ABSTRACT

Every module is an action of ring on certain group, and vector space is particular case of module. This is, indeed, a source of motivation to study the action of certain algebraic structures on groups. BCK-module is an action of BCK-algebra on commutative group. In 1994, the notion of BCK-modules was introduced by M. Aslam, H.A.S. Abujabal and A.B. Thaheem [5]. It was shown that every implicative BCK- algebra forms a BCK-module over itself, they established isomorphism theorems and stuided other homolological aspect of BCK-modules. The theory of BCK-modules was further developed by Z. Perveen and M. Aslam [27]. They introduced the notion of chains, injective and projective on BCK-modules.

In this thesis, we have introduced the notion of matrices of endomorphisms and proved that the set of all matrices of endomorphisms forms BCK-module over bounded commutative BCK-algebra. We have established relationship between the set containing all matrices of endomorphisms and the set of all homomorphisms of BCK-module M onto itself. Topology on the decreasing sequence of submodules of a BCK-module M has been introduced and necessary and sufficient condition for this topology to be Housdroff space is also investigated. We have also constructed BCK-modules of polynomials and matrices over bounded implicative BCK-algebra. Moreover, the notion of Artinian and Noetherian modules are also introduced here.