

MT-607 Topics in Algebra

Set theory, Mappings, Group theory, Some Preliminary Lemmas, Subgroups, A Counting Principle, Normal Subgroups and Quotient Groups, Homomorphisms, Automorphisms, Cayley's Theorem, Permutation Groups, Sylow's Theorem, Rings theory, Some Special Classes of Rings, Euclidean Rings, Polynomial Rings, Polynomials over the Rational Field, Vector Spaces and Modules, Linear Independence and Bases, Dual Spaces, Inner Product Spaces, Field, Extension Fields, The Elements of Galois Theory, Galois Groups over the Rationals, The Algebra of Linear Transformations, Characteristic Roots Canonical Forms, Hermitian, Unitary, and Normal Transformations, Finite Fields, Wedderburn's Theorem on Finite, Division Rings, A Theorem of Frobenius, Integral Quaternions and the Four-Square Theorem.

Reference Books:

1. Topics in Algebra by I. N. Herstein, 2013.
2. Abstract Algebra: Theory & Applications by Tom Judson's, 2015.
3. A book of Abstract Algebra by Charles C. Pinter, 2nd Edition, 1990