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ALGEBRAIC AND GRAPH THEORETIC ASPECTS IN LATTICES AND POSETS

In this paper, we introduce the generalized ideal based zero divisor graph of a poset P , denoted by $\widehat{G_I(P)}$. A representation theorem is obtained for generalized zero divisor graphs. Then, we introduce the concepts of primal and weakly primal ideals in lattices. Further, the characterizations of the diameter of the zero divisor graph of a lattice with respect to a non-primal ideal is obtained. Finally, we introduce the equivalence relation \sim on a meet semi-lattice L with 0 , $x \sim y$ if and only if $ann(x) = ann(y)$ for $x, y \in L$ and introduce a simple undirected graph $G_E(L)$ of equivalence classes of zero divisors of L whose vertices are the equivalence classes of non-zero zero divisors of L in which two vertices $[x]$ and $[y]$ are adjacent if and only if $[x] \wedge [y] = [0]$.