

# SARASWATI MAHILA MAHAVIDYALAYA, PALWAL

SESSION:2021-22

## LESSON PLAN

Name of faculty : Ms. Lalita

Designation : Assistant Professor in Maths

Sem : Even

Class : Bsc-II(CS)

Subject : Sequence and Series

Sr.No.	Topics/chapters	Lectures	Topics of assignment/test
1.	Boundedness of the set of real numbers; least upper bound, greatest lower bound of a set, neighborhoods, interior points, isolated points, limit points, open sets, closed set, interior of a set, closure of a set in real numbers and their properties. Bolzano-Weiestrass theorem, Open covers, Compact sets and Heine-Borel Theorem.	Lect 1 to Lect 20	Test of Open set, Interior points, Limit points, Closure of sets & assignment of Bolzano-Weiestrass theorem.
2.	Sequence:Real Sequences and their convergence, Theorem on limits of sequence, Bounded and monotonic sequences, Cauchy's sequence, Cauchy general principle of convergence,Subsequential limits. 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,Harmonic series or p-series.	Lect 21 to Lect 40	Test of Harmonic series or p-series and examples.

3.	Infinite series: D-Alembert's ratio test, Raabe's test, Logarithmic test, de Morgan and Bertrand's test, Cauchy's Nth root test, Gauss Test, Cauchy's integral test, Cauchy's condensation test.	Lect 41 to Lect 60	Assignment of Ratio test, Cauchy's root test, Gauss Test, Cauchy's integral test, Cauchy's condensation test and test on their examples.
4.	Alternating series, Leibnitz's test, absolute and conditional convergence, Arbitrary series: Abel's lemma, Abel's test, Dirichlet's test, 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, Cauchy product of series, (definitions and examples only) Convergence and absolute convergence of infinite products.	Lect 61 to Lect 80	Assignment of Leibnitz test, Abel's test, Dirichlet test. Test of examples on Arbitrary Series.