ABSTRACT

COMMUTATIVITY AND STRUCTURE OF GAMMA RINGS

Okan ARSLAN

The objective of this thesis is to find commutativity conditions in prime gamma rings with derivation of characteristic not 2. For this reason, a γ-Lie ideal of a gamma ring is introduced and some new properties have been obtained in gamma rings.

The study consists of five sections basically. In the first chapter, the emergence of the gamma ring is summarized and and some works which have been done in the literature about the gamma rings have been mentioned.

In the second chapter, some definitions and properties have been given which are the basis of this work.

In the third chapter, some new notions have been introduced and get new properties in gamma rings with the help of these notions.

In the forth chapter, some results have been given about the structure of the gamma rings by the help of the properties of γ-Lie ideals in the gamma rings with derivation. In the last chapter, the relations between the rings and the gamma rings have been established and the relations between the radicals and the γ-radicals of gamma rings have been investigated.

Key Words: Gamma ring, Prime gamma ring, k-derivation, Lie ideal, Commutativity