

Table 1. The Optimal Solutions to the CAB dataset, 10&25 Nodes

$n^{(1)}$	$p^{(2)}$	$\alpha^{(3)}$	Optimal solution	Selected Hubs
CAB10*	3	0.2	491.93	6,4,7
		0.8	716.98	4,7,9
	5	0.2	312.99	6,3,4,7,8
		0.8	608.14	4,6,7,8,1
CAB25	3	0.2	767.35	4,12,17
		0.8	1158.83	4,12,2
	5	0.2	538.37	4,12,7,14,17
		0.8	1034.10	4,12,1,7,18

*just for information-no need to report the results for this problem

Table 2. The Optimal Solutions to the TR dataset, 55&81 Nodes

$n^{(1)}$	$p^{(2)}$	$\alpha^{(3)}$	Optimal solution	Hubs
TR55	3	0.2	592.64	19,4,30
		0.8	853.35	4,30,1
	5	0.2	432.19	1,4,15,26,33
		0.8	778.79	1,4,33,17,30
TR81	5	0.2	501.85	80,6,12,45,34
		0.8	824.55	1,3,58,6,41
	7	0.2	420.99	1,21,3,6,52,35,34
		0.8	785.28	1,46,3,60,6,41,23

Table 3. The Optimal Solutions to Randomly Generated Problems, 100&130 Nodes

$n^{(1)}$	$p^{(2)}$	$\alpha^{(3)}$	Optimal/Best solution	Hubs
RGP100	7	0.2	1231.5475	48,58,68,49,39,26,30
		0.8	1418.4558	58,15,19,22,35,76,86
	10	0.2	1179.352	58,65,64,85,73,26,17,12,15,45
		0.8	1408.2039	58,11,15,20,23,24,35,61,76,86
RGP130	7	0.2	1252.5747	11,76,93,114,10,127,48
		0.8	1433.9036	87,3,9,31,29,80,70,
	10	0.2	1211.189	46,122,103,90,74,9,21,111,109,80
		0.8	1414.3538	87,7,41,46,52,53,83,103,110,120,

(1): Number of nodes;(2):Number of hubs;(3)Discount factor