

MCA (Revised) / BCA (Revised)
Term-End Examination
June, 2022

MCS-011 : PROBLEM SOLVING
AND PROGRAMMING

Time : 3 hours

Maximum Marks : 100
(Weightage : 75%)

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

1. (a) Draw a flowchart and write an algorithm to calculate the factorial of a given number. 10
- (b) Write a program to display string 'INFINITY' in the following pattern (using "LOOP" control statement) : 10
- I
IN
INF
INFI
INFIN
INFINI
INFINIT
INFINITY

- (c) Write a program to generate Fibonacci series using recursion. 10
- (d) Write an interactive C program for each to illustrate the following concepts : 10
- (i) Enumerated data type
 - (ii) Macros in C
 - (iii) Typedef
 - (iv) Goto statement
- 2.** (a) Write an algorithm and draw the corresponding flowchart to calculate whether the given number is prime or not. 10
- (b) Write a C program to perform the following operation on matrices :
- $$D = (A*B) + C$$
- where A, B and C are matrices of 3×3 size and D is the resultant matrix. 10
- 3.** (a) Write a program to find the minimum marks among the given marks of 20 students. 10
- (b) Write a program to find the string length without using strlen() function. 10

4. (a) Define function. How are functions declared in C language ? What are function prototypes and what is the use of **return** statements ? 10
- (b) Explain the function “call by reference” in C language. Give advantages and disadvantages of it. 10
5. (a) Explain the following statements with the help of an example for each : 10
- (i) Break
- (ii) Goto
- (iii) Continue
- (b) Using File Handling Concept, write a program to copy one file to another. 5
- (c) Write a short note on Ternary Operator with an illustration. 5
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