TABLE OF CONTENTS

CHAPTER			Page
	ABST	` ⊣ ¥	
	ACKN	VII IX XII XVII	
	TABL		
	LIST (
	LIST (
I		OVERVIEW	1.1-1.75
	1.1	Introduction	1.4
	1.2	What Is Power Quality?	1.7
	1.3	Power Quality = Voltage Quality	1.11
	1.4	Power System Quantities Under Nonsinusoidal Conditions	1.12
	1.5	Harmonic Indices	1.20
	1.6	Harmonic Sources From Commercial Loads	1.22
	1.7	Harmonic Sources From Industrial Loads	1.31
	1.8	System Response Characteristics	1.42
	1.9	Effects of Harmonic Distortion	1.54
	1.10	Power in Distorted AC Networks	1.60
	1.11	Harmonic Standards and Recommended Practices	1.62
	1.12	Literature Survey	1.63
	1.13	Motivation For The Thesis	1.72
	1.14	Organization of The Thesis	1.73
	1.15	Problem Statements	1.75
11		PASSIVE & ACTIVE FILTERS	2.1-2.64
	2.1	Introduction	2.4
	2.2	Harmonic Sources	2.4
	2.3	Different Methods of Dealing With Power Quality	2.6
	2.4	Passive Filters	2.7
	2.5	Active Filtering	2.14
	2.6	Pulse Width Modulation Schemes	2.21
	2.7	PWM Converter For Three Phase Four Wire Active Filter System	2.28
	2.8	Shunt Active Filter Control Approach	2.32

- 2.9 Active Power Factor Correction Integrated To The 2.52 Input Stage of The Equipment
- 2.10 Conclusion 2.64

. 111	S	ERIES ACTIVE FILTER – SOLUTION TO VOLTAGE HARMONICS AND DISTORTION	3.1-3.73
	3.1	Introduction	3.4
	3.2	Effect of Harmonics on System Voltages	3.8
	3.3	Solution To System Voltage Harmonic Problems	3.9
	3.4	A Series Active Power Filter Combined With Shunt Passive Filter Based on A Sinusoidal Current-	3.12
	0 F	Controlled Voltage-Source Inverter	2.22
•	3.5	A Series Active Power Filter Combined With Shunt	3.20
4	20	Passive Filter Based on Voltage-Source Inverter	2.27
	3.6	Series Active Power Filter Combined With Shunt	3.27
•	27	Passive Filter Based on Voltage-Source Inverter	2.20
•	3.7	Novel Series Active Power Filter Combined With	3.29
		Shunt Passive Filter Based on Voltage-Source	·
	2.0	Inverter Using Analog Approach	2.20
	3.8	Isolation And Driver Circuit	3.38
	3.9	Power Circuit	3.39
•	3.10		3.41
	3.11	Brief Description of Working of Series Active Filter	3.43
	3.12	Result	3.49
	3.13	Conclusion	3.63
IV		NEGATIVE SEQUENCE & ZERO SEQUENCE COMPENSATOR	4.1-4.63
	4.1	Introduction	4.3
	4.2	Generation of Negative Sequence & Zero	4.4
	4.3	Analysis of Voltage Unbalance Problem	4.10
	4.4	Symmetrical Components For Power Systems Analysis	4.12
	4.5	Induction Motor Analysis	4.31
· · ·	4.6	Solution To Negative Sequence & Zero Sequence Problem	4.43
	4.7	Controlling of Negative Sequence Compensator	4.46
• • •	4.8	Conclusion	4.63
V	CON	ABINED NEGATIVE SEQUENCE, ZERO SEQUENCE & HARMONICS SERIES COMPENSATOR	5.1-5.17
	5.1	Introduction To Chapter	5.3
	5.2	Introduction	5.3
	5.3	Controlling of Negative Sequence Compensator	5.5
			۰. ۲۰۰۰ γ

5.4	Generation of Reference Signals For Combined Harmonics, Negative Sequence & Zero Sequence Voltage	5.6
5.5	Simulation	5.10
5.6	Simulation Results & Waveforms	5.14
5.7	Conclusion	5.17
	CONCLUSION	6.1-6.5
REFE	7.1-7.27	
ANNE	EXURE I- TRANSFORMER CORE LOSS EVALUATION UNDER HARMONICS CONDITIONS	AI.1-AI-15
ANNE	EXURE II-A- FILTER DESIGN CALCULATION FOR ELECTRONICS BALLAST	All-A.1
ANNI	All.B.1-All-B.3	
ANNI	EXURE II-C- RESULTS OF SHUNT ACTIVE POWER FILTER	All.C.1-All-C.15
ANNI	EXURE III- PHASE SEQUENCE CALCULATION FOR INDUCTION MOTOR	AIII.1-AIII.6

VI