

B.Sc. Semester - 5 (CBCS) Examination

Oct/Nov.– 2019

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.
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Q-1 (A) Answer any two out of three. [10]

- (1) Explain if- else statement.
- (2) Write a program to find big number from given three numbers.
- (3) Explain printf() and scanf() in C.

(B) Answer any one out of two. [4]

- (1) Write logical operators with meaning.
- (2) Explain type declaration statement.

Q-2 (A) Answer any two out of three. [10]

- (1) Explain for loop.
- (2) Explain long and short data type in C.
- (3) Write a program to verify given number is prime or not.

(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 and with argument.
- (2) Write a program to find multiplication of two 3x3 matrices.
- (3) Explain one dimensional and two dimensional array initialization.

(B) Answer any one out of two. [4]

- (1) What is an Array?
- (2) Explain C pre processor.

Q-4 (A) Answer any two out of three. [10]

- (1) Explain Gauss elimination method for simultaneous linear algebraic equation.
- (2) Explain least squares principle. Obtain normal equation for parabola $y=ax^2+bx+c$.
- (3) Solve the following system of linear equation by Gauss Jordan method.
 $X+4y+9z=34$; $2x+y+z=12$; $3x+2y+3z=24$

(B) Answer any one out of two.

[4]

- (1) Write names of indirect methods for solving linear equation. Also explain which method is more rapid, why?
- (2) Explain linear law.

Q-5 (A) Answer any two out of three.

[10]

- (1) Define forward difference and derive Gregory Newton forward interpolation formula.
- (2) Define backward difference and derive Gregory Newton backward interpolation formula.
- (3) The value of polynomial of degree 5 are as follows. If $f(3)$ is known to be an error, find the correct value.

x	0	1	2	3	4	5	6
f(x)	1	2	33	254	1025	3126	7777

(B) Answer any one out of two.

[4]

- (1) Find the missing value of the following data.

X	1	2	3	4	5
Y:	2	5	7	?	32

- (2) Evaluate $\Delta^3 f(x)$ for $f(x) = (3x+1)(3x+4)(3x+7)\dots\dots(3x+19)$.
