Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
M.E. Sem-I Examination January 2010

Subject code:711301
Subject Name: Urban Transportation System planning

Date: 20 / 01 / 2010   Time: 12.00 – 2.30 pm
                                                   Total Marks: 60

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?   **04**

    (b) What are the function of traffic engineering.   **04**

    (c) Compare different modes of Transportation.   **04**

Q.2 **(a)** What is trip generation analysis? What are the factor affecting trip generation?   **06**

    (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:
$Ts = 5 + 7.35Us$. $Ta = 7.0 + 6.25Ua$ $Th = 2 + 12 Uh$
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.   **06**

OR

    (b) Explain with a neat flow diagram, various phases involved in transportation planning.   **06**

Q.3 **(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 $kij = 1$. What is the distribution of trips?   **06**

    (b) Give a comparison between direct generation usage mode and trip interchange usage mode?   **06**

OR

Q.3 **(a)** Write an explanatory note on category analysis method of trip generation.   **04**

    (b) What care should be taken while dividing the area into zones? Also explain the various types of movements involved?   **04**

    (c) Explain the wordrop's criteria for the traffic assignment.   **04**

Q.4 **(a)** What is urban goods movement system? Explain using any one model.   **04**

    (b) Describe about road development plan from 1981 to 2001.   **04**

    (c) Give classification of urban roads? Discuss about their accessibility & connectivity.   **04**

OR

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? **06**

(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. **06**

Q.5 **(a)** What is trip assignment? Enlist various methods of trip assignment? Explain minimum path with capacity restraint? **04**

(b) What are land use transportation model. How are they useful in trip distribution analysis. Explain giving example. **04**

(c) What is demand responsive transit system? State its advantages and disadvantage. **04**

OR

Q.5 **(a)** Describe about planning for pedestrian cyclist and disable people. **04**

(b) What is meant by coordination in transportation? Enlist various methods of coordination? Explain any one? **04**

(c) Discuss the advantages & disadvantages of BRTS in Ahmedabad city? Give your suggestions for improving it. **04**

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