

B.Sc. Semester - 5 (Remedial) (CBCS) Examination
Feb/Mar. -2021 (NEW COURSE)
Programming in C and Numerical Analysis -1(Core)

Time: 1:30 Hours

Marks: 42

Instructions:

1. Figures to the right indicate marks.
2. There are five questions in the question paper.
3. Answer any three of the following questions.

- Q-1 (A) Answer any two out of three. [10]**
 (1) Explain if- else statement.
 (2) Write a program to find sum of digits of given number.
 (3) Explain all types of constant in C.
(B) Answer any one out of two. [4]
 (1) Explain arithmetic instruction in C.
 (2) Explain type declaration statement.
- Q-2 (A) Answer any two out of three. [10]**
 (1) Explain do while loop.
 (2) Explain for loop.
 (3) Explain all integer data type in C.
(B) Answer any one out of two. [4]
 (1) Explain continue and break statement.
 (2) Explain go to statement.
- Q-3 (A) Answer any two out of three. [10]**
 (1) Explain Macros without argument and explain how it's useful in programming.
 (2) Write a program to find multiplication of two 3x3 matrices.
 (3) Explain dimensional variable.
(B) Answer any one out of two. [4]
 (1) Explain C pre processor.
 (2) Write a program to find root of quadratic equation.
- Q-4 (A) Answer any two out of three. [10]**
 (1) State and prove Gauss elimination method.
 (2) State and prove L. U. Decomposition method.
 (3) Using principle of least square obtain normal equations for parabola $y=ax^2+bx+c$.
(B) Answer any one out of two. [4]
 (1) Fit a straight line $y=ax+b$ for the following data.
 X: 1 2 3 4 5
 Y: 14 27 40 55 68
 (2) Solve the following system of linear equation by Gauss Seidal method.
 $5x+2y+z=12$; $x+4y+2z=15$; $x+2y+5z=20$
- Q-5 (A) Answer any two out of three. [10]**
 (1) Derive Gregory Newton backward interpolation formula.
 (2) Prove that nth differences of a polynomial of degree n are constant.
 (3) Find the missing value of the following data.
 X: 0 1 2 3 4 5 6
 Y: -4 -2 ? ? 220 546 1148
(B) Answer any one out of two. [4]
 (1) Given $y_0=3$, $y_1=12$, $y_2=81$, $y_3=200$, $y_4=100$. Find $\Delta^4 y_0$ without forming the difference table.
 (2) Evaluate $\Delta^2 f(x)$ for $f(x)=\frac{1}{(3x+1)(3x+4)(3x+7)}$.
