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MCS-011

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
I N
I N F
I N F I
I N F I N
I N F I N I
I N F I N I T
I N F I N I T Y

(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*