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MCS-011

**MASTER OF COMPUTER
APPLICATION (REVISED)/BACHELOR
OF COMPUTER APPLICATION
(REVISED) (MCA/BCA)
Term-End Examination**

December, 2019

**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 and draw the corresponding flowchart to find the GCD (Greatest Common Divisor) of 2 given integers. 10
- (b) Write a program to reverse an input string using pointers. 10

- (c) Write a program using structures to find the Gross salary and Net salary for 5 employees of a small retail outlet if BASIC, TA, DA, HRA, Other Allowances and Deductions are given as input.

Where Gross Salary = BASIC + TA + DA + HRA + Other Allowances and Net Salary = Gross Salary - Deductions. 10

- (d) Write a program using File-Handling to count the no. of characters in a given .dat file. 10

2. (a) Compare while and do-while loop. Write a small code segment for each to explain the difference between them. 10

- (b) Give the C expressions for the following algebraic expressions : 10

(i)
$$\frac{a * 4c^2 - d}{m + n}$$

(ii)
$$ab - (e + f) \frac{4}{3}$$

3. (a) What are the use of the following along with their syntax and suitable example for each : 6
- (i) Puts and Gets
 - (ii) Break Statement
 - (iii) Continue
- (b) Define a Variable. How are variables declared in C ? What are the rules to name a variable in C ? How to assign a value to the variable at the time of declaration ? Explain with suitable examples. 6
- (c) Explain with an example program code segment, the array of a structure. 8
4. (a) Write a program in C to find the largest and smallest number in an array of 100 integers. 10
- (b) Write a program to find out square and cube of a given number using macros. 6
- (c) What is a logical error in C ? Give an example of it. 4

5. (a) Explain the use of the following functions in C : $4 \times 2 \frac{1}{2} = 10$

(i) malloc()

(ii) fseek()

(iii) ftell()

(iv) realloc()

(b) Define an array. How are arrays declared and initialized ? Write a C program to add two matrices A and B of size 3×3 . 10