

M.Sc.(Maths.) Semester - 3 (CBCS) Examination

OCT/NOV-2024

Prog. In C & Numerical Methods (Core (New))

Time: 2:30 Hours

Marks: 70

Instructions:

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

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- Q.1 (A) Answer the following questions.** [04]
1. Write down the rules for naming a variable.
 2. Write down at least four names of C-tokens.
- Q.1 (B) Answer any TWO of the following questions.** [10]
1. Explain declaration of variable with example.
 2. Explain scanf () function with example.
 3. Write a detail note on an arithmetic statement.
- Q.2 (A) Answer the following question.** [04]
1. Write a C program to obtain big integer from given three integers.
- Q.2 (B) Answer any TWO of the following questions.** [10]
1. Explain switch statement.
 2. Write a C program, which can display first 200 prime numbers.
 3. Explain do while loop and draw the flow chart of it.
- Q.3 (A) Answer the following question.** [04]
1. Explain two-dimensional array.
- 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 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
 3. Explain the structure with example.
- Q.4 (A) Answer the following question.** [04]
1. Explain the Gauss Elimination Method.
- 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. Find real root of an equation $x^3 - 4x + 1 = 0$ using Newton Raphson method.
 3. Explain secant method to solve $f(x) = 0$.
- Q.5 (A) Answer the following question.** [04]
1. Explain Gauss-Seidel method.
- Q.5 (B) Answer any TWO of the following questions.** [10]
1. Solve the system of equations using Gauss elimination method.
$$\begin{aligned} 3x + y - z &= 3 \\ 2x - 8y + z &= -5 \\ x - 2y + 9z &= 8 \end{aligned}$$
 2. Derive Lagrange's interpolation formula.
 3. Write a C program for finding the real root of an equation $x^3 - 7 = 0$ using bisection method.
