GUJARAT TECHNOLOGICAL UNIVERSITY
ME Semester –I Examination Feb. - 2012

Subject code: 711301N   **Date: 11/02/2012**
Subject Name: Urban Transportation systems Planning
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)** Write about transportation planning process and explain Stages in transportation planning with flow diagram.   **07**

(b) Describe transportation system characteristics.   **07**

Q.2 **(a)** Discuss Density saturation gradient method.   **07**

(b) Three residential zones 1,2,3 with 400, 500 and 700 resident workers and four employment zones (4,5,6,and 7) with 350, 450,500 and 300jobs are connected by a highway network having the following travel costs $t_{14} = 10$, $t_{15} = 12$, $t_{16} = 14$, $t_{17} = 15$, $t_{24} = 8$, $t_{25} = 9$, $t_{26} = 10$, $t_{27} = 12$, $t_{34} = 4$, $t_{35} = 6$, $t_{36} = 8$ and $t_{37} = 15$. Assume that b = 1.2. Find the actual and relative zonal accessibility of the residential zones.   **07**

OR

(b) A four zone city has the following characteristics,   **07**

Zone	Total existing population	Holding capacity
1	3000	300
2	2500	280
3	9000	500
4	4500	350

The travel time in minutes are as follows;

To j \ From i	1	2	3	4
1	5	10	12	15
2	10	4	9	20
3	12	9	3	14
4	15	20	14	6

If the city is likely to grow by 18% overall in 15 years, what would be the likely population located in each zone in the horizon year? An exponent of 1.8 can be used.

Q.3 **(a)** Discuss factors affecting trip generation and list out assumptions in multiple linear regression analysis.   **07**

(b) The number of trips produced in and attracted to the three zones are as follows; **07**

Zone	1	2	3	Total
Trips produced	14	33	28	75
Trips attracted	33	28	14	75

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

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

The impedance values between the various zones can be taken from the following matrix;

O \ D	1	2	3
1	8	1	4
2	3	6	5
3	2	7	4

Distribute the trips between the various zones.

OR

Q.3 **(a)** Explain followings **07**
    (1) Purpose of traffic assignment
    (2) Fratar method

(b) Discuss followings **07**
(1) factors affecting the modal split.
(2) Calibration of Gravity model

Q.4 **(a)** Discuss Zoning , screen line and cordon line **07**
(b) Write note on **07**
    (1) Intelligent Transportation system.
    (2) Urban transport policy

OR

Q.4 **(a)** Write about mass transportation system **07**
(b) Write note on followings **07**
    (1) Demand responsive transportation system
    (2) Urban goods movement

Q.5 **(a)** Explain Lowry model **07**
(b) State various assignment techniques and explain in detail all or nothing assignment. **07**

OR

Q.5 **(a)** Describe basic difference between traffic engineering and Transportation engineering. Also describe various scope and function of transportation. **07**
(b) Discuss role of road in India's economy **07**

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