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A NOTE ON FUZZY PRIME IDEALS OF SEMIRINGS AND Γ-SEMIRINGS

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Abstract: The purpose of this paper is to study the nature of fuzzy prime ideals and fuzzy maximal ideals under semiring (resp.Γ-semiring) morphisms.

Keywords and Phrases: Semiring, Γ-semiring, Prime ideal, Fuzzy prime ideal, maximal ideal, fuzzy maximal ideal.

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1. Introduction

The notion of fuzzy set was introduced by Zadeh in 1965 [16]. This concept has been used in various branches of mathematics, since its inception. Rosenfeld [13], Kuroki [10], Jun [9] are pioneers in the field of fuzzy algebra. In 1994 [2], Dutta and Biswas introduced the notion of fuzzy prime ideal in semiring and the same was introduced by Sardar and Goswami in the Γ-semiring setting in 2010 [7]. In this paper we study the behaviour of prime ideal, fuzzy prime ideal and fuzzy maximal ideal of a semiring (Γ-semiring) under semiring (Γ-semiring) morphism.

2. Preliminaries

Here we recall some preliminary notions and relevant results in order to use them in the sequel.

Definition 2.1. [5] *Let M be a non-empty set and '+' and '.' be two binary*