

GOVT. COLLEGE FOR WOMEN, BAHADURGARH

LESSON PLAN:- 4th Semester
CLASS:- B.A./B.SC.-2 (MATHEMATICES)
TEACHER'S NAME:- RAVINDER KUMAR
PAPER:- Sequences and Series

WEEK 1	Boundedness of the set of real numbers; least upper bound, greatest lower bound of a set, neighborhoods, interior points, isolated points.
WEEK 2	Limit points, open sets, closed set, interior of a set, closure of a set in real numbers and their properties.
WEEK 3	Bolzano-Weierstrass theorem, Open covers, Compact sets and Heine-Borel Theorem.
WEEK 4	Sequence: Real Sequences and their convergence, Theorem on limits of sequence, Bounded and monotonic sequences, Cauchy's sequence, Cauchy general principle of convergence.
WEEK 5	Subsequences, Subsequential limits. Infinite series: Convergence and divergence of Infinite Series, Comparison Tests of positive terms Infinite series.
WEEK 6	Cauchy's general principle of Convergence of series, Convergence and divergence of geometric series, Hyper Harmonic series or p-series.
WEEK 7	Infinite series: D-Alembert's ratio test, Raabe's test.
WEEK 8	Logarithmic test, de Morgan and Bertrand's test, Cauchy's Nth root test.
WEEK 9	Gauss Test, Cauchy's integral test, Cauchy's condensation test.
WEEK 10	Alternating series, Leibnitz's test, absolute and conditional convergence, Arbitrary series: abel's lemma, Abel's test, Dirichlet's test.
WEEK 11	Insertion and removal of parenthesis, re-arrangement of terms in a series, Dirichlet's theorem, Riemann's Re-arrangement theorem, Pringsheim's theorem (statement only), Multiplication of series.
WEEK 12	Cauchy product of series, (definitions and examples only) Convergence and absolute convergence of infinite products.