

Contents

1	Introduction	1
1.1	General introduction	1
1.2	Basic notations and definitions	4
1.2.1	Fuzzy Sets	4
1.2.2	Operations on Fuzzy Sets	5
1.2.3	Interval-Valued Fuzzy Sets	6
1.2.4	Intuitionistic Fuzzy Sets	7
1.2.5	Operations on IFS	8
1.2.6	Basic-algebras	9
1.2.7	Fuzzy set concept on algebras	11
1.2.8	Intuitionistic fuzzy set concept on algebras	13
1.2.9	Hyper structures on algebras	13
1.2.10	Hyper <i>BE</i> -algebras	13
1.3	Survey of related literatures	15
1.4	Organisation of chapters	17
1.5	Objectives of the thesis	18
1.6	Summary	19
2	DIF-ideals in BCK/BCI-algebras	21
2.1	Introduction	21
2.2	DIFSA in BCK/BCI-algebras	22
2.3	DIF-ideals in <i>BCK/BCI</i> -algebras	24
2.4	Summary	34

3	DIFH-ideals in BCK/BCI-algebras	35
3.1	Introduction	35
3.2	DIFH-ideals in BCK/BCI -algebras	36
3.3	DP of DIFH-ideals in BCK/BCI -algebras	45
3.4	Upper and lower level sets	53
3.5	Summary	54
4	DIF SI-ideals in BCI-algebras	55
4.1	Introduction	55
4.2	DIF SI-ideals in BCI -algebras	56
4.3	DIFP-ideal in BCI -algebras	63
4.4	Summary	68
5	DIF-translations of DIF SI-ideals in BCI-algebras	69
5.1	Introduction	69
5.2	DIF-translations of DIF SI-ideals in BCI -algebras	70
5.3	DIF-extensions of DIF SI-ideals in BCI -algebras	78
5.4	DIF-multiplications and DIF-magnified translations of DIF SI-ideals in BCI -algebras	80
5.5	Summary	82
6	DIF Hyp-filters in hyper BE-algebras	85
6.1	Introduction	85
6.2	DIF Hyp-filters in hyper BE -algebras	86
6.3	Product of DIF Hyp-filters in Hyp BE -algebras	94
6.4	DIFI Hyp-filters in hyper BE -algebras	96
6.5	Summary	98
7	F-translation of a DIVF-ideals in BCK-algebras	99
7.1	Introduction	99
7.2	DIVFSA in BCK -algebras	100
7.3	DIVF-ideal in BCK -algebras	102
7.4	F-translation and F-multiplication of DIVFSA/DIVF-ideal in BCK - algebras	107

7.5	Product of DIVF-ideal in <i>BCK</i> -algebras	109
7.6	Summary	110
8	DIVF-ideals in <i>BF</i>-algebras	111
8.1	Introduction	111
8.2	DIVFSA in <i>BF</i> -algebras	112
8.3	DIVF-ideal in <i>BF</i> -algebras	115
8.4	Product of DIVF-ideal in <i>BF</i> -algebras	120
8.5	Summary	121
9	Conclusion and scope for future work	123
9.1	Conclusion	123
9.2	Applications	124
9.3	Future works	125

