

B.Sc. Semester - 5 (CBCS) Examination

Oct/Nov - 2023 (NEW COURSE)

Programming in C and Numerical Analysis -1(Core)

Time: 2:30 Hours

Marks: 70

Instructions:

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

Que.1(A) Answer any two out of three. (10)

1. Explain if else statement.
2. Explain Integer and Real constants in C.
3. Explain scanf() in C.

Que.1(B) Answer any one out of two. (04)

1. Explain difference between If and If-else statement.
2. Explain Hierarchy of operations in C.

Que.2(A) Answer any two out of three. (10)

1. Explain Integer data types in C.
2. Explain for loop.
3. Write a program to find sum of digits of given number.

Que.2(B) Answer any one out of two. (04)

1. Explain while loop.
2. Differentiate continue and break statement.

Que.3(A) Answer any two out of three. (10)

1. Explain array in C.
2. Write a program to find an addition of two 3x3 matrices.
3. Explain Macros with argument.

Que.3(B) Answer any one out of two. (04)

1. Explain two dimensional array initialization.
2. Write a program to find a geometric progression for given value of a and r.

Que.4(A) Answer any two out of three. (10)

1. Fit normal equation for $y=ax+b$, using principle of least squares method.
2. State and Prove L.U. decomposition method.
3. State and prove Gauss Elimination method.

Que.4(B) Answer any one out of two. (04)

1. Solve the following system of linear equation by Gauss Elimination method.
 $X+4y+9z=34$; $2x+y+z=12$; $3x+2y+3z=24$
2. Fit a straight line $y=ax+b$ for the following data.
 X: 1 2 3 4 5
 Y: 14 27 40 55 68

Que.5(A) Answer any two out of three. (10)

1. Derive Gregory Newton Forward interpolation formula.
2. Prove that n^{th} difference of a polynomial of degree n are constant.
3. Find the missing values of y in the following tablet.

x	0	1	2	3	4	5	6
y	-4	-2	?	?	220	546	1148

Que.5(B) Answer any one out of two. (04)

1. Express $f(x)=3x^4-4x^3+6x^2+2x+1$ in factorial notation.
2. Evaluate $\Delta^3 f(x)$ for $f(x)=(1-x)(1-2x)(1-3x)$ if $h=1$
