IT 101 : Problem Solving and Computer Programming

End Semester– Remote (Closed Book Examination)

Max Time : 1 Hour 40 minutes, Max Marks : 20

Aditya Ray

Answer ANY FOUR questions

Each question carries 5 marks

Note: If you answer more than four, ONLY THE FIRST FOUR in sequence will be evaluated,

Q1:

Write a C program (Main program only) to check if the given matrix is UPPER TRIANGULAR or not. Note that a square matrix is called upper triangular if all the entries below the main diagonal are zero.

Q2:

Write a C program to find the maximum element in each COLUMN of an MxN matrix, as per the following requirements:

a. The main program should input the elements of matrix through keyboard and pass them, along with the row and column sizes, to a USER-DEFINED FUNCTION by name "maxcol".

b. The function should find the maximum element in each column and print the results.

Q3:

Write a C program (Main program only) to convert a given decimal number to binary using BITWISE OPERATORS

Q4:

Write a C program to sort, using the simplest approach, a one-dimensional array of N elements, using POINTERS.

Q5:

a. Distinguish between algorithm and flow chart.
b. State two features of Recursive functions
c. Give an example of if-else statement and its equivalent of Conditional assignment statement
d. Identify the four areas of a C program in respect of the scope of variables
e. State the difference between shift and rotation operation on binary bits.

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