Subject : Mathematics

Teacher name: Sujata, Paper 1 Semester 4th

April 2021

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| 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. |

May 2021

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| Sequence: Real Sequences and their convergence, Theorem on limits of sequence, Bounded and monotonic sequences, Cauchy’s sequence, Cauchy general principle of convergence, Subsequences, 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, Hyper Harmonic series or p-series. |

June 2021

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| 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. |

July 2021

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| 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. |