CONTENTS

DESCRIPTION	PAGE NO
CONTENTS	
LIST OF FIGURES	
LIST OF TABLES	
GLOSSARY	
NOMENCLATURE	
CHAPTER 1: DEREGULATED POWER SYSTEM	1
1.1 History of deregulation	3
1.2 Benefits of deregulation	4
1.3 Problems of deregulation	5
CHAPTER 2: INTRODUCTION	7
2.1 Transmission system	8
2.2 Need of capacitors	9
2.3 Considerations in locating capacitor	9
CHAPTER 3: LITERATURE SURVEY	10
CHAPTER 4: OPTIMAL POWER FLOW ANALYSIS	13
4.1 Optimal power flow	14
4.2 Load flow studies	14
4.2.1 Forward/Backward sweep method	15
4.3 Load flow	16
4.4 Objective function	17
4.5 Constraints	18
4.6 Flow chart of sweep method	19
CHAPTER 5: ANT LION OPTIMIZATION ALGORITHM	20
5.1 Introduction	21
5.2 Initialization	21

5.3 Steps of ALO 21
5.3.1 Random walk of ants 23
5.3.2 Area of trap structure 23
5.3.3 Entrapping 24
5.3.4 Sliding of ants 24
` 5.3.5 Consuming and rebuilding 25
5.3.6 Elitism 25
5.4 Flow Chart 26
5.5 Procedure 26
5.6 Merits 27
CHAPTER 6: PROPOSED METHOD 28
6.1 IEEE-57 Bus system 29
6.2 System data 30
6.2.1 Bus data 30
6.2.2 Line data 32
6.3 IEEE-33 Bus system 37
6.4 System data 37
6.4.1 Line data 37
6.4.2 Bus data 38
CHAPTER 7: MATLAB RESULTS 40
7.1 Tabular forms 41
7.2 Graphs 58
CHAPTER 8: CONCLUSION &FUTURE SCOPE 60
8.1 Conclusion 61
8.2 Future scope 61
CHAPTER 9: REFERENCES 62
APPENDIX 69

LIST OF FIGURES

S.NO	FIGURES	PG.NO
1.	4.1.SIMPLE RADIAL DISTRUBUTION SYSTEM	16
2.	5.1.CONE SHAPED TRAP	22
3.	5.2.RANDOM WALK OF ANTS	22
4.	5.3.CATCHING PREY	22
5.	5.4.ENTRAPMENT OF ANTS	22
6.	5.5 MOVEMENT OF ANTS INSIDE TRAP	24
7.	6.1. IEEE 57 BUS SYSTEM	29
8.	6.2 IEEE 33 BUS SYSTEM	36
9.	7.1 VOLTAGE MAGNITUDE (57 BUS)	58
10.	7.2 CONVERGENCE CURVE (57 BUS)	58
11.	7.3 VOLTAGE MAGNITUDE (33 BUS)	59
12.	7.4 CONVERGENCE CURVE (33 BUS)	59

LIST OF TABLES

S.NO	NAME OF THE TABLE	PG.NO
1.	IEEE-57 Bus bus data	30-32
2.	IEEE-57 Bus line data	32-35
3.	IEEE-33 Bus line data	36-37
4.	IEEE-33 Bus bus data	38-39
5.	IEEE-57 Bus Results	41-55
6.	IEEE-33 Bus Results	55-58

GLOSSARY

DG	-	Distributed Generator
AC	-	Alternating Current
DC	-	Direct Current
KV	-	Kilo Volt
KW	-	Kilo Watt
GS	-	Gauss Saidel
NR	-	Newton Raphson
FD	-	Fast Decoupled
P.U	-	Per unit
KVAR	-	Kilo volt ampere reactance
ALO	-	Antlion algorithm
GA	-	Genetic algorithm
PSO	-	Particle swam optimizaton

NOMENCLATURE

S.NO	SYMBOL	DESCRIPTION	UNITS
1	Z	Impedance	Ohms
2	R	Resistance	Ohms
3	X	Reactance	Ohms
4	P	Active power	Kv
5	Q	Reactive Power	Kw
6	V	Voltage	Volt
7	θ	Theta	-