MASTER OF COMPUTER APPLICATIONS/BACHELOR OF COMPUTER APPLICATIONS (REVISED) (MCA/BCA)

Term-End Examination

June, 2025

MCS-011 : PROBLEM SOLVING AND PROGRAMMING

Time : 3 Hours   *Maximum Marks : 100*

Weightage : 75%

Note : *(i)*   *Question No.* **1** *is compulsory.*

(ii)   *Answer any* **three** *questions from the rest.*

1. (a) Write an algorithm and draw a corresponding flowchart to accept '*n*' numbers from user and calculate their sum.   10

(b) Write a function in C to generate numbers between the given range.   6

(c) Write a program in C to print the Fibonacci series upto 'n' terms.   10

(d) Explain the use of pointers with an example C program.   10

(e) What is logical error in C ? Give an example of it.   4

2. Differentiate the following with examples :

4×5=20

(i) Break *vs*. Continue

(ii) While loop *vs*. Do---while loop

(iii) Call by value *vs*. Call by reference

(iv) Sequential Access *vs*. Random Access

3. (a) Write a C program to add two matrices A, B of size (3 × 3) and store the sum in matrix C.   10

   (b) Explain the following variables with an example for each :   10

       (i)   Automatic

       (ii) Extern

       (iii) Static

       (iv) Register

4. (a) Write a program to find out square and cube of a given number using macros. 8

   (b) Discuss dynamic memory allocation in C. Write and explain any *two* dynamic allocation functions of C.   6

   (c) Write *two* differences between a structure and a union with appropriate examples.   6

5. (a) Write a program to generate the following pattern : 8

       A B C D E

       A B C D

       A B C

       A B

       A

(b) Write a program to concatenate two strings (without using strcat( ) in-built function). 7

(c) Explain the use of "typedef" statement. Give an example. 5

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