CLASS: BTECH/IMSC   SEMESTER : II
BRANCH: CS/IT/EC/EE/MATHS & COMPUTING   SESSION : SP/2022

SUBJECT: CS101 PROGRAMMING FOR PROBLEM SOLVING

TIME: 3 Hours   FULL MARKS: 50

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a) Explain how CPU, memory and input/output devices perform when a program is given as input through   [5]
        keyboard.

Q.1(b) What do you mean by algorithm of a program? Write an algorithm to add n integer numbers.   [5]

Q.2(a) What do you mean by precedence and associativity? Compute the output of the following arithmetic   [5]
        expression:
        $4*((8/5)+(7*(5-3))\%(8+5-2))$

Q.2(b) Discuss Logical operators and bitwise operators with examples. Explain postfix and prefix operator   [5]
        with the help of a suitable program.

Q.3(a) What do you mean by an array? Write the disadvantages of using array. How character strings are   [5]
        defined in C? Write a program to search a character from a character array.

Q.3(b) Write a program to add two matrices, store it into a third matrix and print it.   [5]

Q.4(a) What do you mean by recursion? Write and explain a program to compute the factorial of a number   [5]
        using recursion.

Q.4(b) How arrays can be passed to functions? Explain. Write a program that use a function to accept an   [5]
        array of real elements and compute the largest value in this array of elements.

Q.5(a) What do you mean by array of structures? Write a program that use a structure named "marks"   [5]
        comprising of four integer members, subject1, subject2, subject3 and total, and compute the subject-
        wise and student-wise totals and store them as part of the structure.

Q.5(b) What are the different modes in which you can open a file in C? A file named "DATA" contains a series   [5]
        of integer numbers. Write a program to read these numbers and then write all 'odd' numbers to a file
        to be called ODD and all 'even' numbers to a file to be called EVEN.

:::::22/07/2022:::::

1