



MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

I SEMESTER B.TECH. EXAMINATIONS NOVEMBER 2018

SUBJECT: PROBLEM SOLVING USING COMPUTERS [CSE 1051]

Date of Exam: 23/11/2018 Time of Exam: 8:30AM to 11:30 AM Max. Marks: 50

Instructions to Candidates:

- ❖ Missing data may be suitably assumed
- ❖ Indicate all the steps where ever necessary.
- ❖ Do not seek any clarification from invigilator.

- 1A List any four functions of control unit in a computer. Give the major functions of an operating system. 2+2=4M
- 1B Write an algorithm to convert the given binary number into decimal. Draw a flowchart for finding the sum of digits of a given number. 2+2=4M
- 1C Distinguish between Machine level language and High level language. 2M
- 2A What is operator precedence and associativity? Resolve the expression stepwise to obtain the final value of x. (Show all intermediate steps) 3M
int x=(-10*(2-3)/15%(5+7)+8*6/12)
- 2B Write a C program that prints the pattern as shown below based on the given number of rows. 3M
Sample Input : Number of rows =6
Output:

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- 2C 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. 4M
- 3A What are the different ways of initializing a 1D arrays with Zeros? Illustrate the working of Selection sort algorithm for the given array {16, 12, 67, 11}. 3M
- 3B 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 3M

- not. (Hint: sparse matrix is a matrix in which the number of zero elements is more than the non-zero elements)
- 3C 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. 4M
- 4A Write the general form of function definition, function call and function prototype with a C program as example. 3M
- 4B Write a C program to read the size and elements of a 1D 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 integer array. Display sum and average in main(). Use pointer to 1D array in function. 3M
- 4C Define recursive function. Write a C program to find sum of digits of a number using recursion. 4M
- 5A 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 names and batting average. 5M
- 5B Write a C program to create a file called **emp.txt** and 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. 3M
- 5C Write short notes on the following cybercrimes 2M
- a) Intellectual Property crimes
 - b) Email spoofing