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AIN SHAMS UNIVERSITY
Ain Shams University
Faculty of Science
Department of Mathematics

On The Relation Between Graded Injective Modules and Graded Frobenius Rings

A Thesis

Submitted for the degree of Master of Science As a Partial fulfillment for requirements of the Master of Science
(Pure Mathematics)

by

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CONTENTS

Abstract.....i

Summary.....1

Chapter 1. Preliminaries.

1.1 Projective and Injective Modules.....4
1.2 Graded Rings and Modules.....16

Chapter 2. Graded Injective Modules and Separable Functors.

2.1 Graded Injective Modules.....29

2.2 Separable Functors and Injectivity.....38

Chapter 3. Generalizations of Graded Injective Modules and Quasi-Frobenius Rings.

3.1 Extension of Graded Injectivity.....49

3.2 Graded Quasi-Frobenius Rings.....62

References.....68

Arabic Summary

Abstract

Abstract

The main objective of this thesis is twofold. First, we aim to study some extended injectivities of graded modules, such as F-injectivity, P-injectivity, and mininjectivity. Second, we aim to investigate the structure of graded quasi-Frobenius rings. Actually, we provide characterizations of graded quasi-Frobenius rings in terms of extended graded injectivities of graded rings.