PRIMARY IDEALS IN Γ−SEMIRINGS

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Abstract: From an algebraic point of view, Γ− semirings provide the most natural generalization of the theory of semirings. In this paper, we summarize the semiring theoretic results concerning the primary ideals and their radicals to non-commutative Γ− semirings.

1. Introduction

As a generalization of Γ−rings, the idea of Γ− semiring was presented by Rao [7]. Later it was discovered that Γ− semiring additionally gives an algebraic home to the set of rectangular matrices over a semiring. Dutta and Sardar [2] presented the thought of operator semiring of a Γ− semiring in 2002 and by utilizing the connection between the operator semiring and the Γ− semiring, they enriched the theory of Γ− semiring and demonstrated the outcomes regarding prime ideals and prime radicals of a Γ− semiring via its operator semirings which incorporates various characterizations of prime ideals and prime radicals.

The motivation of this paper is [8] where Sharma et.al received a substitute way to generalize primary ideals from commutative semirings to non-commutative semirings by replacing the role of elements with ideals. In this paper, we define