

# Contents

	Page
<b>1. Preliminaries</b>	1
1.1 Introduction	1
1.2 Definitions and recapitulations	1
1.3 Modules	6
<b>2. Flatness</b>	16
2.1 Projective modules	16
2.2 Flat modules	18
2.3 Faithfully flat modules	24
<b>3. Fractions</b>	32
3.1 Rings, modules and algebras of fractions	32
3.2 Localisation	36
3.3 Projective modules and localisation	42
3.4 Submodules of fraction algebras	55
<b>4. Supporting and associated prime ideals</b>	61
4.1 Lengths and ranks of modules	61
4.2 The support of a module	64
4.3 Prime ideals associated to a module	66
<b>5. Integers</b>	72
5.1 Definition of integers	72
5.2 Integers and prime ideals	80

<b>6.</b>	<b>Some geometrical results</b>	85
<b>7.</b>	<b>Valuation rings</b>	89
7.1	Ordered groups	89
7.2	Valuation rings	90
7.3	Extension theorems	94
7.4	An application	99
<b>8.</b>	<b>Prüfer and Dedekind rings</b>	105
<b>9.</b>	<b>General Exercises</b>	113
<b>Appendix 1.</b>	<b>Categories</b>	116
<b>Appendix 2.</b>	<b>The constructible topology</b>	121
<b>Bibliography</b>		124
<b>Indices</b>		125