

2003 - 2004 AB

M 406 - Lattice Theory - II

(Prerequisite M 306 - Lattice Theory-I)

UNIT I : Boolean algebras, De Morgan formulae - Complete Boolean algebras - Boolean algebras and Boolean rings - The algebra of relations - The lattice of propositions - Valuations of Boolean algebras.

(Sections 42 to 47 of Chapters VI of the prescribed textbook)

UNIT II : Birkhoff lattices - Semimodular lattices - Equivalence lattices - Linear dependence - Complemented semimodular lattices.

(Sections 48 to 52 of Chapters VII of the prescribed textbook)

UNIT III : Ideals and dual ideals, Ideal chains - Ideal lattices - Distributive lattices and rings of sets.

(Sections 53 to 55 of Chapters VIII of the prescribed textbook)

UNIT IV : Congruence relations of an algebra - Permutable equivalence relations - The Schreier refinement theorem in arbitrary algebras - Congruence relations of lattices - Minimal congruence relations of some subsets of a distributive lattice - The connection between ideals and congruence relations of lattice.

(Sections 56 to 61 of Chapters IX of the prescribed textbook)

*Prescribed Textbook :*

Introduction to Lattice Theory, by Gabor Szasz, Academic Press, New York.

*Books for Reference :*

General Lattice Theory by G. Gratzner, Academic Press, New York.