

M.Sc.(Maths.) Semester - 3 (CBCS) Examination
Nov/Dec-2023 (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.
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- Que.1(A) Answer the following question. (04)
1) Explain a variable in C language and write down the rules for naming a variable.
- Que.1(B) Answer any two questions out of three. (10)
1) Explain declaration of variable with example.
2) Explain printf() statement with example.
3) Write a detail note on an arithmetic statement.
- Que.2(A) Answer the following question. (04)
1) Write a program to print all the divisors of positive integer n .
- Que.2(B) Answer any two questions out of three. (10)
1) Explain goto statement with example.
2) Explain do while loop and draw the flow chart of it.
3) Write a program to declare day of any date and month of the year 2023 assuming 1st January 2023 is Sunday.
- Que.3(A) Answer the following question. (04)
1) Explain the structure with example.
- Que.3(B) Answer any two questions out of three. (10)
1) Write a program to find average of n numbers.
2) Explain two-dimensional array.
3) Explain the function call with example.
- Que.4(A) Answer the following question. (04)
1) Explain the Bisection method to solve $f(x) = 0$.
- Que.4(B) Answer any two questions out of three. (10)
1) Find the real root of an equation $xe^x - 2 = 0$ using Bisection method, correct up to two decimal points.
2) Find real root of an equation $x^3 - 4x + 1 = 0$ using Newton Raphson method.
3) Write a program to find the root of an equation $f(x) = 0$ using Secant method.
- Que.5(A) Answer the following question. (04)
1) Solve the system of equations using Gauss elimination method.
$$\begin{aligned} 3x + y - z &= 3 \\ 2x - 8y + z &= -5 \\ x - 2y + 9z &= 8 \end{aligned}$$
- Que.5(B) Answer any two questions out of three. (10)
1) Explain the Gauss-Seidel method.
2) Write a program to solve the system of linear equations using Gauss-Seidel method.
3) Derive Lagrange's interpolation formula.
