ARITHMETIC MODULES OVER GENERALIZED DEDEKIND DOMAINS

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Let D be an integrally closed domain with its quotient field K and M be a finitely generated torsion-free D-module. In [1], we showed that M is a generalized Dedekind module (G-Dedekind module for short), and M is a Dedekind module if and only if M is a multiplication module and KM is isomorphic to K as K-modules in case D is a Dedekind domain. These results show ,in arithmetic module theory, that G-Dedekind modules are more important than Dedekind modules.

We assume that D is a Noetherian G-Dedekind domain (by G-Dedekind domain we mean any v-ideal is invertible). Then we have the following results:

(1) If M is a projective D-module, then M is a G-Dedekind module.
(2) In case M is not a projective D-module, then M is generally a Krull module, that is, for each v-submodule N of M, $(N^-N)_v = M$.

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