

TABLE OF CONTENTS

Introduction	
1. The derived exact sequences	1
2. Finite modules	4
3. Realization of finite modules	6
4. Δ_1 of finite modules	8
5. Product structure on finite modules	9
6. Classification of derived product structure	16
7. Rational invariants	18
8. $\mathbb{Z}$ -torsion-free modules	20
9. Π -only torsion	21
10. Statement of realization theorem	23
11. Inductive construction of derived sequences	24
12. Inductive recovery of derived sequences	26
13. Homogeneous and elementary modules	32
14. Realization of elementary modules	34
15. Classification of elementary modules	36
16. Completion of proof	39
17. Classification of Π -primary modules	40
18. Classification fails in degree 4	46
19. Product structure on Π -primary modules	48
20. Classification of product structure	53
21. Realization of product structure on homogeneous modules	59
22. Product structure on semi-homogeneous modules	68

23.	A non-semi-homogeneous module	70
24.	Rational classification of product structure	75
25.	Non-singular lattices over a Dedekind domain	85
26.	Norm criterion for a non-singular lattice	88
27.	Dedekind criterion: p-adic reduction	90
28.	A computable Dedekind criterion	92
29.	Computation of low-degree cases	95
30.	Determination of ideal class group	96
31.	The quadratic symmetric case	98
	References	102