

## PREFACE

Near-rings were first studied by Fittings in 1932. Near-rings can be thought of as generalised rings: if in a ring we ignore the commutativity of addition and one distributive law. Through out this dissertation  $N$  denotes right near-ring and we shall call it only near-ring. We study different types of ideals in near-rings. This dissertation is divided into four chapters.

Chapter 0 is a collection of some known definitions and results of near-rings which are used in developing the remaining chapters of this dissertation.

Chapter 1 deals with weakly pseudo-left (right) ideal in a near-ring which generalizes the concept of pseudo-left ideal. Some properties of weakly pseudo-left (right) ideals in near-rings are studied. To establish the relationship between ideals, pseudo-left ideals and weakly pseudo-ideals examples and counter examples are furnished.

In chapter 2 our aim is to study generalised weakly pseudo-ideals in near-rings which are the generalization of weakly pseudo-ideals. It is established that generalised weakly pseudo-left (right) ideals and subnear-rings are independent concepts in a near-ring. Interestingly it is observed that near-field with  $N_c = \{0\}$  the above three concepts coincide. To establish the relationship between ideals, pseudo-left ideals, weakly pseudo-ideals, generalised weakly pseudo-ideals and bi-ideals examples and counter examples are provided.

Generalization of bi-ideals in near-rings introduced by Chelvan Tamizh T. and Ganesan N. is done in the 3<sup>rd</sup> chapter. G.B. simple near-rings are introduced. Our main result in this chapter is,

**Result:** Let  $N$  be a near-ring with more than one element. Then the following conditions are equivalent.

- (i)  $N$  is a near-field.
- (ii)  $N$  is G.B. simple,  $N_d \neq \{0\}$  and for  $0 \neq n \in N$  there exists an element  $n' \in N$  such that  $n'.n \neq 0$ .