

PAPER-II: NUMBER THEORY

SYLLABUS

Unit 1: Divisibility

Early Number Theory, The Division Algorithm, The Greatest Common Divisor, The Euclidean Algorithm.

Unit II: Congruences

Basic Properties of Congruence, Binary and Decimal Representations of Integers, Linear Congruences and the Chinese Remainder Theorem.

Unit III: Fermat's Theorem

Fermat's Little Theorem and Pseudoprimes, Wilson's Theorem.

UNIT IV: Euler's Generalization of Fermat's Theorem

Euler's Phi-Function, Euler's Theorem, Some Properties of the Phi-Function

Unit V: Quadratic Reciprocity Law

Euler's Criterion, The Legendre Symbol and Its Properties, Quadratic Reciprocity, Quadratic Congruences with Composite Moduli.

Text Book: David M. Burton, Elementary Number Theory, Sixth Edition, McGrawHill