

TABLE OF CONTENTS

Preface	vii
I. Invariant subspaces	1
by Donald Sarason	
1. Introduction	3
2. Some immediate observations	4
3. Reducing subspaces of normal operators	6
4. Invariant subspaces and operator algebras	10
5. Unitary operators	14
6. The bilateral shift	20
7. Maximal subalgebras	31
8. The Volterra operator	33
9. The Volterra operator plus multiplication by x	37
Bibliography	45
II. Weighted shift operators and analytic function theory	49
by Allen L. Shields	
1. Introduction	51
2. Elementary properties	51
3. Weighted sequence spaces	57
4. The commutant	61
5. The spectrum	66
6. Analytic structure	73
7. Hyponormal and subnormal shifts	83
8. Algebras generated by shifts	88
9. Strictly cyclic shifts	92
10. Invariant subspaces	102
11. Cyclic vectors	109
12. Notes and comments	116
Bibliography	123

TABLE OF CONTENTS

III. A version of multiplicity theory	129
by Arlen Brown	
Introduction	131
1. The standard spectral measure	133
2. Cyclic subspaces	135
3. Multiplicity : The problem	136
4. The algebra of finite measures	137
5. σ -ideals of measures	139
6. Cycles and measures	142
7. σ -ideals and subspaces	144
8. Multiplicity : The solution	147
9. Uniform multiplicity one	152
10. The separable case	153
11. The L_2 -space of a σ -ideal	156
Bibliography	160
IV. Canonical models	161
by R. G. Douglas	
Introduction	163
1. Canonical models and unitary dilations	164
2. Unitary operators and invariant subspaces	170
3. Absolute continuity and the functional calculus	179
4. Characteristic operator functions	191
5. Contractions in class C_0 and Jordan models	205
6. Related and more general models	212
Bibliography	215
V. A survey of the Lomonosov technique in the theory of invariant subspaces	219
by Carl Pearcy and Allen L. Shields	
Index	231