Example : Edge Recombination

Element	Edges	Element	Edges
1	2,5,4,9	6	2,5+,7
2	1,3,6,8	7	3,6,8+
3	2,4,7,9	8	2,7+, 9
4	1,3,5,9	9	1,3,4,8
5	1,4,6+		

Solution ① Random choose initiation

Choice	Element selected	Reason	Partial result
All	1	Random	1

② Strike all 1 in others Edges

we can choose 2 5 4 9

2 - 3   ⬭(5 - 2)✓   4 - 3   9 - 3

Element	Edges	Element	Edges
1	2,5,4,9	6	2,5+,7
2	❶3,6,8	7	3,6,8+
3	2,4,7,9	8	2,7+, 9
4	❶3,5,9	9	❶3,4,8
5	❶4,6+		

Choice	Element selected	Reason	Partial result
All	1	Random	1
2549	5	shortest list	1 5

③ strike. 5; If list same, choose common edge length

Element	Edges	Element	Edges
1	2,3,4,9	6	2,6,7
2	1,3,6,8	7	3,6,8+
3	2,4,7,9	8	2,7+, 9
4	1,3,6,9	9	1,3,4,8
5	1,4,6+		

Choice	Element selected	Reason	Partial result
All	1	Random	1
2549	5	shortest list	1 5
46	6	common edge	156

④ strike 6

Element	Edges	Element	Edges
1	2,3,4,9	6	2,6,7
2	1,3,6,8	7	3,6,8+
3	2,4,7,9	8	2,7+, 9
4	1,3,6,9	9	1,3,4,8
5	1,4,6+		

Choice	Element selected	Reason	Partial result
All	1	Random	1
2549	5	shortest list	1 5
46	6	common edge	156

27   2   Random choice.   1562
(both have two items in list)

⑤ Strike 2

Element	Edges	Element	Edges
1	2,4,9	6	2,7
2	3,8	7	3,8+
3	4,7,9	8	7+,9
4	3,9	9	3,4,8
5	4		

Element	Edges	Element	Edges
1	2,4,9	6	2,7
2	3,8	7	✓
3	✓ 4,7,9	8	7+,9
4	3,9	9	3,4,8
5	4		

Choice	Element selected	Reason	Partial result
All	1	Random	1
2549	5	Shortest list	15
46	6	Common edge	156
27	2	Random choice. (both have two items in list)	1562
38	8	Shortest list	15628
79	7	Shortest list	156287
3	3	only item in list	1562873

⑥

Element	Edges	Element	Edges
1	2,4,9	6	2,5,7
2	3,8	7	3,8,9
3	3,4,9	8	7, 9
4	3,9	9	3,4,5
5	4,6		

Choice	Element selected	Reason	Partial result
All	1	Random	1
2 5 4 9	5	Shortest list	1 5
4 6	6	Common edge	1 5 6
2 7	2	Random choice. (both have two items in list)	1 5 6 2
3 8	8	shortest list	1 5 6 2 8
7 9	7	shortest list	1 5 6 2 8 7
3	3	only item in list	1 5 6 2 8 7 3
4 9	9	Random choice	1 5 6 2 8 7 3 9
4	4	Last element	1 5 6 2 8 7 3 9 4