

SYLLABUS

PAPER I : ADVANCED CALCULUS II

Time : 3 Hours

Theory : 30 marks

- Note**
1. The syllabus has been split into two Units : Unit-I and Unit-II. Four questions will be set from each Unit.
 2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
 3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
 4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

UNIT-I

Definition of a sequence, Bounds of a sequence, Convergent, divergent and oscillatory sequences, Algebra of limits, Monotonic Sequences, Cauchy's theorems on limits, Subsequences, Bolzano-Weirstrass Theorem, Cauchy's convergence criterion.

Sequential continuity and Uniform continuity of functions of single variable.

UNIT-II

Series of non-negative terms. P-Test, Comparison tests. Cauchy's integral test. Cauchy's Root test. Ratio tests : Kummer's Test, D'Alembert's test, Rabbe's test, De Morgan and Bertand's test, Gauss Test, Logarithmic test. Alternating series. Leibnitz's theorem. Absolute and conditional convergence, Rearrangement of absolutely convergent series, Riemann's rearrangement theorem.