NPTEL Video Course - Mathematics - NOC:Introductory Course in Real Analysis

Subject Co-ordinator - Prof. P.D. Srivastava

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Countable and Uncountable sets
Lecture 2 - Properties of Countable and Uncountable sets
Lecture 3 - Examples of Countable and Uncountable sets
Lecture 4 - Concepts of Metric Space
Lecture 5 - Open ball, Closed ball, Limit point of a set
Lecture 6 - Tutorial-I
Lecture 7 - Some theorems on Open and Closed sets
Lecture 8 - Ordered set, Least upper bound, Greatest lower bound of a set
Lecture 9 - Ordered set, Least upper bound, Greatest lower bound of a set (Continued...)
Lecture 10 - Compact Set
Lecture 11 - Properties of Compact sets
Lecture 12 - Tutorial-II
Lecture 13 - Heine Borel Theorem
Lecture 14 - Weierstrass Theorem
Lecture 15 - Cantor set and its properties
Lecture 16 - Derived set and Dense set
Lecture 17 - Limit of a sequence and monotone sequence
Lecture 18 - Tutorial-III
Lecture 19 - Some Important limits of sequences
Lecture 20 - Ratio Test CauchyÂ s theorems on limits of sequences of real numbers
Lecture 21 - Fundamental theorems on limits
Lecture 22 - Some results on limits and Bolzano-Weierstrass Theorem
Lecture 23 - Criteria for convergent sequence
Lecture 24 - Tutorial-IV
Lecture 25 - Criteria for Divergent Sequence
Lecture 26 - Cauchy Sequence
Lecture 27 - Cauchy Convergence Criteria for Sequences
Lecture 28 - Infinite Series of Real Numbers
Lecture 29 - Convergence Criteria for Series of Positive Real Numbers

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Lecture 30 - Tutorial-V
Lecture 31 - Comparison Test for Series
Lecture 32 - Absolutely and Conditionally Convergent Series
Lecture 33 - Rearrangement Theorem and Test for Convergence of Series
Lecture 34 - Ratio and Integral Test for Convergence of Series
Lecture 35 - Raabe's Test for Convergence of Series
Lecture 36 - Tutorial-VI
Lecture 37 - Limit of Functions and Cluster Point
Lecture 38 - Limit of Functions (Continued...)
Lecture 39 - Divergence Criteria for Limit
Lecture 40 - Various Properties of Limit of Functions
Lecture 41 - Left and Right Hand Limits for Functions
Lecture 42 - Tutorial-VII
Lecture 43 - Limit of Functions at Infinity
Lecture 44 - Continuous Functions (Cauchy's Definition)
Lecture 45 - Continuous Functions (Heine's Definition)
Lecture 46 - Properties of Continuous Functions
Lecture 47 - Properties of Continuous Functions (Continued...)
Lecture 48 - Tutorial-VIII
Lecture 49 - Boundness Theorem and Max-Min Theorem
Lecture 50 - Location of Root and Bolzano's Theorem
Lecture 51 - Uniform Continuity and Related Theorems
Lecture 52 - Absolute Continuity and Related Theorems
Lecture 53 - Types of Discontinuities
Lecture 54 - Tutorial-IX
Lecture 55 - Types of Discontinuities (Continued...)
Lecture 56 - Relation between Continuity and Compact Sets
Lecture 57 - Differentiability of Real Valued Functions
Lecture 58 - Local Max. - Min. Cauchy's and Lagrange's Mean Value Theorem
Lecture 59 - Rolle's Mean Value Theorems and Its Applications
Lecture 60 - Tutorial-X
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