For the post of Written Recruitment Test for the post of Postgraduate Assistants in Tamil Nadu Higher Secondary Educational Service.

Syllabus: MATHS (Subject Code: P03)

**Unit-I - Algebra**


**Unit-II - Real Analysis**


**Unit-III - Fourier series and Fourier Integrals**

Integration of Fourier series - Fejer’s theorem on (C.1) summability at a point - Fejer’s-Lebsque theorem on (C.1) summability almost everywhere – Riesz-Fisher theorem - Bessel’s inequality and Parseval’s theorem - Properties of Fourier co-efficients - Fourier transform in L (-D, D) - Fourier Integral theorem - Convolution theorem for Fourier transforms and Poisson summation formula.

**Unit-IV - Differential Geometry**


**Unit-V - Operations Research**

Linear programming - Simplex Computational procedure - Geometric interpretation of the simplex procedure - The revised simplex method - Duality problems - Degeneracy procedure - Peturbation techniques - integer programming - Transportation problem – Non-linear programming - The convex programming problem - Dynamic programming - Approximation in function space, successive approximations - Game theory - The maximum and minimum principle - Fundamental theory of games - queuing theory / single server and multi server models (M/G/1), (G/M/1), (G/G1/I) models, Erlang service distributions cost Model and optimization - Mathematical theory of inventory control - Feed back control in inventory management - Optional inventory policies in determinstic models - Storage models - Damtype models - Dams with discrete input and continuous output - Replacement theory - Deterministic Stochastic cases - Models for unbounded horizons and uncertain case - Markovian decision models in replacement theory - Reliability - Failure rates - System reliability - Reliability of growth models - Net
work analysis - Directed network - Max flow - min cut theorem - CPM-PERT - Probabilistic condition and decisional network analysis.

**Unit-VI - Functional Analysis**


**Unit-VII - Complex Analysis**

Introduction to the concept of analytic function - limits and continuity - analytic functions - Polynomials and rational functions elementary theory of power series – Maclaurin’s series - uniform convergence power series and Abel’s limit theorem - Analytic functions as mapping - conformity arcs and closed curves - Analytical functions in regions - Conformal mapping - Linear transformations - the linear group, the cross ratio and symmetry - Complex integration - Fundamental theorems - line integrals - rectifiable arcs - line integrals as functions of arcs - Cauchy’s theorem for a rectangle, Cauchy’s theorem in a Circular disc, Cauchy’s integral formula - The index of a point with respect to a closed curve, the integral formula - higher derivatives - Local properties of Analytic functions and removable singularities - Taylor’s theorem - Zeros and Poles - the local mapping and the maximum modulus Principle.

**Unit-VIII - Differential Equations**


**Unit-IX - Statistics - I**


**Unit-X - Statistics-II**

Probability distributions – Binomial, Poisson, Normal, Gama, Beta, Cauchy, Multinomial Hypergeometric, Negative Binomial - Chebychev’s lemma (weak) law of large numbers - Central limit theorem for independent identical variates, Standard Errors - sampling distributions of t, F and Chi square - and their uses in tests of significance - Large sample tests for mean and proportions - Sample surveys - Sampling frame - sampling with equal probability with or without replacement - stratified sampling - Brief study of two stage systematic and cluster sampling methods - regression and ratio estimates - Design of experiments, principles of experimentation - Analysis of variance - Completely randomized block and latin square designs.