

CE 34500: Transportation Engineering  
Homework 5

Problem 1: A study area consists of three zones –A, B, C. The trip generation model predicts the following trip productions and attractions: (50 points)

Zone	A	B	C	total
Trip production	170	400	330	900
Trip attraction	350	325	225	900

Travel time (minutes) between zones is given in the matrix below. For this problem, the F factor is taken as the inverse of the corresponding travel time. Also, for this example all  $K_{ij}$  values are taken as 1.0.

Zone	A	B	C
A	7	4	5
B	4	5	8
C	5	8	3

Calculate trip distribution matrix.

Problem 2: Using the data provided in the Tables 1, 2 and 3, estimate trip distribution? (50 points)

Table 1: Trips Productions and Attractions of 5 Traffic Analysis Zones

TAZ	Productions	Attractions
1	234	1080
2	76	531
3	602	76
4	432	47
5	472	82

Table 2: Travel Time Matrix

TAZ	1	2	3	4	5
1	4	12	8	15	21
2	6	3	9	23	14
3	20	7	4	10	25
4	12	18	8	4	17
5	24	19	23	15	8

Table 3: Friction Factors at Different Travel Times

Travel time (min)	Friction Factor
3	87
4	45
7	29
10	18
15	10
20	6
25	4