

7. (a) Compute the Newton form of the polynomial interpolating the data : 7

x	0	1	3
y	1	0	4

- (b) Explain Chebyshev polynomial of the first order kind of Degree n . 7

Unit IV

8. (a) Evaluate using Simpson 3/8 by taking $h = 1/6$. 7
- (b) Explain the bi-section method. 7
9. From the following table, estimate the number of students who obtained marks between 40 and 45 : 14

Marks	30–40	40–50	50–60	60–70	70–80
No. of students	31	42	51	35	31

Roll No.

Exam Code : J-21

Subject Code—51690

B.C.A. EXAMINATION

(Main/Reappear) (Batch 2018 & 2019)

(First Semester)

ENGLISH

BCA-113

Computer Oriented Numerical Method

Time : 3 Hours

Maximum Marks : 70

Note : Attempt *Five* questions in all. Q. No. 1 is compulsory. All questions carry equal marks.

1. Short answer type questions : 2×7=14

- (a) Write about inherent, truncation errors.
- (b) Explain Runge Kutta's fourth-order method with formula.
- (c) What are the various ranges of coefficient of correlation ? Explain with their name.

- (d) Define normalized floating-point representation of numbers.
- (e) What is Binary Representation of Numbers ?
- (f) Write 2-3 lines on floating-point numbers.
- (g) Difference between Lagrange Interpolation and Difference tables.

Unit I

- 2. (a) Evaluate the square root of 28 to four decimal places by Newton's iterative method. 7
- (b) Give an algorithm for the development of the Regula-falsi method. 7
- 3. (a) Find a root of equation $x^3 - 2x - 5 = 0$ between (1.75, 2.5) by false position method up to 3 places of decimal. 7
- (b) Write the formula for false position and Newton-Raphson methods. 7

Unit II

- 4. (a) Give the formula for Runge-Kutta's 4th order formula. 7
- (b) Find regression equation Y on X for the given data : 7

X	1	2	3	4	5
Y	9	9	10	12	11

- 5. (a) Solve by Gauss elimination method :
 $x_1 + x_2 + x_3 = 3$; $2x_1 + 3x_2 + x_3 = 6$;
 $x_1 - x_2 - x_3 = -3$. 7
- (b) By Gauss-Seidel iterative method solve the linear equations :
 $x_1 + 10x_2 + x_3 = 6$; $10x_1 + x_2 + x_3 = 6$
and $x_1 + x_2 + 10x_3 = 6$. 7

Unit III

- 6. Find the solution of the following equations by elementary row operations : 14

$$x - 2y + 3z = 4$$

$$2x + y - 3z = 5$$

$$-x + y + 2z = 3$$