A Note on Dedekind Modules

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EXTENDED ABSTRACT :

This work studies relations among a Dedekind module, an HNP (hereditary Noetherian and prime) module, and an order of a module. Then, the obtained properties will be employed to investigate a relation between a Dedekind algebra and a strongy-coprime cohereditary coalgebra.

McConnell and Robson (1987) documented the following interrelation; a ring R is a Dedekind prime ring if and only if it is an HNP ring and a maximal order. In this work we extend this result concerning Dedekind modules.

The concept of a Dedekind module was introduced and studied in Naoum and Al-Alwan (1996) as a generalization of the concept of a Dedekind ring. The most of those results dealt with a class of multiplicative modules and faithful modules. The concept of an order of a module will be introduced as a generalization of the concept of a ring.

Let R be an order in Q. An R-module N is said to be an order of the R-module M if N is an R-submodule of M such that for all $m \in M$, $m = ns^{-1}$ for some $n \in N$ and $s \in S$.

Studying those results and follows other works and analysis results, it was observed that every Dedekind projective R-module is HNP and If R is an integral domain and M be a Dedekind projective torsion free R-module than M is an HNP and a maximal order. Further, we apply those result to algebra and coalgebra notion. Particularly, if R is self injective and cogenerator and C is Dedekind R-algebra, then C is strongly coprime cohereditary R-coalgebra.