R09

Code No: C8702

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M.Tech I Semester Examinations, March/April 2011

URBAN TRANSPORTATION PLANNING

(HIGHWAY ENGINEERING)

Time: 3hours **Max. Marks: 60**

Answer any five questions

All questions carry equal marks

\- - -

1. a.) Write any three objectives of Urban Transportation planning? Explain overall transportation planning process including long-term and short-term planning process?
   b) List out various Urban Transportation Issues? Explain sequential and simultaneous approaches for demand estimation? [12]

2. a) What are the challenges in transportation systems planning? Explain methods of generation of alternatives.
   b) What are the urban system components? Explain the role of each component for the growth of urbanization in developing countries. [12]

3.a) Explain various methods of data collection? How do you generate Traffic analysis Zones? What are the advantages and disadvantages of road side interview method and home interview method?
   b) Describe various sampling techniques used for data collection? Write the role of expansion factors and accuracy checks? [12]

4.a) Explain various factors influencing trip production and trip attraction in view of Socio economic, locational factors, public transport and accessibility factors.
   b) List out the various methods of Trip generation, highlight how the Category analysis carried out, and explain the merits and demerits of the same.

5. a) List out various types of trip distribution models. Describe the concept of gravity model for trip distribution.
   b) Solve the problem shown in Fig. 1 using Detroit Method of Trip Distribution. Take initial growth factors F_1= 2.0; F_2 = 2.50: F_3 = 2.80 [12]

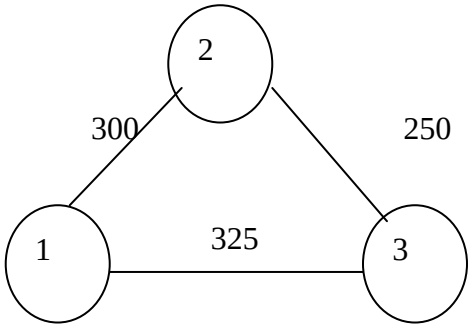

Fig 1

Contd….2

6. a) The number of trips produced in and attracted to the three zones 1,2 and 3 are tabulated as [12]

Zone	**1**	**2**	**3**	**Total**
Trips produced	28	66	56	150
Trips Attracted	66	56	28	150

As a result of calibration, the friction factors to be associated with the impedance values between the various zones have been found to be as follows:

Impedance Units	1	2	3	4	5	6	7	8
Friction factor	82	52	50	41	39	26	20	13

The impedance values between the various zones can be taken from the following Matrix:

OD	**1**	**2**	**3**
1	8	1	4
2	3	6	5
3	2	7	4

Distribute the trips between the various zones using gravity model.

b) Solve the problem shown in fig 2 using Furness method. Growth factors are F1 =2.25; F2 = 2.75; F3 = 3.15 and F4 = 2.50

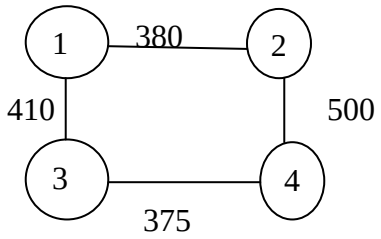

Fig 2

7. a) Find out the correlation co-efficient, values of a & b, standard deviation of regression, t-test for the significance. Take the following data.

X	2.4	1.80	1.1	1.2	1.4	1.3	1.6	1.5	2.3
Y	7.5	6.3	4.5	3.5	3.9	6.8	8.7	4.7	8.9

b) Write the various factors to be considered for choice of travel mode? Also describe the basic approaches for model split analysis. [12]

Contd….3

8. a) Explain the various factors affecting route choice. Describe the methods of route assignment, high light ALL or Nothing methods.

   b) The design year total person trips between the four zones distributed are shown in the table. The model spilt analysis shows 65/35 for private car vs public transport, as an overall split. The peak period car occupancy is 1.60 persons per car and 68 persons per bus. Develop the trip matrixes for the two modes i.e., car and buses and total vehicular trips. If the goods vehicles constitute about 10% of the person vehicle trips calculate the total vehicle trips. [12]

OD	A	B	C	D
A	-	2000	600	2800
B	450	-	600	580
C	650	1400	-	1680
D	350	400	530	-

*****