Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – SUMMER • 2015

Subject Code: 170604 **Date:06/05/2015**

Subject Name: Urban Transportation System

Time: 02.30pm-05.00pm **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 the urban form and urban structure. Also explain by drawing flow diagram urbanization cycle taking place. **07**

(b) What are the factors affecting travel demand? Explain sequential demand analysis. **07**

Q.2 **(a)** Explain study area, zones, cordon lines. Describe the various transportation surveys to be carried out for urban transportation planning **07**

(b) Explain by drawing flow diagram system approach to transport planning. What are the stages of transport planning? **07**

OR

(b) Give the various factors affecting the trip generation. Explain the linear regression method of trip generation. **07**

Q.3 The following information was collected during survey of city having 8 zones **14**

Travel zone	population(in thousands)	Trips (in hundreds)
1	25	11
2	27	10
3	31	17
4	32	14
5	23	13
6	31	16
7	20	09
8	25	13

Develop the linear regression equation for estimating trip generation

OR

Q.3 A study area is divided in to four zones 1,2,3 and 4 the present trip distribution And future trips are mentioned in matrix. **14**

D / O	1	2	3	4	Total present	Future trips
1	--	50	60	30	140	280
2	40	--	70	20	130	390
3	20	60	--	40	120	300
4	50	70	30	--	150	220
Total present	110	180	160	90	--	
Future trips	200	500	340	150		1190

Develop future trip distribution matrix by following methods

(1) average growth factor (2) Detroit method (3) furness method

Q.4 **(a)** draw sketch showing " point segment" and " corridor model " also explain segment capacity and corridor traffic study. **07**

(b) Explain corridor identification and corridor traffic forecasting. **07**

OR

Q.4 **(a)** What is the necessity of traffic assignment? Enlist methods, describe in detail any one. **07**

(b) Explain with formula giving each parameters ' Gravity model' for trip distribution. **07**

Q.5 **(a)** What are the famous modes of travel at urban level? Describe the factors affecting modal split. **07**

(b) Explain in detail probit analysis and Logit analysis for modal split. **07**

OR

Q.5 A town consists of four residential areas 1,2,3 and 4 and two employment producing nodes A & B trip generation equation shows that for design year in equation trips from residence to work are as follows **14**

Zones	trips produced
1	1200
2	2400
3	1700
4	3100

there are 4000 jobs in node A and 4400 jobs in node B

It is known that attraction between zones is inversely proportional square of journey time between zones. The journey time is given as follows (time in minutes)

zone	A	B
1	25	20
2	24	13
3	11	15
4	17	21

Calculate and tabulate inter zonal trips using gravity model from home to work

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