

M.Sc.(Maths.) Semester - 3 (CBCS) Examination**Oct/Nov-2022 (NEW COURSE)****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. Write a note about importance of C-language.
 2. Explain scanf () function with example.
 3. Explain constants with example: (i) Real (ii) Single Character.
- 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. Differentiate while and do-while loop.
 3. Explain for loop with example 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 user define function:
 - a) No arguments and no return value.
 - b) With argument and no return value.
 3. Explain string-handling functions with example.
- Q.4 (a) Answer the following question. [04]**
1. Find real root of an equation $x^3 - x - 1 = 0$ using successive approximation method.
- Q.4 (b) Answer any TWO of the following questions. [10]**
1. Estimate $\sqrt{2}$ using false position method.
 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 $(x) = 0$ 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 Seidel method. (Correct up to two decimal places)
$$\begin{aligned}8x - 3y + 2z &= 20 \\4x + 11y - z &= 33 \\6x + 3y + 12z &= 35\end{aligned}$$
 2. Derive Lagrange's interpolation formula.
 3. Write a C program for the Lagrange's interpolation polynomial.
