GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (Old) EXAMINATION – WINTER 2019

Subject Code: 170604   **Date: 23/11/2019**

Subject Name: Urban Transportation System

Time: 10:30 AM TO 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)**	Define urban area as per Indian Census 2011 and explain urbanization cycle.	**07**
	(b)	Write short note on (i) All-or-nothing route assignment technique (ii) Gravity model for trip distribution	**07**

Q.2 **(a)** What is modal split analysis?   **07**

Two zones A & B are connected by two lane two way road and travel time (tt) by bus and car is 19 and 13 minutes respectively. The probability of choosing car mode is given by equation:

$Pc = \dfrac{1}{1 + e^{-u(x)}}$ where u(x) = 0.9 – 0.1 (tt$_{car}$ – tt$_{bus}$)

If the total person trips between A to B and B to A are 420 and 590 respectively then find two way volume in cars per day between the two zones given that average car occupancy is 3 persons.

(b) The matrix below shows present trip distribution. Determine future trip distribution by using Fratar growth factor method. Carry out one iteration only.   **07**

O\D	A	B	C	D	Growth Factor
A	--	40	55	50	1.2
B	40	--	60	75	1.4
C	55	60	--	80	1.4
D	50	75	80	--	1.6
Growth Factor	1.2	1.4	1.4	1.6	

OR

(b) The number of trips and income in thousands for six residences are given in the following table. Develop a linear regression equation from the given data and give your comment.   **07**

Number of Trips	Income in Thousands
8	100
5	57
3	12
6	72
4	31
5	61

Q.3	**(a)**	Explain in detail role of transportation.	**07**
	(b)	What are the merits and demerits of public transportation system?	**07**

OR

Q.3 **(a)** Justify the statement: "Travel demand is a derived demand" **07**

(b) Write a short on BRTS. **07**

Q.4 **(a)** Explain home interview survey and road side interview survey. **07**

(b) Explain briefly urban class groups. **07**

OR

Q.4 **(a)** What is zoning? Explain the coding system for traffic analysis zones. **07**

(b) Define cordon line. Enlist the points to be considered while deciding external cordon line. **07**

Q.5 **(a)** Explain transportation system management strategies. **07**

(b) Explain different types of urban forms. **07**

OR

Q.5 **(a)** Explain bus transport route planning. **07**

(b) Explain different types of urban structure. **07**

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