

## **ABSTRACT**

A lot of research has been done on the derivations in rings [4,6,11,12,14,32,34,36]. In this connection many research papers (about 600, see survey by Nadeem [29]) have been published. In 2004, the notion of derivations of BCI-algebras was introduced by Y.B.Jun and X.L.Xin [23]. This idea was further explored in the generalized form of  $f$ -derivation by J.M.Zhan and Y.L.Liu. In this dissertation, we continue our study of derivations of BCI-algebras as initiated by the above author. Here we are able to explore and generalize the notion of  $f$ -derivation in the form of  $(f, g)$ -derivation.

In this connection, we also initiate and investigate the structure of  $Der(X)$ , set of all derivations of given BCI-algebra  $X$ , which is closed under certain binary operation introduced in chapter 5. We discussed few results of  $p$ -semisimple BCI-algebras, that we require for the development of theory of derivations in BCI-algebras.