MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY, BHOPAL

End Sem Examination | March 2023

Course – B.TECH. Sem – I	Section - A/B/C/D/E
Subject Name- Computer Programming and Problem solving	Subject Code CS-104
Time- 3 hours	Max.Marks-50
Note- Answer all questions	

S No	Question	Marks
1(A)	Write a program to take two inputs from the user- one int type input **Num** (**any values greater** than 10) and another char type input **Choice** and print prime number M. Value of M depends on **Choice**. If user enters Choice as 'p' or 'P' then M < Num (i.e- print the prime number less than Num), if user enters choice as 'N' then M>Num (i.e- print the prime number greater than Num).	5+5
(B)	Write a program to find the maximum and minimum of two numbers without using any loop or condition.	
2(A)	Write a program to find the frequency of characters in a string without using = = operator. Sample output- Enter a string - awesome Enter a character to find its frequency - e Frequency of e - 2	5+5
(B)	Write a C program to input elements in an array of size 10 and find the frequency of each element in the array. Test Data : Input array elements: 5, 10, 2, 5, 50, 5, 10, 1, 2, 2 Expected Output : Frequency of 5 = 3 Frequency of 10 = 2 Frequency of 2 = 3 Frequency of 50 = 1 Frequency of 1 = 1	

(A)	Write a program to print an output pattern "n,n-1,n-2,n-3,....1,n-2,n-3,....1......1" **using recursion** (without using any loop), where n is an integer whose value will be given by the user. For example: if user input is 5 then output will be 5,4,3,2,1,4,3,2,1,3,2,1,2,1	5+5
(B)	First create an array of size 10 and initialize the array. Now pass the whole array and size to a user defined function MaxMin(int [], int). Inside the MaxMin() function find the maximum and minimum number of the array elements. Write a c program to call MaxMin() function inside main() to print the maximum and the minimum number present in the array.	
4(A)	Write a C program to find the number of days in a month using a switch case. Users will provide 'L' or 'l' for leap year and 'n' or 'N' for non-leap year.	5+5
(B)	Write a c program to swap values of two variables without using the 3rd variable.	

5	What will be the values of t,u,v,w,x,y,z,num of the following C code?
	
	``c
	#include <stdio.h>
	int main()
	{
	        int num=31, i;
	        int a = 10, b = 5, c = 15;
	        int t,u,v,w,x,y,z;
	        for(i=1;i<=2;i++)
	        {
	                t= num>>i;
	                u= num<<i;
	                printf("t=%d\n u=%d\n", t, u);
	
	        }
	        v = c == (b^a);
	        w = ~35;
	        x = a&(num^b);
	        y = b , a;
	        z =(b,a);
	        printf("v=%d\n w=%d\n x=%d\n y=%d\n z=%d\n num=%d\n",
	v,w,x,y,z,num);
	        return 0;
	}
	``
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