SUSGC Matak Majri Indri Karnal Haryana

Lesson Plan (B.A /B.Sc 3rd Year)

Session- 2025-26

Vibha Goyal

July and August 2025

Boundedness of the set of real numbers, Least upper bound and Greatest lower bound of a set, Archimedean, algebraic and ordered properties in R. The real number system as a complete ordered field. Neighbourhoods, interior points, isolated points, limit points, Open sets, closed sets interior of a set, closure of a set in real numbers and their properties. Bolzano-Weierstrass theorem. Open covers, compact sets and Heine-Borel theorem.

September 2025

Denumerable and non-denumerable sets, Denumerability of integers, rationals and non. Denumerability of real numbers. Sequences : Real sequences and their convergence, Theorems on limit of sequence, Bounded and monotonic sequences, Cauchy's sequence, Cauchy general principle of convergence, Subsequences and subsequential limits, Limit superior and limit inferior.

October 2025

Infinite series : Convergence and divergence of Infinite Series, Comparison tests of positive terms infinite series, Cauchy's general principle of Convergence of series, Convergence and divergence of geometric series, Hyper Harmonic series or pseries, D-Alembert's ratio test, Raabe's test, Logarithmic test, Cauchy's nth root test, De-Morgan and Bertrand's test, Gauss Test, Cauchy's integral test, Cauchy's condensation test.

November 2025

Alternating series, Absolute and conditional convergence, Leibnitz test. Arbitrary series, Abel's and Dirichlet's test, Insertion and removal of parenthesis, Re- arrangement of terms in a series, Riemann's re-arrangement theorem and Pringsheim's theorem (statement only). Cauchy product of series (definitions and examples only).