L-Vague Semirings of L-Semiring

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Abstract – *In this paper we introduce L-vague semirings of L-semirings, and stud-ied their properties. These concepts are used in the development of some important results and theorems about L-vague semirings of L-semiring. Also some of their important properties have been investigated.*

Keywords – *Vague set , L-vague set ,L-vague cut-set, Vague group,L-vague group, L-vague semiring, L-vague ideal.*

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I. INTRODUCTION

The concept of Lattice was first defined by Dedekind in 1897 and then developed by Birkhoft.G,., imposed an operation an open problem "Is there a common abstraction which includes Boolean algebra, Boolean rings and lattice ordered group or L-group is an algebraic structure connecting lattic and group.To answer this problem many common abstractions, namely dually residuated lattice ordered semigroups,commutative lattice ordered groups. lattice ordered rings,latice ordered near rings and lattice ordered semirings are presented.Amoung them the algebraic structure lattice ordered semirings or L-semiring was introduced by Ranga Rao.P.,[13].Also the concept proposed by Zadeh.L.A.[16] defining a fuzzy subset A of a given universe X characterizing the membership of an element x of X belonging to A by means of a membership function $\mu_A(x)$ defined from X in to [0 1] has revolutionized the theory of Mathematical modeling. Decision making etc.,in handling the imprecise real life situations mathematically. Now several branches of fuzzy mathematics like fuzzy algebra,fuzzy topology ,fuzzy control theory ,fuzzy measure theory etc.,have emerged.But in the decision making, the fuzzy theory takes care of membership of an element x only, that is the evidence against x belonging to A .It is felt by several decision makers and researchers that in proper decision making, the evidence belongs to A and evidence not belongs to A are both necessary .and how much X belongs to A or how much x does not belongs to A are necessary.

Several generalizations of Zadeh's fuzzy set theory have been proposed, such as L-fuzzy sets [4]. Interval valued fuzzy sets ,Intuitionistic fuzzy sets by Atanassov.K.T [1] ,Vague sets [3] are mathematically equivalent. Any such set A of a given Universe X can be charactrierized by means of a pair of function (t_A , f_A) where $t_A : X \to [0\ 1]$ and $f_A : X \to [0\ 1]$ such that $0 \leq t_A(x) + f_A(x) \leq 1$ for all x in X.The set $t_A(x)$ is called the truth functionand the set $f_A(x)$ is called false function or non membership function and $t_A(x)$ gives the evidence of how much x belongs to A $f_A(x)$ gives the evidence of how much x does not A.These concepts are being applied in several areas like decision-making, fuzy control, knowledge discovery and fault diagonsis etc.It is believed the vague sets (or equivalently instuitionistic fuzzy sets) will more useful in decision making, and other areas of Mathematical modeling. Through Atanassov's instuitionistic fuzzysets,Gau and Buehrer and some other areas of Mathematical modeling.Since then the theory fuzzy sets developed extensively and embraced almost all subjects like engineering science and technology. But the membership function $\mu_{A(x)}$ gives only a approximation belong to A .To avid this and obtain a better estimation and analysis of data decision making.Gau.W.L and Bueher D.J. [3] have initiated the study ofvague sets with the hope that they form a better tool to understand, interpret and solve real life problems which are in general vague,than the theory of vague sets do. Ranjit Biswas[9]initiated the study of vague groups by Ramakrishna.N [6],[7],[8] and Eswarlal.T [2]are grate extended the study of vague algebra.The objective of this paper is to contribute further to the study of vague algebra by introducing the concepts of L-vague cut-set, L-vague semiring of a L-semirings respectively.