Contents

Introduction				
Acknowledgements				
Chapter I	- Smooth Manifolds and Mappings			
	§1 .	A Preliminary Review of Some Calculus	8	
	§2.	Smooth Manifolds	12	
	\$3.	The Differential of a Smooth Mapping	16	
	§4•	Vector Fields and Flows	24	
	§5 .	Germs of Smooth Mappings	33	
Chapter II	- Tran	sversality		
	្វី1	The Notion of Transversality	38	
	Ĝ2∙	The Basic Transversality Lemma	48	
	.3.	An Elementary Transversality Theorem	51	
	§4.	Thom's Transversality Theorem	53	
	\$5 .	First Order Singularity Sets	54	
Chapter III	- Unfoldings : The Finite Dimensional Model			
	§1 .	Groups Acting on Sets	61	
	§2.	Some Geometry of Jets	62	
	§3.	Smooth Actions of Lie Groups on Smooth Manifolds	73	

	§4.	Transversal Unfoldings	81		
	§5 .	Versal Unfoldings	89		
Chapter IV	- Singu	- Singular Points of Smooth Functions			
	§1.	Some Basic Geometric Ideas	94		
	§2.	The Algebra \mathcal{E}_{n}	99		
	§3.	Determinacy of Germs	116		
	\$4.	Classification of Germs of Codimension ≤ 5	122		
Chapter V	- Stab	le Singularities of Smooth Mappings			
	§1.	The Basic Ideas	139		
	§2.	Contact Equivalence	143		
	§3 .	Deformations under X-Equivalence	159		
	§4.	Classification of Stable Germs	168		
	§5.	Higher Order Singularity Sets	174		
	§6.	Classifying Germs under X-Equivalence	191		
	§7 .	Some Examples of Classifying Stable Germs	199		
	§8.	Singular Points of Stable Mappings	205		
			215		
Appendix A	- The	The Theorem of Sard			
Appendix B	- Semi	- Semialgebraic Group Actions			
Appendix C	- Real	Algebras	226 228		
Appendix D	- The	- The Borel Lemma			
Appendix E	- Guid	e to Further Reading	232		
Index			237		