Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER I (NEW) – • EXAMINATION – SUMMER 2016

Subject Code: 2711301 **Date:18/05/2016**

Subject Name: Urban Transportation system planning

Time:02:30 pm to 05:00 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)** Transportation planning maybe viewed as rational intellectual process and as a political process. Briefly describe the main features of these two perspectives? **07**

(b) Briefly describe the process of organizing and carrying out transportation planning? **07**

Q.2 **(a)** What sorts of information are typically contained in a proposal for a transportation planning study? **07**

(b) Write a note on route assignment techniques. **07**

OR

(b) Discuss the stages involved in transportation planning? **07**

Q.3 **(a)** What is travel demand analysis? List factors influencing travel demand? **07**

(b) Discuss cross classification method of trip generation analysis? **07**

OR

Q.3 **(a)** Explain the significance of transportation surveys in transportation planning process? **07**

(b) Prepare a Questionnaire for home interview survey? **07**

Q.4 **(a)** List various spatial interaction models? Discuss gravity model for trip distribution? **07**

(b) Explain the calibration process for gravity model? **07**

OR

Q.4 **(a)** The trip generation model is calibrated for zonal attractions in an urban area. **07**

A = 3.47EMP+59.24RFS+235.42 Where

EMP=Zone employment, RFS= Retail floor space in the zone. Using this relation estimate trip attraction for the zones described in table below

Zone no	Employment in numbers	Retail floor space in sqmt
1	3400	210
2	5600	75
3	3900	35
4	2200	80

(b) A Market segment consists of 500 individuals. A multinomial logit mode choice model is calibrated for this market segment, resulting in following utility function **07**

$u = B_M - 0.30C - 0.02T$

Where C=out of pocket cost, T= Travel time in minutes,

Transit type	B_M	T in minutes	C in Rs
Bus	0.00	30	1.0
Rail	0.40	20	1.50
Auto	2.0	15	2.50

Predict the number of trips by each mode from the market segment.

Q.5 Using a gravity model with an impedance term of the form C^{-a}, estimate the number of trips from zone 1 to all other zones, a=1.90. **14**

Zone	Travel time to zone 1 in minute	Productions	Attractions
1	0	20000	10000
2	10	15000	30000
3	20	30000	18000
4	15	25000	10000
5	30	18000	40000

OR

Q.5 **(a)** Give classification of transit systems? Discuss salient features of various types of transit systems? **07**

(b) What are land use transportation models? Discuss its significance? Explain Lowry land use model? **07**

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