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Name: .....

Reg. No. ....

**EIGHTH SEMESTER B.TECH. DEGREE EXAMINATION, DECEMBER 2011**

**CE.04.805F – Urban Transportation Planning**

Time: 3 hours

Max Marks: 100

**I Answer ALL questions**

- a. What are the different problems a transportation system in an urban area encounter?
- b. List out the travel attributes taken care of by a transportation planner for planning process?
- c. Define zoning. How is beneficial in transportation planning process?
- d. What are the different stages of transportation planning?
- e. What are the major concerns of urban city affecting trips generated by its residents?
- f. Explain any one of the growth factor models
- g. List out the factors that affect mode split in urban areas.
- h. How is transportation networks classified?

5x8=40marks

IIA. Explain the urban transportation planning process in a system engineering framework. 15

OR

B. What is the importance of travel demand analysis in the planning process? Explain the demand estimation process and the relevant outputs. 15

IIIA. i. What are the factors affecting trip generation and trip attraction rates of an urban corridor? 8

ii. What is meant by multiple regression analysis and what are its assumptions? 7

OR

B. i. Explain in detail any 2 methods of traffic data collection. 7

ii. What is meant by category analysis and give a critical analysis of it applicability. 8

IVA. A four zone city has 2 residential zones A and B generating 725 and 575 trips respectively. These trips go to two employment zones C and D attracting 875 and 425 trips respectively. The travel time in minutes between zones is AC=8, BC=10, BD=13 and AD=15. Friction factors( $F_{ij}$ ) corresponding to this travel times are 90, 60, 50 and 10 respectively taken from the gravity model. The socio economic factor  $K_{ij}=1$ . What is the distribution of trips? 15

OR

B. i. Explain the gravity model showing a sequence of activities by a flowchart. 8

ii. How is the opportunity model used for transportation planning? 7

VA. i. Distinguish between trip interchange modal split and Trip end modal Split models. 7

ii. Explain the use of diversion curves in trip assignment model. 8

OR

B. The calibrated utility function for travel in a medium sized city by automobile and bus are given by:  $U = a - 0.002x_1 - 0.05x_2$  where  $x_1$  is cost of travel in Rs and  $x_2$  is travel time in minutes. Calculate the mode split for the given values: 15

Mode	a	$x_1$	$x_2$
Automobile	-0.3	130	25
Bus	-0.35	75	35

(4x15=60 marks)