Introduction

In [10] Varlet has introduced the concept of 0-distributive lattices as a generalization of both pseudocomplemented and distributive lattices. Generalizing 0-distributivity in semilattices Pawar [9] has defined 0-distributive semilattice as a semilattice with 0 satisfying the following condition $< S, \wedge >$ if $a \wedge x_1 = 0$, $a \wedge x_2 = 0$, ... $a \wedge x_n = 0$; $a, x_1, x_2, \ldots x_n \in S$ (n finite) and $x_1 \vee x_2 \vee \ldots \vee x_n$ exists in S then $a \wedge (x_1 \vee x_2 \vee \ldots \ldots \vee x_n) = 0$.

Venkatanarasimhan [12] has defined an ideal I in a semilattice S as, a nonvoid subset of $S_\wedge$ satisfying following conditions :

i) $x \leq y$, $y \in I \Rightarrow x \in I$

ii) If $x_1, x_2, \ldots x_n \in I$ and $x_1 \vee x_2 \vee \ldots \vee x_n$ exists in S then $x_1 \vee x_2 \vee \ldots \vee x_n \in I$

We define α-ideal I in 0-distributive semilattices S as an ideal satisfying $x \in I \Rightarrow (x)^{**} \subseteq I$

where $(x)^* = \{ y \in S / \; x \wedge y = 0 \}$.

α-ideals in distributive lattices were defined and studied by W.H.Cornish [2]. As 0-distributive lattice is a generalization of distributive lattice, C.Jayaram [6] studied in detail α-ideals in 0-distributive lattices and

obtained necessary and sufficient conditions for α-ideal to be an annihilator ideal in O-distributive lattices.

In this dissertation we have generalized some results of Comish [2] and C.Jayaram [6] to $\wedge$O-distributive semilattices and O-distributive lattices. For convenience we divide the dissertation into four sections.

Section I deals with the basic definitions and results which are required for further study.

Several examples of α-ideals are given in Section II. It is also proved that every annihilator ideal is an α-ideal. But converse of this need not be true. Using α-ideals a characterization of quasicomplemented semilattices is also furnished.

Section III contains several, both-algebraic and topological characterizations of α-ideals.

In Section IV our setting is shifted to O-distributive lattices. A study of α-map is carried out in O-distributive lattices. α-maps are used to characterize α-ideals in O-distributive lattices on the lines of Cornish [2]