Question Paper

MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

FIRST SEMESTER B.TECH END SEMESTER EXAMINATIONS, NOV 2018
Problem Solving using Computers [CSE 1051 - 2018 -CHM]

Marks: 50   **Duration: 180 mins.**

A

Answer all the questions.

Instructions to Candidates: Answer ALL questions Missing data may be suitably assumed

1)
   A) List any four functions of control unit in a computer. Give the major functions of an operating system.(2M+2M) (4)

   B) Write an algorithm to convert the given binary number into decimal. Draw a flowchart for finding the sum of digits of a given number. (2M+2M) (4)

   C) Distinguish between Machine level language and High level language. (2)

2)
   A) What is operator precedence and associativity? Resolve the expression stepwise to obtain the final value of x. (Show all intermediate steps)
   int x=(-10*(2-3)/15%(5+7)+8*6/12) (3)

   B) Write a C program that prints the pattern as shown below based on the given number of rows.
   Sample Input : Number of rows =6
   Output: (3)
   ```
   ******
    *****
     ****
      ***
       **
        *
   ```

   C) Write a C program to check if the user input is a character/digit/special character using "if else" statement and if the user input is a character then use "switch" statement to check whether the character is a vowel or a consonant and display the ASCII value of every user input. (4)

3)   (3)

A)	What are the different ways of initializing 1D arrays with zeros? Illustrate the working of Selection sort algorithm for the given array {16, 12, 67, 11}.	
B)	Write a C program to input a 2D array of size MXN and display the number of zeros in the matrix. Also check whether the input matrix is a sparse matrix or not. (Hint: sparse matrix is a matrix in which the number of zero elements is more than the non-zero elements)	(3)
C)	Explain the following string handling functions of C with proper syntax: strcpy() ,strcat(). Write a C program to read a string and find the frequency of a given character in a string.	(4)

4)

A)	Write the general form of function definition, function call and function prototype with a C program as example.	(3)
B)	Write a C program to read the size and elements of a 1D integer array in main() and define a function with the prototype : **void Compute(int *, int, float *, float *);** to compute sum and average of elements of 1D array. Display sum and average in main(). Use pointer to 1D array in function.	(3)
C)	Define recursive function. Write a C program to find sum of digits of a number using recursion.	(4)

5)

A)	Declare a structure called *cricket* that contains the following details, *Player name*, *team name*, *batting average*. Create a player array with 30 players of the type *cricket*. Write a C program to read details of players and print a team-wise sorted list containing player's name and batting average.	(5)
B)	Write a C program to create a file called **emp.txt** to store information about a person, such as his *name*, *age* and *salary*. Print all the data into the file **emp.txt** with relevant interactive messages.	(3)
C)	Write short notes on the following cybercrimes a) Intellectual property crimes b) Email spoofing	(2)

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