5251

Name:
Reg.No.

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, JUNE 2010

CE.04.805 (F) – Urban Transportation Planning

Time: Three hours Maximum: 100 marks

(Answer all questions)

(8 x 5 = 40)

1 (a) Explain the need for an integrated approach to Transportation and land use planning.

(b) What is travel demand matrix? Explain briefly.

(c) Enumerate the factors to be considered for the selection of cordon line and zone boundaries for an urban transportations study.

(d) List out the factors affecting trip generation and attraction.

(e) Explain the concept of Gravity model.

(f) What do you understand by growth factor models?

(g) What are the factors affecting mode choice?

(h) Explain various trip assignment techniques.

2 (a) While explaining the hierarchical levels of transportation planning, discuss the characteristics of trip maker and their effect on travel demand estimation. (15)

OR

(b) With a flow chart, explain the problem definition phase of transportation planning process. Distinguish between Goals, Objectives, Constraints and Standards associated with Transportation planning. (15)

3 (a) How you will plan and collect the household travel date by road side interview survey? (15)

OR

(b) With suitable examples, explain and compare various trip generation models. (15)

4 (a) Estimate the future year trip distribution from the following base year using average growth factor method. (15)

Zone	A	B	C	Growth factor
A	0	50	100	2
B	50	0	150	3
C	100	150	0	4

OR

(b) Apply gravity model for the following data and calculate all trip interchanges (15)

$\ln F = -1.9 \ln d_{ij}$ Take all zonal adjustment factors as 1.

ZONE	PRODUCTIONS	ATTRACTIVENESS
I	4500	0
II	0	3
III	500	4
IV	0	5

TIME/COST MATRIX

Zone	I	II	III	IV
I	0	10	15	20
II	10	0	20	15
III	15	20	0	10
IV	20	15	10	0

5 (a) i) Distinguish between trip end and trip interchange mode split models. **(15)**

ii) 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	130	25
Bus	-0.35	80	40

How much parking fee should be imposed on car to bring the modal split to 50:50?

OR

(b) A simple network shown in Figure 1 below has two way links. The time cost of links is also shown. A, B, C and D are zonal centroids. Find the shortest path between all zonal centroids. **(15)**