MCS-011

MCA (Revised) / BCA (Revised)
Term-End Examination
December, 2018

05043

MCS-011 : PROBLEM SOLVING AND PROGRAMMING

Time : 3 hours   *Maximum Marks : 100*

(Weightage : 75%)

Note : *Question no. 1 is* ***compulsory****. Attempt any three questions from the rest.*

1. (a)   Write an algorithm to find the highest marks obtained by student(s) in "C programming" in a batch of 10 students. Also draw flow chart for this algorithm.   *10*

    (b)   Write a C program which takes a string as input and displays its length. (Do not use built-in strlen function).   *10*

    (c)   Write a program to swap the values of two variables using   *10*

        (i)   Pass by value method, and

        (ii)   Pass by reference method.

(d)   What is the difference between a structure and a union ? Write the syntax for declaration of a union, initializing the elements of union and also accessing its members in the program.   *10*

2.   (a)   Write a C program to copy the contents of a file into a newly created file (Use file handling concept).   *10*

(b)   Write a C program using recursive function to find the factorial of a given number.   *10*

3.   (a)   Write a C program to add two matrices of size 3×3.   *10*

(b)   What is a pointer ? With the help of a program to find the square of a number, explain how a function returns a pointer.   *10*

4.   (a)   Write a macro to evaluate $f(x) = 2x^2 + 3x + 5$.   *5*

(b)   Write a program to take two strings as input and append the second string to the first string using array.   *10*

(c)   Explain the use of malloc(), calloc() and realloc() and write their syntax.   *5*

5. (a) Using structures, write a C program to calculate the Gross salary and Net salary, if Basic pay, Grade pay, TA and DA and other allowances and deductions are given as inputs. *10*

(b) Explain the following with the help of a suitable example for each : $4 \times 2\frac{1}{2} = 10$

(i) if statement

(ii) nested if statement

(iii) switch statement

(iv) for loop

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