

GUJARAT TECHNOLOGICAL UNIVERSITYM. E. IST Semester–Remedial Examination – July- 2011**Subject code:711301N****Subject Name: Urban Transportation System planning****Date:07/07/2011****Time: 10:30 am – 01:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain the scope and objectives of Transportation planning? **05**
 (b) List out the types of data required for Transportation planning. **05**
 (c) Compare different modes of Transportation. **04**
- Q.2** (a) Explain the importance of home interview survey. **05**
 (b) What are land use models? Explain how are they useful in transportation planning? **05**
 (c) Explain the sequential and non-sequential approach for travel demand forecasting? **04**
- OR**
- (c) Explain with a neat flow diagram, various phases involved in transportation planning. **04**
- Q.3** (a) What is trip generation analysis? What are the factor affecting trip generation? **05**
 (b) A land-use zone consists of 2000 single family homes, 520 apartment units and 3 hotels with 600 rooms each. Calculate the daily vehicular traffic generated by this zone, using the following equations: **09**
 $T_s = 5 + 7.35U_s$ $T_a = 7.0 + 6.25U_a$ $T_h = 2 + 12 U_h$
 Where the subscripts S, a and h refer to homes, apartments and hotels respectively and T and U refer to Trips and housing unit respectively.
- OR**
- Q.3** (a) Write an explanatory note on category analysis method of trip generation. **05**
 (b) What care should be taken while dividing the area into zones? Also explain the various types of movements involved? **05**
 (c) Give classification of urban roads? Discuss about their accessibility & connectivity. **04**
- Q.4** (a) List various methods of trip distribution analysis? Explain fratar method? Explain why is it more reliable as compared to other growth factors method? **07**
 (b) An origin zone i with 20 base year trips going to j, k and l numbering 4, 6 and 10 respectively has growth rates of 2, 3, 4 and 5 for i, j, k and l respectively in 25 years. Determine the future tips form i to j, k and l in the future year. **07**
- OR**
- Q.4** (a) A four zone city has two 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 corresponding to these travel times are 90,60,50 and 10 respectively. The socioeconomic factor $k_{ij} = 1$. What is the distribution of trips? **07**

- (b) Give a comparison between direct generation usage mode and trip interchange usage mode? **07**
- Q.5** (a) What is trip assignment? Enlist various methods of trip assignment? Explain minimum path with capacity restraint? **05**
- (b) Write a note on Hansen's accessibility land use model? **05**
- (c) What is demand responsive transit system? State its advantages and disadvantage. **04**

OR

- Q.5** (a) The total trip volumes from zone 1 to 2 are 2000. Find the volumes on each route, connecting the two zones, using the details given below. Use TRC trip assignment model. **05**

Route No.	Length in km.	Speed kmph.	Travel time in minutes
1	2	30	4
2	1.7	20	5.1
3	1.0	05	12
4	2.5	15	10

- (b) What is meant by coordination in transportation? Enlist various methods of coordination? Explain any one? **05**
- (c) Discuss the advantages & disadvantages of BRTS in Ahmedabad city? Give your suggestions for improving it. **04**
