JAX-CMT-3001   Seat No. _____

M. Sc. (Mathematics) (Sem. III)
(CBCS) Examination
December – 2019
CMT - 3001 : Programing in C & Numerical Methods

Time : $2\frac{1}{2}$ Hours]   [Total Marks : **70**

Instructions :
    (1)   All questions are **compulsory**.
    (2)   Each question carries **equal** marks.

1   Answer following short questions (any seven) :   **7×2=14**

    (i)   Define terms: Machine language and Lower level language.

    (ii)   Write down all the sections of Basic Structure of C Program.

    (iii)   Write down at least four names of C-Tokens.

    (iv)   Write a program which can print A to Z (Capital letters) in one line.

    (v)   Write down name of Relational Operators.

    (vi)   Write down short keys to compiling and run a C-Program.

    (vii)   Draw flow chart, so that one can write a program which can print integers 1 to 25.

    (viii)   Give names of three logical operators.

    (ix)   Write down all Logical Operators with their appropriate notation in C language.

    (x)   Remove unnecessary parentheses from following and rewrite them :
        (1)   ((x – (y / 5) + z) % 8) +25
        (2)   (x * y) +(– a/b) + (c – d).

2   Attempt any two :   **2×7=14**

    (a)   Write a program which can read two rectangular matrices of size 4×3 and it can find the sum of given two matrices.

(b) Write a note about Development of C Language.

(c) Explain about for loop with its format.

3 Attempt any one   **1×14=14**

(a) Discuss about False Position Method and write down the program for the same method.

(b) Explain about Gauss-Seidel method and write down the program for the same method.

(c) Explain about Gauss Elimination Method and write down the program for the same method.

4 Attempt any two :   **2×7=14**

(a) Write down a program which can display first 200 primes.

(b) Explain about N-G Backward interpolation polynomial.

(c) Find the value of f(3) for the following unknown function f, using following table and Lagrange interpolation polynomial :

x	–1	1	4	5	3
$F(x)$	8	–2	–2	2	?

5 Attempt any two :   **2×7=14**

(1) Write a program which can display tables of 1 to 5 and 6 to 10.

(2) Write a program which can read two square matrices A, B of order n and it can print the matrices A + 2B and A * B.

(3) Find out at least two roots of $f(x) = x^3 - 4x + 1$, using N-R method.

(4) Explain about User Defined Functions. Also write about one user defined function with its format and a suitable program in which the user defined function has used.

_____