

Table of content of Thesis

Declaration	i
Certificate-1	ii
Certificate-2	iii
Acknowledgement	iv
Dedication	vi
Preface	vii
1 Introduction	2
1.1 Theory of generalized contractions	4
1.2 Theory of common fixed points	7
1.3 Theory of generalized metric spaces	9
1.4 Synopsis of the thesis	16
2 Non-linear Cyclic Contractions in G-metric Spaces	18
2.1 Introduction and preliminaries	18
2.2 Results for generalized cyclic contraction in G -metric spaces . . .	20
2.3 Rational type cyclic contraction in G -metric spaces	27
3 Non-linear Ćirić Contractions via C_F-Simulation Functions	38
3.1 Introduction	38
3.2 Preliminaries	40
3.3 Results for Ćirić type simulation functions using α -admissible map- pings in quasi-metric spaces	43
3.4 Results for Ćirić type contraction using C_F -simulation functions in quasi-metric spaces	52
3.5 Consequences: Common fixed point results in G -metric spaces . .	57
4 (ψ, ϕ)-Wardowski Contractions	62

4.1	Introduction	62
4.2	Preliminaries	63
4.3	Results for (ψ, ϕ) -Wardowski contraction in G_b -metric spaces . . .	64
4.4	Application to neural networks	76
5	Non-linear Contractions via Extended $\Gamma - C_F$-simulation Functions	79
5.1	Introduction	79
5.2	Extended $\Gamma - C_F$ -simulation functions	80
5.3	Results for almost Suzuki contraction in G -metric spaces	82
5.4	Results for Geraghty contraction in G_b -metric spaces	90
5.5	Application to nonlinear integral equations	100
6	Non-linear Contractions via Generalized $\Gamma - C_F$-simulation Functions	103
6.1	Introduction	103
6.2	Results for weak contraction in G -metric spaces	104
6.3	Consequences: Common fixed point results in quasi-metric spaces and metric spaces	110
	Conclusion	113
	Published/Accepted Research Articles	114
	Communicated Research Work	115
	Bibliography	116