

SXS-325

15

2005-2006 AB

Department of Mathematics
Andhra University
M.Sc Mathematics: III Semester

M-306. LATTICE THEORY - I

UNIT - I

Partly ordered sets – Diagrams – Special subsets of a poset – length – lower and upper bounds – the minimum and maximum condition – the Jordan chain conditions – Dimension functions.

(sections 1 to 9 of chapter I the prescribed text book)

UNIT - II

Algebras – lattices – the lattice theoretic duality principle – semi lattices – lattices as posets – diagrams of lattices – semi lattices, ideals – bound elements of Lattices – atoms and dual atoms – complements, relative complements, semi complements – irreducible and prime elements of a lattice – the homomorphism of a lattice – axioms systems of lattices.

(sections 10 to 21 Of chapter II of the prescribed text book)

UNIT - III

Complete lattices – complete sublattices of a complete lattice – conditionally complete lattices, σ -lattices – compact elements, compactly generated lattices – subalgebra lattice of an algebra – closure operations – Galois connections, Dedekind cuts – partly ordered sets as topological spaces.

(sections 22 to 29 Of chapter III of the prescribed text book)

UNIT - IV

Distributive lattices – infinitely distributive and completely distributive lattices – modular lattices – characterization of modular and distributive lattices by their sublattices – distributive sublattices of modular lattices – the isomorphism theorem of modular lattices, covering conditions – meet representations in modular and distributive lattices – some special subclasses of the class of modular lattices – preliminary theorems – modular lattices of locally finite length – the valuation of a lattice, metric and quasi metric lattices – complemented modular lattices .

(sections 30 to 40 of chapters IV and V of the prescribed text book)

Prescribed Text Book:

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

Books for reference:

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