647510 **MSC3MatC301x** **Seat No :_____**

M.Sc.(Maths.) Semester - 3 (*CBCS*) Examination
Oct/Nov-2025 (NEW COURSE)
Prog. In C & Numerical Methods (Core (New))

Time: 2:30 Hours **Marks: 70**

Instructions:

1. Figures to the right indicate marks.
2. All questions are compulsory.

Q.1 (A) **Answer the following questions.** **[04]**

(1) Explain a variable in C language and write down the rules for naming a variable.

Q.1 (B) **Answer any TWO of the following questions.** **[10]**

(1) Write a note about importance of C-language.
(2) Explain printf () function with example.
(3) Write a detail note on an arithmetic statement.

Q.2 (A) **Answer the following question.** **[04]**

(1) Write a program to print all the divisors of positive integer n.

Q.2 (B) **Answer any TWO of the following questions.** **[10]**

(1) Explain goto statement with example.
(2) Differentiate while and do-while loop.
(3) Write a C program, which can display first 200 prime numbers.

Q.3 (A) **Answer the following question.** **[04]**

(1) Explain the structure with example.

Q.3 (B) **Answer any TWO of the following questions.** **[10]**

(1) Write a C program to find an average of n numbers.
(2) Explain user define function:
   a) No arguments and no return value.
   b) With argument and no return value.
(3) Explain about User Defined Functions. Also write about one user defined function with its formula and a suitable program in which the user defined function is used.

Q.4 (A) **Answer the following question.** **[04]**

(1) Explain the Bisection method to solve (x)=0.

Q.4 (B) **Answer any TWO of the following questions.** **[10]**

(1) Find the real root of an equation $xe^x - 2 = 0$ using Bisection method, correct up to two decimal points.
(2) Write a C program for finding the real root of an equation $x^3 - 7 = 0$ using bisection method.
(3) Explain secant method to solve $f(x) = 0$ for x.

Q.5 (A) **Answer the following question.** **[04]**

(1) Explain Gauss elimination method.

Q.5 (B) **Answer any TWO of the following questions.** **[10]**

(1) Solve system of equations using Gauss Elimination method.

$$3x + y - z = 3$$
$$2x - 8y + z = -5$$
$$x - 2y + 9z = 8$$

(2) Derive Lagrange's interpolation formula.
(3) Write a program to solve the system of linear equations using Gauss-Seidel method.

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