Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– I (New course)• REMEDIAL EXAMINATION – SUMMER 2015

Subject Code: 2711301 **Date:14/05/2015**

Subject Name: **Urban Transportation System Planning**

Time: 10:30 am to 1:00 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: Urban transportation systemsô objectives and M.O.E. **07**

(b) Compare Metro Rail Transit with Bus Rapid Transit System. **07**

Q.2 **(a)** What is trip generation? What are the factors affecting it? **07**

(b) Briefly discuss about the para-transit systems and their importance. **07**

OR

(b) Develop the trip generation equation using linear regression for the following data. What would be the coefficient of determination? **07**

No. of Workers in House Hold	1	2	3	4	2	5	6	3	4	1
Trips per day	3	5	6	7	4	10	12	7	9	2

Q.3 **(a)** Explain briefly Gravity model with its limitations and advantages for trip distribution analysis. **07**

(b) A study area has been divided in three zones A, B, C . The present trip distribution matrix is given with future total trip productions and trip attractions. Develop the future trip distribution matrix using average growth factor method. **07**

Do iteration process up to 1 stage.

D / O	A	B	C	Total present production	Total future production
A	200	250	150	600	900
B	250	100	300	650	1000
C	350	150	200	700	1200
Total present attraction	800	500	650	1950	-
Total future attraction	1300	800	1000	-	3100

OR

Q.3 **(a)** What are the factors affecting individualôs choice of the travel mode? Briefly discuss about Logit models for modal split analysis. **07**

(b) Explain trip-interchange type of mode choice model. **07**

Q.4 **(a)** What is the importance of route assignment in travel demand modeling? What is óAll-or-nothingô assignment? **07**

(b) Explain TRC trip assignment model procedure. **07**

OR

Q.4 **(a)** Explain Lowryôs land use model. **07**

(b) A small 3 zone city has following data: **07**

Zone	Total existing population	Holding capacity (acres)
1	2000	300
2	3000	200
3	4000	100

The travel times (minutes) are given in following table

D / O	1	2	3
1	3	5	7
2	5	2	6
3	7	6	3

Assume travel time exponent = 2. If the population of the city is expected to rise to 15000 in future, how will the population be distributed by zone? Assume that the total employment in each zone is proportional to the total existing population in that zone.

Q.5 **(a)** Explain briefly about óUrban Goods Movementô. **07**

(b) Explain with sketches different types of urban street networks. **07**

OR

Q.5 **(a)** Define the following terms and show them on a sketch of study area. **07**
(i) Cordon line, (ii) Zones, (iii) Centroid of zone, (iv) Intra-zonal trip, (v) Inter-zonal trip, (vi) Screen line, (vii) Desire line.

(b) How will you evaluate the existing mass transportation system? What will you suggest to improve the ridership in the mass transportation system? **07**

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