Table 1: Input parameters of fuzzy TOPSIS for Model-1a

Market	**Expert-1**				**Expert-2**				**Expert-3**			
	MS	ST	SP	MV	MS	ST	SP	MV	MS	ST	SP	MV
1	Average	Low	Very High	Average	High	Low	High	High	Average	Average	High	Average
2	High	Average	High	Very High	Very High	Very High	Average	Very High	Average	Low	Low	Low
3	Average	High	Very Low	Average	Average	High	Very Low	Average	High	High	Very Low	Average
4	Very High	Average	High	Very High	Very High	Average	High	High	Very High	Average	High	High
5	Very Low	High	Average	Very Low	Very Low	Average	Low	Very Low	Low	Very High	Average	Very Low
6	Average	Low	High	High	Low	Low	High	High	Average	Low	Low	High
7	Very High	Very Low	Average	Low	Very High	Average	Average	Low	Very High	Very Low	Average	Low
8	Very Low	Very High	High	Very Low	Very Low	Very High	Average	Very Low	Very Low	Very High	Average	Low
9	Average	Average	Very Low	Very High	Average	Average	Very Low	Average	Average	High	High	Very High
10	Low	Very High	Low	Very High	Low	Very High	High	Very High	Low	Very High	Low	Very High
11	Average	High	Very Low	High	High	High	Very Low	High	Low	Low	Very Low	Average
12	Very High	Very Low	Average	Low	Very High	Very Low	Average	Very Low	Very High	Very Low	Low	Low
13	Average	Low	Very High	Average	Average	Low	Very High	Average	Average	Low	Very High	Average
14	High	Very Low	Average	Low	High	Very Low	Average	Low	High	Very Low	Average	Low
15	Low	High	Low	Very Low	Very Low	High	Low	Very Low	Average	Average	Low	Very Low
16	Average	Low	Very High	High	Average	Low	Very High	High	Average	Low	High	High
17	High	Low	Low	Very Low	High	Average	Low Very	Low	High	High	Low	Average
18	High	Low	High	Average	High	Low	High	High	Low	Low	Very High	Average
19	Average	Average	Average	Low	Average	High	Low	Low	High	Average	Average	Very Low

Table 2: Weight of the parameters for Model-1a

Experts	MS	ST	SP	MV
1	Average	Very Low	High	Low
2	Average	Low	High	Very Low
3	Low	Low	Average	Low

Table 3: Input parameters of fuzzy TOPSIS for Model-1b

Market	**Expert-1**				**Expert-2**				**Expert-3**			
	MA	TT	TC	PF	MA	TT	TC	PF	MA	TT	TC	PF
1	Low	Low	High	Low	Average	High	Very High	High	Low	High	Very High	Very Low
2	Average	High	High	Very High	Very High	Very High	Average	Very High	Average	Low	Low	High
3	High	High	Very Low	Average	Average	High	Very Low	Average	High	High	Very Low	Average
4	Very High	Average	High	Very High	Very High	Average	High	High	Very High	Average	High	High
5	Very Low	High	Average	Very Low	Very Low	Average	Low	Very Low	Low	Very High	Average	Very Low
6	Average	Low	High	High	Low	Low	High	High	Average	Low	Low	High
7	Very High	Very Low	Average	Low	Very High	Average	Average	Low	Very High	Very Low	Average	Low
8	High	Very High	High	Very Low	Very Low	Very High	Average	Very Low	Very Low	Very High	Average	Low
9	Average	Average	Very Low	Very High	Average	Average	Very Low	Average	Average	High	High	High
10	Low	Very High	Low	Very High	Low	Very High	High	Very High	Low	Very High	Low	Very High
11	Average	High	Very Low	High	High	High	Very Low	High	Low	Low	Very Low	Average
12	Very High	Very Low	Average	Low	Very High	Very Low	Average	Very Low	Very High	Very Low	Low	Low
13	Average	Low	Very High	Average	Average	Low	Very High	Average	Average	Low	Very High	Average
14	High	Very Low	Average	Low	High	Very Low	Average	Low	High	Very Low	Average	Low
15	Low	High	Low	Very Low	Very Low	High	Low	Very Low	Average	Average	Low	Very Low
16	Average	Low	Very High	High	Average	Low	Very High	High	Average	Low	High	High
17	Very High	Low	Low	Very Low	High	Average	Low Very	Low	High	High	Low	Low
18	High	Low	High	Average	High	Low	High	High	Low	Low	Very High	Average
19	Low	High	Average	Low	Average	High	Low	Low	High	Average	Average	Very Low

Table 4: Weight of the parameters for Model-1b

Experts	MS	ST	SP	MV
1	High	Average	High	High
2	Average	Low	Low	Very Low
3	Very High	Low	Average	Low

Table 5: Route wise fuzzy input values for Model-1a

i/j	2	3	4	7	9	11	12	14	15	17	19
2	-	((L,M,M),(M,M,L),(M,H,H))	((H,M,H),(H,M,M),(M,M,H))	((L,L,M),(L,H,M),(M,H,M))	((M,H,H),(M,M,L),(L,M,L))	((M,H,M),(M,M,L),(L,L,M))	((M,L,M),(L,H,H),(H,M,M))	((L,H,L),(L,L,M),(L,M,H))	((M,H,H),(H,H,H),(H,H,L))	((M,M,L),(M,M,M),(H,M,L))	((L,L,L),(L,L,M),(L,L,L))
3	((L,M,M),(L,M,L),(L,H,M))	-	((M,M,L),(M,M,M),(M,H,L))	((L,L,L),(L,M,L),(L,L,M))	((L,L,M),(L,M,M),(M,L,M))	((L,H,H),(L,M,H),(L,H,M))	((H,H,L),(H,M,L),(M,H,L))	((L,L,L),(L,M,L),(M,L,L))	((L,L,M),(L,L,L),(L,M,L))	((L,H,M),(M,H,M),(L,M,M))	((H,H,H),(H,M,H),(H,H,M))
4	((H,M,H),(H,M,L),(H,M,M))	((M,M,L),(M,H,L),(M,M,H))	-	((L,M,L),(L,M,M),(L,M,H))	((M,L,M),(M,L,H),(M,L,L))	((H,M,H),(H,M,M),(H,M,L))	((L,L,L),(L,M,L),(M,L,L))	((M,L,L)(M,M,L),(M,L,M))	((L,H,M),(L,H,L),(L,H,H))	((H,M,M),(H,M,H),(H,M,L))	((L,L,M),(L,L,H),(L,M,M))
7	((L,L,M),(L,M,M),(L,L,H))	((L,L,L),(L,M,L),(M,L,L))	((L,M,L),(L,M,M),(L,M,H))	-	((M,M,H),(M,L,H),(M,M,L)	((M,H,L),(M,H,M),(M,H,H))	((M,M,H),(M,L,H),(M,M,L))	((L,M,L),(L,M,M),(L,H,L))	((L,M,H),(L,M,L),(L,M,M))	((H,M,H),(H,M,L),(H,M,M))	((H,M,L),(H,M,M),(H,H,L))
9	((M,H,H),(M,H,M),(M,M,H))	((L,L,M),(L,M,M),(L,H,M))	((M,L,M),(M,L,H),(M,L,L))	((M,M,H),(M,L,H),(M,M,M))	-	((H,M,H),(H,M,M),(H,H,M))	((H,L,M),(H,L,H),(H,M,M))	((L,M,L),(L,M,M),(L,M,H))	((M,L,M),(M,M,M),(M,L,L))	((L,M,M),(L,M,L),(L,H,M))	((H,M,H),(H,M,L),(H,M,M))
11	((M,H,M),(M,H,L),(M,M,M))	((L,H,H),(L,H,M),(L,M,H))	((H,M,H),(H,M,L),(H,M,M))	((M,H,L),(M,M,L),(M,H,M))	((H,M,M),(H,M,H),(H,M,M))	-	((H,H,M),(H,H,L),(H,M,M))	((H,M,L),(H,M,M),(H,H,L))	((M,H,M),(M,H,L),(M,L,M))	((L,M,L),(L,M,H),(L,M,M))	((M,L,L),(H,L,L),(M,M,L))
12	((M,L,M),(M,H,M),(M,M,M))	((H,H,L),(H,M,L),(M,H,L))	((L,L,L),(M,L,L),(L,M,L))	((M,M,H),(L,M,H),(M,L,H))	((H,L,M),(H,M,M),(M,L,M))	((H,H,M),(H,M,M),(L,H,M))	-	((L,H,H),(M,H,H),(L,L,H))	((H,M,M),(H,L,M),(H,M,M))	((M,M,L),(H,M,L),(M,L,L))	((L,M,L),(H,M,L),(L,L,L))
14	((L,H,L),(L,H,M),(M,H,L))	((L,L,L),(M,L,L),(L,M,L))	((M,L,L),(M,M,L),(M,H,L))	((L,M,L),(H,M,L),(M,M,L))	((L,M,L),(L,H,L),(L,M,M))	((H,M,L),(H,L,L),(M,M,L))	((L,H,H),(L,M,H),(L,H,L))	-	((H,M,M),(L,M,M),(H,L,M))	((L,M,H),(L,L,H),(L,M,L))	((H,L,M),(H,L,H),(M,L,M))
15	((M,H,H),(M,L,H),(M,H,M))	((L,L,M),(L,H,M),(M,L,M))	((L,H,M),(L,M,M),(L,H,L))	((L,M,H),(L,L,H),(L,M,M))	((M,L,M),(M,L,L),(M,H,M))	((M,H,M),(M,L,M),(M,H,H))	((H,M,M),(H,L,M),(H,H,M))	((H,M,M),(H,H,M),(H,M,L))	-	(M,M,L),(M,L,L),(M,H,L))	((H,M,H),(H,M,M),(H,M,L))
17	((M,M,L),(M,H,L),(L,M,L))	((L,H,M),(L,H,L),(H,H,M))	((H,M,M),(H,L,M),(L,M,M))	((H,M,H),(L,M,H),(M,M,H))	((L,M,M),(L,L,M),(L,H,M))	((L,M,L),(L,M,H),(H,M,L))	((M,M,L),(H,M,L),(M,L,L))	((L,M,H),(L,L,H),(L,M,L))	((M,M,L),(M,L,L),(H,M,L))	-	((L,M,M),(L,H,M),(L,M,H))
19	((L,L,L),(L,M,L),(M,L,L))	((H,M,H),(M,H,H),(H,L,H))	((L,L,M),(L,H,M),(L,M,M))	((H,M,L),(L,M,L),(H,H,L))	((H,M,H),(M,M,H),(H,M,L))	((M,L,L),(M,M,L),(M,L,H))	((L,M,L),(M,M,L),(H,M,L))	((H,L,M),(M,L,M),(H,L,L))	((H,M,H),(M,M,H),(H,M,L))	((L,M,M),(L,H,M),(L,M,L))	-

Table 6: Route wise fuzzy input values for Model-1b

i/j	1	2	4	6	7	9	10	12	13	16	17	18
1	-	((L,M,L))	((H,M,H))	((L,L,M))	((M,M,L))	((M,H,M))	((L,L,M))	((H,H,M))	((M,H,M))	((L,L,L))	((H,M,H))	((L,M,H))
2	((H,M,H))	-	((M,L,L), (M,M,L))	((L,M,H), (L,L,H))	((L,L,M), (M,L,M))	((L,H,M), (M,H,M))	((H,L,M), (H,M,M))	((M,L,M), (L,L,M))	((L,M,L), (L,M,M))	((H,M,H), (M,M,M))	((H,M,M), (M,H,M))	((M,H,M), (L,H,M))
3	((L,L,M))	((M,L,L), (M,M,L))	-	((L,M,L), (M,M,L), (L,H,L))	((M,L,M), (M,L,M))	((M,L,M), (L,L,M))	((H,M,H), (M,M,H), (L,M,H))	((L,L,L), (M,L,L), (H,L,L))	((L,H,M), (M,H,M))	((H,M,M), (M,M,M), (L,M,M))	((L,L,M), (M,L,M), (H,L,M))	((M,L,M), (L,L,M), (H,L,M))
4	((M,M,L))	((L,M,H), (L,L,H))	((L,M,L), (M,M,L), (L,H,L))	-	((M,H,L), (L,H,L))	((H,L,M), (M,L,M))	((M,H,H), (H,H,H))	((L,L,M), (M,L,M))	((L,H,M), (M,H,M))	((M,M,M), (L,M,M))	((M,M,L), (L,H,L))	((M,H,L), (H,M,M))
5	((M,H,M))	((L,L,M), (M,L,M))	((M,L,M), (L,L,M), (H,L,M))	((M,H,L), (L,H,L))	-	((H,M,M), (M,M,M), (L,M,M))	((H,M,L))	((M,L,), (M,L,L), (H,M,L))	((M,L,M), (L,L,M), (H,L,M))	((L,M,M), (M,M,M), (H,M,M))	((H,M,H), (M,M,H), (L,M,H))	((H,M,L), (M,M,L), (L,M,L))
6	((L,L,M))	((L,H,M), (M,H,M))	((H,M,H), (M,M,H), (L,M,H))	((H,L,M), (M,L,M))	((H,M,M), (M,M,M), (L,M,M))	-	((H,L,M))	((H,L,M), (H,M,M))	((H,M,L))	((L,M,H), (M,M,H))	((M,L,M))	((H,M,L), (L,M,L))
7	((M,H,M))	((L,L,M), (M,L,M))	((M,L,M), (L,L,M), (H,L,M))	((M,H,L), (L,H,L))	-	((H,M,M), (M,M,M), (L,M,M))	((L,L,M), (H,L,M), (M,L,M))	((M,L,), (M,L,L), (H,M,L))	((M,L,M), (L,L,M), (H,L,M))	((L,M,M), (M,M,M), (H,M,M))	((H,M,H), (M,M,H), (L,M,H))	((H,M,L), (M,M,L), (L,M,L))
8	((L,L,M))	((L,H,M), (M,H,M))	((H,M,H), (M,M,H), (L,M,H))	((H,L,M), (M,L,M))	((H,M,M), (M,M,M), (L,M,M))	-	((H,M,L))	((H,L,H))	((M,L,M), (L,L,M), (H,L,M))	((H,M,L))	((L,M,H), (M,M,H))	((H,M,L))
9	((L,M,L))	((H,L,M), (M,H,M))	((L,L,L), (M,L,L), (H,L,L))	((M,H,H), (H,H,H))	((L,L,M), (H,L,M), (M,L,M))	((H,M,L))	-	((L,L,M))	((M,M,L))	((M,H,L))	((L,M,L))	((H,M,H))
10	((H,H,M))	((H,L,M), (H,M,M))	((L,L,L), (M,L,L), (H,L,L))	((M,H,H), (H,H,H))	((L,L,M), (H,L,M), (M,L,M))	((H,M,L))	-	((L,L,M))	((M,M,L))	((M,H,L))	((L,M,L))	((H,M,H))
11	((M,H,M))	((M,L,M), (L,L,M))	((M,L,L), (H,L,L), (L,L,L))	((L,L,M), (M,L,M))	((L,M,L), (M,M,L), (H,M,L))	((H,L,H))	((L,L,M))	-	((H,M,M), (L,M,M))	((M,H,M), (L,M,M))	((L,M,H), (M,M,H))	((H,L,M), (M,M,H))
12	((M,L,M))	((M,L,M), (L,L,M))	((L,H,M), (M,H,M), (M,H,M))	((L,H,M), (M,H,M))	((M,L,M), (L,L,M), (H,L,M))	((H,M,L))	((M,M,L))	((H,M,M), (L,M,M))	-	((M,L,M), (L,L,M))	((H,L,M), (M,L,M))	((L,M,H), (M,M,H))
13	((L,L,L))	((L,M,L), (L,M,M))	((L,H,M), (M,H,M), (M,H,M))	((L,H,M), (M,H,M))	((M,L,M), (L,L,M), (H,L,M))	((H,M,L))	((M,M,L))	((H,M,M), (L,M,M))	((M,L,M), (L,L,M))	-	((M,L,M), (L,L,M))	((M,H,M), (L,H,M))
14	((H,H,M))	((H,M,H), (M,M,H))	((H,M,M), (M,M,M), (L,M,M))	((M,H,M), (L,H,M))	((L,M,M), (M,M,M), (H,M,M))	((L,M,H))	((M,H,L))	((L,M,H), (M,M,H))	((M,L,M), (L,L,M))	((M,M,L), (L,H,M))	-	((L,H,L), (M,H,L))
15	((M,M,L))	((H,M,M), (M,M,M))	((L,L,M), (M,L,M), (H,L,M))	((M,H,H), (H,H,H))	((L,M,M), (M,M,M), (H,M,M))	((L,M,L))	((L,M,L))	((L,M,H), (M,M,H))	((M,H,M), (L,H,M))	((L,M,M), (M,M,M))	((L,L,M), (M,L,M), (H,L,M))	-
16	((H,H,H))	((H,M,H), (M,M,H))	((H,M,M), (M,M,M), (L,M,M))	((M,H,M), (L,H,M))	((L,M,M), (M,M,M), (H,M,M))	((L,M,H))	((M,H,L))	((L,M,H), (M,M,H))	((M,L,M), (L,L,M))	((M,M,M), (L,M,M))	((L,M,M), (M,M,M))	((L,H,L), (M,H,L))
17	((M,M,L))	((H,H,M), (M,H,M))	((L,L,M), (M,L,M), (H,L,M))	((M,L,L), (H,L,L))	((H,M,H), (M,M,H), (L,M,H))	((M,L,M))	((L,M,L))	((H,L,M), (M,L,M))	((M,H,M), (L,H,M))	((L,M,M), (M,M,M))	-	((H,M,M))
18	((L,M,H))	((M,H,M), (L,H,M))	((M,L,M), (L,L,M), (H,L,M))	((M,H,L), (H,H,M))	((H,M,L), (M,M,L), (L,M,L))	((H,M,L))	((H,M,H))	((L,M,H), (M,M,H))	((H,M,H))	((M,L,L), (H,L,L))	((H,M,M))	-

Table 7: Input parameters of fuzzy TOPSIS for Model-1c

Market	**Expert-1**				**Expert-2**				**Expert-3**			
	CLR	WTR	RR	MS	CLR	WTR	RR	MS	CLR	WTR	RR	MS
1	High	Very Low	High	Average	Low	High	Very High	Low	Low	High	High	Low
2	Low	High	Low	Very High	High	Very High	Average	Very High	Average	Low	Low	High
3	Average	Low	Very Low	Average	Average	High	Very Low	Average	High	High	Very Low	Average
4	Very High	Average	High	Very High	Very High	Average	High	High	Very High	Average	High	High
5	Very Low	High	Average	Very Low	Very Low	Average	Low	Very Low	Low	Very High	Average	Very Low
6	Average	Low	High	High	Low	Low	High	High	Average	Low	Low	High
7	Low	Very Low	Average	Low	Very High	Average	Average	Low	Very High	Very Low	Average	Low
8	High	Very High	High	Very Low	Very Low	Very High	Average	Very Low	Very Low	Very High	Average	Low
9	Average	Low	Very Low	Very High	Average	Average	Very Low	Average	Average	High	High	High
10	Low	Very High	Low	Very High	Low	Very High	High	Very High	Low	Very High	Low	Very High
11	Average	High	Very Low	High	High	High	Very Low	High	Low	Low	Very Low	Average
12	Very High	Very Low	Average	Low	Very High	Very Low	Average	Very Low	Very High	Very Low	Low	Low
13	Average	Low	Very High	Average	Average	Low	Very High	Average	Average	Low	Very High	Average
14	High	Very High	Average	Low	High	Very Low	Average	Low	High	Very Low	Average	Low
15	Low	High	Low	Very Low	Very Low	High	Low	Very Low	Average	Average	Low	Very Low
16	High	Low	Very High	High	Average	Low	Very High	High	Average	Low	High	High
17	Very High	Low	Low	Very Low	High	Average	Low Very	Low	High	High	Low	Low
18	High	Low	Average	Low	Low	Low	High	High	Low	Low	Very High	Average
19	Average	Average	High	Very High	Very Low	High	Low	High	High	Average	Low	High

Table 8: Weight of the parameters for Model-1c

Experts	CLR	WTR	RR	MS
1	Low	High	High	Average
2	High	Low	Average	Very Low
3	Low	Average	Low	Low

Table 9: Route wise fuzzy input values for Model-1c

i/j	1	2	4	6	8	9	10	12	13	16	18	19
1	-	((H,L,M),(L,M,M),(L,H,H))	((H,L,H),(M,L,L),(M,M,H))	((H,L,M),(M,M,H),(L,M,L))	((H,L,H),(M,L,L),(M,M,L))	((H,L,M),(H,M,M),(H,M,L))	((H,L,M),(H,M,H),(H,M,L))	((H,L,H),(L,M,L),(L,M,L))	((H,L,M),(L,M,L),(M,L,M))	((H,L,H),(M,L,M),(M,M,L))	((H,L,H),(L,H,M),(M,H,L))	((H,L,H),(H,M,H),(M,H,H))
2	((H,L,M),(L,M,M),(L,H,H),)	-	((H,L,H),(M,L,L),(L,M,M),(L,H,H))	((H,L,M),(M,L,M),(L,M,L))	((L,M,M), (M,L,M),(L,M,L))	((L,H,H), (H,L,M),(M,L,L))	((L,H,L), (M,L,H),(H,M,L))	((H,L,H), (L,L,M),(L,M,L))	((H,L,M),(M,H,M),(H,L,L))	((L,H,M), (M,H,M),(H,L,L))	((L,H,M),(M,H,M),(H,M,L))	((L,M,L), (L,L,M), (M,M,L))
3	((H,L,H),(M,L,L),(M,M,H))	(L,M,L), (L,M,M),(L,H,H))	-	((H,M,L), (M,L,M),(M,H,L))	((H,M,M), (M,L,H),(M,M,L))	((H,M,H), (H,L,H),(M,L,L))	((H,M,L), (L,L,M),(M,H,L))	((H,M,L),(L,M,M),(H,L,L))	((H,M,L), (L,M,H),(H,M,L))	((L,M,H), (M,M,H),(H,M,L))	((H,L,M), (M,L,H),(H,M,L))	((H,M,H), (H,L,M),(M,H,L))
4	((H,L,H),(M,L,L),(M,M,H))	(L,M,L), (L,M,M),(L,H,H))	-	((H,M,L), (M,L,M),(M,H,L))	((H,M,M), (M,L,H),(M,M,L))	((H,M,H), (H,L,H),(M,L,L))	((H,M,L), (L,L,M),(M,H,L))	((H,M,L), (L,M,M),(H,L,L))	((H,M,L), (L,M,H),(H,M,L))	((L,M,H), (M,M,H),(H,M,L))	((H,L,M), (M,L,H),(H,M,L))	((H,M,H), (H,L,M),(M,H,L))
5	((H,L,M),(M,H,H),(L,M,L))	((L,H,L), (M,L,M),(M,M,L))	((H,M,L), (M,L,M),(M,H,L))	-	((M,M,H), (H,M,L), (M,L,H))	((M,L,L), (M,M,L), (M,H,L))	-	((H,M,H), (L,M,H), (M,H,H))	((M,M,H), (M,L,H), (L,M,H))	((L,M,H), (M,M,H), (L,L,H))	((H,M,L), (L,H,L), (M,H,L))	((H,H,L), (L,M,L), (M,H,L))
6	((H,L,M),(M,M,H),(L,M,L))	((L,H,L), (M,L,M),(M,M,L))	((H,M,L), (M,L,M),(M,H,L))	((M,M,H), (H,M,L), (M,L,H))	-	((M,L,L), (M,M,L), (M,H,L))	((M,M,H), (M,L,H), (L,M,H))	((M,M,H), (M,L,H), (L,M,M))	((L,M,H), (M,M,H), (L,L,H))	((M,M,H), (L,M,H), (M,H,H))	((M,M,L), (H,M,L), (L,M,L))	((M,L,L), (M,M,L), (H,L,L))
7	((H,L,H),(M,L,L),(M,M,L))	((L,M,M), (M,L,M),(L,M,L))	((H,M,M), (M,L,H),(M,M,L))	((M,M,H), (H,M,L), (M,L,H))	((H,M,M), (M,L,H), (L,M,L))	-	((M,M,H), (H,M,L), (L,M,M))	((H,M,M), (M,M,H), (H,M,L))	((M,M,L), (H,M,L), (L,M,L))	((M,M,H), (H,L,M), (L,M,L))	((M,M,H), (M,H,H), (L,M,L))	((M,M,H), (H,M,L), (L,M,L))
8	((H,L,M),(L,M,L),(M,M,L))	((L,M,M), (M,L,M),(L,M,L))	((H,M,M), (M,L,H),(M,M,L))	((M,M,H), (H,M,L), (L,M,L))	((M,M,H), (H,M,L), (L,M,L))	((H,M,M), (M,L,H), (L,M,L))	-	((M,L,), (H,L,M), (L,L,M))	((M,L,M), (H,L,M), (L,M,L))	((M,M,H), (L,H,M), (L,M,L))	((M,M,H), (M,H,H), (L,M,L))	((M,M,H), (H,M,L), (L,M,L))
9	((H,L,M),(H,H,M)(H,H,M))	((L,H,H), (H,L,M),(M,L,L))	((H,M,H), (H,L,H),(M,L,L))	((M,L,L), (M,M,L), (M,H,L))	((H,H,M), (H,M,M), (M,H,M))	-	((M,L,M), (H,L,M), (L,L,M))	-	((M,L,), (L,H,L), (H,M,L))	((M,M,M), (H,L,M), (M,M,M))	((M,L,M), (H,L,M), (L,L,M))	((M,L,L), (M,L,L), (M,L,L))
10	((H,L,M),(H,M,H),(H,M,L))	((L,H,L), (M,L,H),(H,M,L))	((H,M,L), (L,L,M),(M,H,L))	((M,M,H), (M,L,H), (L,M,H))	((H,H,M), (M,M,M), (H,L,M))	((M,L,M), (H,L,M), (L,L,M))	-	((L,H,H), (L,M,H), (M,H,H))	-	((L,H,M), (L,M,M), (M,M,M))	((H,H,L), (L,M,L), (M,H,L))	((L,H,H), (L,M,H), (L,H,M))
11	((H,L,M),(H,M,L),(H,M,L))	((L,H,L), (L,L,M),(L,M,L))	((H,M,L), (H,L,M),(M,H,L))	((M,M,H), (M,L,H), (L,M,H))	((M,M,L), (H,M,L), (M,L,L))	((L,M,L), (L,H,L), (H,M,L))	((L,H,H), (L,M,H), (M,H,H))	-	((H,L,M), (L,M,L), (M,M,M))	((H,H,L), (M,L,H), (M,M,M))	((H,L,M), (H,M,M), (M,L,M))	((H,L,L), (H,M,L), (H,L,H))
12	((H,L,M),(H,M,L),(H,M,L))	((L,H,L), (L,L,M),(L,M,L))	((H,M,L), (H,L,M),(M,H,L))	((M,M,H), (M,L,H), (L,M,H))	((M,M,L), (H,M,L), (M,L,L))	((L,M,L), (L,H,L), (H,M,L))	((L,H,H), (L,M,H), (M,H,H))	-	((H,L,M), (L,M,L), (M,M,M))	((H,H,L), (M,L,H), (M,M,M))	((H,L,M), (H,M,M), (M,L,M))	((H,L,L), (H,M,L), (H,L,H))
13	((H,L,H),(L,M,L),(M,L,M))	((L,H,M), (M,H,M),(M,H,L))	((H,L,M), (M,L,H),(H,M,L))	((L,M,H), (M,M,H), (L,L,H))	((M,M,H), (M,M,H), (L,M,H))	((M,L,M), (H,L,M), (L,M,M))	((L,H,M), (L,M,M), (M,H,M))	((H,L,M), (M,L,M), (M,M,M))	-	((M,L,), (L,M,L), (M,H,L))	((L,M,H), (M,M,H), (L,M,L))	((M,L,L), (H,M,L), (M,L,L))
14	((H,L,M),(L,H,L),(M,H,L))	((L,H,M), (L,L,H),(H,M,L))	((H,L,M), (H,L,M),(L,M,L))	((M,M,L), (H,M,L), (L,M,L))	((H,M,H), (M,M,H), (L,M,H))	((M,L,L), (M,L,L), (M,L,L))	((L,H,L), (L,M,L), (M,H,L))	((H,L,M), (H,M,M), (M,L,M))	((L,M,H), (M,M,H), (L,M,L))	((H,M,M), (H,L,M), (L,M,M))	-	((M,H,H), (L,H,H), (M,L,H))
15	((H,L,H),(L,M,L),(M,L,M))	((L,H,M), (M,H,M),(M,H,L))	((H,L,M), (M,L,H),(H,M,L))	((L,M,H), (M,M,H), (L,L,H))	((M,H,M), (L,H,M), (M,L,L))	((M,L,M), (H,L,M), (L,M,M))	((L,H,M), (L,M,M), (M,H,M))	((H,L,M), (M,L,M), (H,M,M))	-	((M,M,L), (L,M,L), (M,H,L))	((L,M,H), (M,M,H), (L,M,L))	((M,M,L), (H,M,L), (M,L,L))
16	((H,L,H),(M,L,M),(M,M,L))	((H,L,H),(M,L,M),(M,M,L))	((H,M,M), (M,H,M),(H,M,L))	((M,M,H), (L,M,H), (H,M,L))	((H,M,M), (H,L,M), (L,M,M))	((M,L,M), (H,L,M), (L,M,M))	((M,H,L), (L,H,L), (M,M,L))	((H,L,H), (M,L,H), (H,M,H))	((M,M,L), (L,M,L), (M,H,L))	-	((H,M,M), (H,L,M), (L,M,M))	((H,M,L), (L,M,L), (M,H,L))
17	((H,L,H),(M,L,M),(M,M,L))	((H,L,H),(M,L,M),(M,M,L))	((H,L,M), (H,L,M),(L,M,L))	((M,M,L), (H,M,L), (L,M,L))	((H,M,M), (H,L,M), (L,M,M))	((M,L,M), (H,L,M), (L,M,M))	((M,H,L), (L,H,L), (M,M,L))	((H,L,H), (M,L,H), (H,M,H))	((L,M,H), (M,M,H), (L,M,L))	-	((H,M,M), (H,L,M), (L,M,M))	((H,L,L), (H,M,L), (H,M,L))
18	((H,L,M),(L,H,M),(M,H,L))	((L,H,M), (L,L,H),(H,M,L))	((H,L,M), (H,L,M),(L,M,L))	((M,M,L), (H,M,L), (L,M,L))	((H,M,H), (M,M,H), (L,M,H))	((L,M,L), (M,L,L), (M,L,L))	((L,H,L), (L,M,L), (M,H,L))	((H,L,M), (H,M,M), (M,L,M))	((L,M,H), (M,M,H), (L,M,L))	((H,M,M), (H,L,M), (L,M,M))	-	((M,H,H), (L,H,H), (M,L,H))
19	((H,L,H),(H,M,H),(M,M,H))	((L,M,L), (L,L,M),(M,M,L))	((L,M,L), (L,L,M),(M,M,L))	((M,L,L), (M,M,L), (H,L,L))	((M,M,H), (H,M,H), (M,L,H))	((L,M,L), (M,M,L), (L,H,L))	((L,H,H), (L,M,H), (L,H,M))	((H,L,L), (H,M,L), (H,L,H))	((M,M,L), (H,M,L), (M,L,L))	((H,L,L), (H,M,L) (H,L,M))	((M,H,H), (L,H,H), (M,L,H))	-

Table 10: Distance matrix along different routes (km)

i/j	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	∞	(51.0,54.0,49.0)	(63.5,65.5,70.0)	(91.0,70.0,87.0)	(38.5,39.1,40.0)	(15.5,17.0,14.3)	(110.0,90.0,102.0)	(13.0,15.0,12.3)	(49.0,40.9,45.9)	(37.0,40.1,37.5)	(15.5,13.0,19.4)	(68.0,90.0,112.0)	(61.0,59.0,57.8)	(65.5,70.0,68.5)	(48.0,50.0,49.0)	(26.5,25.0,29.0)	(25.5,24.8,30.0)	(45.0,51.0,44.0)	(17.0,19.0,14.0)	(24.0,25.5,23.0)
2	(51.0,54.0,49.0)	∞	(35.5,39.0,37.5)	(41.5,46.0,40.0)	(58.5,60.0,57.0)	(47.5,48.0,47.0)	(48.0,50.0,46.5)	(50.0,49.5,51.5)	(60.5,62.0,59.0)	(32.0,29.5,34.0)	(38.0,37.6,40.0)	(44.0,39.0,45.0)	(36.0,34.6,37.5)	(23.5,20.0,22.5)	(81.0,95.0,73.0)	(48.0,46.5,49.5)	(44.0,26.0,49.0)	(27.0,25.6,28.9)	(44.5,45.6,43.9)	(29.0,30.2,28.4)
3	(63.5,65.5,70.0)	(35.5,39.0,37.5)	∞	(60.5,62.0,59.0)	(39.0,41.3,38.4)	(49.5,51.5,47.9)	(57.0,64.9,59.0)	(54.0,49.0,60.0)	(29.5,30.0,28.0)	(70.0,59.0,67.0)	(64.0,59.0,65.5)	(57.5,56.1,57.0)	(70.5,68.5,74.5)	(58.5,59.7,27.6)	(43.5,41.7,50.0)	(42.0,39.5,45.1)	(75.5,78.5,77.0)	(62.5,61.0,59.5)	(75.0,76.5,78.0)	(59.0,55.5,60.1)
4	(91.0,70.0,87.0)	(41.5,46.0,40.0)	(60.5,62.0,59.0)	∞	(35.0,32.4,31.1)	(12.0,95.0,12.2)	(78.0,100.0,69.0)	(97.0,108.0,87.0)	(46.0,45.0,50.4)	(28.0,29.5,31.0)	(63.0,55.0,95.0)	(27.0,43.0,25.0)	(52.0,49.5,56.1)	(55.5,52.4,54.6)	(38.0,36.8,40.5)	(23.5,27.0,23.0)	(23.5,25.0,22.0)	(34.5,36.0,38.5)	(16.0,15.6,19.0)	(14.0,16.4,13.7)
5	(38.5,39.1,40.0)	(58.5,60.0,57.0)	(39.0,41.3,38.4)	(35.0,32.4,31.1)	∞	(24.0,25.6,26.5)	(32.0,30.0,34.5)	(28.5,30.5,27.6)	(12.0,16.0,10.9)	(59.0,59.5,59.2)	(43.0,48.0,47.5)	(32.0,29.5,29.7)	(83.5,79.9,81.6)	(75.0,76.3,75.9)	(57.5,59.2,60.0)	(12.5,14.5,12.2)	(65.0,64.5,64.0)	(66.0,67.0,65.5)	(49.5,51.2,50.4)	(48.0,47.0,50.0)
6	(15.5,17.0,14.3)	(47.5,48.0,47.0)	(49.5,51.5,47.9)	(12.0,95.0,12.2)	(24.0,25.6,26.5)	∞	(96.0,99.0,100.0)	(36.0,50.0,30.0)	(35.0,36.5,34.5)	(36.5,35.0,37.9)	(20.0,19.5,22.0)	(91.0,75.0,89.0)	(60.5,60.0,61.5)	(61.5,63.5,65.4)	(44.0,42.6,45.1)	(12.5,13.6,14.8)	(37.0,38.1,40.0)	(43.0,42.1,45.5)	(26.5,23.6,28.0)	(25.5,26.4,28.5)
7	(110.0,90.0,102.0)	(48.0,50.0,46.5)	(57.0,64.9,59.0)	(78.0,100.0,69.0)	(32.0,30.0,34.5)	(96.0,99.0,100.0)	∞	(29.0,35.0,56.0)	(42.5,45.8,41.2)	(35.0,36.4,37.9)	(16.0,17.5,15.9)	(48.0,50.0,89.0)	(59.0,61.1,58.1)	(62.5,64.3,65.8)	(45.5,48.7,45.1)	(20.0,21.4,19.5)	(32.0,34.5,33.3)	(42.0,41.8,41.3)	(22.0,23.5,35.1)	(20.5,20.0,24.3)
8	(13.0,15.0,12.3)	(50.0,49.5,51.5)	(54.0,49.0,60.0)	(97.0,108.0,87.0)	(28.5,30.5,27.6)	(36.0,50.0,30.0)	(29.0,35.0,56.0)	∞	(39.0,35.7,39.8)	(37.0,39.6,36.3)	(17.5,18.1,20.0)	(67.0,70.0,79.0)	(61.0,62.5,61.2)	(64.5,65.8,68.6)	(46.5,45.1,49.5)	(16.5,17.5,19.0)	(35.0,36.1,40.0)	(44.0,41.0,40.8)	(24.0,26.5,27.4)	(22.0,23.9,21.7)
9	(49.0,40.9,45.9)	(60.5,62.0,59.0)	(29.5,30.0,28.0)	(46.0,45.0,50.4)	(12.0,16.0,10.9)	(35.0,36.5,34.5)	(42.5,45.8,41.2)	(39.0,35.7,39.8)	∞	(62.5,63.9,61.3)	(53.5,56.5,54.0)	(43.0,46.0,43.5)	(86.5,90.0,85.0)	(77.5,75.5,79.0)	(60.0,63.5,68.5)	(23.0,22.0,25.0)	(68.0,67.5,70.0)	(69.0,69.9,71.0)	(60.0,59.1,61.5)	(51.5,52.1,51.7)
10	(37.0,40.1,37.5)	(32.0,29.5,34.0)	(70.0,59.0,67.0)	(28.0,29.5,31.0)	(59.0,59.5,59.2)	(36.5,35.0,37.9)	(35.0,36.4,37.9)	(37.0,39.6,36.3)	(62.5,63.9,61.3)	∞	(24.0,25.4,26.8)	(30.0,31.5,29.5)	(25.0,26.6,27.0)	(28.5,27.1,30.0)	(24.5,22.2,24.9)	(47.5,47.9,50.0)	(15.0,20.0,27.5)	(77.0,69.0,81.0)	(23.5,22.1,25.5)	(15.0,21.5,14.5)
11	(15.5,13.0,19.4)	(38.0,37.6,40.0)	(64.0,59.0,65.5)	(63.0,55.0,95.0)	(43.0,48.0,47.5)	(20.0,19.5,22.0)	(16.0,17.5,15.9)	(17.5,18.1,20.0)	(53.5,56.5,54.0)	(24.0,25.4,26.8)	∞	(90.0,123.0,134.0)	(48.0,45.5,46.5)	(51.5,57.5,59.1)	(34.5,35.0,34.6)	(31.0,29.9,32.1)	(17.5,20.0,16.6)	(31.0,33.3,34.5)	(125.0,200.0,101.0)	(100.0,90.0,88.0)
12	(68.0,90.0,112.0)	(44.0,39.0,45.0)	(57.5,56.1,57.0)	(27.0,43.0,25.0)	(32.0,29.5,29.7)	(91.0,75.0,89.0)	(48.0,50.0,89.0)	(67.0,70.0,79.0)	(43.0,46.0,43.5)	(30.0,31.5,29.5)	(90.0,123.0,134.0)	∞	(54.5,56.1,57.9)	(58.5,55.1,58.5)	(41.5,43.0,41.1)	(20.5,20.0,25.0)	(26.5,29.5,28.7)	(38.0,36.8,40.0)	(17.0,19.0,20.5)	(17.0,17.5,16.5)
13	(61.0,59.0,57.8)	(36.0,34.6,37.5)	(70.5,68.5,74.5)	(52.0,49.5,56.1)	(83.5,79.9,81.6)	(60.5,60.0,61.5)	(59.0,61.1,58.1)	(61.0,62.5,61.2)	(86.5,90.0,85.0)	(25.0,26.6,27.0)	(48.0,45.5,46.5)	(54.5,56.1,57.9)	∞	(19.0,21.1,17.6)	(29.5,31.0,32.8)	(71.5,71.4,75.5)	(40.0,38.9,41.3)	(18.0,21.0,17.6)	(48.5,49.0,51.0)	(39.0,38.5,41.2)
14	(65.5,70.0,68.5)	(23.5,20.0,22.5)	(58.5,59.7,27.6)	(55.5,52.4,54.6)	(75.0,76.3,75.9)	(61.5,63.5,65.4)	(62.5,64.3,65.8)	(64.5,65.8,68.6)	(77.5,75.5,79.0)	(28.5,27.1,30.0)	(51.5,57.5,59.1)	(58.5,55.1,58.5)	(19.0,21.1,17.6)	∞	(17.0,17.1,23.1)	(65.0,64.3,66.6)	(43.5,42.0,41.3)	(21.5,25.0,24.1)	(52.5,54.5,50.0)	(42.5,44.4,46.1)
15	(48.0,50.0,49.0)	(81.0,95.0,73.0)	(43.5,41.7,50.0)	(38.0,36.8,40.5)	(57.5,59.2,60.0)	(44.0,42.6,45.1)	(45.5,48.7,45.1)	(46.5,45.1,49.5)	(60.0,63.5,68.5)	(24.5,22.2,24.9)	(34.5,35.0,34.6)	(41.5,43.0,41.1)	(29.5,31.0,32.8)	(17.0,17.1,23.1)	∞	(47.5,48.1,50.0)	(38.5,41.5,37.8)	(19.0,20.5,18.0)	(40.5,40.0,39.9)	(25.5,26.8,28.7)
16	(26.5,25.0,29.0)	(48.0,46.5,49.5)	(42.0,39.5,45.1)	(23.5,27.0,23.0)	(12.5,14.5,12.2)	(12.5,13.6,14.8)	(20.0,21.4,19.5)	(16.5,17.5,19.0)	(23.0,22.0,25.0)	(47.5,47.9,50.0)	(31.0,29.9,32.1)	(20.5,20.0,25.0)	(71.5,71.4,75.5)	(65.0,64.3,66.6)	(47.5,48.1,50.0)	∞	(48.5,49.0,48.8)	(54.5,55.6,60.0)	(37.5,38.7,39.2)	(39.5,42.5,41.1)
17	(25.5,24.8,30.0)	(44.0,26.0,49.0)	(75.5,78.5,77.0)	(23.5,25.0,22.0)	(65.0,64.5,64.0)	(37.0,38.1,40.0)	(32.0,34.5,33.3)	(35.0,36.1,40.0)	(68.0,67.5,70.0)	(15.0,20.0,27.5)	(17.5,20.0,16.6)	(26.5,29.5,28.7)	(40.0,38.9,41.3)	(43.5,42.0,41.3)	(38.5,41.5,37.8)	(48.5,49.0,48.8)	∞	(22.5,23.5,21.4)	(87.0,99.0,120.0)	(20.5,22.0,20.1)
18	(45.0,51.0,44.0)	(27.0,25.6,28.9)	(62.5,61.0,59.5)	(34.5,36.0,38.5)	(66.0,67.0,65.5)	(43.0,42.1,45.5)	(42.0,41.8,41.3)	(44.0,41.0,40.8)	(69.0,69.9,71.0)	(77.0,69.0,81.0)	(31.0,33.3,34.5)	(38.0,36.8,40.0)	(18.0,21.0,17.6)	(21.5,25.0,24.1)	(19.0,20.5,18.0)	(54.5,55.6,60.0)	(22.5,23.5,21.4)	∞	(31.5,33.0,30.1)	(22.0,25.4,31.0)
19	(17.0,19.0,14.0)	(44.5,45.6,43.9)	(75.0,76.5,78.0)	(16.0,15.6,19.0)	(49.5,51.2,50.4)	(26.5,23.6,28.0)	(22.0,23.5,35.1)	(24.0,26.5,27.4)	(60.0,59.1,61.5)	(23.5,22.1,25.5)	(12.5,20.0,10.1)	(17.0,19.0,20.5)	(48.5,49.0,51.0)	(52.5,54.5,50.0)	(40.5,40.0,39.9)	(37.5,38.7,39.2)	(87.0,99.0,120)	(31.5,33.0,30.1)	∞	(15.5,21.4,14.0)
20	(24.0,25.5,23.0)	(29.0,30.2,28.4)	(59.0,55.5,60.1)	(14.0,16.4,13.7)	(48.0,47.0,50.0)	(25.5,26.4,28.5)	(20.5,20.0,24.3)	(22.0,23.9,21.7)	(51.5,52.1,51.7)	(15.0,21.5,14.5)	(100.0,90.0,88.0)	(17.0,17.5,16.5)	(39.0,38.5,41.2)	(42.5,44.4,46.1)	(25.5,26.8,28.7)	(39.5,42.5,41.1)	(20.5,22.0,20.1)	(22.0,25.4,31.0)	(15.5,21.4,14.0)	∞

Table 11: Distance Matrix along different routes (kms.)

i/j	1	2	3	4	5
1	∞	(107,110,99)	(241,235,255)	(190,189,201)	(124,131,105)
2	(107,110,99)	∞	(148,157,126)	(137,151,187)	(88,79,68)
3	(241,235,255)	(148,157,126)	∞	(374,356,394)	(171,159,166)
4	(190,189,201)	(137,151,187)	(374,356,394)	∞	(202,218,231)
5	(124,131,105)	(88,79,68)	(171,159,166)	(202,218,231)	∞
6	(80,99,118)	(127,144,111)	(259,270,245)	(234,253,221)	(61,54,99)
7	(316,320,300)	(336,332,348)	(509,492,513)	(222,299,248)	(392,378,356)
8	(76,75,89)	(183,199,174)	(317,333,378)	(192,184,171)	(202,287,299)
9	(152,163,148)	(134,121,109)	(217,231,285)	(248,271,286)	(46,39,35)
10	(157,148,174)	(95,108,107)	(232,214,200)	(42,58,60)	(160,175,184)
i/j	6	7	8	9	10
1	(80,99,118)	(316,320,300)	(76,75,89)	(152,163,148)	(157,148,174)
2	(127,144,111)	(336,332,348)	(183,199,174)	(134,121,109)	(95,108,107)
3	(259,270,245)	(509,492,513)	(317,333,378)	(217,231,285)	(232,214,200)
4	(234,253,221)	(222,299,248)	(192,184,171)	(248,271,286)	(42,58,60)
5	(61,54,99)	(392,378,356)	(202,287,299)	(46,39,35)	(160,175,184)
6	∞	(386,399,381)	(141,164,157)	(72,51,68)	(167,158,181)
7	(386,399,381)	∞	(233,241,228)	(438,454,481)	(254,236,247)
8	(141,164,157)	(233,241,228)	∞	(213,201,200)	(188,174,195)
9	(72,51,68)	(438,454,481)	(213,201,200)	∞	(206,218,205)
10	(167,158,181)	(254,236,247)	(188,174,195)	(206,218,205)	∞

References