



Contents

CONTENTS

	PAGE NO.
INTRODUCTION	1
REVIEW OF LITERATURE	8
CHAPTER I DEFINITIONS AND BASIC PROPERTIES OF QUASIGROUPS	15
CHAPTER II GENERATION OF QUASIGROUPS	22
2.1 GENERATION USING ISOTOPIES	22
2.2 GENERATION USING AFFINE ISOTOPIES	24
2.3 GENERATION USING NON - AFFINE ISOTOPIES	25
2.4 GENERATION USING LINEAR MAPPING	27
2.5 GENERATION USING KEYED PERMUTATION	29
2.6 GENERATION USING COMPLETE MAPPING	31
2.7 GENERATION USING AFFINE COMPLETE MAPPING	33
2.8 GENERATION USING NON - AFFINE COMPLETE MAPPING	36
CHAPTER III DIFFERENT TYPES OF QUASIGROUPS	39
3.1 MEDIAL QUASIGROUPS AND IDEMPOTENT MEDIAL QUASIGROUPS	39
3.2 HEXAGONAL QUASIGROUPS	43
3.3 GS - QUASIGROUPS	47
3.4 CI - QUASIGROUPS	59
3.5 TERNARY QUASIGROUPS	63

CHAPTER IV	APPLICATIONS OF QUASIGROUPS IN	66
	CRYPTOGRAPHY	
4.1	BASIC ENCRYPTION AND DECRYPTION USING QUASIGROUPS	69
4.2	APPLICATIONS OF QUASIGROUPS TO HASHING	71
4.3	AUTHENTICATION SCHEMES USING QUASIGROUPS	76
4.4	APPLICATION OF CI- QUASIGROUPS IN CRYPTOGRAPHY	81
4.5	APPLICATIONS OF TERNARY QUASIGROUPS STRING TRANSFORMATIONS	88
	SUMMARY AND CONCLUSION	94
	REFERENCES	97