LIST OF TABLES

Table No.	Table Caption	Page No.
Table 3.1	Comparison of system response for Two Area Four	101
	Machine system	
Table 3.2	Comparison of system response for Six Area system with	104
	STATCOM - Case I	
Table 3.3	Eigenvalues for all the generators in each area -Case I	105
Table 3.4	Comparison of system response for Six Area system with	107
	SSSC - Case II	
Table 3.5	Eigenvalues for all the generators in each area - Case II	108
Table 3.6	Comparison of system response for Six Area system with	110
	UPFC - Case III	
Table 3.7	Eigenvalues for all the generators in each area (UPFC) -	111
	Case III	
Table 3.8	Comparison in system responses for MSLQR and M-	116
	MSLQR controllers - Case IV	
Table 3.9	Eigenvalues for both controllers - Case IV	116
Table 5.1 (a)	Comparison in system responses for Area 6 with all the	147
	three cases (Case 5.1, 5.2 and 5.3)	
Table 5.1 (b)	Eigenvalue of Sample Six Area test system	148
Table 5.2	Comparison in system responses with Case 5.4 and Case	151
	5.5	
Table 5.3	Parameters of PSS with FA driven knowledge domain in	152
	Six Area system at different operating conditions with Case	
	5.4 and Case 5.5	
Table 5.4	Comparison in system response with and without PSO	154
	driven KDIM for Six Area system with Case 5.6	
Table 5.5	Initial control parameters of PSS and UPFC for Case 5.6	155
Table 5.6	Comparison in system response for Area 3 with and	158
	without GSA driven knowledge domain concept for Six	
	Area system - Case 5.7	
Table 5.7	PSS parameters tuned with GSA driven KDIM at different	159

operating conditions - Case 5.7

- Table 5.8Eigenvalues for all the three optimization technique based161controller design Case 5.8
- Table 5.9Settling time and overshoot/undershoot for all the three161optimization techniques based controller design Case 5.8
- Table 5.10PSS controller parameters with all the three optimization161techniques Case 5.8
- Table 5.11Comparison of system response with all the three165optimization techniques for Ten Area Fifty Machine system(Area 2) Case 5.9
- Table 5.12Parameters of PSS tuned with all the three optimization166techniquesdriven knowledge structure in Area 2 atdifferent operating conditions Case 5.9
- Table 5.13Eigenvalues of system of Area 2 for all the three166optimization techniques with Case 5.9
- Table 5.14Cost function with all the three optimization techniques -167Case 5.9
- Table 5.15Eigenvalues for all the three optimization technique based169controller design with variation in transmission line length- Case 5.10
- Table 5.16Settling time and overshoot/undershoot for all the three170optimization techniques based controller design for area 1with Case 5.10
- Table 5.17PSS controller parameters with all the three optimization170techniques for Case 5.10
- Table 5.18Comparison of system response with all the three174optimization techniques for Ten Area Fifty Machine system(Area 2) Case 5.11
- Table 5.19Parameters of PSS tuned with all the optimization175techniques in Area 2 at different operating conditions -
Case 5.11Case 5.11
- Table 5.20Eigenvalues of system matrix of Area 2 for all the176optimization techniques with Case 5.11

Cost function with all the three optimization techniques -	176
Case 5.11	
Comparison of system response for Six Area system (Area	180
3) - Case 5.12	
Overshoot, settling time and eigenvalues for PSS only and	182
PSS with SSSC - Case 5.13	
System responses with PSS only and PSS with UPFC (Area	186
3) - Case 5.14	
Eigenvalues of system matrix of Area 2 with only PSS and	192
PSS with UPFC - Case 5.15	
Settling time and overshoot for Area 2 - Case 5.15	193
	Cost function with all the three optimization techniques - Case 5.11 Comparison of system response for Six Area system (Area 3) - Case 5.12 Overshoot, settling time and eigenvalues for PSS only and PSS with SSSC - Case 5.13 System responses with PSS only and PSS with UPFC (Area 3) - Case 5.14 Eigenvalues of system matrix of Area 2 with only PSS and PSS with UPFC - Case 5.15 Settling time and overshoot for Area 2 - Case 5.15