ABSTRACT

In this dissertation, a non-associative algebra $(G, \bullet, \odot)$ has been discussed, which is constructed on a group $(G, \bullet)$, by adjoining binary operation $\odot$ defined by $a \odot b = a \bullet b^{-1}$, for all $a, b \in G$. This type of algebra $(G, \bullet, \odot)$ is called K-algebra by K.H.Dar and M.Akram in [1].

Imai and Iseki introduced two classes of logical algebras: BCK and BCI-algebras in [5], [6]. Neggers and Kim in [7] introduced the concept of B-algebras which is equivalent in some aspects to be a group. In the last chapter of this dissertation the family of classes of all algebras i.e., BCI, BCK-algebras are shown as subclasses of the class of K-algebras which is proved in [3] when $(G, \bullet)$ is an abelian group, and the class of B-algebras as a subclass of K-algebra if $(G, \bullet)$ is a non-abelian group, has been discussed and the results have been elaborated, which shows K-algebra a generalized class of the classes of B-algebra and BCI-algebra, when the group G is non-abelian and abelian respectively.

The K-algebra on a group G is proper if G is not elementary abelian 2-group.