Name...........................

Reg.No.........................

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION JUNE 2009

CE 04 805 F – URBAN TRANSPORTATION PLANNING

Time : 3 Hrs   Maximum : 100 Marks

Answer all questions

I   (a) Land use planning and transportation planning are interdependent. Discuss.

(b) Distinguish between goals, objectives and standards with references to Transportation Planning.

(c) Describe the guidelines for zoning of urban study areas.

(d) Distinguish between zonal regression and household regression models. Discuss their advantages and limitations.

(e) Write a note on Opportunity models.

(f) what do you understand by calibration of gravity model?

(g) compare pre-distribution and post-distribution mode split models.

(h) Distinguish between User Equilibrium and System Optimal assignments?

(8X5 = 40 Marks)

II (a) While explaining the system –environment concept, discuss the system Approach in Land use and Transportation Planning.   (15 Marks)

OR

(b) What do you mean by Travel Demand ? Explain .What are the common issues in the development of Transport plans for metropolitan areas?   (15 Marks)

III (a) How you will plan and collect the household travel date by home-interview survey?

OR   (15 Marks)

(b) The following is the average number of trips made in an urban area:

House hold size	2	3	4	5	6
No. of trips per day	5	7	8	10	10

Develop a trip generation equation for the area and calculate all the statistics to check the validity of the equations. The value of t for 3 degrees of freedom at 5% level of significance is 2.353.   (15 Marks)

IV (a) Forecast the horizon year trip distribution matrix of a 3-zone study are using Fratar Growth Factor model. The base trip matrix and horizon year trip ends are given below.

Base year trip matrix

I/J	1	2	3
1	200	700	500
2	600	100	800
3	400	900	300

Horizon year trips ends

P_j	3000	3000	4000
A_j	2000	4500	3500

OR (15 Marks)

(b) Apply gravity model for the given data and calculate all trip interchanges.

ZONE	PRODUCTIONS	ATTRACTIVENESS
1	3500	2
2	2000	3
3	1000	4
4	0	5

TIME/COST MATRIX

I/J	1	2	3	4
1	0	10	15	20
2	10	0	20	15
3	15	20	0	10
4	20	15	10	0

Take all zonal adjustment factors as 2 and $\ln F = 1.8 \times \ln d_{ij}$ (15 Marks)

V

(a) A calibrated utility function for travel time in a medium sized city by car, bus and light rail is $U = a - 0.002 X_1 - 0.05 X_2$ where X_1 is the cost of travel (Rs.) and X_2 is the travel time (minutes). Calculate the modal split for the given values.

Mode	A	X_1	X_2
Car	-0.30	120	30
Bus	-0.35	80	40
Light Rail	-0.4	90	35

If Parking fee of Rs. 60/- per trip is imposed on cars, what would be the spilt to the other two modes?

OR (15 Marks)

(b) The description of a network is given below. Construct minimum path from Node I to all other nodes using minimum path algorithm. All links are two way links except 1.5, which is one way.

Links	Travel time in Minutes
1-2	40
1-4	50
1-5	40
2-3	30
2-5	50
2-6	75
3-6	40
3-8	70
4-5	60
5-6	20
6-7	20
6-8	50
7-8	70

(15 Marks)