Max. Marks: 40+10
Time: 3hrs.

UNIT-I

Computational Techniques:- Iterative Method to find Real Root : Bolzano/Bisection Method, Regula Falsi Method, Newton Raphson Methods and their Convergence.

UNIT-II

Simultaneous linear Equations:- Gauss Elimination Method, Gauss Jorden Method, Triangularization Method, pivoting, ill conditioned equation, refinement of solution.

UNIT-III

Numerical Methods-I:- Gauss-seidal Iterative Method, Euler Method, Modified-Euler Method. Taylor-series Method, Runga-Kutta Method. Predictor corrector Method, Jacobi Method.

UNIT-IV

Numerical Methods-II:- Newton Forward Interpolation formula, Newton Backward Interpolation formula, Newton's divided difference formula, Lagrange's Interpolation formula, Approximation of functions by Taylor series and chebyshev polynomial.

Reference Books:

1. Higher Engineering Mathematics by R.S.Grewal.
2. Numerical Methods for scientific and engineering by Jain & Iyenger.
3. Computer based numerical Algorithms by E.V.Krisnamurthy and S.sen (east-West Press)
4. Discrete Mathematical structures with application to computer science by J.P. Tremblay & Manohar
5. A text book of matrices by Shanti Narayana
6. Numerical Analysis by Jeevansons Publications for B.Sc.III.

Note:

1. Syllabus in each Theory Paper is divided in 4 units.
   I. A Student is required to attempt 5 questions in all.
   II. Question No 1 is compulsory, consisting of short answer type questions based on all the 4 units.
   III. Two questions will be set from each unit. A student is required to attempt one question from each unit.
   IV. All questions carry equal marks.
2. Use of simple calculator is permissible.
3. Instructions should be imparted using SI system of units. Familiarity with CGS system of units should also be ensured.
4. Distribution of Marks: 40+10*= 50.
   * Each question paper will be of 40 marks and 10 marks in each theory paper are awarded through internal assessment in each semester.
5. Work load – 3 periods per week per theory paper.