

W.e.f. 1996-97 AB

year(s).

**M.A./M.Sc. MATHEMATICS — PREVIOUS**

**Paper I - Algebra**

SX-105

UNIT 1 : Structure theory of groups, Direct products, Sylow theorems, Finite Abelian groups, Generators of subgroup and derived subgroups, normal series, solvable groups and Jordan Holder theorems, Survey of some finite groups (Ch 4,5 and 6 of the Prescribed textbook (1)).

UNIT 2 : Rings, preliminary results, special kinds of rings, subrings and ideals, algebra of ideals, quotient rings, fields, homomorphisms, fields of quotients and embedding theorems, polynomial rings  $R[x]$ , factorization in  $R[x]$ , divisibility in rings, euclidean domains, unique factorization domains. (ch.7,8,9 and 10 of the prescribed book (1)).

UNIT 3 : Fields, subfields, prime fields, extension of fields, separable and inseparable extensions, monomorphisms of fields and their linear independence, Normal extensions and fundamental theorems of Galois theory, Radical extensions and solvability by radicals, constructions by Ruler and Compass (Cr.13 and 14 of the prescribed text (1)).

UNIT 4 : Partially ordered sets and lattices, Distributivity and modularity in lattices, Jordan-Holder-Dedekind theorem, Boolean algebras, The Mobius function of a partially ordered sets. (Ch.8(except section 8.4) in the prescribed book(2)).

*Prescribed Textbooks* : 1) Modern Algebra by Surjeet Singh and Quasi Zameeruddin, Vikas Publishing House Pvt. Ltd., New Delhi, 1990. 2) Basic Algebra I, by N.Jacobson, Hindustan Publishing Corporation, New Delhi, 1984.