program to find LCM of two numbers.
         b) Write a C program to print the below pattern: (Accept number of rows from user.)
                        1
                        12
                        123
                        1234
                        12345

31.      a) Write a program to calculate the summation of the first 10 natural numbers using recursion.
         b) Write a C Program to concatenate two Strings.

32.      a) Write a program in C to count the number of vowels, blanks and characters in a text file.

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      b) Define a union with members' integer, string and float and illustrate the use of the UNION.

33.    a) Write a C program to design a command to encrypt a file to another file. Each character of the source file will be complemented and stored into the destination file.

      b) Write a C Program to check whether an integer accepted from the user is a palindrome number or not.

34.    a) Write a Program for the following………………………….

An electric bill distribution company arranges its domestic consumers as follows:

Print the amount to be paid by the consumer if the operator enters the consumed unit.

      b) Write a C Program to find the largest number among three numbers inputted by command line argument.