Numerical Methods

Unit 5 :-

1) Numerical soln of Algebraic and Transcendental equations :-
   → Bisection
   → secant
   → Regula - Falsi
   → Newton-Raphson
   → Successive Approximation .

   Convergence and stability .

2) Numerical soln of System of linear equations :
   → Gauss elimination
   → LU Decomposition
   → Cholesky
   → Jacobi
   → Gauss- seidal Methods .

Unit 6 :

1. Interpolation :-
   → Finite Differences,
   → Newton's and Lagrange's interpolation Formulae

2] → Numerical Differentiation

3] Numerical Integration
   → Trapezoidal Rule
   → Simpson's $\frac{1}{3}$rd Rule
   → Simpson's $\frac{3}{8}$th Rule

4] Solution of ordinary differential eq's.
   → Euler's Method.
   → Euler's Modified Method
   → Runge-Kutta 4th order
   → Predictor - Corrector Method.

Unit 3 : Statistics.

1) Measures of central tendency

2) Measures of dispersion.

3) Coefficient of Variation

4) Moments

5) Skewness and & Kurtosis

6) Curve fitting: fitting of st. line, parabola and related curves.

7) Correlation and Regression.

8) Reliability of Regression Estimates

Unit 4 Probability and Probability distribution

1) Probability

2) Theorems on probability

3) Bayes Theorem

4) Random variables.

5) Mathematical Expectation.

6) Probability distributions: Binomial, Poisson, Normal, Hypergeometric, Sampling distributions.

7) Test of Hypothesis: Chi-square test, t-test.